

Preparedness of frontline health workers for tobacco cessation: An exploratory study from two states of India

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ABSTRACT

Background: The 5As approach is a clinic-based approach and has been developed for primary health care providers who are uniquely positioned to interact with tobacco users. The 5As stands for: Ask about tobacco use at every visit, advise tobacco users to quit, assess readiness to quit, assist quit attempts through counseling and pharmacotherapy and arrange follow-up to prevent relapse. The present study explores whether auxiliary nurse midwives (ANMs) adhere to the 3As from the recommended 5As model for tobacco cessation. **Materials and Methods:** The study was a cross-sectional study conducted among 501 ANMs in the state of Gujarat and Andhra Pradesh. Descriptive analysis and chi-square test were employed to test the differences in knowledge levels and practices of ANMs. Bivariate logistic regression was used to examine the association between each predictor variable separately and the outcome variables after adjusting for age and location. Data was analyzed using SPSS version 17 software. **Results:** Majority of ANMs reported that they were aware of respiratory illnesses, tuberculosis, lung and oral cancer as conditions caused due to tobacco consumption. Awareness of adverse reproductive and child health effects associated with tobacco use was very low. Only about one third of respondents informed all patients about harmful effects. Only 16% of ANMs reported having ever received any on-job training related to tobacco control. ANMs who reported receiving training in tobacco control were about two times more likely to provide information on health effects of tobacco as compared to those who reported not being trained in tobacco control in the state of Gujarat. **Conclusions:** A majority of ANMs ask patients about tobacco use but provide advice only to patients suffering from specific diseases. A context-specific capacity building package needs to be designed to equip ANMs in recommended 5As approach in tobacco cessation.

Keywords: India, nurse midwives, tobacco control

Introduction

Pregnant women are vulnerable to tobacco addiction and are an important subpopulation to target for tobacco control efforts because both smoking and smokeless tobacco products pose serious risks to them as well as to fetal and newborn health.^[1] The consumption of tobacco during pregnancy has been associated with stillbirth, preterm birth and reduced birth weight.^[2,3] Maternal smoking is also likely to expose infants and young children to Second Hand Smoke (SHS), which is a serious health hazard.^[4] As per the Global Adult Tobacco Survey (GATS) India 2010, the prevalence of overall tobacco use among females is 20%, with 1.9% smoking and 17.3% of women using smokeless forms of tobacco.^[5]

A balanced combination of cost-effective approaches, targeted at the whole population and particularly at high-risk segments is required for prevention and control of tobacco-related diseases.^[6] Previous studies have shown that availability of tobacco cessation services, methods of cessation support, health care provider involvement, and pharmacotherapy all play a crucial role in successful attempts to quit smoking.^[7] The Government of India initiated the National Tobacco Control Program in 2007–08, which included tobacco control initiatives such as law enforcement, awareness campaigns, training, monitoring and evaluation including surveillance. An important component of the program is to provide tobacco cessation services through the primary health care system. At the state level, tobacco cessation clinics in health care facilities have been established and capacity building of health care providers in tobacco cessation has been initiated.^[8] The 5As approach is a clinic-based approach and has been developed for primary health care providers who are

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uniquely positioned to interact with tobacco users.^[9] The 5 A stands for: *Ask* about tobacco use at every visit, *advise* tobacco users to quit, *assess* readiness to quit, *assist* quit attempts through counseling and pharmacotherapy and *arrange* follow-up to prevent relapse.^[10] Although this approach has been proven effective, it has not been universally adopted in general practice. Primary health care providers such as nurses and midwives can effectively deliver such evidence-based interventions for tobacco dependency that can significantly reduce tobacco use.^[11] Such initiatives had been taken in few countries. The tobacco control program in Hong Kong emphasized on role of nurses in tobacco control in which they assess and arrange smokers to quit smoking and give health advices on the harms of smoking to the public.^[12]

