



Readiness of Accredited Social Health Activist Workers for Tobacco Cessation Counseling after a Brief Intervention in Odisha, India: A Quasi-experimental Study

¹KNV Sudhakar, ²Jugajyothi Pathi, ³J Avinash, ⁴PV Krishnam Raju, ⁵Vinay Sureshan, ⁶KC Vidya

ABSTRACT

Aim: The aim of the study was (1) to explore the baseline beliefs and practices of accredited social health activist (ASHA) workers of Khurda district of Orissa with respect to tobacco cessation and (2) to assess whether a brief intervention will be effective in improving the beliefs and practices of ASHA workers. The results of this study could be utilized by policy makers for framing important strategies for tobacco cessation in rural areas utilizing ASHA workers.

Materials and methods: A quasi-experimental study (before and after comparison) was performed in Khurda district of Orissa to find out whether a brief intervention could improve the beliefs and practices of ASHA workers related to antitobacco counseling in rural areas. A 14-item structured, interviewer-administered questionnaire, written in English (translated in Odiya), was used. The final sample size was estimated as 135. Data were entered into Statistical Package for the Social Sciences (version 21) for analysis.

Results: All the mean belief items, practice items, degree of preparedness, and interest in training scores of study population increased significantly from baseline to postintervention. The study population showed a statistically significant improvement in postintervention composite belief and composite practices score.

Conclusion: The majority of ASHA workers had positive beliefs and favorable practices after attending a brief intervention toward smoking cessation in their community. After attending the intervention, nearly half of the respondents felt themselves

either somewhat or very well prepared for tobacco cessation. Most of them showed their interest toward getting further training in the field.

Clinical significance: Training programs and regular tobacco cessation activities should be planned in the primary health-care delivery system of India.

Keywords: Accredited social health activist workers, Primary health-care level, Quasi-experimental study, Tobacco cessation counseling.

How to cite this article: Sudhakar KNV, Pathi J, Avinash J, Raju PVK, Sureshan V, Vidya KC. Readiness of Accredited Social Health Activist Workers for Tobacco Cessation Counseling after a Brief Intervention in Odisha, India: A Quasi-experimental Study. *J Contemp Dent Pract* 2017;18(9):759-764.

Source of Support: Nil

Conflict of Interest: None

INTRODUCTION

Tobacco use is a life-threatening habit based on its associated adverse health issues.¹ It is also designated by the World Health Organization (WHO) as a single, most preventable cause of morbidity and mortality. In the South-East Asia Region, smoking is prevalent among 29.8 to 63.1% of men and 0.4 to 15% of women.² Among women with tobacco habit, smokeless tobacco use is more prevalent as compared with smoking. According to Global Adult Tobacco Survey conducted in 2009 to 2010, 275 million people reported current use of tobacco. Approximately 29% of adults use tobacco daily and 5% use it occasionally. The majority of them reported the use of smokeless tobacco. About 4 in 10 persons from rural areas use tobacco.³ Tobacco-related mortality in India is among the highest in the world, with about 700,000 annual deaths occurring due to smoking.⁴ The projected figures of tobacco-associated annual mortality are over

^{1,2,6}Department of Dentofacial Surgery, Kalinga Institute of Dental Sciences, KIIT University, Bhubaneswar, Odisha, India

^{3,5}Department of Public Health Dentistry, Kalinga Institute of Dental Sciences, KIIT University, Bhubaneswar, Odisha, India

⁴Department of Periodontics, Kalinga Institute of Dental Sciences, KIIT University, Bhubaneswar, Odisha, India

Corresponding Author: J Avinash, Department of Public Health Dentistry, Kalinga Institute of Dental Sciences, KIIT University Bhubaneswar, Odisha, India, Phone: +919845200492, e-mail: aviandash@gmail.com

