Undergraduate nursing students’ knowledge, attitudes and perceptions of health professionals’ role related to tobacco control and cessation

Vijayalakshmi Poreddi, Ramachandra, Suresh Bada Math

Department of Nursing, College of Nursing, and Department of Psychiatry, National Institute of Mental Health and Neuro Sciences, Institute of National Importance, Bangalore, Karnataka, India

ABSTRACT

Background: Tobacco use is a public health issue throughout the world. Research related to information about tobacco control and cessation among nursing students is limited from India. Aim: To assess nursing students’ knowledge, attitudes and perceptions of health professionals’ role regarding tobacco control and cessation. Methods: A cross-sectional descriptive design was adopted among purposively selected (N = 178) undergraduate nursing students. Data was collected using self-reported questionnaires. Results: Our findings revealed that students’ knowledge related to tobacco diseases was adequate as mean score of this domain was (M ± SD) 18.0 ± 1.48. Almost all participants agreed to support strict legislation (92.1%): Ban on “public use of tobacco” (91.6%), “tobacco sales to children and adolescents” (95.5%), and “advertising of tobacco products” (93.9%). Almost the entire sample felt that health professionals should serve as “role models” for their patients and the public (97.2%). However, curriculum related to smoking cessation techniques (51.6%) reasons why people smoke (48.8%) and nicotine replacement therapies were the areas found to be inadequate. Conclusion: There is an urgent need to sensitize nurse educators and nurse administrators involved in curriculum preparation to incorporate specific education modules related to tobacco control and cessation at an undergraduate level.

Key words: Attitude, health professionals, knowledge, nursing students, tobacco usage

INTRODUCTION

Tobacco use is a public health issue throughout the world. Tobacco use has reached epidemic proportions in many developing countries, while steady use continues in developed countries.[1] In addition, smoking is considered to be the cause for about five million deaths a year throughout the world and the number of people who die from tobacco-related diseases each year is higher than the number of victims of tuberculosis, malaria, and HIV/AIDS put together.[2] India is the second largest producer and seller of tobacco in the world.[3] According to a recent survey, India has 275 million consumers of various tobacco products.[4] Health professionals have a unique role to play in the prevention and control of tobacco use.[5] According to WHO, health professionals include doctors, nurses, dentists, midwives, psychologists and psychiatrists, physicists, pharmacists who can contribute to tobacco control goals.[6]

Nurses can have an important role in tobacco control at a local, national and international level.[7] Nurses can play a vital role in tobacco control by providing effective interventions against tobacco use by counseling their patients to quit smoking.[8,9] Attitudes are a mixture
of beliefs, thoughts, and feelings that predetermine health professionals’ behavior and clinical practice.\[^{10}\] Studies showed that smoking cessation strategies are barely discussed in nursing education programs, even though initial education shapes the future professionals practice. Tobacco use is addressed mostly in terms of risk factors, with little focus on how to help patients quit.\[^{11}\] The training process could be the right time to influence the attitudes, beliefs, habits and abilities of future health professionals regarding tobacco use and techniques for cessation.\[^{12}\] However, several studies have indicated the need to improve training in tobacco abuse and techniques for cessation among students of health sciences, especially student nurses.\[^{13}\] Thus, it is critical to examine the perceptions and attitude toward tobacco control by students of the health profession in the formative years of their professional roles and help develop their basic capability during their courses.

A handful of Indian studies have examined knowledge and attitudes related to tobacco control and cessation. Furthermore, available data mostly relates to medical and dental students and no published data is available among nurses and nursing students. Therefore, the present study was developed to assess nursing students’ knowledge, attitudes and perceptions of health professionals’ role concerning tobacco control and cessation. Further, the findings of the present study may determine the deficiencies in the undergraduate nursing curriculum in preparing future nurses to help their patients quit smoking.

**METHODS**

The study was carried out among undergraduate nursing students at a selected College of Nursing, Bangalore, India in the month of December 2013.

