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Original Research Article

Tobacco use among rural women in reproductive age group and its association with regularity of menstrual cycles and dysmenorrhoea: a community based cross sectional study

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ABSTRACT

Background: Tobacco is a killer of men and women but sex specific differences exists. Along with the risk of suffering from the various health hazards from tobacco use, women are more prone to unique risks related to menstrual and reproductive function reproductive health hazards. This study was done to know the prevalence of tobacco consumption among the rural women in the reproductive age group and its association with the regularity of menstrual cycles and dysmenorrhoea.
Methods: A community based cross sectional study, conducted from January 2011 to December 2011 among 1200 rural women aged between 15 years to 49 years residing in Primary Health Centre (PHC) Vantmuri area, Belgaum, Karnataka, India. Statistical analysis was done using rates, ratios and chi-square tests..
Results: The prevalence of tobacco consumption was 9.7%. 11 (10.9%) of currently pregnant women were consuming tobacco. Among the tobacco users, 89 (76.1%) had regular cycles. The association of tobacco consumption with irregular menstrual cycles was statistically significant ($\chi2=5.575$, df=1, p=0.018). Further in this study, a very high percentage of 100 (85.5%) of the tobacco users had dysmenorrhoea. The difference was statistically strongly significant. ($\chi2=266.593$, df=1, $p<0.001$). Among the tobacco users with irregular menstrual cycles, the most common manifestation was oligomenorrhoea 12 (42.9%) followed by 9 (32.1%) and 7 (25%) of menorrhagia and polymenorrhoea respectively.
Conclusions: Significant association was found between tobacco consumption and the irregularity of menstrual cycles and dysmenorrhoea. It has become the need of the hour to provide enough evidence on the correlates of tobacco use in the community to assist government policy makers, health professionals and the public in developing realistic models towards effective tobacco control to cater to different sections of community in need.

Keywords: Smokeless tobacco use, Dentifrice, Menstrual cycles, Dysmenorrhoea, Tobacco use, Tobacco consumption, Reproductive age group, Irregular menstrual cycles

INTRODUCTION

As we all know, tobacco use contributes to high rates of morbidity and mortality across the globe. An increase in the tobacco use among women around the globe will have great number of adverse effects on households' psychological and socioeconomic status as well as family health. Roughly 10% of the world's tobacco smokers live in India representing the second largest group of smokers in the world after China**.** India is also the third largest producer of tobacco leaves in the world.[1] While the epidemic of tobacco use among men is in slow decline in

some countries, use among women in some countries is increasing. Burden in South East Asia is one of the highest among WHO regions.

Coming to the women's count, about 250 million women in the world are daily smokers and around 22 percent of women in developed countries and 9 percent of women in developing countries smoke tobacco. In addition, many women in South Asia chew tobacco.[2]

Tobacco kills both men and women but sex-specific differences exist. A high prevalence of smokeless tobacco use is an additional risk for premature death, especially among women. Tobacco use is one of the top six leading attributable risk factors for chronic diseases in women aged 20 years and above.Women who consume tobacco experience unique risks related to menstrual and reproductive function.

Tobacco use patterns in India are unique and reflect longstanding cultural practices. Two features stand out; bidis are more common than cigarettes; and chewing tobacco is widely prevalent. Not much is known about traditional tobacco use, such as the use of khaini, mawa, or betel quid and bidis among subgroups of women. Similarly, a new trend of increased use of water pipes by women requires more attention. Many women are still unaware of the full scope of risks caused by the many toxic and carcinogenic compounds in tobacco smoke: tobacco smoke contains more than 4000 chemicals, hundreds of which are toxic or carcinogenic.[1-4]

The reasons for both men and women failing to get accurate health information concerning sex-specific impacts of tobacco use on health need further study, followed by intervention. Unless innovative and sustained initiatives are undertaken, the number of female users of tobacco is predicted to rise over the next several decades as a result of increased prevalence, as well as population growth. There are many gaps in the data about the health impact of tobacco use on girls and women of all ages and throughout the life-course. Tobacco use among women in the reproductive age group has various negative effects and the data available in this field is less. However there are very few studies which are done to know the effect of smokeless use of tobacco on the menstrual cycles and dysmenorrhoea. However, there are quite a few studies done to know the effects of smoking form use.

Hence this study was undertaken with the objective of knowing the prevalence of tobacco consumption among the rural women in the reproductive age group and its association with the regularity of menstrual cycles and dysmenorrohea.

