Background: Tobacco use is one of the leading preventable causes of premature death, disease and disability around the world. Medical and Dental graduates have an important role to play in tobacco cessation and prevention. Hence, the present study was undertaken to assess the tobacco use prevalence, practice, attitudes towards policy making and curriculum in medical and dental interns (house surgeons).

Methods: A cross-sectional questionnaire-based survey was carried out among interns in all the medical and dental colleges of Mangalore city. Global Health Professional Students Survey (GHPSS) questionnaire given by the Center for Disease Control (CDC) was modified and adopted.

Results: In the present study among 512 interns, 263 and 249 interns belonged to dental and medical fraternity respectively. The prevalence of current smokers of cigarette was significantly higher among medical interns (32.1%) than the dental interns (20.2%), whereas no significant difference was evident amongst the dental (44.9%) and medical (41.8%) interns under the ever smokers category. A significant difference (p < 0.001) in the attitude of dental and medical college interns was observed towards tobacco use, policy making and their knowledge about the curriculum.

Conclusion: This study shows health professionals lacking specific training in tobacco counseling, all of which indicate a need for including a standardized syllabus to train health professionals in medical and dental schools related to tobacco its ill-effects, cessation and policy making.

Key Words: Tobacco, Behaviour, Healthcare professionals, Manglore city

INTRODUCTION

Tobacco use is one of the leading preventable causes of premature death, disease and disability around the world. The detrimental effects of tobacco use on oral health are extensively documented in studies focusing on changes in the oral mucosa and periodontal tissues [1]. An estimated 4.9 million deaths occurring annually can be attributed to tobacco use. The 2013 World Health Assembly called on governments to reduce the prevalence of smoking by a third
by 2025, which would prevent more than 200 million deaths from tobacco during the remainder of the century [2].

Prestigious health institutions, such as the International Union Against Cancer, the office of the Surgeon General of the United States of America, and the Royal College of Physicians in London, have stated clearly that health professionals, and physicians in particular, can have a significant influence (positive or negative) on the smoking habits of a community. Doctors who take their professional role seriously have the opportunity and responsibility to act on various levels to combat smoking, acting as role models, educators, therapists, and anti-smoking advocates [3].

Health professionals can play a pivotal role in smoking cessation. Simple interventions, such as advising a smoker to quit, and more intensive interventions, such as counseling or pharmacological therapy, increase the odds of a smoker quitting the habit. Physicians can also serve as role models for healthy behaviors by not smoking. Smoke-free hospitals are important for the health of patients and health care workers, and can help with smoking cessation [4].

College life is an important transition period during which young adults begin to explore tobacco use. Many studies have reported that tobacco smoking is rising in young adults between the ages of 18-24 years as they are legal targets of tobacco industry marketing and increased the prevalence of smoking among college students. The study conducted in Asian countries like Pakistan, China and India also showed there was high prevalence of tobacco smoking among college students. These studies showed several factors like smoking habits of parents and friends, age, sex, socio-economic status, living with or without family members, father’s occupation, faculty (medical and other subjects) etc attributed to cigarette smoking among the college students. Also the numbers of tobacco smokers are increasing rapidly because of the availability of cheap tobacco products, lack of strong tobacco control regulations, and weak enforcement of existing regulations [5]. A comprehensive education for doctors on the subject of smoking dependence is imperative, and the best possible time for this training is when they are students [6]. Hence aim of the study was to assess the tobacco use prevalence, exposure, attitudes, behaviour/cessation among medical and dental college interns in Mangalore city.

MATERIALS AND METHODS

A cross sectional questionnaire based survey was carried out among interns in all the medical and dental colleges of Mangalore city, India. All participants were volunteers who gave informed consent. Permission to conduct the study was obtained from respective deans of all the dental and medical colleges. Ethical approval was obtained from ethics committee of Yenepoya University.

The study population comprised of medical and dental college interns aged between twenty one and twenty five years of age. To determine the prevalence, exposure, attitude, behavior among the dental and medical interns to within ± 5% with a 95% confidence interval along with 80% power for the study, it was estimated that a final sample must consist of at least four hundred and fifty subjects, additional 20% (90 subjects were added to compensate for non response). Except for one medical and one dental college which were relatively new and did not house the interns yet, rest of the medical and dental colleges was included in the study.

In this study Global Health Professional Students Survey (GHPSS) questionnaire given by the Center for Disease Control and Prevention (CDC) was modified and adopted. Thereafter the questionnaire was modified and a total of twenty six questions were included, its content validity of the questionnaire was done using Lawshe technique [7]. Pre-testing of the questionnaire was carried out on seventy subjects (10% of the study population). Those who were included at the pilot stage were not included for the main study. The questionnaires were self administered and collected after a period of three working days in each of the colleges by the principal investigator. Those interns who were not present during distribution and collection of the questionnaire were excluded from the study.