**Participants**

A non-probability convenience sample with quantitative descriptive method was used. Selection criteria for participants included (a) nursing students studying 3rd year and 4th year of their course, (b) who had completed mental health nursing theory classes’ as well clinical exposure, (c) who were willing to participate. Two hundred and two students were selected for the study out of 352 students those who were currently studying the nursing course. However, 24 questionnaires were discarded as they were incomplete. Hence, 178 questionnaires (response rate, 88\%) were analyzed for this study.

**Measures**

*Demographic data*

The demographic form consisted of five items to seek the background of the participants in the study that included: Age, gender, religion, monthly family income and residence.

**Survey instrument**

The survey instrument was developed based on the Global Health Professional Students Survey (GHPSS) questionnaire, developed by the World Health Organization, the US Centers for Disease Control and Prevention (CDC)\[^{14}\] and review of literature. The final form of the questionnaire consisted of 27 items divided into four areas: Knowledge of tobacco-related diseases (4 items), agreement with tobacco control policies (8 items), attitude toward the role of health professionals in tobacco control (7 items) and curriculum/training information (8 items). The rating of responses was based on a Likert scale where the respondents were asked to indicate their agreement with the statement on a scale of 1-5, where 1 was strongly agree, 2 agree, 3 unsure, 4 disagree and 5 strongly disagree. Pilot study was done by administering the questionnaire to 20 undergraduate nursing students. Further, no major changes were made to the questionnaire.

**Procedure**

On introduction, verbal explanation of the research aims and methods was provided to all participants by the researchers. If they agreed to participate in the study, they were asked to complete the questionnaire by themselves. They could complete the questionnaires in about 20 minutes. Data collection tools contained no identifying information and therefore kept the individual responses confidential. Questionnaires were distributed at the end of lectures and all the students who were present completed the questionnaires.

**Ethical considerations**

Permission was obtained from the administrators of the colleges where the study was conducted. Participants were introduced by the researcher (PV) to the aims and procedures of the study, thereby helping them decide if they would like to participate. After they agreed to participate verbally, the researcher gave them the questionnaire.

**Statistical analysis**

The data was analyzed using “R” software and results were presented in narratives and tables. Descriptive statistics such as frequency, percentage, mean, and standard deviation were used to interpret the data. Further, for easy interpretation of the results, agree and strongly agree as well disagree and strongly disagree were clubbed together.

**RESULTS**

The sample of the present study (N = 178) consisted of predominantly females (N = 171, 96.1\%). The mean age
of the participants was 19.8 ± 2.31. A majority of the participants (86%) were Christians and came from rural background (N = 131, 73.6%). The mean income of the participants was Rs/- 1383 ± 1250 (M ± SD) (Table 1).

Table 2 illustrates the knowledge of the participants about tobacco-related diseases and beliefs about the role of health professionals in tobacco control. Almost all the participants (98.8%) agreed that tobacco use is dangerous to health and “passive smoking was linked to lung diseases and increases risk for cancer” (97.2%). A vast majority of the participants approved that “neonatal death is associated with passive smoking” (92.1%) and “maternal smoking during pregnancy increases the risk of sudden infant death syndrome” (89.9%). The mean score of 5-point likert scale (M ± SD) 18.0 ± 1.48 indicates adequate knowledge among nursing students related to tobacco diseases. Similarly, almost all participants agreed to support strict legislation (92.1%) “ban on public use of tobacco” (91.6%), “tobacco sales should be banned to children and adolescents” (95.5%), “ban on the advertising of tobacco products” (93.9%) and “hospitals and health centers should be smoke-free” (91.1%). Nearly more than three fourths of the participants believed that “media and celebrities promote tobacco” (76.5%), “increased size of warning labels” (74.2%) and “increased price of tobacco products” (78.7%) may control use of tobacco. Almost the entire sample stated that health professionals serve as “role models” for their patients and the public (97.2%) and they have a role in giving advice or information about smoking cessation to patients (n = 165, 92.7%). Likewise, majority of the participants thought that “health professionals routinely advice their patients to quit smoking” (83.2%) and “patient’s chances of quitting smoking increased if a health professional advises him or her to quit” (82.6%). While majority (78.7% and 73.6%) agreed that health professionals who smoke cigarettes and use other tobacco products were less likely to advice patients to stop smoking, merely 12.4% and 18.6% disagreed with these statements.

