Knowledge, attitude, and implementation of nicotine replacement therapy by dental and medical interns in Davangere city: A cross-sectional survey

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Abstract:
Background: One of the prime causes of illness and premature death is smoking. Almost 50% of smokers attempt to quit the habit; however, at most, 2%–3% achieve success. The rationale is that innumerable withdrawal attempts are unplanned, and the most effective cessation aids are unacquainted. Nicotine replacement therapy (NRT) is the most common cessation aid. Furthermore, motivation from dental and medical professionals can be effective for patients to quit smoking. The study aimed to assess the knowledge, attitude, and practice regarding the implementation of NRT among dental and medical interns in Davangere city.

Materials and Methods: A questionnaire-based survey was conducted, which included 442 dental and medical interns from two dental and two medical colleges in Davangere city, Karnataka. The questionnaire included multiple-choice questions regarding knowledge, attitude, and implementation of NRT. The response rate of interns was 93.67%.

Results: Among dental and medical interns, there was no statistically significant difference in knowledge about NRT with \( P = 0.976 \) (\( P > 0.05 \)). However, a statistically significant difference existed regarding attitude and implementation in the interns about NRT among dental and medical interns with \( P = 0.001 \) (\( P < 0.05 \)). Among dental and medical interns, dental interns had a positive attitude and implementation toward NRT than medical interns.

Conclusion: The overview implicated that the dental interns had better vision than medical interns; however, both the groups’ comprehension concerning NRT is scanty and advocates education about the fundamentals of NRT either via workshop or by continuing dental education programs.

Key words: Dental students, knowledge, medical students, nicotine replacement therapy

INTRODUCTION

Tobacco consumption is hazardous to general and oral health as it subdues a high amount of nicotine and numerous harmful chemicals. It can be used in various forms such as cigarettes, chewing gums, dipping tobacco, and snus.\(^1\)

Tobacco usage has been recognized to be linked to respiratory disorders, cardiovascular diseases, and various neurological chaos.\(^2\) Furthermore, it is found to deteriorate dental health by hastening the severity and progression of periodontal disease.\(^3,4\)

Despite willingness, it is virtually impossible for tobacco users to quit due to lack of encouragement and moral support. In this regard, health-care professionals play a key role to motivate and advise users to quit. Such clinical interventions may involve clinical counseling alone or in combination with pharmacologic treatment for nicotine dependence.\(^5\) Nicotine replacement therapy (NRT) aims to minimize the physical withdrawal symptoms and cravings which smokers might experience initially while quitting, by providing with slighter nicotine to that of a cigarette. Afterward, it detaches the nicotine dependence by ceasing the use of
NRT. There is an increasing sensitization on the tobacco concern, as Indian dental surgeons lack knowledge on the control of tobacco. Of the dentist’s population, only 33% knew that nicotine is the most addictive psychedelic drug, and they possess knowledge of neither pharmacological nor pharmacological methods of treating nicotine dependence.[8] In most of the countries, knowledge about NRT in general is high among dental students. In few surveyed countries, over 75% of dental students knew about NRT. However, disparities in knowledge existed across regions.[7]

In one of the studies conducted among the institutionally attached postgraduate students and faculty members of the dental profession, to assess and compare the knowledge, attitude, and practice toward the NRT, only one-third of participants had information of the dosage, pharmacology, mechanism of action, duration of the prescription, contraindications, side effects, and its availability. Two-thirds of participants claimed to practice NRT on patients and do follow up them. Fifty percent of the study participants confessed that they do not maintain any record of the patients under NRT. Around 10% of them were practicing NRT with confidence, without facing any issues. Despite having a positive attitude among institutionally attached dentists, the chance of practicing reduced due to lack of detailed knowledge regarding NRT. Major barriers in practicing NRT are lack of awareness, availability, and its acrid taste.[8]

Cognition and execution of NRT by the rising dental and medical interns is crucial for helping the patients to quit tobacco addiction. An educational institution would be one of the best learning platforms to deal with comprehensive oral health care and tobacco cessation counseling of the patients. Introducing NRT principles in the dental and medical curriculum is essential for meticulous implementation in their future clinical practice. This echoes the demand for inclusion and increased emphasis on NRT in the dental and medical educational program. An in-depth literature search reveals that there are no such studies that assessed the knowledge, attitude, and implementation of NRT among dental and medical interns. Hence, the present survey aimed to assess the knowledge, attitude, and implementation of NRT among dental and medical interns in Davangere city.