1.5 million in India. The WHO predicts that by 2020 tobacco deaths in India may exceed 1.5 million annually.⁵ Annually, 10 new cases of oral cancer per 100,000 males are detected in the Indian subcontinent,⁶ and oral cancer rates are constantly increasing among young persons. To reduce this tobacco-associated mortality and morbidity, there is an urgent need of implementing a multisectoral approach aimed at discouraging tobacco usage. For current tobacco users, quitting the habit is the only effective way to reduce the risk of adverse health effects. The benefits of tobacco cessation have been well demonstrated.^{7,8} Tobacco cessation reduces health risks and improves quality of life. Seeing the magnitude of tobacco problem, the Ministry of Health and Family Welfare, Government of India, established 13 tobacco cessation clinics in 2002 in collaboration with the WHO and increased subsequently to 19 to provide tobacco cessation interventions.⁹ The major limitation of these tobacco cessation clinics is the poor accessibility by the rural population. Considering this limitation, all health-care providers, especially those who work in the rural areas, could play a key role in the prevention of tobacco smoking as well as counseling patients to stop smoking. If tobacco cessation counseling could be suitably integrated with the primary health-care system in India, a substantial number of tobacco users will be able to stop tobacco usage.

Health-care providers at the primary care level like accredited social health activist (ASHA) workers and village health guides, in particular, are considered as community leaders and role models.¹⁰ An accredited social health activist is a female community health worker usually selected from the village where she has to work. She is trained for ensuring people's access to health-care services, developing improved health-care practices and behaviors and health-care provisions as is essential and feasible at the grassroots level.¹¹ The nature of their job exposes them to a large section of community whom they can influence and cause a change in their behavior, especially in tobacco cessation. More than 45,000 ASHAs in the State of Odisha are the most visible faces at the rural level. The problem of tobacco use in Odisha is more severe than in most of the other Indian states, with 46.2% of the population using tobacco in some form or the other. Chewing forms of tobacco, such as pan, zarda, and gutkha are more commonly used than smoking forms, such as beedi and cigarettes.³

This quasi-experimental study was, therefore, designed with two objectives: (1) To explore the baseline beliefs and practices of ASHA workers of Khurda district of Orissa with respect to tobacco cessation and (2) to assess the effect of a brief intervention on improving the beliefs and practices of ASHA workers. The results of

this study could be utilized by policy makers for framing important strategies for tobacco cessation in rural areas utilizing ASHA workers.

MATERIALS AND METHODS

The present quasi-experimental study was conducted in Khurda district of Orissa with the aim to assess whether the ASHA workers could be used as potential workforce for at least "initiation and advice" phase of tobacco cessation counseling. The study was initiated in the month of September 2016 with the development of information and education material. Baseline data were collected in the month of October 2016. Follow-up data were collected in the month of December 2016.

Approval from the institutional ethical committee was sought before the commencement of the study. Every selected ASHA worker was given information sheet (drafted in local Odiya language) explaining the aim and objectives of the study. Then, the informed consent form was signed by every subject.

A quasi-experimental study (before and after comparison) was performed to assess the effectiveness of a brief intervention on the beliefs and practices of ASHA workers related to antitobacco counseling in rural areas. For this, baseline data regarding the beliefs and practices of ASHA workers toward antitobacco counseling were collected. Self-perceived preparedness to deliver antitobacco counseling and their interest for getting formal training in counseling skills were also recorded at baseline.

Sample size was estimated before starting the study using GPower software for using Wilcoxon test (for matched pair), with 0.4 as effect size, 5% alpha error, 80% power, and a design effect of 2 to compensate for cluster effect. The required number of participants was calculated as 108. Anticipating a high attrition (owing to the study design), the final sample size was fixed at 135. The total number of ASHA workers in two blocks (Block Bhubaneswar: 187 and Block Balianta: 106) of Khurda district was found as 293. Out of these, 214 ASHA workers showed interest toward participation in the study. Remaining ASHA workers were either not available or did not give informed consent (among most of the cases, the reason was a lack of time). Out of these 214 ASHA workers, 135 workers were randomly selected for participation in the study.

