

# Nicotine Replacement Therapy in Dental Settings: An Exploratory Survey in Bangalore City, India

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## Original Article

### Abstract

**Background:** Smoking and other forms of tobacco use remain the most significant worldwide public health problem. The dental practice is being identified as potential location for smoking cessation activity. Nicotine replacement therapy (NRT) promotes the chances of tobacco cessation, however, evidence related to prescription of the NRT in dental settings is lacking. This study aimed to assess and compare the attitudes, practices, beliefs, and barriers in prescribing NRT for tobacco cessation among dental interns and post-graduates (PGs).

**Methods:** For a cross-sectional survey among 232 participants from 10 dental colleges in Bangalore, India, a 21-item questionnaire was developed: 11-item based on attitudes and practices toward tobacco cessation and 10-items regarding scope and challenges in prescribing NRT. The data were analyzed using descriptive statistics, chi-square test, and test of proportions.

**Findings:** Majority of participants reported ongoing tobacco cessation activity in their college. Statistically significant difference was found between interns and PGs for items related to tobacco cessation practice (assisting, providing follow-up visit). Regarding NRT, significant differences were seen for items related to practice (assisting, assessing motivation for NRT), belief (not an appropriate activity for dentist, a valuable resource, increase in quit attempts) and barriers (bitter taste, cost, and fear of addiction) ( $P < 0.050$ ). The majority of the PGs suggested cessation center followed by health care workers and pharmacists for the provision of subsidized nicotine gums.

**Conclusion:** Favorable practices and beliefs are seen regarding the prescription of NRT among interns and PGs although differences exist. Time, cost, and taste emerged as major barriers.

**Keywords:** Nicotine replacement therapy; Tobacco; Dental practice; Barriers

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## Introduction

Tobacco use and its hostile effects are known medical, dental and social concerns of global significance.<sup>1</sup> Its use is also a barrier to economic development in low-income countries due to morbidity-associated impairment of productivity and health-care costs.<sup>2</sup> Smoke and smokeless forms of tobacco have become steady companions of today's youth in India.<sup>1</sup>

In addition to being associated with a number of cancers and coronary conditions, tobacco plays a role in the etiology of a number of oral conditions; it is a primary risk factor for oral cancer as well as leukoplakia, periodontitis, and delayed wound healing.<sup>3</sup> The dental practice has been identified as a potential location for smoking cessation activity.<sup>4</sup> Dental surgeon has the unique opportunity to link the patient's presenting illness to his/her tobacco use and then prescribe tobacco cessation therapy.<sup>5</sup>

Helping people to stop smoking is one of the most effective ways of preventing premature death and reducing health inequalities. One element of tobacco control is the provision of smoking cessation advice and support in clinical settings. Furthermore, medications are available on prescription to all smokers who want to stop tobacco habits.<sup>6</sup>

Nicotine replacement therapy (NRT) provides a means of delivering nicotine that was formerly acquired through smoking and thereby relieves cravings for nicotine. Meta-analyses show that quitting with NRT has an odds ratio of 1.7 compared to quitting with placebo or no treatment. In addition to being effective, NRT is considered safe.<sup>6</sup> Furthermore, the wide availability of NRT in many countries has shown that they can be used safely and beneficially with little supervision.<sup>2</sup>

Evidence indicates that advice delivered through a dental practice is as effective as support provided by other primary care professionals. Second, dentists and their team members have access to a large proportion of the smoking population. Advice from dentists and other health care providers can be effective in motivating patients to quit smoking, and patients welcome such advice.<sup>4</sup>

As a part of the curriculum, interns and post-graduates (PGs) are expected to be involved

in tobacco cessation activities during their training period. However, the evidence is lacking regarding provision of tobacco cessation including NRT advice for patients in spite of the apparent appropriateness and value of the dental practice as a setting for smoking cessation. Thus, this study was undertaken with the aim:

- To assess and compare the attitudes and practices of dental interns and PG students toward tobacco cessation and NRT.
- To explore the scope and challenges in prescribing NRT for tobacco cessation.

## Methods

A cross-sectional study was conducted among interns and PG students studying in various dental colleges of Bangalore, India. Ethical approval for the study was obtained from Institutional Ethical Committee.

Prior to the commencement of the main study, a pilot study was conducted among 30 participants to assess the feasibility of the study and sample size estimation. The sample size of 232 (116 interns and 116 PGs) was achieved by consecutive sampling in 10 dental colleges in Bangalore city.