METHODS

A community based cross sectional study was conducted from January 2011 to December 2011 among 1200 rural women aged between 15 years to 49 years residing in PHC Vantmuri area, Belgaum, Karnataka, India.

The total population of Vantmuri PHC was 34190. There were 17 villages under the Vantmuri PHC under 5 subcentres. Considering the population of women under the reproductive age group as 22%, accordingly the total population of women under the reproductive age group is 7522. The sample of 1200 was taken proportionately from all the villages depending upon the population of the each village using systematic random sampling method.

According to NFHS 3[4], 15-49 years aged women were considered as women under reproductive age group. So, all women in the age group of 15-49 years and girls less than 15 years who have attained menarche were in the inclusion criteria. Every tenth household was visited and data regarding woman under the reproductive age group was collected. In households with more than one eligible study subject, chit method was used for selecting the study participant.

With approval from the Ethics committee and taking written informed consent from the study subjects, data regarding tobacco consumption was collected.

The data was tabulated using Microsoft Excel Worksheet and analyzed using mean, proportions and percentages. The statistical analysis was done with SPSS 18 statistical software.

RESULTS

Out of 1200 study participants who were the women in the reproductive age group, 188(15.7%) were between the age of 15 to 19 years of age. 83 (6.9%), 62 (5.2%), 106 (8.8%), 382 (31.8%), 182 (15.2%), 197 (16.4%) belonged to the age groups of 20 to 24 years, 25 to 29 years, 30 to 34 years, 35 to 39 years, 40 to 44 years and 45 to 49 years respectively. The mean age was 33.75 (SD±9.6) years.

Out of 1200 women in the reproductive age group, 28 (2.3%) were students. Among the 1172 women, 605 (51.6%) were housewives, 355 (30.3%) were doing work in the fields (farms/agricultural workers) and 212 (18.1%) were doing other work.

Out of 1200 study participants, 2 (0.2%) had not attained menarche and 108 (9%) had attained menopause. A total of 117 had ever consumed tobacco out of the 1200 study participants.

Out of 1081 non users of tobacco who had attained menarche, 914 (84.6%) had regular menstrual cycles, whereas 89 (76.1%) had regular cycles among the tobacco users.% of irregular cycles was high in tobacco users as compared to non-users being 167 (15.4%) of the nonusers and 28 (23.9%) of the users. This association of

tobacco consumption with irregular menstrual cycles was statistically significant ($\chi 2$=5.575, df= 1, p=0.018).

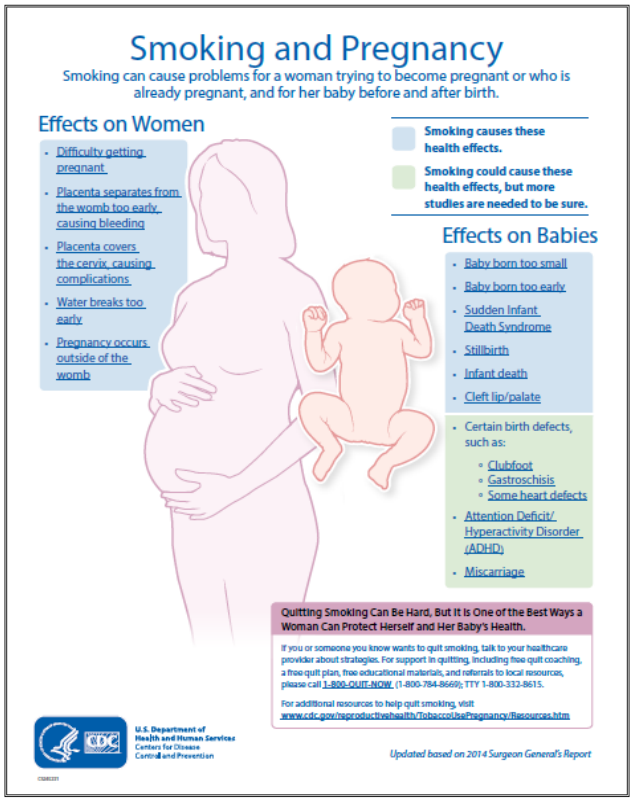

Figure 1: Smoking and pregnancy.[9]
(Source: Tobacco use and pregnancy: centre for disease control and prevention)

