■ *Original Article*

Tobacco use in pregnant women and their outcome in teaching districts of a health sciences university in eastern Nepal

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Abstract

Background: Tobacco use as a habit by females and during pregnancy not only affects the maternal health but has negative impact on fetal health as well, but so far there has been few studies related to this issue in Nepal. No study of such type has been done in the Eastern Development region of Nepal. **Objectives**: This study was designed with the objectives to measure the proportion of women using tobacco during pregnancy among the patients enrolled and to compare the pregnancy course and socio-demographic variables between tobacco users and non users. **Methods**: Appropriate sample of 234 women selected from postnatal wards of Dhankuta and Sunsari district hospitals and Teaching Hospital of B P Koirala Institute of Health Sciences (BPKIHS) in the eastern Nepal from July 2009 to June 2010. They were interviewed and the data analyzed on SPSS 17 version. **Results**: The study revealed that the prevalence of tobacco use during pregnancy was 19.2 percent. Maximum number of the tobacco users was found in the age group of 20-29 years during their pregnancy. More than 73% of tobacco users were below the poverty line. **Conclusion:** No significant association was seen between the use of tobacco during pregnancy and events during pregnancy like abortion, pre term delivery, peri-natal mortality, low birth weight etc. And also, no significant difference was observed in health problem among the participants in between the groups.

Keywords: Tobacco, Pregnancy, Women, BPKIHS

Introduction

Compared with developed countries, more men and fewer women smoke in developing countries, but smoking among girls and women is increasing in developing countries.[1] Moreover even low levels of tobacco use among reproductive age women raise concerns for public health not only because of potential effects of tobacco women themselves but also because smoking during pregnancy has been linked to preterm delivery, low birth weight, and other fetal problems.[2] A number of studies have reported an inverse association between maternal smoking and preeclampsia.[3] However a study has suggested that smokers who develop preeclampsia have worse maternal and fetal outcomes than non-smokers who develop pre eclampsia.[4] Apart from smoking even maternal use of smokeless tobacco decreases birth weight and gestational age and should receive attention as part of prenatal care.[5] According to the Tobacco Atlas 2004 the prevalence of female smoker in Nepal is 24 percent.[6] Nepal Demographic and Health Survey 2006 has shown that in amongst reproductive age group 15 percent women smoke cigarettes and 5 percent consume other forms of

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tobacco.[7] A study done by Khatry S K states that 30% of women in rural Nepal smoke during pregnancy.[8] Another study done in Dharan, Eastern Nepal on female age 15 years and above has shown that 12.9 percent were cigarette smokers and 14.1 percent were smokeless tobacco users and women who smoked during pregnancy was significantly lower compared to non- pregnant female smokers.[9] As different studies done in different parts of Nepal has given different results and as history of tobacco use followed by counseling is an important part of antenatal and postnatal visit this study was conducted to assess the tobacco use in pregnancy and its maternal and fetal effects in the hospitals of Eastern Development Region. "History of tobacco use" as a part of ANC followed by counseling to the users is hardly implemented in ANC wards although "World No Tobacco Day 2010" was designed to draw particular attention to harmful effects of tobacco marketing towards women.

Methods

This is a descriptive study where subjects have been selected from post natal ward of BPKIHS Dharan Dhankuta District Hospital and District Hospital of Sunsari district, Inaruwa. In these 3 hospitals BPKIHS teaching hospital and Sunsari district hospital, Inaruwa lies in Terai region and Dhankuta district hospital lies in hilly region. A non probability – a convenient sampling was used to select the participants. The sample size was calculated on the basis of prevalence of tobacco use in pregnancy of 30%[8] with 20% of permissible error at 5% level of significance. Low Birth weight is when the neonate weighs less than 2500 grams. Premature Birth is when the infants are delivered on or prior to 37 weeks of gestation. Perinatal mortality is death of fetus/ infant in the time period between 28 weeks of gestation & 1 week postnatal (as defined by W.H.O.). Out of 234 subjects, samples were taken from each of the 3 hospitals were proportional to the average number of deliveries in each hospital in a year. Verbal consent was taken from each participant as well as attending relatives and confidentiality was assured. The subjects were asked based on standard set of questions. Data was analyzed using SPSS 17.0 version. Subjects who were excluded from the study were those who were disoriented, who did not remember the L.M.P. date, who were not Nepali citizen and who underwent induced abortion or abortions due to other medical causes. Ethical clearance was taken from Ethical committee of the institute. The study period was from Jan 2009 to Jan 2010.