Interviewer-administered questionnaires were used to obtain data for the study. First, the interviewer collected data on demographic characteristics, such as age and work experience. A trained interviewer performed all the interviews (preintervention and postintervention). The participants were encouraged to give answers honestly by explaining them that the survey is anonymous and the information will be kept strictly confidential.

A 14-item structured, interviewer-administered questionnaire, written in English (translated in Odiya), was used. The questionnaire was derived from the Global Health Professional Students Survey questionnaire¹² and the related literature on the topic. The questionnaire was pilot-tested with 30 ASHA workers, and suitable changes were done. These data were not included in the final results. Internal consistency and test-retest reliability of the questionnaire were also assessed as satisfactory.

The questionnaire included demographic information (age and work experience) and questions on attitudes, behavior, degree of preparedness, and interest toward smoking cessation activities. Subjects' beliefs related to tobacco use were assessed by asking eight questions. A 5-point Likert scale was adopted to generate a composite score: 4 for "strongly agree," 3 for "agree," 2 for "unsure," 1 for "disagree," and 0 for "strongly disagree." Out of these eight questions, the first question was negative in nature, while all remaining questions were positive in nature. Therefore, for calculation of overall belief score, the scores of item 1 were reversed, i.e., score 0 and 1 were entered as 4 and 3 respectively, and vice versa. For positive items, subjects giving response as "agree and strongly agree" were considered to have positive belief and subjects giving response as "unsure, disagree, and strongly disagree" were considered to have negative belief. Subjects' tobacco cessation practices were assessed by asking five questions. For these questions, a 4-point Likert scale was used: 3 for "always," 2 for "often," 1 for "rarely," and 0 for "never." A composite practices score was also calculated for each subject. The degree of preparedness to counsel patients regarding tobacco cessation was recorded on a 3-point Likert scale: 0 for "not at all prepared," 1 for "somewhat prepared," and 2 for "very well prepared." Interest in receiving training in counseling skills was also assessed on a 3-point Likert scale: 0 for "no," 1 for "do not know," and 2 for "yes."

All the study subjects were given a brief intervention on tobacco cessation in general along with multicolored antitobacco pamphlets in "Odiya" (the local language). The content of the pamphlet included tobacco-induced health hazards in general, second-hand smoke, and related hazards for females and importance of tobacco cessation. An expert from District Tobacco Cessation Centre took a didactic lecture of 1 hour duration, titled "How to counsel a person to quit tobacco?" using the power-point presentation as media. The lecture and power-point contents were harmful effects of tobacco, pictures of oral precancerous lesions and cancers, advantages of quitting tobacco, barriers for quitting, methods for counseling (Ask, Advice Assess, Assist, and Arrange) and relapse prevention strategies. This lecture session was followed by half an hour discussion with ASHA workers.

The outcome of the study (same interviewer-administered questionnaire which was used at baseline) was assessed after 3 months through face-to-face interviews. Of 135 ASHA workers who were included in the study, interviews could not be conducted for 14 subjects due to their unavailability at repeated occasions.

Data were entered into Statistical Package for Social Sciences (version 21) for analysis. Descriptives of data were assessed as frequencies and means along with standard deviation. As the variables were recorded on a Likert scale, nonparametric test, i.e., Wilcoxon matched-pair rank-sum test was used to compare baseline and postintervention scores. The level of significance was set at 0.05.

RESULTS

Initially, in total, 135 ASHA workers were recruited for this quasi-experimental trial, but due to unavailability, follow-up data could not be collected from 14 ASHA workers. Hence, they were dropped out of the study, and final results were based on the data derived from 121 ASHA workers. The mean age of study subjects was 26.4 ± 5.26 years with a mean work experience (as ASHA workers) of 4.84 ± 3.55 years.

