



# GENERAL DENTIST'S AWARENESS OF LASER APPLICATION IN DENTISTRY

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## ABSTRACT

**Objective:** The aim of this study was to assess the knowledge of Ardabil general dentists about Laser applications in dentistry.

**Methods and Materials:** This is a cross sectional descriptive study that has been done on 87 general dentists in Ardabil city. Data collected by a questionnaire and then analyzed by statistical methods in SPSS.19.

**Results:** Of all dentists, 82(94.3%) pointed that only have heard something about Laser. 21 (24.1%) stated that have studies about Laser. Only 2 persons (2.3%) have practical and clinical usage of this method. 60 people (69%) had willing to participate in training courses. The relationship between gender with dentists safety awareness wasn't significant. There are significant differences in general and specialized knowledge between two gender ( $p=0.024$ ,  $p=0.002$ ).

**Conclusion:** Results showed that Ardabil general dentists have lower awareness about laser, so raising awareness and informing about application of laser is essential.

**Key Words:** Awareness, General dentists, Laser, Dentistry

## INTRODUCTION

We have encountered, in history of science, with a phenomenon such as laser invention which has attracted all people attention and reach of human dreams into reality. Laser is the most advanced light source and has been composed of the initials of words Light Amplification by Stimulated Emission of Radiation.<sup>1</sup>

In laser therapy has been used in dentistry as an adjunct or alternative to conventional approaches. In recent years, several studies have been conducted on the clinical applications of laser in dentistry.<sup>2</sup>

A range of lasers is now available for use in dentistry. Once regarded as a complex technology with limited uses in clinical dentistry, there is a growing awareness of the usefulness of lasers in the armamentarium of the modern dental practice, where they can be used as an adjunct or alternative to traditional approaches.<sup>3</sup>

Currently laser is one of the most useful tools need in life. The use of laser in dentistry has been developed over the last three decades. Initially it was introduced as an alternative to traditional halogen curing light but now

it has become the instrument of choice in many dental applications.<sup>4</sup> The scope of this technology has been extended to all aspects of modern life including industry, hospitals, shopping centers, military bases, and communication. Of laser applications in medicine and dentistry, we can point to eye surgery, wound healing, hair removal, diagnosis, removal and treatment of oral lesions, root canal therapy, dental restoration, Bleaching (whitening), dental canal sterilization and dental caries diagnosis.<sup>5-7</sup>

Laser has some unique properties compared to conventional light and for reason widespread of this science application in medicine and dentistry, still does not exist true and complete understanding and knowledge of this technology. In addition to the familiarity with the use of this technology, protection against laser radiation is also very important.<sup>1</sup>

Due to the excessive use of lasers in dentistry and necessary knowledge about it, the aim of this study was to assess the knowledge rate of general dentists about laser and its application in dentistry.

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**Received:** 11.03.2015    **Revised:** 09.04.2015    **Accepted:** 28.04.2015

## METHODOLOGY

This is a cross sectional descriptive study that has been done on 87 general dentists in Ardabil city. Necessary data collected by a research based questionnaire include 29 questions which completed by interview. Data analyzed in SPSS.19 using descriptive and analytical statistical methods.

## RESULTS

Of all dentists, 62(71.3%) were male and rest of them were female. 39(44.8%) of them graduated after 2006 and rest of them before 2006. The mean of graduation time in dentists was  $12.1 \pm 6.7$  (range 1 – 40 yr)

71 (81.6%) of all dentists, had accurate knowledge about the nature of the laser. 82(94.3%) of them have knowledge about use of laser in dentistry. Dentist's information resources about the use of laser in first rank were book with 18.4% and then other resources. Of all dentists, 60 (69%) have willingness to participate in training courses and 2.3% of them used laser currently.

70(80.5%) of them was felt that having a laser device, all dental work had been done. (Table 1)

79(90.8%) of them believed that the use of laser requires special safety. (Table 2)

Only 4.6% of all dentists have true response about the most widely used type of laser in dentistry. (Table 3)

**Table 1: General Knowledge about laser application in dentistry.**

Response Questions	True		False		Total	
	N	%	N	%	N	%
With have a laser, all dental work will done	70	80.5	17	19.5	87	100
The use of laser use is different in soft and hard tissues	80	92	7	8	87	100
With the purchase of laser can be easily used it	60	69	27	31	87	100
Work with laser device need to spend a specific training course	81	93.1	6	6.9	87	100
The use of laser is effective for admissions	54	62.1	33	37.9	87	100

