Knowledge, Attitude and Practice Regarding Environmental Tobacco Smoke among Pregnant Women of Sunsari
Khanal VK,¹ Budhathoki SS,¹ Nath M,² Tamrakar D,³ Pokharel HP,⁴ Shrestha A,¹ Pokharel PK¹

ABSTRACT

Background
Second hand tobacco smoke or Environmental Tobacco Smoke (ETS), contains toxic substances and carcinogens that cause serious health effects in humans. Studies show that ETS exposure during pregnancy is injurious to the mother-infant pair with long term consequences. Limited studies are found in context of ETS in pregnancy in Nepal.

Objective
To explore the knowledge about harmful effect of ETS exposure in pregnant women and to know the behavior of avoidance from exposure to ETS during pregnancy.

Method
A cross sectional study was conducted among 303 pregnant women attending antenatal clinics at the District Hospital Inaruwa and BPKIHS Dharan. A pre-tested semi-structured questionnaire was used to collect data regarding socio-demographic characteristics, knowledge, attitude and practice regarding Environmental tobacco smoke. Data was entered in Excel and analyzed in SPSS 11.5.

Result
The mean age of the respondents was 23.86±4.68 years. The proportion of primi-gravida was 53.5% and multi-gravida was 46.5%. Among the respondents, 14% were illiterate and 91% were unemployed. A similar proportion of the husbands (12%) were illiterate. Three-fourth (75%) of the respondents lived in joint family. It was found that 86% of their husbands were smokers. There were 61% of pregnant women who had heard about ETS, mainly through television (35%) and radio (30%). There was 86% of the households who had initiated some measures to prevent smoking inside the house.

Conclusion
The pregnant women in this study are aware about ETS. However a significant number of them believe that ETS is not harmful compared to active smoking. There is a need for further studies to identify interventions to avoid ETS exposure among the pregnant women.

KEY WORDS
Knowledge attitude practice, Environmental tobacco smoke in Nepal, Pregnant women
INTRODUCTION

Tobaccos are smoked by over 1.1 billion people globally. Eighty Percent of them live in developing countries. One in ten deaths among the adults worldwide, occurs due to smoking which comprises about 5 million deaths every year.\(^1\)

Smoking is associated with an increased risk of developing and dying from cancers, cardiovascular disease (CVD), chronic obstructive pulmonary disease (COPD), as well as with increased risk of adverse reproductive outcomes.\(^2\)

Second hand tobacco smoke or Environmental Tobacco Smoke (ETS) is mainly a combination of side stream smoke released from the burning end of a cigarette and partly exhaled mainstream smoke. Studies show that side stream smoke actually contains higher concentrations of certain toxic chemicals, including several cancer-causing compared to mainstream smoke.\(^3-5\)

Exposure to ETS in pregnant women is a serious concern, as it affects the mother-infant pair and has long-term consequences for children even during adulthood.\(^6,7\)

Literature show that ETS exposure is one of the most hazardous environmental exposures in human, specifically during the intrauterine period.\(^8\) ETS exposure is associated with high fetal complications.\(^9\)

The prevalence of tobacco smoking in the Nepalese population ranges from 20% to 70%.\(^10\) Taking into consideration the high prevalence of smoking in our country, very little is known about the existing knowledge regarding the effect of ETS in the general population, especially among the pregnant women. We also do not know the household practice to avoid smoking inside the house. This study was therefore conducted with a view of exploring the knowledge about harmful effect of ETS exposure and practices to avoid exposure to smoke by pregnant women.

METHODS

A hospital based cross-sectional study was conducted in among 303 pregnant women attending the antenatal clinics (ANC) of district hospital, Inaruwa and B P Koirala Institute of Health sciences in Dharan. This study was conducted from Sep 2013 till Sep 2014. Sample size was calculated by taking prevalence of ETS exposure as 59 % based on the study done by Chen et al.\(^11\) A permissible error of 10% and non-response rate 10% was taken into consideration while calculating the sample size. All pregnant women attending the ANC clinics, altogether 303 pregnant women were enrolled in the study. Pregnant women who came for ANC checkup in outpatient department of BP KIHS and district hospital Inaruwa were approached.

Information was collected regarding socio-demographic characteristics of the respondents and the family, smoking practices, knowledge, attitude and practice regarding ETS at home was collected using a pre-tested semi structured questionnaire. Verbal informed consent was taken from all the respondents prior to the face to face interview. Collected data was entered into Microsoft excel and completeness of data was checked then transferred to SPSS version 11.5. Descriptive statistics was used to calculate frequency, percentage, mean and standard deviation. Ethical clearance was taken from the Institutional Review Committee of BP Koirala Institute of Health Sciences, Dharan.

RESULTS

All together 303 pregnant women were interviewed. The mean age of the respondents was 23.86±4.68 years. Most of the respondents (45%) were between age group 20-24years. The socio-demographic characteristics of the respondents can be found in table 1.