Table 1 shows the beliefs of ASHA workers toward tobacco cessation policy before and after the brief intervention. When the subjects were asked at baseline about the prohibition of smoking in enclosed public places, more than half were either unsure or disagreed with that. While after the intervention, nearly all agreed with this. Furthermore, at baseline, half of the ASHAs were not sure about a complete ban on the advertising of tobacco products and 35% of them were not sure whether the price of tobacco products had to be increased sharply. But after intervention, the majority strongly agreed with this policy. At baseline, only half of the respondents agreed that all health team members are responsible for providing tobacco control activities while after intervention, nearly all agreed for this.

Table 2 demonstrates the behavior of the ASHA workers toward smoking cessation activities. Nearly 65% of the study population either rarely or never asked the patient about tobacco use before the intervention. But after intervention, 78.5% started asking people in their area about tobacco use. Similarly, a higher proportion of subjects not only started advising patients to quit tobacco but also recorded tobacco status of patients with the doctor and arranged follow-up sessions with a physician after attending the intervention.

Table 3 illustrates the degree of preparedness and interest toward smoking cessation activities. At baseline, the majority of the ASHA workers (86.8%) perceived

Table 1: Frequency distribution of subjects' responses toward belief items, at baseline and postintervention

| | Preintervention (%) | | | | | Postintervention (%) | | | | |
|---|---------------------|----------|--------|-------|----------------|----------------------|----------|--------|-------|----------------|
| | Strongly disagree | Disagree | Unsure | Agree | Strongly agree | Strongly disagree | Disagree | Unsure | Agree | Strongly agree |
| Smoking is a personal matter and can be performed at any time or place | 3.3 | 24.8 | 33.9 | 26.4 | 11.6 | 47.1 | 44.6 | 8.3 | 0 | 0 |
| Smoking in enclosed public places should be prohibited | 0 | 13.2 | 40.5 | 46.3 | 0 | 0 | 0 | 1.7 | 36.4 | 62.0 |
| There should be a complete ban on the advertising of tobacco product | 0 | 5.8 | 49.6 | 38.0 | 6.6 | 0 | 0 | 8.3 | 19.8 | 71.9 |
| The price of tobacco products should be increased sharply | 0 | 1.7 | 35.5 | 56.2 | 6.6 | 0 | 0 | 0 | 21.5 | 78.5 |
| Hospitals and health-care centers should be smoke free | 0 | 5.0 | 31.4 | 60.3 | 3.3 | 0 | 0 | 1.7 | 55.4 | 43.0 |
| Patients' chances of quitting tobacco use are increased if a health-care provider advises him/her to quit | 0 | 11.6 | 46.3 | 42.1 | 0 | 0 | 0 | 3.3 | 51.2 | 45.5 |
| Health-care providers who smoke are less likely to advise patients to stop smoking | 0 | 5.8 | 54.5 | 36.4 | 3.3 | 0 | 0.8 | 23.1 | 56.2 | 19.8 |
| All health team members are responsible for providing tobacco control activities | 0 | 5.0 | 46.3 | 48.8 | 0 | 0 | 0 | 6.6 | 66.9 | 26.4 |

Table 2: Frequency distribution of subjects' responses toward practice items, at baseline and postintervention

| Practice items | Preintervention (%) | | | | Postintervention (%) | | | |
|---|---------------------|------------|-----------|------------|----------------------|------------|-----------|------------|
| | Never (0) | Rarely (1) | Often (2) | Always (3) | Never (0) | Rarely (1) | Often (2) | Always (3) |
| Do you ask the patient about their tobacco use? | 18.2 | 45.5 | 34.7 | 1.7 | 1.7 | 19.8 | 50.4 | 28.1 |
| Do you advise the patient to quit tobacco use? | 42.1 | 44.6 | 13.2 | 0.0 | 6.6 | 40.5 | 47.9 | 5.0 |
| Do you advise female patients to quit using tobacco if they are pregnant? | 37.2 | 49.6 | 13.2 | 0.0 | 9.1 | 39.7 | 41.3 | 9.9 |
| Do you record the tobacco status (or get it recorded in the medical records with a doctor at PHC/CHC) of the patient? | 81.8 | 18.2 | 0.0 | 0.0 | 68.6 | 0.0 | 11.6 | 19.9 |
| Do you arrange follow-up sessions with a physician/doctor at PHC/CHC for patients? | 100.0 | 0.0 | 0.0 | 0.0 | 68.6 | 6.6 | 16.5 | 8.3 |