### *Inclusion and exclusion criteria*

Interns and PG students studying in various dental colleges of Bangalore city. Interns and PGs who are not involved in tobacco cessation counseling.

A 25-item self-structured questionnaire was developed for data collection. The first part consisted of socio-demographic variables such as age, gender, year of study, specialty and whether the participants had attended any workshop on tobacco cessation. The second part consisted of items related to attitudes and practice in tobacco cessation counseling. The third part had items on practice, belief and challenges in prescribing NRT in dental practice.

Content validation of the questionnaire was performed by three experts from the specialty of Public Health Dentistry (using Aiken's index), and reliability was assessed by test-retest reliability method after an interval of 15 days.

The final 21-item questionnaire consisted of two parts:

- 11-item based on attitudes and practices toward tobacco cessation.
- 10-item regarding practice, belief and

challenges in prescribing NRT.

The study was carried out by a single investigator during July-August 2014. Necessary permissions were taken from the administrative authorities of dental colleges. After obtaining informed consent and explaining the instructions to fill the questionnaire, the questionnaire was distributed to the eligible participants in the study groups (dental interns and PGs) during clinical hours. The completed questionnaire was collected from participants on the same day.

- The data collected were entered into Microsoft excel worksheet and analyzed using SPSS software (version 15, SPSS Inc., Chicago, IL, USA).

Descriptive statistics was computed. Student's t-test (unpaired), test of proportions and chi-square test were used as tests of significance. A  $P < 0.050$  was considered as significant.

## Results

The mean age of study participants was  $24.68 \pm 2.76$  years. Nearly, two-third (72.4%) of study participants belonged to age group 21-25 years and 72.0% were females. Among PGs, 52.0% belonged to specialty of Public Health Dentistry, 36.0% from Oral Medicine and Radiology (Table 1). Comparison of study groups based on attending workshop on tobacco cessation revealed significant difference between interns and PGs ( $P = 0.030$ ).

Practices related to tobacco cessation activity revealed that above 90.0% participants ask every patient about tobacco habit, majority advised every tobacco smoker to quit the habit whereas

further A's in tobacco control were followed differentially (Table 2).

**Table 1.** Demographic characteristics of study participants (n = 232)

Variable	n (%)
Age (year)	
21-25	168 (72.4)
28-30	64 (27.5)
Gender	
Male	65 (28.0)
Female	167 (72.0)
Qualification	
Interns	116 (50.0)
PGs	116 (50.0)

PGs: Post-graduates

About 30.0% of the study participants considered time as barrier; 12.5% of the participants felt that tobacco cessation was not an appropriate activity for dentists, 5.6% concerned tobacco cessation advice damages dentist-patient relationship, and around 5.0% lacked the confidence to incorporate tobacco cessation activities into consultations.

Statistically significant difference was observed between the study groups for practices related to tobacco cessation and NRT (Table 3).

Most of the study participants reported bitter taste, cost and fear of addiction as barriers to prescription of NRT and differences between groups were not statistically significant (Table 4). Most of the PGs favored cessation center/counselor regarding the provision of subsidized NRT gums followed by health care workers and pharmacists (Table 5).

**Table 2.** Practices related to tobacco cessation activity among study participants

Items	Always (%)	Sometimes (%)	Never (%)
Advice every tobacco user to quit habit	90.5	7.8	1.7
Assess patients' willingness to quit tobacco	9.5	34.5	56.5
Assist your patient by providing tobacco cessation counseling	49.5	32.5	18.5
Arrange referral for patients at cessation center	36.6	29.8	33.6
Assist in quitting by prescribing NRT	18.1	38.4	43.5

NRT: Nicotine replacement therapy

**Table 3.** Comparison of practice, attitude and barrier scores between study groups

Items	Mean difference	P
Practice related to tobacco cessation	$2.67 \pm 0.82$	0.001
Attitudes related to tobacco cessation	$0.21 \pm 0.14$	0.136
Barrier related to tobacco cessation	$0.09 \pm 0.13$	0.526
Practice related to NRT	$0.71 \pm 0.23$	0.003
Attitudes related to NRT	$0.20 \pm 0.25$	0.438
Barriers related to NRT	$0.39 \pm 0.24$	0.119