In Indian health care settings, pregnant women receive services from Ante Natal Care (ANC) clinics called sub-centers in rural areas (numbering almost 148,000 facilities in 2012).^[13] These sub-centers are located in villages and cater to a population of 3000 to 5000.^[14] Each sub-center is manned by one (and, in more recent years, two) trained health personnel called auxiliary nurse midwives (ANMs) who provide basic health services like immunization, manage these ANC clinics and sometimes conduct deliveries, especially in hard to reach areas.^[15] ANMs are the main field level health functionaries who work directly with the community and are the focal point of maternal and child health, family planning, and other preventive services. ANMs are also socially and culturally integrated into local communities and have prolonged points of contact with pregnant women and children.^[14] They complete surveillance forms regarding many infectious diseases and in recent cases some Non-Communicable Diseases (NCDs) too.^[15] The National Program for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke designated the sub-center as a hub for health promotion activities for behavior change, opportunistic screening, and referral.^[16] Despite numerous recommendations from national committees to integrate preventive services in the work profile of frontline health workers, this has not been implemented. Considering busy work schedules, the 3As (i.e. ask, advice, and arrange) has been recommended as a practical tobacco treatment strategy.^[17] The present study explores whether ANMs adhere to the 3As from the recommended 5As model for tobacco cessation. We assessed whether ANMs: *Ask* patients about tobacco use to their patients, *advise* them for quitting tobacco by providing information, and *assist* tobacco users in quitting by providing counseling for tobacco cessation. We analyzed 3As out of the recommended 5As approach as the role of ANMs is confined to asking and advising the community on various tobacco-related issues.^[15]

Materials and Methods

This study forms a component of the baseline study of the project Strengthening of Tobacco control Efforts through innovative Partnerships and Strategies (STEPS), undertaken in six high burden tobacco districts each in the states of Andhra Pradesh (AP) and Gujarat (GJ) in early 2011.

The prevalence of tobacco use in the two states is 29%.^[5] The districts were selected based on the recommendations of the state health departments in the two states.

Prior to the study a review of tobacco control activities in the intervention districts was done by examining central and state reports such as Common Review Mission (periodic reviews and evaluations of the National Rural Health Mission, NRHM), program implementation plans for NRHM at the state level, Non Communicable Disease (NCD) strategy documents and National Tobacco Control Program (NTCP) documents.^[18-20] This was done to understand efforts undertaken in recent years to engage frontline health workers like ANMs in tobacco control.

The study was a cross-sectional study conducted among 501 ANMs from sub-centers in 12 districts of the two states. A list of villages was obtained for every district using the Census of India 2001 data,^[21] and the required number of sub-centers (corresponding to 20 villages in AP and 24 villages in GJ) were chosen by stratified random sampling. ANMs were selected by convenient sampling. In cases where there were no ANMs posted in the village sub-centers, ANMs from the primary health center (firstly) or community health center (in places where there were no ANMs at the primary health centre) were sampled.

An interviewer administered questionnaire was used to capture information on: (a) knowledge of the ANMs about health effects of tobacco consumption; (b) ask, advice, and assist practices of ANMs in tobacco control; (c) attitude of ANMs toward assist practices, i.e., counseling in tobacco control; and, (d) training of ANMs in tobacco control.

Attitude of ANMs regarding practices in tobacco cessation was captured by adopting 5-point Likert scale (strongly agree, agree, neither agree nor disagree, disagree and strongly disagree). Attitudinal scales comprised of attitude of ANMs toward counseling practices and their role in tobacco control. Questions determining positive and negative attitude were categorized separately. The positive attitude toward counseling included ($\alpha=0.60$)—"One time counseling also helps if the person is mentally prepared to quit smoking" and "Patients understand that tobacco use can have serious and chronic problems so reinforcing through counseling about them helps them to quit." Attitude toward consequences ($\alpha=0.58$) was captured by variables such as "Health providers serve as role models for their patients and the public," "Patient's chances of reducing and quitting tobacco increases if a health provider advises him or her to reduce consumption and quit." Negative attitude toward counseling was captured by the response to "Counseling leads some patients to believe that they are stigmatized."

The study tool was pilot tested, translated into the local language for administration and back translated to check for the accuracy of translation.^[22] An intensive briefing/training session was conducted for both phases to make the investigators fully adept at

using the research instruments as well as the sampling procedures to be implemented in the field.