PHC: Primary health center; CHC: Community health center

themselves as somewhat prepared to counsel patients regarding tobacco cessation, and 10.3% were not at all prepared. While, after the intervention, 42% of subjects perceived themselves as somewhat prepared and 16.5% considered themselves as very well prepared. Interest in receiving further training in counseling skills also increased from 66.9 to 78.9% after intervention.

Table 4 demonstrates that the study population showed a statistically significant ($p < 0.05$) improvement in postintervention composite belief and composite practices score.

DISCUSSION

All types of health-care providers are placed in a highly strategic position to initiate and assist tobacco cessation.

The Cochrane review on individual behavioral counseling for tobacco cessation had revealed the fact that interventions given outside routine clinical settings by tobacco cessation counselors or health educators were useful for smokers to quit.¹³ Especially in rural parts of a developing country like India, where doctor:population ratio is very low, primary health workforce like ASHA workers and village health guides could be seen as potential workforce for the delivery of tobacco cessation counseling. Thus, in this study, a quasi-experimental study design was used to assess the beliefs and practices of ASHA workers toward tobacco cessation counseling and to determine the effectiveness of a brief intervention in improving the beliefs and practices of these primary health-care providers. The ASHA workers were selected as target population for this

Table 3: Frequency distribution of subjects' responses toward their self-perceived preparedness to counsel tobacco users and interest in receiving further training, at baseline and postintervention

| | Preintervention (%) | | | Postintervention (%) | | |
|--|-------------------------|-------------------------|------------------------|-------------------------|-------------------------|------------------------|
| | Not at all prepared (0) | Somewhat prepared (1) | Very well prepared (2) | Not at all prepared (0) | Somewhat prepared (1) | Very well prepared (2) |
| How do you assess the degree of preparedness to counsel tobacco users regarding tobacco cessation? | 86.8 No (0) | 13.2 Do not know (1) | 0 Yes (2) | 41.3 No (0) | 42.1 Do not know (1) | 16.5 Yes (2) |
| Are you interested in receiving further training in counseling skills | 26.4 | 6.6 | 66.9 | 19.8 | 1.7 | 78.5 |

Table 4: Comparison of baseline and postintervention mean composite belief and practice scores of the study population

| | Minimum | Maximum | Mean \pm SD | Z-value | p^a value |
|----------------------------------|---------|---------|------------------|---------|-------------|
| Belief score at baseline | 8.00 | 29.00 | 19.02 \pm 3.83 | -9.560 | 0.0002, S |
| Postintervention belief scores | 22.00 | 31.00 | 27.40 \pm 1.95 | | |
| Practice score at baseline | 0.00 | 7.00 | 2.85 \pm 2.06 | -9.334 | 0.001, S |
| Postintervention Practice scores | 1.00 | 13.00 | 6.55 \pm 2.78 | | |

^aWilcoxon matched-pair rank-sum test; SD: Standard deviation; S: Significant

study because of their penetration and acceptability in the rural areas. Furthermore, in the majority of areas, they act as the first source of information and advice for people living in rural areas. If this section of health workers have positive beliefs and favorable attitudes, then it could be anticipated that after proper training, ASHA workers will play a very important role in tobacco cessation at community level. Few researches in India have reported the effective use of these primary health-care workers for initial screening of cancer symptoms and recording of tobacco usage at community setting. Despite conducting thorough review of available literature, no similar study could be found in the Indian scenario. Thus, to the best of our knowledge, this study could be regarded as the very first study in the Indian scenario providing evidence that after proper training, ASHA workers could be utilized for tobacco cessation.

