

## Original Research

### Knowledge and awareness of Nicotine Replacement Therapy among dental professionals in India

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#### ABSTRACT:

**Background:** Consumption of tobacco is very hazardous to the general physical and oral health. Its use has been linked with a variety of respiratory diseases, cardio-vascular disorders along with various neurological symptoms. Its usage leads to deterioration of oral and dental health by the quickening of disease severity and progression specially, the periodontal diseases. Despite a subject's willingness, it is impossible for most to quit its usage mainly due to lack of encouragement and moral support. In this perspective, dental health-care professionals play a key role towards motivation and advising tobacco users to quit the habit. **Aim:** The aim of the study was to assess the knowledge and awareness of Nicotine Replacement Therapy among dental professionals in India. **Materials and methods:** A total of 300 dental practitioners participated in this cross-sectional descriptive questionnaire-based study. The study questionnaire was mailed through electronic mail. Statistical analysis was performed by using descriptive statistics. The collected data was assessed through using the Fisher's exact test and a  $P < 0.05$  was considered statistically significant. **Results:** 56.1 % of study subjects possessed knowledge pertaining to tobacco cessation using the Nicotine Replacement Therapy. Out of these, 56.2 % of dentists demonstrated good attitude while only 28.9 % of dental practitioners actually prescribed this therapy in their routine clinical dental practice. **Conclusion:** Most of the studied dental practitioners were found to have an adequate knowledge of Nicotine Replacement Therapy. However, only few were actively seen to practice this treatment modality.

**Keywords:** Nicotine, replacement, tobacco, cessation, therapy, dentists.

Received: December 16, 2020

Accepted: January 18, 2021

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**This article may be cited as:** Sepolia S, Gulati S. Knowledge and awareness of Nicotine Replacement Therapy among dental professionals in India. J Adv Med Dent Scie Res 2021;9(1):123-127.

#### INTRODUCTION

Nicotine 1-methyl-2(3- pyridyl) pyrrolidene is an extremely addictive compound or drug which has a psychoactive nature and is derived from tobacco plant. This compound is mainly responsible for the occurrence of withdrawal symptoms in those who attempt to quit tobacco.<sup>1</sup>

There is an increase in trend of use of tobacco among the general population as well as among the dental professionals. Thus, it is important to assess the knowledge, awareness and practice of Nicotine Replacement Therapy (NRT) as part of tobacco

cessation practice among the budding dental professionals.<sup>2</sup>

Use of tobacco can significantly impair oral health which includes both hard as well as soft tissues. The tobacco tar can deposit on both soft as well as hard tissues which result in staining of teeth while benzopyrenes cause stimulation of melanocytes to cause melanin production which may lead to smoker's melanosis. Carbon monoxide exposure in tobacco smoke results in hypoxia of tissues, reduces the flow-rate of saliva along with reduction in salivary pH. Nicotine acts as a vasoconstrictor by reducing perfusion of blood, thereby, diminishing nutrient and oxygen

supply to soft tissues of oral cavity. Use of tobacco is a major contributory factor for development of halitosis as there is an increase in halitosis due to volatile sulphur compounds that are present. There is a direct dose-dependent association of tobacco use with loss of teeth. 59 % of patients reporting to dental clinics expect cessation services from their dentists.<sup>3, 4, 5</sup> There is a dose-dependent response associated between smoking of tobacco and occurrence of oral pre-cancerous and cancerous lesions. Individuals who smoke cigarettes are at 5 to 10 times higher risk of development of oral and oro-pharyngeal carcinomas.<sup>6, 7, 8</sup>

Tobacco cessation is an integral part of dental health care services. However, awareness along with knowledge among budding dental professionals i.e., both the undergraduate and postgraduate students along with the dental professionals is an important confounding factor. Tobacco is among the main causes which lead to non-communicable and preventable diseases which may result in significant disability along with premature mortality. The GATS or Global Adult Tobacco Survey, India (2009-2010) reported that a total of 34.6 % population uses tobacco of which 20.6 % consume it in smokeless form, 8.7 % use smoked form while 5.3 % use both smoked as well as smokeless forms. According to this survey, the average age at which an individual begins use of tobacco is 17.9 years. However, out of 10 tobacco smokers or chewers, 5 % exhibit their willingness for quitting tobacco use. Dentists form an essential part of health-care system who meet patients more frequently and remain in interactions for a longer period of time. If a dentist implements a tobacco cessation protocol in his or her's practice, they can achieve for up to 10 % to 15 % of quitting rate.<sup>9, 10</sup>

The major confounding factor that helps in explaining the reluctance of dental professionals and hygienists in providing services pertaining to cessation of tobacco habit may be attributed to time which is required for cessation of tobacco use. This may be attributed to time which is required patient counseling, resistance offered by patients and inadequate knowledge regarding referral to a specialist.<sup>11, 12</sup>

There are only 3 % of tobacco users who may quit by means of their will-power. Only 3 minutes of

counseling may help 2 % of patients to quit their habit of smoking while 6% cease complete tobacco consumption after receiving 12 minutes of tobacco cessation counseling.<sup>13, 14</sup>

Thus, the aim of the study was to assess the knowledge and awareness of Nicotine Replacement Therapy (NRT) among dental professionals in India.