Neonates of subjects with head circumference less than 32 centimeters were put under one category.[10] Similarly, neonates with length less than 49 centimeters were put under one category.[11] Poverty was defined as having per capita income less than 34,220 rupees in one year (less than 1.25 US dollars per day when value of 1 US dollar was 75 NRs)

Results

Socio demographic profile of the pregnant women enrolled in the study has been shown in table 1. There were 24 women below 20 years and 31 years above. Almost 30 percent of the subjects were literate but maximum number of women was housewives and 8.5 percent were involved in technical or professional work. Almost 66% of subjects were living below poverty line.

Table 1: Socio-demographic characteristics of participants (n=234)

Age group	**Frequency**	**%**
< 20	24	10.3
20 – 29	179	76.5
>29	31	13.2
Literate	**Frequency**	**%**
Yes	193	82.5
No	41	17.5
Occupation	**Frequency**	**%**
Housewife	192	82.1%
Labor	22	9.4
Professional/Technical	20	8.5
Poverty	**Frequency**	**%**
Yes	154	65.8
No	80	34.2

More than 19 percent of females used some forms of tobacco during their pregnancy. Amongst 45 tobacco users, those using only smokeless form of tobacco were 5 in number where 3 used Khaini regularly and 2 used Jarda. However none gave the history of alcohol abuse or dependency as assessed by CAGE criteria.

Table 2 shows that there was no significant association between use of tobacco during pregnancy

and age groups, caste, literacy status, husband's literacy status, occupation and economic status of the subjects. Out of 33 tobacco users, 21 used cheap form of smoking tobacco, 'bidi' and the rest 12 used filtered cigarette.

Table 2: Tobacco Use in Pregnancy and Socio demographic profile (n=234)

Variables	Tobacco use in Pregnancy		P value
	Yes (n=45)	No (n=189)	
Age Group			
<20	4 (16.67%)	20 (83.33%)	
20 – 29	33 (18.43%)	146 (81.57%)	>0.05
>29	8 (25.81%)	23 (74.19%)	
Caste			
Upper	11 (13.41%)	71 (86.59%)	> 0.05
Others	34 (22.37%)	118 (77.63%)	
Literacy			
Yes	40 (20.73%)	153 (79.27%)	> 0.05
No	5 (12.20%)	36 (87.80%)	
Husband's Literacy			
Yes	42 (20.19%)	166 (79.81%)	> 0.05
No	3 (11.54%)	23 (88.46%)	
Occupation			
Housewife	35 (20.71%)	134 (79.29%)	>0.05
Others	10 (15.38%)	55 (84.62%)	
Poverty			
Yes	33 (21.43%)	121 (78.57%)	>0.05
No	12 (15.00%)	68 (75.00%)	

Table 3: Tobacco use in pregnancy with different health events (n=234)

Health events	Tobacco Use		P value	OR (95%CI)
	Yes	No		
Respiratory symptoms				
Yes	7	31	>0.05	0.94 (0.39 -2.59)
No	38	158		
High BP				
Yes	7	38	>0.05	0.81 (0.33 – 1.97)
No	35	154		
Seizure episode				
Yes	1	7	>0.05	0.59 (0.07 – 4.92)
No	44	182		
Abortion				
Yes	2	4	>0.05	2.15 (0.38 – 12.13)
No	43	185		
Stillbirth				
Yes	1	2	>0.05	2.12 (0.19 – 23.97)
No	44	187		
Peri natal mortality				
Yes	1	44	>0.05	0.59 (0.07 – 4.93)
No	7	182		
Premature birth				
Yes	2	10	>0.05	0.83 (0.18 – 3.94)
No	43	179		
Low birth weight				
Yes	8	52	>0.05	0.57 (0.25 – 1.30)
No	37	137		
Head circumference of neonates				
< 32 cm	4	7	>0.05	2.53 (0.71 – 9.05)
> = 32cm	40	177		
Length of neonate				
< 49cm	14	71	>0.05	0.74 (0.47 – 1.18)
>= 49cm	30	113		

Table 3 shows that there is no significant association between the tobacco use in pregnant women and events in pregnancy and in neonate body measurements. Since there were 6 cases of abortion the total number of neonates in the study was 228.