### Table 1: Characteristics of the participants

| Variable  | Group | Frequency | Percentage (%) |
|-----------|-------|-----------|----------------|
| Gender    | Male  | 7         | 3.9            |
|           | Female| 171       | 96.1           |
| Religion  | Hindu | 23        | 12.9           |
|           | Muslim| 2         | 1.1            |
|           | Christian | 153   | 86             |
| Background| Rural | 131       | 73.6           |
|           | Urban | 47        | 26.4           |

### Table 2: Nursing students’ knowledge, attitudes and perceptions of health professionals’ role related to tobacco diseases

| Knowledge about tobacco-related diseases | Agree | Disagree | Unsure |
|-----------------------------------------|-------|----------|-------|
| Tobacco use is dangerous to health      | 176 (98.8) | 1 (.6) | 1 (.6) |
| Neonatal death is associated with passive smoking | 164 (92.1) | 2 (1.2) | 12 (6.7) |
| Maternal smoking during pregnancy increases the risk of Sudden Infant Death Syndrome | 160 (89.9) | 1 (.6) | 17 (9.6) |
| Passive smoking linked to lung diseases (heart diseases, lower respiratory tract infections) and increases risk for cancer | 173 (97.2) | — | 5 (2.8) |

| Attitude towards tobacco control policies | Agree | Disagree | Unsure |
|-------------------------------------------|-------|----------|-------|
| Do you support strict legislation on tobacco use | 164 (92.1) | 10 (5.6) | 4 (2.2) |
| Do you support ban on public use of tobacco | 163 (91.6) | 13 (7.3) | 2 (1.1) |
| Do you believe media and celebrities promote tobacco | 136 (76.5) | 29 (16.3) | 13 (7.3) |
| Do you recommend size of increased warning labels | 132 (74.2) | 11 (6.2) | 10 (5.6) |
| Increase price of tobacco products | 140 (78.7) | 16 (9) | 22 (12.4) |
| Tobacco sales should be banned to children and adolescents | 170 (95.5) | 6 (3.4) | 2 (1.1) |
| There should be a complete ban on the advertising of tobacco products | 167 (93.9) | 9 (5.1) | 2 (1.1) |
| Hospitals and health care centers should be smoke-free | 162 (91.1) | 9 (5) | 7 (3.9) |

| Health professionals role in tobacco control | Agree | Disagree | Unsure |
|-----------------------------------------------|-------|----------|-------|
| Health professionals serve as “role models” for their patients and the public | 173 (97.2) | 1 (.6) | 4 (2.2) |
| Health professionals routinely advise their patients who smoke to quit smoking | 160 (89.9) | 11 (6.2) | 7 (3.9) |
| Health professionals routinely advise their patients who use other tobacco products to quit using these products | 148 (83.2) | 19 (10.6) | 11 (6.2) |
| Health professionals have a role in giving advice or information about smoking cessation to patients | 165 (92.7) | 11 (6.2) | 2 (1.1) |
| Patients’ chances of quitting smoking increased if a health professional advises him or her to quit | 147 (82.6) | 14 (7.8) | 17 (9.6) |
| Health professionals who smoke cigarettes less likely to advise patients to stop smoking | 140 (78.7) | 21 (12.4) | 16 (9) |
| Health professionals who use other tobacco products (water pipes, chewing tobacco, snuff, bids, or cigars) less likely to advise patients to stop smoking | 131 (73.6) | 33 (18.6) | 14 (7.9) |
Regarding recall of their training related to tobacco, majority of the participants agreed that they received formal training on the dangers of smoking (82.6%) and about the importance of asking about patients’ smoking habits (86.5%). Nearly three fourths of the participants were taught about “importance of counseling material on smoking cessation” (72.5%). Mixed responses were observed on the items related to treatment of tobacco cessation. While majority of the participants agreed that they had been told about nicotine replacement therapies (55.6%) and use of anti-depressants in smoking cessation (55.1%), less than half of them contradicted with these items (44.4% and 44.9%, respectively). Nearly and more than half of the participants opined that reasons why people smoke (48.8%) and smoking cessation techniques (51.6%) were discussed during their class room teachings. However, three fourths of the participants expressed their interest in attending in-service training on providing cessation care [Figure 1].