Data analysis

Descriptive analysis and chi-square test were employed to test the differences in knowledge levels of ANMs on health effects of tobacco and their practices in tobacco control, i.e. providing information and counseling. Bivariate logistic regression was used to examine the association between each predictor variable separately and the outcome variables after adjusting for age and location. Positive and negative attitude toward counseling practices, on-job training in tobacco control and training received in tobacco control in curriculum were taken as dependent variables. Information on health effects of tobacco was the outcome variable. Estimates of internal consistency were calculated for the attitudinal scales using Cronbach’s alpha, with a cut off of 0.50, showing a modest internal reliability of the attitudinal scale.^[23] Scores were based on responses measured on a 5-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree). For negatively worded items, the scale scores were reversed. Data was analyzed using SPSS version 16.

Written informed consent was obtained from all respondents. The ethical approval for the study was taken from Public Health Foundation of India (PHFI) Technical Review and Institutional Ethics Committee (TRC-IEC 66/10).

Results

The response rate of the survey was 90%. The average age of ANMs who responded in the survey was 37 years. Nearly all ANMs (97%) were posted in rural areas, and 75% were working in the sub-centers. Almost 92% of ANMs reported receiving a formal ANM training course [Table 1].

Knowledge of ANMs about health effects of tobacco

Our findings indicate that the majority of ANMs reported that they were aware of respiratory illnesses, tuberculosis, lung and oral cancer as conditions caused due to tobacco consumption. We found low awareness for tobacco as a causative agent for Cardio-Vascular Diseases (CVDs).

Awareness of adverse reproductive and child health effects like premature delivery, still birth, and low-birth weight associated with tobacco use was also very low (ranging from 10% to 20%; Table 2).

Ask, advice, and assist practices of ANMs in tobacco control

Findings revealed that nearly all ANMs (97%) reported routinely *asking* patients about their tobacco habits. More than two thirds of the ANMs asked their patients about tobacco initiation (89%) and frequency of tobacco usage (81%).

Only about one third of respondents (36%) informed all patients about harmful effects. Table 3 indicates that majority of ANMs provided information to patients suffering from specific diseases (64%). Cough and respiratory diseases and tuberculosis were the conditions for which ANMs provided information on health effects of tobacco. Less than 10% of ANMs provided information on health effects of tobacco to patients seeking antenatal care.

We assessed whether ANMs *assist* tobacco users in quitting tobacco by providing counseling for tobacco cessation. Our findings revealed that majority of ANMs reported providing one-time counseling to the patients [Figure 1]. A small number of ANMs reported advising patients to switch to smokeless

Table 1: Background characteristics

| | |
|--------------------------|------------|
| Age (in years) | 37+9.8 |
| Sex | |
| Female | 100% (501) |
| Education | |
| ANM training course | 92% |
| Nursing course | 4% |
| Other certificate course | 3% |
| Self-use of tobacco | |
| Smoking use | |
| Yes | 0 |
| No | 100% |
| Smokeless tobacco | |
| Yes | 0.2% |
| No | 99.8% |

ANM: Auxiliary nurse midwife

Table 2: Knowledge of auxiliary nurse midwives about health effects of tobacco

| Medical conditions | Smoking tobacco | | | Smokeless tobacco | | |
|---------------------------------|-----------------|--------|---------------|-------------------|--------|---------------|
| | GJ (%) | AP (%) | Overall n=501 | GJ (%) | AP (%) | Overall n=501 |
| *Cough and respiratory diseases | 68 | 79 | 73 | 45 | 64 | 55 |
| *Tuberculosis | 84 | 55 | 69 | 47 | 51 | 49 |
| *Lung cancer | 58 | 75 | 67 | 34 | 63 | 50 |
| Oral cancer | 42 | 44 | 43 | 58 | 53 | 55 |
| *Tooth and gum diseases | 18 | 27 | 23 | 29 | 38 | 34 |
| *Cardio-vascular diseases | 9 | 39 | 24 | 11 | 37 | 24 |
| *Pre-mature delivery | 0.4 | 10 | 5 | 3.3 | 11 | 7 |
| *Low-birth weight | 3 | 11 | 7 | 5 | 14 | 9 |
| *Still birth | 1 | 5 | 3 | 2 | 5 | 4 |

*P value<0.05. GJ: Gujarat, AP: Andhra Pradesh

tobacco as a method of quitting in both the states (GJ = 15%, AP = 14%). We observed significant difference in self-reported practices of ANMs in both states.