The World Health Organization (WHO), Centers for Disease Control and Prevention (CDC), and the Canadian Public Health Association (CPHA) developed the original questionnaire for Global Health Professional Survey (GHPS) in 2004 which consists of forty questions spread across six subheadings such as prevalence, exposure, attitudes, behavior/cessation, curriculum/training and demographics. This questionnaire was adopted with changes to accommodate for...
regional variation and in total twenty six questions was
framed under the above mentioned subheadings; infor-
mation on demographic details like age; duration and
course were also included in the questionnaire. Among
the prevalence related seven questions, two of the ques-
tions enquiring about smoking within university campus were ex-
cluded from questionnaire since the COTPA (Section 6) act
given in the year 2003 mandates ban of smoking in college
(COTPA, 2003) university, and institutional premises and
has been strictly implemented. Two questions on use of wa-
ter-pipe (Narguileh) were replaced by enquiring about use
of other tobacco related products such as guthka, snuff, bidi
and cigar, abuse of which is highly prevalent in this part
of the world [8]. All the four questions which formed part
of assessing exposure to second hand smoke were included,
among this one question assessed the awareness of health
professionals about implementation of ban on smoking in
college buildings and clinics. Of the ten questions pertaining
to attitude four questions were combined, two of them per-
taining to ban in smoking in public places which intended
to elicit the same (should smoking be banned in dis-
cos/bars/pubs? and should smoking be banned in restaur-
ants?) and the other two, health professionals role on ad-
vice (should health professionals routinely advice their pa-
tients who smoke to quit smoking?, should health pro-
fessionals routinely advice their patients who use other to-
bacco products to quit using these products?). Among the
eight questions related to behavior/cessation, four questions
were combined, two of which are based on health profes-
sionals who smoke or use other tobacco products (Are
health professionals who smoke less likely to advice patients
to stop smoking? Are health professionals who use other to-

Table 1. Demographic status of the study subjects

|        | n  | Mean | SD  | Min | Max | %   |
|--------|----|------|-----|-----|-----|-----|
| Demographics: |    |      |     |     |     |     |
| 1) Age         |    | 23   | ±0.7| 22  | 25  |     |
| 2) Dental interns |    | 263  | 512 |     |     |     |
| 3) Medical interns |    | 249  |     |     |     |     |
| 4) Dental interns |    | Male | 71  |     |     | 26.9|
|     |    | Female| 192 |     |     | 73.1|
| 5) Medical interns |    | Male | 156 |     |     | 62.7|
|     |    | Female| 93  |     |     | 37.3|

RESULTS

Completed questionnaires were received from 512 interns,
representing a 73.4% response rate. Table 1 show the demo-
graphic profile of the interns who responded for the ques-
tionnaire, among the respondents 263 and 249 interns be-
longed to dental and medical fraternity respectively. The
mean age of the interns was found to be 23 ± 0.7 years.

Table 2 shows the prevalence of cigarette smoking and
use of other tobacco products (bidi, guthka, cigar etc)
among the dental and medical college interns. The ever
users of tobacco consists of those who have smoked a puff
of cigarette or used other tobacco products at least once in
life time. Current users of tobacco consist of those who con-
tinued to smoke cigarette or use other tobacco products at
least once in last 30 days. The prevalence of current smok-
ers of cigarette was significantly higher among medical in-
terns (32.1%) than the dental interns (20.2%), whereas no
significant difference was evident amongst the dental
(44.9%) and medical (41.8%) interns under the ever smok-
ers category, though the percentage of ever smokers was
found to be higher among the dental interns. However,
there wasn’t any significant difference in the current preva-
ience and ever use of other tobacco, when compared
Table 2. Tobacco use prevalence among medical and dental college interns

| Cigarette smokers prevalence:                      | YES | NO     | Chi-square value |
|---------------------------------------------------|-----|--------|------------------|
| Current-cigarette smoking                         |     |        |                  |
| Dental interns                                     | 53  | 210    | 9.541            |
| Medical interns                                    | 80  | 169    | p = 0.001        |
| Ever-cigarette smoking                            |     |        |                  |
| Dental interns                                     | 118 | 145    | p = 0.240        |
| Medical interns                                    | 104 | 145    | p > 0.05         |

| Other tobacco products use prevalence:             |     |        |                  |
| Current users- other tobacco products users (bidi, ghutka etc) | YES | NO     | Chi-square value |
| Dental interns                                     | 38  | 225    | 2.304            |
| Medical interns                                    | 25  | 224    | p = 0.065        |
| Ever users - other tobacco products (bidi, ghutka etc) |     |        |                  |
| Dental interns                                     | 50  | 213    | p = 0.107        |
| Medical interns                                    | 37  | 212    | p > 0.05         |