**MATERIALS AND METHODS**

The survey included 166 dental and 248 medical interns selected from two dental and medical colleges in Davangere city (Karnataka state). The ethical clearance was obtained from the institutional review board, and the study was conducted in full accordance with the World Medical Association Declaration of Helsinki. The purpose of the study was explained to the participants, and verbal informed consent was obtained before the commencement of the study. Consent for conduction of the study was also obtained from the respective authorities of institutions. A self-structured questionnaire presented to the participants in the study was devised based on the previous literature review. The phase validation of the questionnaire for its contents and relevance was performed by the subject experts in the department of oral medicine, general medicine, psychiatry, community medicine, and periodontics.

**Questionnaire design**

The final questionnaire had 9 questions divided into three categories: (I) knowledge of interns about NRT, (II) attitude of interns towards NRT, and (III) implementation of NRT by dental and medical interns. The questionnaire had multiple-choice questions regarding knowledge, attitude, and implementation of NRT. Further evaluation was done based on the responses given by the participants [Table 1].

**Statistical analysis**

All the data were subjected to statistical analysis using IBM SPSS statistics for windows, version 21 (Armonk, NY:IBM Corp). Descriptive statistics have been generated in terms of percentages. The difference in the level of the knowledge, attitude, and implementation of NRT by dental and medical interns had been compared using the Chi-square test. To compare the overall difference at the level of the knowledge, attitude, and implementation of NRT by dental and medical interns, an unpaired t-test had been used.

| Table 1: Questionnaire design |
|------------------------------|
| **General questions regarding knowledge of intern about NRT** |
| 1. Have you heard about NRT? |
| (a) Yes |
| (b) No |
| 2. Can NRT be used as a component of smoking cessation? |
| (a) Yes |
| (b) No |
| 3. In which of the following form/ forms NRT can be given? |
| (a) Nicotine chewing gum |
| (b) Transdermal nicotine patches |
| (c) Intranasal nicotine spray |
| (d) Any one of the above |

| Questions regarding the attitude of intern toward NRT |
|-----------------------------------------------------|
| 4. Do you motivate patients for tobacco cessation by prescribing nicotine replacements? |
| (a) Yes |
| (b) No |
| 5. Do you think motivating patients for tobacco cessation is a waste of time? |
| (a) Yes |
| (b) No |
| 6. If your answer is “NO,” how do you manage it by |
| (a) Counseling |
| (b) NRT |
| (c) Both of the above |

| Questions regarding implementation of NRT |
|------------------------------------------|
| 7. Do you maintain records on tobacco use of patients? |
| (a) Yes |
| (b) No |
| 8. Is it a difficult task to counsel patients for quitting the use of tobacco? |
| (a) Yes |
| (b) No |
| 9. Which kind of media do you prefer to seek information about NRT? |
| (a) TV/ radio programs |
| (b) Internet |
| (c) Professional newsletters and books |

NRT – Nicotine replacement therapy
RESULTS OF THE QUESTIONNAIRE

This study was conducted to assess the knowledge, attitude, and implementation of NRT by the dental and medical interns in Davangere city and consisted of 442 dental and medical interns, of which 414 interns responded. The response rate was 93.67% [Table 2].