Attitudes of ANMs toward assisting patients by counseling in tobacco cessation

Most of the ANMs recognized health providers as role model for their patients and believed that patient chances of reducing and quitting increases if a health provider advises them to reduce tobacco consumption. As depicted in Table 4, there was also high agreement on the prospect of some patients

to believe that they are stigmatized if counseled in reducing tobacco.

Training of ANMs in tobacco control

ANMs were asked about their prior training in tobacco control, its adequacy, proficiency, and their interest in further trainings. A quarter of ANMs (26%) reported that they had been taught cessation approaches as part of their ANM curricular trainings. Only 16% of them reported having ever received any on-job training related to tobacco control. The majority of ANMs (68%) stated that the lack of formal training was limiting their contribution to tobacco control efforts. Close to 41% of respondents wanted to learn about cessation techniques, specifically behavior change techniques (31%).

Predictors of tobacco control practices of ANMs

Table 4 shows that ANMs who reported positive attitude toward counseling were 2.6 (95% CI: 0.43–1.1) times more likely to provide information on health effects of tobacco in the state of Gujarat. Findings also suggest that ANMs who reported receiving training in tobacco control as part of their curriculum were 2.2 (95%CI: 1.1–4.3) times more likely to provide information on health effects of tobacco as compared to those who reported not being trained in tobacco control in the state of Gujarat.

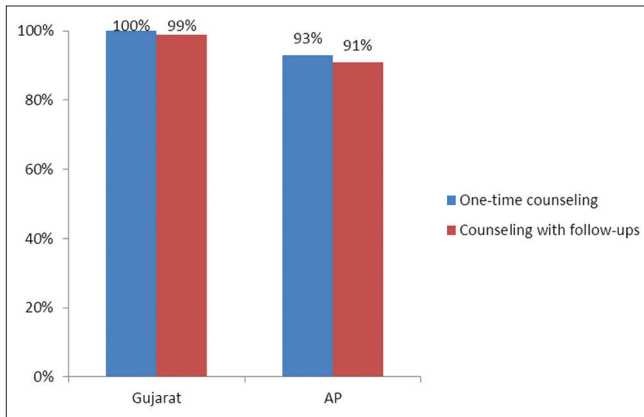


Figure 1: Counseling (assist) practices of auxiliary nurse midwives in tobacco control

Table 3: Information provided by auxiliary nurse midwives on health effects of tobacco

| | Smoking tobacco | | | Smokeless tobacco | | |
|--------------------------------|-----------------|--------|---------------|-------------------|--------|---------------|
| | GJ (%) | AP (%) | Overall n=501 | GJ (%) | AP (%) | Overall n=501 |
| Cough and respiratory diseases | 52 | 56 | 54 | 39 | 46 | 43 |
| *TB | 54 | 32 | 43 | 36 | 24 | 29 |
| Oral diseases | 23 | 13 | 18 | 32 | 25 | 28 |
| *Cardio-vascular diseases | 4 | 36 | 20 | 5 | 26 | 16 |
| Antenatal care | 4 | 2 | 3 | 5 | 2 | 3 |

*P value<0.05. GJ: Gujarat, AP: Andhra Pradesh

Table 4: Attitude of auxiliary nurse midwives toward tobacco control

| | Attitude toward consequences ($\alpha=0.581$ mean 12.4) | | | | |
|--|--|-----------|--------------------------------|--------------|-----------------------|
| | Strongly Agree (%) | Agree (%) | Neither Agree nor Disagree (%) | Disagree (%) | Strongly Disagree (%) |
| Attitude toward consequences | | | | | |
| Health providers serve as role models for their patients and the public | 53 | 35 | 12 | 0.4 | 0.1 |
| Patient's chances of reducing tobacco increases if a health provider advises him or her to reduce consumption | 30 | 47 | 21 | 3 | 0.2 |
| Patient's chances of quitting tobacco increases if a health provider advises him or her to quit | 30 | 46 | 20 | 4 | 0.2 |
| Negative attitude toward counseling practices in tobacco control | | | | | |
| Counseling leads some patients to believe that they are stigmatized | 19 | 32 | 21 | 18 | 11 |
| Positive attitude toward counseling practices in tobacco control ($\alpha=0.604$ mean 8.9) | | | | | |
| One time counseling also helps if the person is mentally prepared to quit smoking | 71 | 25 | 3 | 1 | 0.2 |
| Patients understand that tobacco use can have serious and chronic problems so reinforcing through counseling about them helps them to quit | 37 | 55 | 7 | 1 | - |