DISCUSSION

This was the first study from India that assessed nursing students’ knowledge and attitude toward tobacco control and cessation using internationally standardized tools. Hence, findings of the present study may be compared with other studies conducted elsewhere in the world. Our study revealed nursing students hold good knowledge and positive attitudes toward tobacco control and cessation. However, their training related to treatment of tobacco control and cessation was limited.

Earlier research showed that knowledge toward smoking and smoking cessation has an important effect on assessing smoking status, giving brief advice, and the provision or referral for smoking cessation treatment by health professionals. In the present study, the mean score (18.0 ± 1.48) for the knowledge questions indicates that nursing students had adequate knowledge about tobacco-related diseases and highest agreement of the items in this domain. These results were similar to the studies conducted among dental professionals from India.

In line with previous studies, the present study also observed more than 90% of the participants supported tobacco control policies such as “support strict legislation on tobacco use” (92.1), “ban on public use of tobacco” (91.6), “tobacco sales should be banned to children and adolescents” (95.5), “ban on the advertising of tobacco products” (93.9) and “hospitals and health care centers should be smoke free” (91.1). Three fourths of the participants believed that “media and celebrities should promote tobacco cessation.” These findings were in agreement with number of studies carried out in different parts of the world among various health professionals. As per India’s Cigarette and Other Tobacco Product Act 2003 (COTPA), selling tobacco to minors or selling of tobacco by minors (under the age of 18) is legally forbidden and selling of tobacco containing items within 100 yards radius of educational premises is a punishable offence. However, its implementation is still far from being effective. Furthermore, there is evidence that complete smoking bans reduce daily smoking rates and tobacco consumption.

Almost all of the nursing students believed that health professionals should serve as “role models” for their patients and the public (97.2%) and they have a role in giving advice or information about smoking cessation to patients (92.7%), routinely advise their patients to quit smoking (89.9%) and other tobacco products (83.2%). These findings were in accordance with previous studies. Health professionals have a crucial role to play in prevention and control of tobacco use. Furthermore, WHO also encourages health professionals, including nurses to take a leadership role in reducing the use of tobacco. Exhaustive research indicates that brief and simple advice from health professionals can significantly increase smoking cessation rates. Likewise, 82.6% of the participants in the present study felt that patient chances of quitting smoking increased if a health professional advises him or her to quit. Previous research indicates that smoking cessation interventions carried out by health professionals in various healthcare settings have established the effectiveness of several interventions. For instance, brief advice, as summarized by the five “As”, has been shown to be effective in helping smokers to quit. Our study confirmed the evidence that health professionals’ own tobacco use status has an influence on their attitudes toward their role in tobacco control as more than three fourths of the students assumed that health professionals who smoke cigarettes and use other tobacco products were less likely to advise patients to stop smoking.

In the present study, more than 80% perceived that they received formal training on dangers of smoking and importance of asking their patients about smoking habits. The major areas of inadequate training were...
the reasons people smoke (48.8%), smoking cessation techniques (51.6%), nicotine replacement therapies (55.6%) and use of anti-depressants in smoking cessation (55.1%). These findings were similar to previous studies that found majority of curricula in nursing programs focused on the health effects of tobacco but lacked content regarding clinical tobacco treatment techniques. [23] These results were in concordance with studies conducted across various parts of the world. [7,24] In a worldwide survey, it was observed that low and middle income countries were deficient in training about cessation techniques than developed countries. [25] Earlier studies [11] found that the majority of curricula in nursing programs focused on the health effects of tobacco. But lacked content regarding clinical tobacco treatment techniques. Studies also showed that nursing students’ knowledge of intervention techniques to help smoker patients to quit smoking was found to be overall poor and suggested the need to improve the content of current nursing degrees on the prevention and treatment of tobacco use. [26,27] Nonetheless, 74.2 % (n = 132) of the students expressed their enthusiasm to attend in-service training on providing cessation care which was similar to other studies. [9] Indeed, the health professionals who were well trained proved to be play their role effectively in helping patients quit smoking. [28] Moreover, as stated by WHO, it is important to develop and disseminate appropriate, comprehensive and integrated guidelines based on scientific evidence and best practices, taking into account national circumstances and priorities, and effective measures shall be taken to promote cessation of tobacco use and adequate treatment for tobacco dependence.