Knowledge
All the dental 166 (100%) and medical interns 248 (100%) were familiar with the term NRT. Four (1.6%) medical interns knew that NRT is used as a component of smoking cessation. However, 166 (100%) dental and 244 (98%) medical interns were unaware of it. On intergroup comparison, P value was 0.15, thus it was statistically not significant (P > 0.05). Thirty-three (19.9%) dental and 27 (10.9%) medical interns knew that nicotine chewing gum can be prescribed for smokers as NRT. Fourteen (5.6%) dental and 14 (3.4%) medical interns knew that transdermal nicotine patches can also be prescribed; very few 4 (1.6%) dental and 4 (1.0%) medical interns knew that intranasal nicotine spray can also be indicated. But surprisingly, 133 (80.1%) dental and 208 (83.9%) medical interns knew that any of the above can be used for NRT. On intergroup comparison, it was statistically highly significant (P < 0.001).

Attitude
One hundred and twenty-six (75.9%) dental and 152 (61.3%) medical interns expressed that they motivate patients for tobacco cessation using NRT. On intergroup comparison, P value was <0.001, thus it was statistically highly significant (P < 0.001). Twenty-three (13.9%) dental and 38 (15.3%) medical interns preferred the counseling method for tobacco cessation. One hundred and forty-three (86.1%) dental and 208 (83.9%) medical interns suggested that both counseling and NRT are collectively best, but 2 (0.8%) medical interns preferred the only usage of NRT for tobacco cessation. On the intergroup comparison, P value was 0.59, thus it was statistically nonsignificant (P > 0.05).

Implementation
One hundred and ten (66.3%) dental and 45 (18.1%) medical interns stated that they maintained records of tobacco usage of patients. Fifty-six (33.7%) dental and 203 (81.9%) medical interns stated that they never maintained records on tobacco use of patients. On intergroup comparison, P value was <0.001, thus it was statistically highly significant (P < 0.001). One hundred and sixty-six (100%) dental and 167 (67%) medical interns believed that it was difficult to counsel patients to quit the use of tobacco. Eighty-one (32.7%) medical interns stated that it was not difficult to counsel patients to quit the use of tobacco. On intergroup comparison, P value was <0.001, thus it was statistically highly significant (P < 0.001). Eighteen (10.8%) dental and 30 (12.1%) medical interns preferred to seek information about NRT through professional newsletters and books, 26 (15.7%) dental and 72 (29%) medical interns preferred to seek information about NRT through the Internet, and 122 (73.5%) dental and 146 (58.9%) medical interns preferred to seek information about NRT through TV/radio programs. On intergroup comparison, P value was 0.004, thus it was statistically significant (P < 0.05).

Mean comparison of knowledge, attitude, and implementation of nicotine replacement therapy among dental and medical interns [Table 3 and Graph I]
There was no statistically significant difference in the knowledge regarding NRT among dental and medical