Discussion

Nurses and midwives play a central role in health service delivery, i.e., promotion, prevention, treatment and rehabilitation in areas of great health need, where they may be the only providers of health.^[24] This is especially true of ANMs in India who are regarded by the public as important health providers at the outreach.^[13] There is limited information about knowledge, perceptions, and practices pertaining to tobacco control among other health care providers such as nurses and midwives in India who have contact with pregnant women. In a study in India, community health workers such as accredited social health activists had successfully assessed the difficult task of tobacco status and nicotine dependence in rural population.^[25] This study is the first to evaluate frontline health workers such as ANMs adherence to the 3As in the recommended 5As approach for tobacco cessation.

ANMs reported varying level of adherence to the 3As for tobacco cessation. All ANMs reported *asking* patients about tobacco use. Similar observations were made in a study conducted by Houghton *et al.* in which almost all nurses (92%) routinely reported that they asked their patients if they smoke cigarettes.^[26] This finding is promising as it suggests that ANMs recognize importance of asking patients about tobacco use.

ANMs reported providing information on harmful health effects of tobacco pertaining to respiratory diseases and tuberculosis. Information on adverse reproductive health outcomes was not provided. A small number of ANMs reported recommending smokeless tobacco as a substitute for smoking. This is a dangerous trend because several studies of smokeless tobacco use by pregnant women in India demonstrate adverse reproductive outcomes, especially low-birth weight.^[3,27] It is important to enhance knowledge of ANMs who currently underestimate and understate the health risks of smokeless tobacco to be lower than they actually are.

ANMs are an important communication link between the health care system and rural communities and are uniquely positioned to counsel both pregnant mothers and their families against tobacco use. ANMs in this study reported almost universally that they asked about tobacco use and counseled patients to quit. The overwhelming majority of respondents in this study believe that health provider's advice increases the chances of quitting tobacco. These findings are in accordance with the study conducted by Hall *et al.*^[28] and Borelli *et al.*^[29]

Nonetheless, a considerable number of ANMs hold negative attitude toward counseling practices in tobacco control. It is not uncommon for doctors in rural India to see up to 100 patients per day.^[30] Under such conditions, the limited time available for each patient becomes a bottleneck in delivering counseling services in tobacco cessation. Considering such constraints, frontline health providers such as ANMs are critical to delivering tobacco cessation services; they need to be motivated to have a

positive attitude toward tobacco control counseling. Nurses and midwives need to be trained in utilizing appropriate counseling skills if cessation rates are to continue to improve. Training will enhance confidence and provide them with necessary skills to more effectively deliver 3As services in tobacco control. In our sample, only 16% of ANMs reported receiving on-job training in tobacco control.

The study is limited by the fact that it includes the assessment of 3As, i.e., *ask, advice, assist* practices rather than the recommended 5As approach for tobacco cessation. Secondly, our results are based on self-reported data, which may overestimate activities such as counseling practices in tobacco control.^[31] However, a study comparing methods specifically to assess provider delivery of the 5As found that patient reports, and to some extent medical record reviews, did not significantly differ from provider self reported data.^[32]

Findings of this study were used to design a training package for ANMs. Educational material on deleterious effects of tobacco on reproductive health have also been tested and distributed at the health centers. The end-line evaluation of the project planned in 2013 will help us to evaluate whether the intervention targeted to ANMs have been successful in both increasing access and improving 3As practices in tobacco cessation for pregnant women.