NRT: Nicotine replacement therapy

**Table 4.** Comparison of barriers towards nicotine replacement therapy prescription among study groups

Barriers	Total [n (%)]	Interns (%)	PGs (%)	P
	(n = 232)	(n = 116)	(n = 116)	
Bitter taste	148 (63.8)	63.80	63.78	0.890
Cost	158 (68.1)	65.02	71.54	0.250
Fear of addiction to NRT	133 (57.3)	62.94	51.71	0.080

NRT: Nicotine replacement therapy

**Table 5.** The opinion of PGs regarding provision of subsidized nicotine replacement therapy gums

Specialty	Public health dentistry (%)	Oral medicine (%)	Others (%)
	(n = 60)	(n = 42)	(n = 14)
Cessation center/counselor	96.66	97.61	100
Pharmacist	71.33	69.04	78.57
Health care workers	93.33	92.86	100

PG: Post-graduates

## Discussion

Use of tobacco has a devastating effect on the health and well-being of the public. By 2030, tobacco is expected to be the single biggest cause of death worldwide, accounting for about 10 million deaths a year.<sup>7</sup>

This study has revealed a stimulating array of issues in relation to tobacco cessation activity and NRT among interns and PGs in dental colleges, and, in particular, the barriers hindering this area of preventive care. To our knowledge, very few studies have reported tobacco cessation and NRT related practices and beliefs among dental students. The participants in this study are students from dental colleges whereas previous studies have been conducted to assess tobacco control related activities among dental practitioners. Hence, comparisons are done wherever possible.

Tobacco dependence is a chronic disease that often requires repeated intervention. Every tobacco user willing to make a quit attempt should be offered effective counseling and medications.<sup>8</sup> The results from this survey provide encouraging evidence that a substantial number of interns and PGs (~90%) ask patients about tobacco use.

For patients who use tobacco but are not ready to make a quit attempt, dental professionals should provide a brief intervention designed to promote the motivation to quit.<sup>7</sup> Always giving advice to every tobacco user to quit tobacco habit was reported by 90.5% participants in the present study when compared to studies: 23.0,<sup>4</sup> 35.3,<sup>3</sup> and 13.9 percent.<sup>9</sup> Always assist patients by providing

tobacco was reported by 49% respondents. This is in contrast to studies reported in the literature: 5.0,<sup>4</sup> 1.8,<sup>3</sup> and 13.9 percent.<sup>9</sup>

Extensive experience with NRT in a clinical trial and observational study settings demonstrates that medicinal nicotine is a very safe drug.<sup>8</sup> Always assisting patients by prescribing NRT was reported by 18.1% participants. This is in contrast to earlier findings reported in previous studies: 8.0<sup>3</sup> and 7.4%.<sup>4</sup> This may suggest a favorable trend among future dental practitioners toward inclusion of tobacco cessation into practice.

Regarding barriers towards effective tobacco cessation activities, lack of time for providing counseling was reported by 29.31% participants as compared to 54.3% participants in an earlier study.<sup>9</sup>

Confidence to incorporate tobacco cessation counseling effectively develops with attending Workshops and Continuing Dental Education (CDE) programs related to tobacco control. In the present study, lack of confidence to incorporate tobacco cessation activities into consultations was reported by 5.1% participants as compared to 12.0% participants in another study<sup>8</sup> which reported a lack of confidence to a greater extent.

Significant differences were seen with respect to practice scores regarding tobacco cessation and NRT between interns and PGs. This may be attributed to differences in duration of clinical hours available for interns and PGs. Evidence suggests, the amount of time spent on tobacco cessation counseling is correlated with effectiveness.<sup>3</sup>

This study identified some notable areas in

relation to the barriers that limit greater involvement of interns and PGs in tobacco cessation and NRT. Lack of time, bitter taste, and cost of gums emerged as major barriers in smoking cessation activities, with no significant differences between interns and PGs. This indicates that the barrier persists despite differences in clinical practice between the study groups. This may be due to higher training and competence among PGs.

Future dental practitioners should realize that although cost is perceived by them as a barrier, evidence depicts that cost of a treatment episode is low and the benefits to health for each quitter so great; NRT has been identified as one of the most cost-effective life-preserving interventions available to medical science.<sup>8</sup>

To help achieve individual behavioral change, there is a need to change the way products related to tobacco control are marketed, sold and used.<sup>8</sup> Most of the PGs in the present study preferred provision of subsidized NRT gums with cessation centers/counselors and health care workers as compared to pharmacist. This reflects their perception toward involvement of a counseling/interaction component along with the provision of NRT gums for success rates in quitting tobacco rather than sale of NRT gums "over the counter."