The interviewer-administered questionnaires used were a modified version of the Global Health Professionals Survey established by the WHO.¹² The attitudes and behavior toward tobacco cessation counseling among the primary health-care providers were all adequately assessed by this questionnaire.¹⁰ Furthermore, a pilot study validated the appropriateness, clarity, and comprehensiveness of the questionnaires. A high degree of privacy was ensured to all the participants by keeping the survey anonymous, to encourage participation and honest answers.

The results of this study showed that at baseline, for almost all the belief items, only less than half of the study population showed positive beliefs, while after the brief intervention, a marked and significant increase was seen in the proportion of subjects having positive beliefs. In a cross-sectional study conducted by Al-Hosani et al¹⁰ in Saudi Arabia, more than half of primary health-care workers showed positive belief. This difference could

be due to the fact that in that study, the study population majorly comprised doctors and nurses working in primary health centers, while in the present study, the assessment was made on ASHA workers. Doctors' and nurses' training program is much more extensive as compared with ASHA workers whose qualification at most of the times is up to secondary level. Thus, this difference could be expected. After giving the intervention to the study subjects, they showed a significant improvement in their beliefs. The majority showed positive beliefs after the intervention. Hence, it is proved that such brief interventions can bring a positive and marked change in the beliefs of ASHA workers. If few hours could be incorporated in the training plan of ASHA workers related to tobacco cessation, then they could be utilized for the purpose in an effective manner. As no study could be found in the literature on ASHA workers related to tobacco cessation, similar comparisons could not be done.

When ASHA workers were asked about their practices at baseline, related to 5As (Ask, Advice, Assist, Assess, and Arrange), very few (36.4%) reported to ask (often/always) about the tobacco usage and even lesser number (13.2%) reported that they advised the patients, often/always, to quit the habit. Not a single ASHA worker told that they arranged the recording of tobacco status with doctor or a follow-up visit with doctor. The majority accepted that they had never arranged a follow-up visit of a tobacco user with a doctor. But after intervention, within a time frame of 3 months, nearly 70% of the respondents reported that they had asked patients about their tobacco usage either often or always. Similarly, nearly half of the respondents told that they had advised tobacco users to quit tobacco usage. A significant proportion (30%) of study population said that they had often/always got the tobacco status recorded in the medical records of tobacco users.

Nearly one-fourth of respondents informed that they had arranged follow-ups of tobacco users with doctors. This positive change in practices of ASHA workers toward tobacco cessation gives a new hope that they can work together with another primary health workforce (doctors, nursing staff) to control the tobacco problem in India.

At baseline, 87% respondents accepted that they were not at all prepared for tobacco counseling. After intervention, this number reduced to 41%, and 42% found themselves somewhat prepared for it. Most of them had showed considerable interest in getting further training for this purpose. Seeing this, recommendations could be given to the policy makers for including a mandatory requirement of a training program for ASHA workers. Many studies have assessed these parameters among health-care workers.¹⁴

This study demonstrated that brief interventions could be very fruitful in preparing ASHA workers for tobacco cessation counseling, but the results should be interpreted with caution owing to the absence of randomization in the study design. Apart from this, the outcome variable selected for the study was improvement in beliefs and practices as reported by ASHA workers themselves. As ASHA workers were aware of their participation in a study, there is a chance of Hawthorne bias¹⁵ also. Further, randomized controlled trials could be planned with tobacco cessation rates as the outcome variable for establishing the effectiveness of ASHA workers for tobacco cessation counseling in rural areas.