Conclusions

The 5As approach to treating tobacco use is a patient-centered model of behavioral counseling that is increasingly being used and recommended for tobacco cessation. Findings indicate that majority of ANMs ask patients about tobacco use but advice to patients suffering from specific diseases. A large number of ANMs were willing to be trained in tobacco control. A context-specific capacity building package needs to be designed to equip ANMs in recommend 5As approach in tobacco cessation. The findings of the present study have important policy and programmatic implications with respect to tobacco control services in reproductive and child health services. The current study suggests that more comprehensive integration of this 5As approach in primary care settings through engagement of ANMs would be an effective means for accomplishing the goal of tobacco cessation.

Recommendations

The new approach to universal health care in the country addresses the dual burden of disease and seeks to address it by proposing public health policies that integrate NCDs control with existing programs like reproductive and child health.^[33] There is an urgent need to design and evaluate women centered programs that address tobacco use during pregnancy and post-partum. There is also a need to conduct effectiveness trials on engaging midwives as part of tobacco control in low and middle income countries of the world. The current climate of change offers midwives the opportunity to develop more skills

in health promotion that address the overall wellbeing of women and their families. At the policy level, empowering and enabling tobacco control programs which active engages women health workers are needed. A starting point is enforcing policies for integration of tobacco control into the curriculum of nurses and midwives. Annual training programs and refresher courses for midwives which are routinely conducted should ensure coverage of risk factors including tobacco usage and SHS. Training in 5As approach will equip midwives with specific skills in tobacco cessation and empower them.