Table 3. Comparison of dental and medical interns (house surgeons) with respect to attitudes towards tobacco use and policy making and knowledge about curriculum in training scores by t-test

| Qualification | Knowledge | Means | Std.Dev. |
|---------------|-----------|-------|----------|
| Dental        | 7.34      | 1.47  |
| Medical       | 6.36      | 1.85  |
| Total         | 6.87      | 1.74  |
| t-value       | 6.6551    |
| p-value       | p < 0.001**|

amongst the medical and dental interns (p > 0.05).

A significant difference (p < 0.001) in the attitude of dental and medical college interns was observed towards tobacco use, policy making and their knowledge about the curriculum (Table 3).

When exposure to secondary smoke was compared among dental and medical interns 40.3% of dental interns reported no exposure, as compared to 24.9% of medical interns. Among those exposed, when the number of days of exposure in a week where they live, was assessed, majority (24%) dental interns reported an exposure during all 7 days where as medical interns (26.5%) reported an exposure for 5-6 days. Similarly when exposure to secondary smoke outside of where they live was compared, majority (35.7%) of the dental interns reported an exposure during all 7 days, where as majority (29.7%) of medical interns reported having been exposed for 3-4 days in a week (Table 4).

DISCUSSION

The World Health Organization (WHO), Centers for Disease Control and Prevention (CDC), and the Canadian Public Health Association (CPHA) developed the Global Health Professional Survey (GHPS) (World Health Organization, 2004) to collect data on tobacco use and cessation counseling among health professional students. Tobacco use among health professionals is of particular interest in the area of tobacco related surveillance since they are not only responsible for primary health care and education for tobacco related issues such as cessation and exposure to second-hand tobacco smoke, but are also role models in the community.

Findings of the study show that prevalence of current smokers among the medical and dental interns were 32.1% and 20.2% respectively, which is in line with previous studies that have been reported whereas the percentage of ever smokers in both the groups of interns were relatively higher; ever smokers among dental interns and medical interns being 44.9% and 41.8% respectively [4,9]. Tobacco use not only endanger the health of medical students, but is also known to negatively influence the health professionals to deliver effective anti-tobacco counseling when they start seeing patients [10]. The current use of other tobacco products by medical and dental interns was found to be low (10% and 14.4% respectively) compared to use of other tobacco products reported in previous studies [4].

Medical schools/colleges should be encouraged to provide
Table 4. Comparison of dental and medical interns (house surgeons) with respect to exposure to tobacco

| Place of exposure                       | Course wise interns | 0 days | 1-2 days | 3-4 days | 5-6 days | All 7 days |
|----------------------------------------|---------------------|--------|----------|----------|----------|------------|
| Exposure to secondary smoke where they live | Dental (263)        | 106    | 47       | 40       | 7        | 63         |
|                                        | Medical (249)       | 62     | 21       | 51       | 66       | 49         |
| Chi-square = 71.901, p < 0.000001       |                     |        |          |          |          |            |
| Exposure to secondary smoke outside    | Dental (263)        | 61     | 51       | 39       | 18       | 94         |
|                                        | Medical (249)       | 43     | 74       | 64       | 48       | 19.3%      |
| Chi-square = 67.866, p < 0.00001        |                     |        |          |          |          |            |

In the present study (19.7%) medical and (24%) dental interns reported exposure to secondhand smoke at place where they live, for all seven days, whereas 19.3% medical and 35.7% dental reported exposure to secondhand smoke outside, which was found to be low, compared to previous reports on exposure [9].

In the present study only about 65.6% of the interns supported a ban on smoking in restaurants/pubs and discos, which is comparatively less considering the previous studies [4]. About 84% of the interns reported a need for health professionals to routinely advice on quitting for patients who smoke, the findings of which are in line with existing studies [4,12]. Surprisingly, only 57.6% of respondents in this study found health professionals to play role model for patients and public, which was low in comparison to previous studies reason for which could not be ascertained [9]; just over half the interns 52.1% responded affirmatively to having received specific training on cessation techniques. Patients quitting smoking on advice of a health professional was agreed upon by 74.8% of the interns who responded.