### Table 2: Results of the questionnaire

| Question number | Response | Group | Dental interns (n=166), n (%) | Medical interns (n=248), n (%) | Total (%) | P |
|-----------------|----------|-------|----------------------------|-------------------------------|-----------|---|
| Q1              | a        | 166 (100.0) | 248 (100.0) | 414 (100.0) | - |
|                 | b        | 0      | 0                          | 0                             | 0         |   |
| Q2              | a        | 166 (100.0) | 244 (98.4) | 410 (99.0) | 0.15 |
|                 | b        | 0      | 4 (1.6)                    | 4 (1.0)                       | <0.001    |   |
| Q3              | a        | 33 (19.9) | 27 (10.9)                  | 60 (14.5)                     | <0.001    |   |
|                 | b        | 0      | 14 (5.6)                   | 14 (3.4)                      | <0.001    |   |
|                 | c        | 0      | 4 (1.6)                    | 4 (1.0)                       | <0.001    |   |
|                 | d        | 133 (80.1) | 203 (81.9) | 336 (81.2) | <0.001 |
| Q4              | a        | 126 (75.9) | 152 (61.3) | 278 (67.1) | 0.002 |
|                 | b        | 40 (24.1) | 96 (38.7)                  | 136 (32.9)                    | 0.002     |   |
| Q5              | a        | 0      | 75 (30.2)                  | 75 (18.1)                     | <0.001    |   |
|                 | b        | 166 (100.0) | 173 (69.8) | 339 (81.9) | <0.001 |
| Q6              | a        | 23 (13.9) | 38 (15.3)                  | 61 (14.7)                     | 0.59      |   |
|                 | b        | 0      | 2 (0.8)                    | 2 (0.5)                       | <0.001    |   |
|                 | c        | 143 (86.1) | 208 (83.9) | 351 (84.8) | <0.001 |
| Q7              | a        | 110 (66.3) | 45 (18.1)                  | 155 (37.4)                    | <0.001    |   |
|                 | b        | 56 (33.7) | 203 (81.9) | 259 (62.6) | <0.001 |
| Q8              | a        | 166 (100.0) | 167 (67.3) | 333 (80.4) | <0.001 |
|                 | b        | 0      | 81 (32.7)                  | 81 (19.6)                     | <0.001    |   |
| Q9              | a        | 18 (10.8) | 30 (12.1)                  | 48 (11.6)                     | 0.004     |   |
|                 | b        | 26 (15.7) | 72 (29.0)                  | 98 (23.7)                     | 0.004     |   |
|                 | c        | 122 (73.5) | 146 (58.9) | 268 (64.7) | <0.001 |

P – Probability value; P<0.001 – Highly significant; P<0.05 significant; P>0.05 – Not significant; n – Sample size; SD – Standard deviation.
The present study was conducted among dental and medical interns in Davangere, Karnataka, India. This specific population was selected considering their representation of the student community treating patients with good knowledge of the subject, as they had already cleared undergraduate-level university examinations and are destined to design the future of the dental and medical profession. As mentioned, surprisingly, both dental and medical (100%) interns were aware of NRT terms. When queried whether NRT can be used as a component of smoking cessation, only 1% of medical interns stated that NRT cannot be used as a component of smoking cessation, whereas 99% of dental and medical interns knew that NRT can be used as a component of smoking cessation. A majority of smokers are examined by a dental professional at least once in a given year. Advice from dentists and other health-care professionals plays a key role in motivating patients to quit smoking, and patients do recognize such advice.\textsuperscript{[15]} Studies have shown that smoking reduction intervention by the combination of both medication and counseling was effective for smokers who did not have the intention to quit.\textsuperscript{[16]} Yellowitz et al.\textsuperscript{[17]} observed that as many as 25% of dental schools maintain health history forms that do not enquire about tobacco use, and another 25% enquire with a single question. In the present study, 81% of medical interns stated that they do not maintain records on tobacco use of patients, but 66% of dental interns stated that they do maintain the records. All the dental interns (100%) believed that they experience difficulty in counseling the patients to quit tobacco usage. However, 32.7% of medical interns claimed that they do not face any difficulty as such. Lack of knowledge, skills, and confidence in guiding the patients to quit the tobacco usage are various barriers, cited by health-care providers during counseling, and also include difficulties such as lack of reimbursement, time constraints, and patient resistance.\textsuperscript{[18]} On an average, 73.5% and 58.9% of dental and medical interns, respectively, preferred to seek information about NRT through professional newsletters and books. The lack of knowledge in the dental community regarding tobacco use cessation and their counseling skills suggests a need for mandatory training in counseling in dental schools and as a part of continuing education. Training based on the evidence-based principles of the guideline should cover the dentist’s activities concerning the 5 A’s.\textsuperscript{[19]}

CONCLUSION

The study attributed that dental interns showed better knowledge about NRT than medical interns. There was a statistically significant difference regarding the attitude among the interns about NRT. However, there is a strong need for programs giving importance to NRT-related education among dental and medical interns. Since this study was limited to the dental and medical interns of Davangere city, additional longitudinal studies can be carried out including the dental and medical postgraduate students and staff members to appraise the knowledge, attitude, and implementation of NRT.

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Conflicts of interest
There are no conflicts of interest.

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