References

- Mackay J, Amos A. Women and tobacco. *Respirology* 2003;8:123-30.
- Public Health Service. Women and Smoking: A Report of the Surgeon General. Washington, DC: Public Health Service; 2001.
- Gupta PC, Ray CS. Smokeless tobacco and health in India and South Asia. *Respirology* 2003;8:419-31.
- World Health Organization. Women and the Tobacco Epidemic. Challenges for the 21st Century. Geneva: World Health Organization; 2001. p. 1-16.
- Ministry of Health and Family Welfare, Government of India. Global Adult Tobacco Survey (GATS) India Report 2009-2010 [Report on the internet]. India: Ministry of Health and Family Welfare, Government of India. Available from: http://www.whoindia.org/LinkFiles/Tobacco_Free_Initiative_GATS2010_Chapter-05.pdf [Last cited on 2015, Jan 10].
- Jonathan MS, Young SY, editor. Gender, Women and the Tobacco Epidemic. Geneva: World Health Organization; 2010.
- Fiore MC, Keller PA, Curry SJ. Health system changes to facilitate the delivery of tobacco-dependence treatment. *Am J Prev Med* 2007;33:5349-56.
- Ministry of Health and Family Welfare. Government of India (2012) Operational Guidelines in Tobacco Control. Available from: <http://www.mohfw.nic.in/WriteReadData/1892s/2945310979Operational%20Guidelines.pdf> [Last cited on 2014 December 31].
- Fiore M, Bailen W, Cohen S, Dorfman S, Goldstein M, Gritz E, *et al.* Treating Tobacco Use and Dependence: Clinical Practice Guideline. Rockville, MD: U.S. Department of Health and Human Services; 2000.
- Centers for Disease Control and Prevention. Physician and Other Healthcare Professional Counselling of Smokers to Quit-United States 1991. *MMWR Morb Mortal Wkly Rep* 1993;42:854-7.
- Rice VH, Stead LF. Nursing interventions for smoking cessation. *Cochrane Database Syst Rev* 2008;1:CD001188.
- Bialous S. The role of nurses in tobacco control. Maryland, United States: John Hopkins Bloomberg School of Public Health; 2007. Available from: <http://www.globaltobaccocontrol.org/sites/default/files/lectures/en/pdf/tobaccoControl-7.2a.pdf> [Last cited on 2015 Jan 3].
- Mavalankar D, Vora K. Indian Institute of Management, Ahmedabad. The Changing Role of Auxiliary Nurse Midwife (ANM) in India: Implications for Maternal and Child Health (MCH). India: Indian Institute of Management; 2008.
- National Secretariat on Community Action - NRHM. Population Foundation of India. National Rural Health Mission: A Promise for Better Health Care Services for the Poor. Available from: http://www.chsj.org/uploads/1/0/2/1/10215849/entitlement_english.pdf [Last cited on 2015Jan 30].
- Directorate General of Health Services. Indian Public Health Standard (IPHS) Guidelines for Sub Centers. India: Ministry of Health and Family Welfare. Available from: <http://www.health.bih.nic.in/Docs/Sub-Centers-%28Revised%29-2012.pdf> [Last cited on 2015 Jan 3].
- National programme for prevention and control of cancer, diabetes, cardio-vascular diseases and stroke. New Delhi: India. Available from: <http://www.health.bih.nic.in/Docs/Guidelines-NPCDCS.pdf> [Last cited on 2015 Feb 8].
- Schroeder SA. What to do with a patient who smokes. *JAMA* 2005;294:482-7.
- Department of Health and Family Welfare, Government of Gujarat. Program Implementation Plan 2011-12. India. Available from: http://www.pipnrhm-mohfw.nic.in/index_files/Page620.htm [Last cited on 2015 Feb 6].
- Ministry of Health and Family Welfare, Government of India. Program Implementation Plan 2011-12, Andhra Pradesh. India. Available from: http://www.pipnrhmmohfw.nic.in/index_files/non_high_focus_large/Andhara%20Pradesh/ROP/ANDHRA_PRADESH_ROP_2011-12.pdf [Last cited on 2015 Feb 5].
- Ministry of Health and Family Welfare, Government of India. Fourth Common Review Mission Report, 2010. Available from: http://www.mohfw.nic.in/NRHM/CRM/CRM_files/4th_CRM/2010%20-%20Main%20Report.pdf. [Last cited on 2014 Feb 15].
- Ministry of Home Affairs, Government of India. Office of the registrar general and census commissioner. Available from: http://www.censusindia.gov.in/PopulationFinder/Population_Finder.aspx. [Last cited on 2015 Jan 28].
- Beaton DE, Bombardier C, Guillemin F, Ferraz MB. Guidelines for the process of cross-cultural adaptation of self-report measures. *Spine (Phila Pa 1976)* 2000;25:3186-91.
- Nunnally JC. *Psychometric Theory. Assessment of reliability.* New York: McGraw Hill; 1967. p. 226.
- Abatemarco DJ, Steinberg MB, Delnevo CD. Midwives' Knowledge, perceptions, beliefs and practice supports regarding tobacco dependence treatment. *J Midwifery Women Health* 2007;52:451-7.
- Jayakrishnan R, Mathew A, Lekshmi K, Sebastian P, Finne P, Uutela A. Assessment of Nicotine Dependence among Smokers in a Selected Rural Population in Kerala, India. *Asian Pac J Cancer Prev* 2012;13:2663-7.
- Houghton CS, Marcukaitis AW, Marienau ME, Hooten M, Stevens SR, Warner DO, *et al.* Tobacco intervention attitudes and practices among certified registered nurse anesthetists. *Nurs Res* 2008;57:123-9.
- Agrawal P, Chansoriya M, Kaul KK. Effect of tobacco chewing by mothers on placental morphology. *Indian Pediatr* 1983;20:561-5.
- Hall S, Vogt F, Marteau TM. A short report: Survey of practice nurses' attitudes towards giving smoking cessation advice. *Fam Pract* 2005;22:614-6.
- Borelli B, Hecht JP, Papandonatos GD, Emmons KM, Tatewosian LR, Abrams DB. Smoking Cessation Counselling in the Home: Attitudes, beliefs, and behaviors of home healthcare nurses. *Am J Prev Med* 2001;21:272-7.

30. Thara R, Padmavati J, Aynkran JR, John S. Community mental health in India: A rethink. *Int J Ment Health Syst* 2008;2:11.
31. Thorndike A, Rigotti N, Stafford R, Singer D. National patterns in the treatment of smokers by physicians. *JAMA* 1998;279:604-8.
32. Conroy MB, Majchrzak NE, Silverman CB, Chang Y, Regan S, Schneider LI, *et al.* Measuring provider adherence to tobacco treatment guidelines: A comparison of electronic medical record review, patient survey, and provider survey. *Nicotine Tob Res* 2005;7:35-43.
33. Planning Commission of India. High Level Expert Group Report on Universal Health Coverage for India; India: Public Health Foundation of India. Available from: http://www.planningcommission.nic.in/reports/genrep/rep_uhc0812.pdf [Last cited on 2015 Jan 15].

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