India is a key battleground in the fight against the burden of global tobacco epidemic, with the incidence of oral cancer being highest in this part of the world [13]. India became a party to Framework Convention on Tobacco Control (FCTC) on 27th February 2005 and since has adopted many tobacco control policies and measures. India indigenously came up with a policy frame work (Act) prior to ratifying with FCTC, Cigarettes and Other Tobacco Products Act (COTPA) 2003, to curb the tobacco related disease burden in the country, Section 4 and Section 6 of the act specifically emphasize on ban on smoking in public and educational institutions respectively. Doctors play a major role in influencing the patients to quit tobacco use as well as create awareness among the general public [14]. However previous studies have noted that a lack of tobacco related material in medical school curricula and physicians reporting difficulty delivering tobacco cessation care to patients due to lack of time, reluctance to get involved in personal issues and failure to use evidence based methods with patients. The medical GHPSS has shown global gaps in medical school training to provide effective patient tobacco cessation counseling to their future patients [9]. This study shows health professionals lacking specific training in tobacco counseling, all of which indicate a need for including a standardized syllabus to train health professionals in medical and dental schools related to tobacco its ill-effects, cessation and policy making.

REFERENCES

1. Abulateef SA, Ali JA, Abulateef SA, Mohesh G. Smoking Knowledge, Attitude, and Practices Among Health Care Professionals from Sulaymaniyah City/Iraq. Tobacco Use Insights 2018;9:S38171. https://doi.org/10.4137/TUI.S38171.
2. Driezen P, Abdullah SA, Quah CKA, Nargis N, Fong TG. Determinants of intentions to quit smoking among adult smokers in Bangladesh: Findings from the International Tobacco Control (ITC) Bangladesh wave 2 survey. Glob Health Res Policy 2016;1:11. https://doi.org/10.1186/s41256-016-0012-9.
3. Jiang Y, Ong MK, Tong EK, Yang Y, Nan Y, Gan Q, Hu TW. Chinese physicians and their smoking knowledge, attitudes, and practices. Am J Prev Med 2007;33:141
15-22.

4. Surani NS, Pednekar MS, Sinha DN, Singh G, Warren CW, Asma S, Gupta PC, Singh PK. Tobacco use and cessation counseling in India-data from the Global Health professions Students Survey. Indian J Cancer 2012;49:425-30.

5. Hossain S, Hossain S, Ahmed F, Islam R, Sikder T, Rahman A. Prevalence of tobacco smoking and factors associated with the initiation of smoking among university students in Dhaka, Bangladesh. Cent Asian J Glob Health 2017;6:244.

6. Phengsavanh A, Sychareun V, Hansana V, Phommachan S, Prasisombath K, Ounavong A. Smoking Behavior and Tobacco Control among Medical Doctors in Lao PDR [Internet]. Southeast Asia Tobacco Control Alliance. Available from: https://assets.publishing.service.gov.uk/media/57a08b94e5274a27b2000c23/Laos-Health_professional_research.pdf.

7. Lawshe CH. A quantitative approach to content validity. Pers Psychol 1975;28:563-75.

8. Chadda RK, Sengupta SN. Tobacco use by Indian adolescents. Tob Induc Dis 2002;1:111.

9. Warren CW, Sinha DN, Lee J, Lea V, Jones RN. Tobacco use, exposure to secondhand smoke, and cessation counseling among medical students: Cross-country data from the Global Health Professions Survey (GHPSS). BMC Public Health 2012;11:72. https://doi.org/10.1186/1471-2458-11-72.

10. Vakeffliu Y, Argjiri D, Poposhi I, Agron S, Melani AS. Tobacco smoking habits, beliefs, and attitudes among medical students in Tirana, Albania. Prev Med 2002;34:370-3.

11. Nakashima M, Miura K, Morikawa Y, Nishijo M, Nakanishi Y, Sakurai M, Nakagawa H. Effect of smoke-free medical school on smoking behavior of medical students. Nihon Koshu Eisei Zasshi 2008;55:647-54.

12. Sreeramareddy CT, Suri S, Menezes RG, Kumar HN, Rahman M, Islam MR, Pereira XV, Shah M, Sathian B, Shetty U, Vaswani VR. Self-reported tobacco smoking practices among medical students and their perceptions towards training about tobacco smoking in medical curricula: A cross-sectional, questionnaire survey in Malaysia, India, Pakistan, Nepal, and Bangladesh. Subst Abuse Treat Prev Policy 2010;5:29.

13. More Y, D'Cruz AK. Oral Cancer Review of current management strategies. Natl Med J India 2013;26:152-8.

14. Russell MAH, Wilson C, Taylor C, Baker CD. Effect of general practitioners' advice against smoking. Br Med J 1979;2:231-5.