**Table 2: Knowledge rate about laser immunity in dentistry.**

Response Questions	True		False		Total	
	N	%	N	%	N	%
Dose the use of laser need for safety?	79	90.8	8	9.2	87	100
Which persons need for laser safety?	75	86.2	12	13.8	87	100
Which is more vulnerable members?	56	64.4	31	35.6	87	100
Does the lack of laser safety, may cause fires?	66	75.9	21	24.1	87	100

**Table 3. Knowledge rate about specialty use of laser in dentistry.**

Response Questions	True		False		Total	
	N	%	N	%	N	%
Most applied laser type in dentistry	4	4.6	83	95.4	87	100
Better laser for hard tissue	7	8	80	92	87	100
Better laser for soft tissue	5	5.7	82	94.3	87	100
Better laser for Teeth Bleaching (Whitening)	4	4.6	83	95.4	87	100
Better laser for Caries	16	18.4	71	81.6	87	100
Better laser for Sterilizing canal	3	3.4	84	96.6	87	100
Better laser for Seal bleeding	7	8	80	92	87	100

The mean of obtained knowledge scores about immunity in the use of laser in dentistry was  $3.2 \pm 0.8$ . The rate of general knowledge in the use of lasers in dentistry between dentists with 61% was in the moderate level. The rate of knowledge about immunity in the use of lasers in dentistry between dentists with 48.3% was in the good level. The rate of specialized knowledge in the use of lasers in dentistry between dentists with 93.2% was in the week level. (Figure 1)

The mean of obtained scores about total awareness in the use of laser in dentistry was  $7.66 \pm 1.85$ . Most of dentists have total knowledge rate in moderate level (84.7%). (Figure 2)

There wasnt any significant differences between time of graduation of dentists with all levels of knowledge about laser. There were significant differences between male and female dentists with specialty and total knowledge about laser. ( $p=0.002$ ,  $p=0.024$ )

## DISCUSSION

The rate of total knowledge about laser application in dentistry was about 96.4% which was similar to Bagheri and et al study in Rasht. (5) The reasons for lower rate of dentist's awareness can be non attended training courses, non-credit courses offered in the university, being a new technology and the need for high-cost and proper devices for use in the office. There wasn't any significant differences between dentists sex and time graduation with knowledge rate about immunity in laser, therefore male and female dentists with each time graduation have similar knowledge. There was significant difference between dentist's sex and their specialized and total knowledge about laser application in dentistry. ( $P=0.002$ ,  $P=0.024$ ), but there wasn't any significant difference between dentist's time graduation and their specialized and total knowledge about laser application in dentistry. The special awareness about laser difference between female and male dentists can be due to their sensitivity in learning subject and on the other hand time graduation hasn't effective on their specialized knowledge about laser. Result of this study showed that of all general dentists 71 (81.6%) pointed out true about the nature of the laser which indicates a good level of knowledge in this field. Safe use of lasers is also one of the important concerns in the use of laser therapy. With the availability, utilization and future development of different laser wavelengths and methods of pulsing, much interest is developing in this growing field. (9). 66 (75.9%) of dentist stated that not have any studies about new laser uses methods and compare with Bagheri and et al study more encourage for study about laser is necessary. 60 (69%) of all dentists has tended to participate in training courses which similar to bagheri study this rate is low and to promote the use of lasers in dentistry we must done more work among general dentists in the Ardabil city. In this study, rate of total knowledge about laser was 33.3% and so increasing the background knowledge of general dentists about laser by holding educational and expert workshops, training courses by experts, seminars and providing relevant advertising brochures is essential. In Tosun and et al study in turkey most of patients have low knowledge about laser treatments and patients with higher levels of education tend to have more information about the usage of lasers in dentistry. (10)

In the otherhand, according to benefits of laser use in dentistry services, more referral patients to dentists and dentists need for laser, holding seminars and workshops to provide a theoretical and practical content is important. 6.7% of dentists have true response about specialized knowledge about laser application in dentistry which indicating the weakness of dentists specialized knowledge of the use of lasers in dentistry, Lack of dental community effort to provide training in this field and non want-

ing to practice in the field of health in Iran and we must doing fundamental actions for recovery this condition, because this method of treatment Can meet the health needs of the community with the most convenient methods and least amount of pain, cost and time. In recent years many efforts have been done in our country and other countries by holding seminars, educational and practical workshops about laser application in dentistry to promote the knowledge of dentists.

## CONCLUSION

Results showed that Ardabil general dentists have moderate awareness about laser application in dentistry, so planning to raise awareness of dentists about laser by various methods is essential.

## ACKNOWLEDGEMENT

This study financially supported by faculty of dentistry in Ardabil university of medical science and we tanks all physicians which response to our questionnaires.