<table>
<thead>
<tr>
<th>Socio-demographic Characteristics</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondent’s Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15-19</td>
<td>42</td>
<td>14</td>
</tr>
<tr>
<td>20-24</td>
<td>138</td>
<td>45</td>
</tr>
<tr>
<td>25-29</td>
<td>78</td>
<td>26</td>
</tr>
<tr>
<td>30-34</td>
<td>39</td>
<td>13</td>
</tr>
<tr>
<td>35-39</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Respondent’s Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Illiterate</td>
<td>42</td>
<td>14</td>
</tr>
<tr>
<td>Primary</td>
<td>18</td>
<td>6</td>
</tr>
<tr>
<td>Secondary and above</td>
<td>243</td>
<td>80</td>
</tr>
<tr>
<td>Husband’s Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Illiterate</td>
<td>12</td>
<td>4</td>
</tr>
<tr>
<td>Primary</td>
<td>24</td>
<td>8</td>
</tr>
<tr>
<td>Secondary and above</td>
<td>267</td>
<td>88</td>
</tr>
<tr>
<td>Respondent’s Occupation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Homemaker</td>
<td>276</td>
<td>91</td>
</tr>
<tr>
<td>professional</td>
<td>18</td>
<td>6</td>
</tr>
<tr>
<td>Clerical work</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Unskilled worker</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Family type</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nuclear</td>
<td>75</td>
<td>25</td>
</tr>
<tr>
<td>Joint</td>
<td>228</td>
<td>75</td>
</tr>
</tbody>
</table>

More than half (55%) of the respondents were in third trimester while only 3% of respondents were in first trimester. About the gravid status 53% of respondents were primigravida while 43% were multi gravida.

Almost all (97%) of the pregnant women in this study reported themselves as non-smokers. However, 86% of respondent’s husbands were smoker and 35% reported smoking by other members in the family. (Table2)

Two-third (61%) of the respondents had heard about ETS and 87% of these respondents believe that it is harmful for health. There were 5% of the respondents who reported they had no idea about its effect on health.
Among the 162 respondents who reported that ETS was harmful to health, 77% reported ETS to be either equally harmful or more harmful compared to active smoking. For smoke avoidance, half of the respondents (49%) ask the smokers not to smoke, while others either move away (37%) or remained exposed (14%) to ETS. (Table-3)

Almost half (43%) of the respondents had continuous exposure of passive smoking while 3% were directly exposed to environmental tobacco smoke while 54% of respondents had no any exposure of ETS in their household setting.

We found that 98% of respondent did not have any regulations regarding in house smoking, while 2% reported having a designated area for smoking. Only 17% of the pregnant women's husband changed their smoking habit or quit smoking when they learnt that their wife was pregnant.

**DISCUSSION**

This study examined the knowledge about harmful effect of ETS exposure and behavior of avoidance during pregnancy. The finding of the study showed that prevalence of active smoking during pregnancy was 3% and passive smoking was 43% which is lower in regard to active smoking (4.9%) and higher in regard to passive smoking (33.1%) in Yoonjoung Choi's study done in Nepal but compared to the NDHS 2011, the active smokers are lesser than the national study (8.4%)\(^{12,13}\). A study done by Chen et al. shows that active smoking (6%) and passive smoking (58.72%) in Taiwan and as high as 91% in Pakistan, which is higher than our results.\(^{11,14}\) This may be due to cultural difference in society. The similar study done in Jordan found that 20.2% of the participants were active smokers, 42.1% were passive smokers, and 37.7% non-smokers which are higher than our study.\(^4\) Another hospital based study done in Taipei found that 44% of pregnant women were exposed to passive smoking. Behavior regarding smoke and its avoidance is dependent also on the cultural context of the population.\(^{15,16}\)

One tenth of the pregnant women in Taipei were exposed to second hand smoke (SHS) from their family members, while the contribution to SHS exposure in this study was 35%.\(^{15}\) The higher contribution of SHS from their family members in this study also could be explained by the very high proportion (75%) of the pregnant women in this study is living in joint family.

Our study found that 87% of respondents who had heard about ETS, had knowledge about ill effect of ETS which is higher than findings of a study conducted in China by Lee et al.\(^{17}\) The percentage of the respondents reporting not being aware of ETS is also high in our study.

Women in this study seem to be quite proactive to avoid exposure to ETS. Almost half of the respondents asked people not to smoke inside the house. This is much lower
The conclusions drawn in this study are based on a convenience sample of pregnant women in a hospital based study thus; the generalizability of the results is limited.

CONCLUSION

Most of pregnant women had heard about ETS, however there is less awareness about the harmful effect of ETS exposure. There are some efforts by the pregnant women to avoid the ETS exposure in Pregnancy, however further research may be needed to identify effective interventions.

ACKNOWLEDGEMENT

We would like to thank all the respondents who participated in this study and BP Koirala Institute of Health sciences for giving us opportunity to conduct this research.

REFERENCES

15. Lin CL. The effect on perinatal morbidity and mortality for pregnant women or their spouse with smoking. Final report. Taipei; 2004.