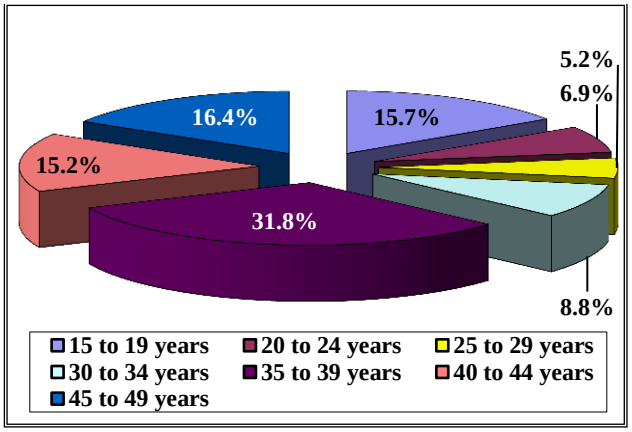

Figure 2: Distribution of the study participants according to their age.

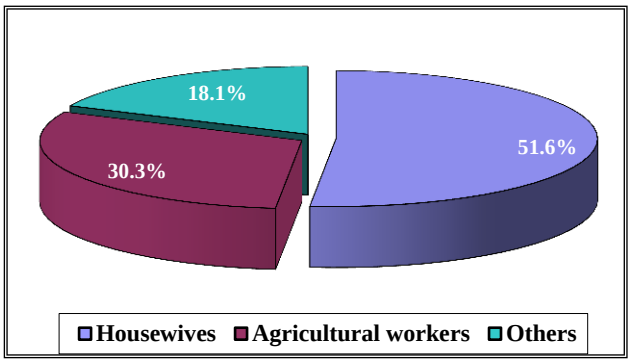

Figure 3: Distribution of study participants according to their occupation.

Table 1: Association of tobacco consumption with regularity of menstrual cycles and dysmenorrhoea.

Tobacco consumption	Study participants		Total n=1198	
	Regular menstrual cycle	Irregular menstrual cycle		
Non users	914 (84.6%)	167 (15.4%)	1081 (100%)	$\chi 2$= 5.575 df=1 p=0.018
Users	89 (76.1%)	28 (23.9%)	117 (100%)	
Tobacco	Dysmenorrhoea		Total n=1198	
	Present	Absent		
Non users	189 (17.5%)	892 (82.5%)	1081 (100%)	$\chi 2$= 266.593 df=1 p<0.001
Users	100 (85.5%)	17 (14.5%)	117 (100%)	

In this study, out of 1198 study participants who had attained menarche, 189 (17.5%) non users had dysmenorrhoea whereas a very high percentage of 100 (85.5%) of the tobacco users had dysmenorrhoea. This difference was statistically strongly significant ($\chi 2$=266.593, df=1, p<0.001).

Among the tobacco users with irregular menstrual cycles, the most common manifestation was oligomenorrhoea 12 (42.9%) followed by 9 (32.1%) and 7 (25%) of menorrhagia and polymenorrhoea respectively. Among the non-users, polymenorrhoea was more common. (Table 1).

DISCUSSION

Along with the risk of suffering from the various health hazards from tobacco use, women are more prone for reproductive health hazards. Women who consume tobacco experience unique risks related to menstrual and reproductive function. They have:

- An increased risk for primary and secondary infertility
- An increased risk for delay in conception.
- An increase in risks for ectopic pregnancy and spontaneous abortion

- An increased risk for adverse pregnancy outcomes:
  - Premature rupture of membranes
  - Abruptio placentae
  - Placenta praevia
  - Preterm delivery
  - Giving birth to low-birth-weight babies and small for gestational age babies which is associated with perinatal, neonatal, and infant morbidity and mortality, the longer the mother smokes during pregnancy, the greater the effect on the infant's birth weight.
  - Giving birth to stillborn child
  - Death of infant in peri-natal period and the risk for sudden infant death syndrome.
  - Women who smoke are less likely to breast-feed their infants than are women who do not.

Women who quit smoking before or during pregnancy have reduced risk for adverse reproductive outcomes, including difficulties in becoming pregnant, infertility, and premature rupture of membranes, preterm delivery and low-birth weight.

Some studies suggest that cigarette smoking may alter menstrual function by increasing the risks for painful menstruation, secondary amenorrhea and menstrual irregularity. Women smokers have natural menopause at a younger age than nonsmokers, and they may experience more severe menopausal symptoms.[2,5,6] Some studies also conclude that smoking may alter levels of estrogens, progesterone, testosterone, and other hormones involved in the development of PMS.