Limitations
The present study has certain limitations such as small sample size, convenience, sample that was restricted to one university and self-reported questionnaires made it difficult to generalize the findings. Though cross-sectional design was appropriate for the present study objective, may be a mixed method design would have been more appropriate. Hence, future studies need to be carried out among large samples across various health professionals. Despite of these limitations, we strongly believe that the findings have implications for nursing educators and administrators in incorporating specific tobacco control and cessation educational modules in undergraduate nursing programs.

CONCLUSION
In a nutshell, the present study observed that students' knowledge related to tobacco diseases was adequate and they hold positive attitudes toward tobacco control policies and role of health professionals in controlling use of tobacco among their patients. However, the major areas of inadequate training were reasons for smoking, smoking cessation techniques, and various therapies to help patients quit smoking. Hence, there is an urgent need to sensitize nurse educators and nurse administrators involved in curriculum preparation to incorporate specific education modules related to tobacco control and cessation at undergraduate level. India being a developing country where health resources are limited, preparing future nurses is crucial to function effectively as health-promoting health professionals at hospitals and communities.

ACKNOWLEDGEMENTS
Researchers thank all the participants for their valuable contribution.

REFERENCES

1. Davis RM, Wakefield M, Amos A, Gupta PC. The Hitchhiker's Guide to Tobacco Control: A global assessment of harms, remedies, and controversies. Annu Rev Public Health 2007;28:171-94.
2. WHO. Report on the Global Tobacco Epidemic. The MPOWER Package. Geneva, Switzerland: World Health Organization; 2008. Available on www.who.int/tobacco/mpower/mpower_report_full_2008.pdf . Accessed on March 29th, 2014.
3. Kuruvilla J. Utilting dental colleges for the eradication of oral cancer in India. Indian J Dent Res 2008;19:349-53.
4. International Institute for Population Sciences, Ministry of Health and Family Welfare, Government of India. Global Adult Tobacco Survey India (GATS India). 2009-10. New Delhi: Ministry of Health and Family Welfare, Mumbai: International Institute for Population Sciences; 2010. Available from: http://www.whoindia.org/en/Section20/Section25_1861.htm. [Last accessed on 2012 Jul 17].
5. Rice VH, Hartmann-Boyce J, Stead LF. Nursing interventions for smoking cessation. Cochrane Database Syst Rev 2013;8:CD001188.
6. World Health Organization. The Role of Health Professionals in Tobacco Control. Geneva, Switzerland: World Health Organization; 2005. Available from: http://www.paho.org/English/AD/SDE/RA/bookletWNTD05.pdf. [Last accessed on 2014 Jan 25].
7. Sreedharan J, Muttapalliyayil J, Venkatramana M. Nurses’ attitude and practice in providing tobacco cessation care to patients. J Prev Med Hyg 2010;51:57-61.
8. Pericas J, González S, Bennasar M, De Pedro J, Aguiló A, Bauzá L. Cognitive dissonance towards the smoking habit among nursing and physiotherapy students at the University of Balearic Islands in Spain. Int Nurs Rev 2009;56:95-101.
9. Aina BA, Onajole AT, Lawal BM, Oyerinde OO. Promoting cessation and a tobacco free future: Willingness of pharmacy students at the University of Lagos, Nigeria. Tob Induc Dis 2009;5:13.
10. Brown G, Manogue M, Rohlin M. Assessing attitudes in dental education: Is it worthwhile? Br Dent J 2002;193:703-7.
11. Legape M, Dumas L, Saint-Pierre C. Teaching smoking cessation to future nurses: Quebec educators’ beliefs. West J Nurs Res 2013.
12. Clark E, McCann TV, Rowe K, Lazennabt A. Cognitive dissonance and undergraduate nursing students’ knowledge of, and attitudes about, smoking. J Adv Nurs 2004;46:586-94.
13. Sekijima K, Suki N, Suzuki H. Smoking prevalence and attitudes toward tobacco among student and staff nurses in Niigata, Japan. Tohoku J Exp Med 2005;206:187-94.
14. Warren CW, Jones NR, Chauvin J, Peruga A; GTSS Collaborative Group. Tobacco use and cessation counseling: Cross-country. Data from the Global Health Professions Student Survey (GHPSS), 2005-7. Tob Control 2008;17:238-47.