Discussion

In this study there were 24 teenage pregnancies out of total 234, which is more than 10 percent. Almost 66 percent of subjects were living below poverty line as shown in Table 1. This is in sharp contrast to the latest data given by the National Planning Commission of Nepal which states that national poverty level has gone down to 24.8%. The literacy rate amongst the subjects, 82.5 percent, is higher than that of the general female Nepalese population which is 35 percent but despite high literacy 82 percent were working as housewives. Total of 45 out of 234 pregnant women used tobacco during pregnancy, which is 19.2% as shown in Figure1. Tobacco use during pregnancy as shown by National Family Health Survey, 2005-2006, India was 11.8 percent.[12] Prevalence of smoking in pregnancy in North Carolina was 13.8%.[13]

Maximum number of tobacco users was in the age group 20-29 (33 out of 45 or 73 percent). However the age group which had largest proportion of women using tobacco during pregnancy was 30 years and above (8 out of 31or 25 percent) where as in age group below 20, 16.7 percent (4 out of 24) used tobacco during pregnancy. In a National Family Health Survey done in India in the year 2005-2006, it was shown that tobacco use among pregnant women of age below 25 years was 9.4 percent, significantly lower compared to that of age 45 and above (27.3 percent).[12] No significant association was seen between tobacco use in pregnancy and caste groups as shown in Table 2. It was shown in a study done in Australia in the year 2004 that women with Aboriginal or Torres Strait Islander backgrounds are more than three times more likely to smoke during pregnancy than non - indigenous women.[14] This study also did not show any significant association between tobacco use during pregnancy and educational status of the subjects as shown in Table 2. National Family Health Survey done in India, 2005- 2006 showed that education was negatively correlated with tobacco use.[12] In this study no significant association was seen between the tobacco use in pregnancy and their economic status or the type of occupation. Data from the 2004 National Drug Strategy Household Survey, Australia indicate that women in the most disadvantaged group are four times likely to smoke than women who were least disadvantaged.[14]

In this study no significant association was seen between the use of tobacco during pregnancy and poor outcomes as shown in Table 3.Out of 6 women who had abortion done only 2 were regular tobacco users. Amongst the subjects of the study, only 1 tobacco user had stillbirth and 1 tobacco user reported a case of perinatal mortality. Out of 60 low birth weight babies only 8 were by tobacco users (13.3 percent) and out of 174 normal weight babies 37 were by tobacco users (21.3 percent). There was no significant association between the use of tobacco in pregnancy and head circumference and length of the baby as shown in Table 3. Out of 11 neonates with head circumference less than 32 cm, only 4 belonged to tobacco users (36%) and out of 85 neonates whose length is less than 46 cm, 14 mothers were tobacco users (16%). A prospective cohort study conducted among 460 pregnant women who delivered live singletons in Sapporo, Japan from 2002 to 2005 showed that maternal smoking during pregnancy can result in significantly reduced birth length and birth head circumference[15]. It has been shown by a study done in pregnant women in UK that anti smoking counseling during their antenatal visits can significantly reduce their smoking behavior during pregnancy.[18]

Limitations of this study are non probability sampling method adopted and participation of only those pregnant women with institutional delivery where as home deliveries constitute 80 percent of total pregnant cases in Nepal,[16] due to which the result could not be generalized for the community. Also only those women who were available at postnatal ward could be chosen as subjects. There was also possibility of information bias from the subjects due to denial of tobacco using behavior because of fear of this fact being known to other family members. It has been shown by other studies related to tobacco use in pregnancy that this type of denial is common.[17] No use of biochemical test was done due to lack of fund. Otherwise, measurement of Urinary Cotinine

level could have given the true picture and denial by patient would not have affected the result.

Conclusion

With many limitations mentioned above this study did not show any association between tobacco use in pregnancy and outcome which has been strongly established in the past. However this type of study should be strengthened in Nepal where "history of tobacco use" has not been accepted as a part of antenatal check up.

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