## MATERIALS AND METHODS

This is a descriptive and cross-sectional survey study. Study data was collected from 300 private dental practitioners. A detailed questionnaire was sent to all practising dentists via electronic mail. A pilot survey was undertaken for testing the study's feasibility which included- assessment regarding clarity; validity along with applicability of the questionnaire (table 1).

Prior to conducting this survey, clearance was obtained from Institutional Ethical Committee. Written informed consent was obtained from selected participating dentists. Total time period taken for collecting data was three months. Data collection was performed using a close-ended and validated questionnaire which consisted of two main headings-

- a) Socio-demographic data;
- b) Assessment of knowledge, attitude and practices regarding Nicotine Replacement Therapy for tobacco cessation program.

Statistical analysis: The collected data was statistically analyzed by using the Fisher's exact test. The level of significance was maintained at  $p < 0.05$ .

## RESULTS AND OBSERVATIONS

A total of 300 dental practitioners responded to the study questionnaire, of which 48.6% were males, and 51.4 % were females. 80.8 % of study participants belonged to age-group of 25 to 35 years, while 12.1 % and 6.1% belonged to 36 to 50 years and above 50 years age groups, respectively.

It was observed that 56.1 % of study participants had knowledge regarding tobacco cessation using the Nicotine Replacement Therapy 56.2 % of dentists had good attitude while only 28.9 % of them actually practiced it in their routine clinical practice.

**Table 1:** Questionnaire design used in the study

### I. General questions regarding knowledge of NRT:

1. Have you heard about Nicotine Replacement Therapy?

- (a) Yes
- (b) No

2. Can NRT be used as an integral component of cessation of smoking habit?

- (a) Yes
- (b) No

3. In which of the following form(s), Nicotine Replacement Therapy can be prescribed?
- (a) Nicotine chewing gums
  - (b) Transdermal nicotine patches
  - (c) Intra-nasal nicotine spray
  - (d) Any one of the above

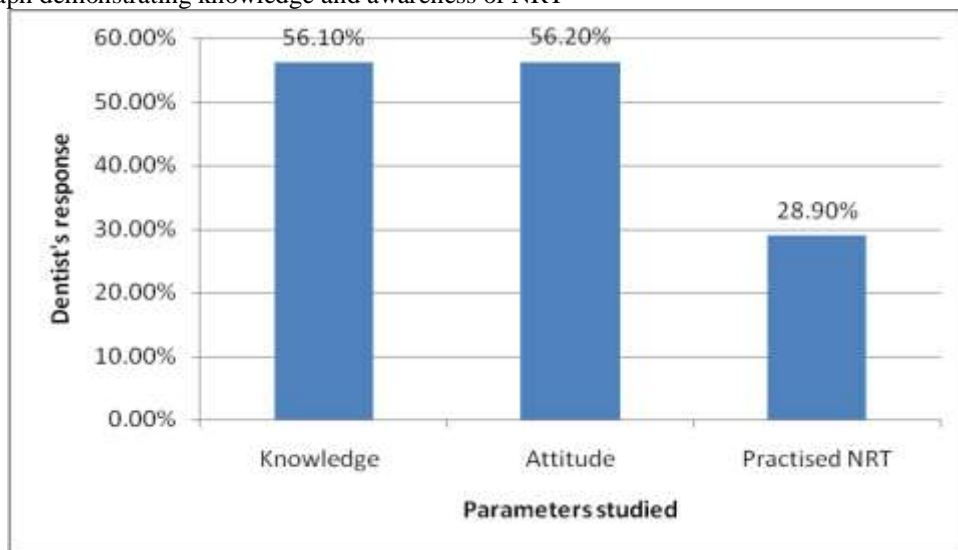
**II. Questions regarding the attitude towards Nicotine Replacement Therapy:**

1. Do you motivate patients for cessation of tobacco use by prescribing nicotine replacements?
  - (a) Yes
  - (b) No
2. Do you think motivating patients for tobacco cessation is time consuming activity outside of clinical practice?
  - (a) Yes
  - (b) No
3. If your answer is “No,” how do you perform the cessation programme?
  - (a) Counselling
  - (b) Use of pharmacological methods
  - (c) Both of the above

**III. Questions regarding implementation of Nicotine Replacement Therapy:**

1. Do you maintain records on tobacco usage and cessation period?
  - (a) Yes
  - (b) No
2. Which type of media do you prefer for gathering information regarding Nicotine Replacement Therapy?
  - (a) TV and radio programmes
  - (b) Internet/social media
  - (c) Newsletters, pamphlets etc.