15. Slater P, McElwee G, Fleming P, McKenna H. Nurses’ smoking behaviour related to cessation practice. Nurs Times 2006;102:32-7.

16. Saddichha S, Reka DP, Patil BK, Murthy P, Benegal V, Isaac MK. Knowledge, Attitude and practices of Indian dental surgeons towards tobacco control: Advances towards prevention. Asian Pac J Cancer Prev 2010;11:939-42.

17. Foteder S, Sogi GM, Foteder V, Bhushan B, Singh B, Dahiya P, et al. Knowledge of, attitude towards, and prevalence of tobacco use among dental students in Himachal Pradesh State, India. Oral Health Dent Manag 2013;12:73-9.

18. Singh V, Pal HR, Mehta M, Kapil U. Tobacco consumption and awareness of their health hazards amongst lower income group school children in national capital territory of Delhi. Indian Pediatr 2007;44:293-5.

19. Keshavarz H, Jafari A, Khami MR, Virtanen JI. Health Professionals’ Role in Helping Patients Quit Tobacco Use: Attitudes among Iranian Dental Students. International Scholarly Research Notices 2013; Available at http://dx.doi.org/10.1155/2013/76451. Accessed on March 23rd, 2014.

20. Warren CW, Sinha DN, Lee J, Lea V, Jones N, Asma S. Tobacco use, exposure to secondhand smoke, and cessation counseling training of dental students around the world. J Dent Educ 2011;75:385-405.

21. Ficarra MG, Gualano MR, Capizzi S, Siliquini R, Liguori G, Manzoli L, et al. Tobacco use prevalence, knowledge and attitudes among Italian hospital healthcare professionals. Eur J Public Health 2011;21:29-34.

22. Whitlock EP, Polen MR, Green CA, Orleans T, Klein J; U.S. Preventive Services Task Force. Behavioural counselling interventions in primary care to reduce risky/harmful alcohol use by adults: A summary of the evidence for the U.S. Preventive Services Task Force. Ann Intern Med 2004;140:557-68.

23. Lenz BK. Beliefs, knowledge, and self-efficacy of nursing students regarding tobacco cessation. Am J Prev Med 2008;35(Suppl):S494-500.

24. Patellarou E, Vardavas CI, Ntzilepi P, Warren CW, Barbouri A, Kremastinou J, et al. Nursing education and beliefs towards tobacco cessation and control: A cross-sectional national survey (GHPSS) among nursing students in Greece. “http://www.ncbi.nlm.nih.gov/pubmed/?term=Nursing+Education+and+Beliefs+Toward+s+Tobacco+Cessation+and+Control%3A+Cross-Sectional+Nati onal+Survey+(GHPSS)+among+Nursing+Students+in+Greece”

25. Richmond R, Zwar N, Taylor R, Hunsisett J, Hyslop F. Teaching about tobacco in medical schools: A worldwide study. Drug Alcohol Rev 2009;28:484-97.

26. Fernández García D, Martín Sánchez V, Vázquez Casares AM, Liébana Presa C, Fernández Martínez ME, De Luis González JM. Tobacco use amongst nursing and physiotherapy students: A cross sectional questionnaire survey. Int J Nurs Stud 2007;44:780-5.

27. Chan SS, Sarna L, Danao LL. Are nurses prepared to curb the tobacco epidemic in China? A questionnaire survey of schools of nursing. Int J Nurs Stud 2008;45:706-13.

28. Burgan SZ. Smoking behavior and views of Jordanian dentists: A pilot survey. Oral Surg Oral Med Oral Pathol Oral Radiol Endod 2003;95:163-8.