In our study, the prevalence of tobacco consumption was 9.7%. This is less when compared to that of NFHS 3[4] where the prevalence of tobacco among women in rural areas was 13% in India and in Karnataka, 6.6% of the women used some form of tobacco. According to NFHS 4[7], the prevalence of any form of tobacco among women in rural areas is 8.4% in India and in 5% Karnataka.

A significant association of tobacco consumption with irregularity of menstrual cycles and dysmenorrhoea is noted in this study. In our study, the use of tobacco has shown significant association with the irregular menstrual cycles and also dymenorrhoea. Moreover the occurrence of oligomenorrhoea was the commonest among the irregular menstrual cycles.

In a study done by Windham et al to know the effects of cigarette smoking on menstrual cycles, heavy smoking (at least 20 cigarettes per day) was associated with nearly four times the risk of short segment (less than 25 days) as was non-smoking (adjusted odds ratio 3.8, 95% confidence limits 1.1, 12.7).[8] Mean segment length was on average 2.6 days shorter with heavy versus no smoking (95% confidence limits 0.14, 5.0), due almost entirely to shortening of the follicular phase. Women who smoked an average of ten or more cigarettes per day had significantly more variable segment and menses lengths than non-smokers. Based on small numbers, the data suggested that with greater smoking, there was a possible increased risk of anovulation and short luteal phase. Segments of ex-smokers with ten or more pack-years of exposure were more likely to be short and have shorter luteal phases than those of never smokers.

No other study could be traced on the effects of tobacco use on the menstrual cycles, its regularity and dysmenorrhoea.

CONCLUSION

Women under the reproductive age group constitute an important segment of the population. It was evident from this study that the tobacco use is widespread among the women under reproductive age group in the study area. Tobacco awareness and control has always been slightly gender blind, with little recognition of understanding the context and challenges of women's tobacco use.

There has been slightly less integration of gender considerations in research, policy and programmes.

It has become the need of the hour to provide enough evidence on the correlates of tobacco use in the community to assist government policy makers, health professionals and the public in developing realistic models towards effective tobacco control to cater to different sections of community in need.

The present study helps in adding up evidence and marking a case for gender and diversity analysis in tobacco control activities and also to reflect and assess the effects of tobacco use on the reproductive system of women.

Recommendations

Similar/interventional studies to be carried out even al lowest level to focus on

- Decreasing tobacco use in specific sub-populations, such as schoolgirls, young pregnant and mothering women
- Increasing effort against expansion of tobacco companies in developing countries, which are often aimed at women.

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Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. John RM, Rao RK, Rao MG, Moore J, Deshpande RS, Sengupta J et.al. The Economics of Tobacco and Tobacco Taxation in India. Paris: International

Union against Tuberculosis and Lung Diseases; 2010.
2. World Health Organization. Regional Office for South East Asia. Helping people Quit Tobacco: A manual for Doctors and Dentists. Available at: http://www.searo.who.int/catalogue/2005-2011/pdf/tobacco/helping_people_quit_tobacco. Accessed on 3 August 2017.
3. World Health Organization. The Tobacco Atlas; 2002. Available at: http://www.who.int/tobacco/publications/surveillance/tobacco_atlas/. Accessed on 3 August 2017.
4. International Institute for Population Sciences (IIPS) and Macro International. 2007. National Family Health Survey (NFHS-3), 2005–06: India: Volume I. Mumbai: IIPS.
5. Samet JM, Soon YY. Gender, Women and the Tobacco Epidemic. World Health Organization. Available at: http://www.who.int/tobacco/publications/. Accessed on 3 August 2017.
6. Kyaing NN. Regional Situation Analysis of Women and Tobacco in South-East Asia. SEARO: WHO. Available at: http://www.searo.who.int/linkfiles/regional/ Accessed on 3 August 2017.
7. International Institute for Population Sciences (IIPS) and Macro International. 2016 National Family Health Survey (NFHS-4, 2015–16 India: Volume I. Mumbai: IIPS.
8. Windham GC, Elkin EP, Swan SH, Waller KO, Fenster L. Cigarette smoking and effects on menstrual function. Obstetr Gynecol. 1999;93(1):59–65.
9. Centre for Disease Control and Prevention: Tobacco use and Pregnancy: 2014. Available at https://www.cdc.gov/reproductivehealth/maternalinfanthealth/tobaccousepregnancy/index.htm Accessed on 25 October 2017.

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