Graph 1: Graph demonstrating knowledge and awareness of NRT



**DISCUSSION**

Tobacco is consumed as a drug for recreation which contains an alkaloid, nicotine. Hence, its usage in common public along with health professionals is towards a higher side and is gradually demonstrating an upward trend. However, dental practitioners play a key role in detecting oral mucosal lesions related to tobacco

usage and can actively participate in tobacco cessation therapies of which most commonly used is the Nicotine Replacement Therapy. In present study, it was found that 56.1 % of studied dental practitioners were aware of this therapy while only 28.9 % of dentists regularly performed tobacco cessation in their clinical practices. There is an extreme variability reported from across the

world in knowledge and attitude of dental professionals in practice of nicotine replacement therapy.

Kiyani et al in 2020 reported that 71 % of dental practitioners were aware of nicotine replacement therapy through use of therapeutic devices such as nicotine containing gums and patches. However, only 37 % of those practicing dentistry offered Nicotine Replacement Therapy, of which 34 % advocated it only for cessation of smoking habit. 59 % of dental practitioners felt that they were not competent for providing services for tobacco cessation.<sup>15</sup>

Ayyad et al (2020) in their study reported that 92.6 % of dental students were of the view that a dentist plays an important role in control of tobacco use and believed that adequate training will allow them to help patients in quitting this habit. However, 56.6 % provided their patients only advice with no counseling or cessation techniques. However, only 4 % of students reported with habit of smoking.<sup>2</sup>

In an observational study performed by Gaidhankar et al (2020) on awareness and implementation of nicotine replacement therapy among dental and medical stream interns in Davangere, Karnataka, India, no statistically significant difference ( $P < 0.06$ ) was observed in their knowledge levels regarding this therapeutic approach. However, on comparing the interns of both streams, dental interns had more awareness and positive attitude towards this therapy when compared to medical internees.<sup>16</sup>

Madhu et al in 2019 in their study reported that 50 % of dental students recommended Nicotine Replacement Therapy as part of tobacco cessation protocol of which 48 % practiced self-quitting and 1.2 % used pharmacological methods to aid in quitting the habit.<sup>17</sup>

Shah et al in 2017 found that the major barrier in practice of Nicotine Replacement Therapy for discontinuation of tobacco use was a wide percentage (54.2 %) of unawareness regarding this therapy. Only 10 % of study participants had the confidence of practicing tobacco cessation by using Nicotine replacement methods. An attempt to quit tobacco usage by employing Nicotine replacement therapy can be divided into two stages. In the first stage, use of tobacco is continued at a lesser or decreased dose. At this stage, the reduction in supply of nicotine is compensated by therapeutic nicotine intake. In the second stage, any dependency on nicotine is checked or stopped by use of nicotine products. In most cases, insufficient knowledge can be attributed to a lack of implementation of tobacco cessation practices among dentists.<sup>1</sup>

In a study conducted by Ajagannanavar et al in 2015, it was noted that 54 % of undergraduate students pursuing Dentistry were aware regarding the effectiveness of nicotine replacement therapy as an aid for quitting smoking. 42 % of the students believed that use of transdermal patch is the most effective method to quit

smoking followed by chewing of nicotine gum. However, three-fourths of the study participants had no knowledge or awareness regarding nicotine replacement therapy which can be due to absence of this important facet in the study curriculum. 1/4<sup>th</sup> of the study respondents were unaware of the availability of Nicotine patches and gums at commercial level.<sup>18</sup>

Chandrashekhar et al (2011) in their survey on dentist's knowledge, attitude and behavior in India reported that 54.6 % of those practicing had lack of confidence for conducting tobacco cessation counseling while 10.6 % never enquired from their patients about use of tobacco while 17.6 % of surveyed dental professionals had habit of smoking tobacco themselves. It was observed that the average time spent over counseling sessions for quitting tobacco was less than two months. Use of tobacco is a significant risk factor for various oral diseases, for example, periodontal diseases, dental caries, oral precancer and cancer. Cessation of tobacco usage can cause reversal of precancerous conditions, improve outcomes of periodontal surgeries when compared to patients who do not quit its usage.<sup>19, 20</sup>

Agaku et al (2005) in their global survey assessed the knowledge about nicotine replacement therapy (NRT) among dental students belonging to 43 countries. It was observed that students belonging to the upper middle income and high income countries had higher odds ratios (OR = 0.52 and 4.55, respectively) when compared to those belonging to lower income countries. Also, no significant differences among gender pertaining to knowledge on nicotine replacement therapy were seen.<sup>21</sup>

## CONCLUSION

There is an urgent and pressing need for sensitization and training of dental professionals for treating nicotine dependence. Hence, sensitization and training programs are mandatory for the dental professionals especially during student phase. Despite some knowledge existing regarding the tobacco cessation programs, it is not practiced by most as counseling sessions consume clinical practice hours. Hence, an increase in awareness among those practicing is required for implementation of the pharmacological measures specially, nicotine replacement therapy which is widely available in various forms for use.

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