### Limitations

This exploratory study adopted a cross-sectional research design to explore the scope and challenges in prescribing NRT for tobacco cessation. Evidence from cross-sectional designs is considered weaker

owing to social desirability and central tendency bias while answering the questionnaire. Qualitative studies involving Focus group discussions are suggested for stronger evidence toward NRT prescription among dental professionals.

Provision of subsidized NRT gums along with counseling sessions at the counseling centers or with health care workers should be encouraged.

Regular exposure to workshops and CDE programs are suggested for incorporating tobacco cessation practices effectively into dental practice. This study provides vistas for further research towards effective modes of tobacco cessation and NRT prescriptions in dental practice.

### Conclusion

Favorable practices and beliefs are seen regarding the prescription of NRT among interns and PGs although differences exist. Time, cost and taste emerged as major barriers. Hence, there is a need to address these barriers for effective tobacco cessation.

### Conflict of Interests

The Authors have no conflict of interest.

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## درمان جایگزینی نیکوتین در دندان پزشکی: یک بررسی اکتشافی در شهرستان بنگلور، هند

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### مقاله پژوهشی

### چکیده

**مقدمه:** سیگار کشیدن و دیگر اشکال مصرف دخانیات، یکی از مهم‌ترین مشکلات بهداشت عمومی در سراسر جهان به شمار می‌رود. فعالیت‌های دندان پزشکی به عنوان محل بالقوه‌ای برای ترک سیگار شناخته شده است. درمان جایگزینی نیکوتین (Nicotine replacement therapy) یا NRT)، شانس قطع مصرف توتون و تنباکو را افزایش می‌دهد، با این حال شواهدی مربوط به تجویز NRT در دندان پزشکی‌ها وجود ندارد. این مطالعه با هدف بررسی و مقایسه نگرش‌ها، شیوه‌ها، باورها و موانع تجویز NRT برای ترک دخانیات در میان کارورزان دندان پزشکی و فارغ‌التحصیلان این رشته انجام شد.

**روش‌ها:** برای انجام مطالعه مقطعی حاضر، ۲۳۲ شرکت کننده از ۱۰ کالج دندان پزشکی در بنگلور هند انتخاب شدند. برای جمع‌آوری داده‌ها، پرسش‌نامه ۲۱ سؤالی ساخته شد. ۱۱ سؤال درباره نگرش و عملکرد افراد نسبت به قطع توتون و تنباکو و ۱۰ سؤال مربوط به دامنه و چالش‌های تجویز NRT بود. داده‌ها با استفاده از آمار توصیفی، آزمون  $\chi^2$  و آزمون نسبت‌ها تجزیه و تحلیل شد.

**یافته‌ها:** اکثر شرکت کنندگان قطع مصرف توتون و تنباکو را در کالج خود گزارش نمودند. همچنین، تفاوت آماری معنی‌داری بین کارورزان و فارغ‌التحصیلان در موارد مربوط به فعالیت‌های قطع توتون و تنباکو یافت شد (کمک، ارایه و ویزیت پس از آن). با توجه به NRT، تفاوت معنی‌داری بین فعالیت‌ها (ارزیابی انگیزه برای NRT)، باورها (نه فعالیت‌های مناسب برای دندان پزشکی، یک منبع ارزشمند، افزایش در ترک یک عمل) و موانع (طعم تلخ، هزینه و ترس از اعتیاد) ( $P < 0/05$ ) مشاهده شد. بیشتر فارغ‌التحصیلان، از مراکز ترک اعتیاد و کارکنان مراقبت‌های بهداشتی و داروسازان خواستار ارایه آدامس‌های نیکوتین‌دار کمکی به بیماران شدند.

**نتیجه‌گیری:** با وجود تفاوت بین نظریات، شیوه‌ها و باورهای کارورزان و فارغ‌التحصیلان دندان پزشکی شرکت کننده در NRT بررسی شد. در پایان، زمان، هزینه و طعم به عنوان موانع عمده معرفی گردید.

**واژگان کلیدی:** درمان جایگزینی نیکوتین؛ دخانیات؛ فعالیت‌های دندان پزشکی؛ موانع

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