**Conflict of Interest:** none declared

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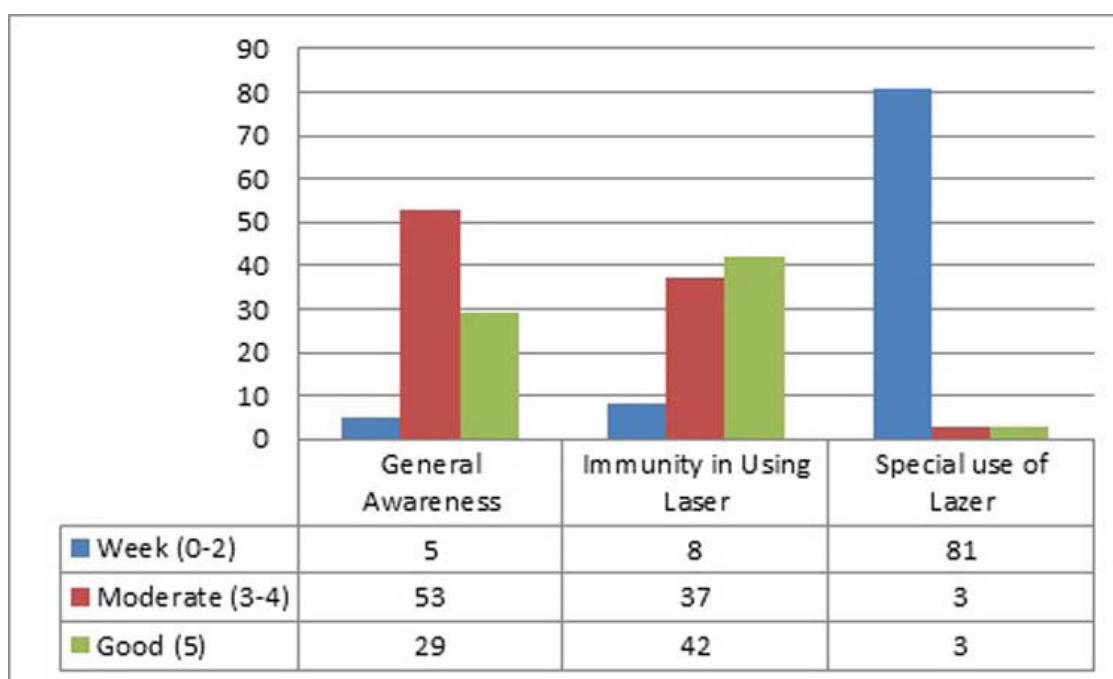


Figure 1: The type of awareness rate of dentistis about laser applied

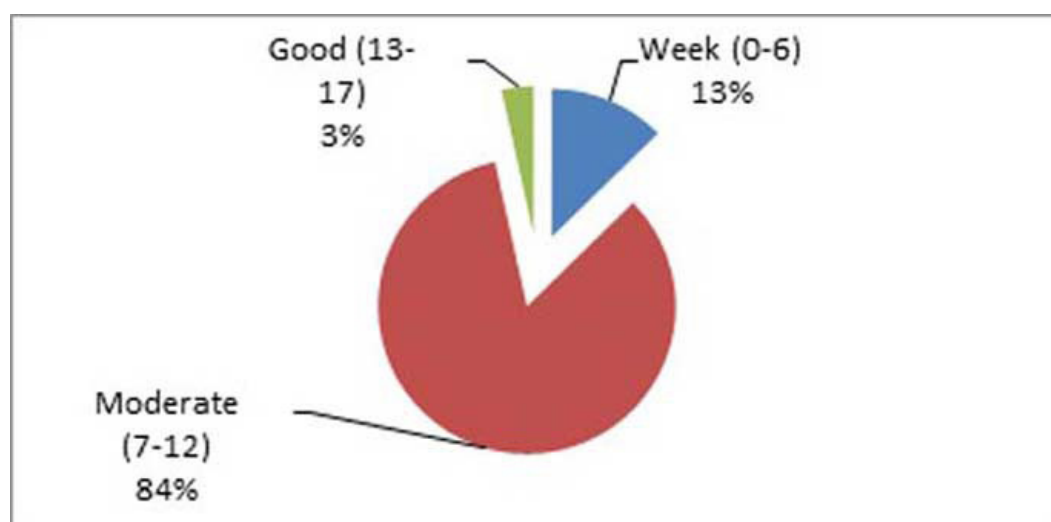


Figure 2: Total awareness rate of dentistis about laser applied