CONCLUSION

We conclude that the majority of ASHA workers had positive beliefs and favorable practices after attending a brief intervention toward smoking cessation in their community. After attending the intervention, nearly half of the respondents felt themselves either somewhat or very well prepared for tobacco cessation. Most of them showed their interest toward getting further training in the field.

Authors recommend, (1) training to all ASHA workers in tobacco cessation, aiming at improving their knowledge, changing attitudes, and improving practices, (2) smoking cessation activities should be an integral part of the already existing primary health-care system and to be provided by all primary health-care staff at every clinic visit, including asking about tobacco use, assessing willingness to quit, advising quitting, and arranging for cessation services.

ACKNOWLEDGMENT

The authors sincerely acknowledge the valuable time provided by all the study subjects.

CLINICAL SIGNIFICANCE

Training programs and regular tobacco cessation activities should be planned in the primary health-care delivery system of India for effective control of tobacco-associated morbidity and mortality.

REFERENCES

1. World Health Organization (WHO). Tobacco Fact Sheet. 2012. [cited 2017 April 13]. Available from: <http://www.who.int>.
2. World Health Organization. Regional Office for South-East Asia. Tobacco Free Initiative. 2017. [cited 2017 Jan 02]. Available from: <http://www.searo.who.int/en/section2666.htm>.
3. Ministry of Health and Family Welfare, Government of India. International Institute for Population Sciences (IIPS), Mumbai. Global Adult Tobacco Survey India (GATS India), 2009-2010. New Delhi: Ministry of Health and Family Welfare; 2010.
4. Gajalakshmi V, Peto R, Kanaka TS, Jha P. Smoking and mortality from tuberculosis and other diseases in India: retrospective study of 43000 adult male deaths and 35000 controls. *Lancet* 2003 Aug;362(9383):507-515.
5. Murray, CJ.; Lopez, AD. The global burden of disease: a comprehensive assessment of mortality and disability from diseases, injuries and risk factors in 1990 and projected to 2020. Cambridge (MA): Harvard School of Public Health; 1996.
6. Moore SR, Johnson NW, Pierce AM, Wilson DF. The epidemiology of mouth cancer: a review of global incidence. *Oral Dis* 2000 Mar;6(2):65-74.
7. Tverdal A, Bjartveit K. Health consequences of reduced daily cigarette consumption. *Tob Control* 2006 Dec;15(6):472-480.
8. Bjartveit K, Tverdal A. Health consequences of sustained smoking cessation. *Tob Control* 2009 Jun;18(3):197-205.
9. Thankappan KR. Tobacco cessation in India: a priority health intervention. *Indian J Med Res* 2014 Apr;139(4):484-486.
10. Al-Hosani S, Al-Ali M, Al-Marashda K, Al-Shamsi N, Al-Ansari T, Al-Behandy A, Darwish E, Elhassan A. Smoking prevalence, attitudes and behaviours of primary healthcare providers and its impact on their smoking cessation counseling practice. *Ibosina J Med Biomed Sci* 2015 Mar;7(2):47-55.
11. Bajpai N, Dholakia RH. Improving the performance of accredited social health activists in India. Working Paper No. 1, May 2011.
12. Warren CW, Jones NR, Chauvin J, Peruga A, GTSS Collaborative Group. Tobacco use and cessation counselling: cross-country. Data from the Global Health Professions Student Survey (GHPSS), 2005-7. *Tob Control* 2008 Aug;17(4):238-247.
13. Lancaster T, Stead LF. Individual behavioural counselling for smoking cessation. *Cochrane Database Syst Rev* 2005 Apr;2:CD001292.
14. Almutairi KM. Prevalence of tobacco use and exposure to environmental tobacco smoke among Saudi medical students in Riyadh, Saudi Arabia. *J Community Health* 2014 Aug;39(4):668-673.
15. Darby, M.; Bowen, D. Research methods for oral health professionals. St. Louis (MO): CV Mosby Company; 1980. p. 57-58.