

A Community Based Knowledge and Practices Survey on Passive Tobacco Smoking and its Impact on Fetal Outcome

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Abstract

Objective: To determine the proportion of passive tobacco smoking during pregnancy and estimate the level of knowledge and practices regarding Passive tobacco smoking and its adverse fetal outcome.

Methods: A community based cross sectional survey was conducted in four union councils of Malir Town. This is a small semi urban community of 77216 population. Currently pregnant women were interviewed regarding passive tobacco smoking consumption and their knowledge about its adverse fetal outcome. A semi structured questionnaire was used during June to August 2011. Pregnant women either exposed or not exposed to passive tobacco smoking were interviewed for their knowledge and practices regarding its impact as adverse fetal outcome.

Results: A total of 190 mothers were interviewed. In the study 133(70%) women were found subjected to passive tobacco smoking. About (85.5%) exposed to passive tobacco smoking were knowledgeable about adverse effect of maternal passive tobacco smoking on fetus. The fetal adverse effects comprehend by mothers included stillbirth 35 (63.6%), small size baby 65 (100%), fetal congenital abnormality 33(86.6%).

Conclusion: The proportion of passive smoking exposure during pregnancy was 70% and 85.5% mothers were knowledgeable regarding Passive Smoking exposures and adverse fetal outcome including stillbirth 63.6%, small size baby 100%, fetal congenital abnormality 86.8%.

Keywords: Passive smoking, fetal outcome, low birth weight, stillbirth, congenital defects. (ASH & KMDC 19(1):41;2014).

Introduction

Several studies have shown the adverse effects of passive smoking during pregnancy on fetus. During antenatal period negative effects of passive smoking on fetus have received little attention in developing countries. About 200 million women in the world smoke, 22% in developed and 9% in de-

veloping countries. Women also face hazards of passive smoking¹. Passive smoking was defined as the presence of a regular daily smoker in a house². Currently 5.1 million people die every year globally from tobacco use, out of which 1.2 million die in the South-East Asia Region alone³. Adamek in 2005 reported 31% prevalence of passive smoking by pregnant mothers⁴. In Badlissi study the prevalence of women who smoke (active/ passive) during pregnancy at home and work was 37.3%⁵. Barber showed a statistically significant association to passive smoking p value < 0.0001. He also emphasized that newborns are at risk of negative developmental outcomes delivered by mothers exposed to passive smoking⁶. Al Delaimy from Thai study reported approximately one third (30%) mothers were passive smokers⁷. Anuntaseree (2008) reported environmental tobacco smoke (ETS) exposure is common in

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Thai infants and main source of exposure is from smoking father⁸. Bergmann in 2008 reported from Germany that pregnant mothers exposed to smoke (active/passive) through out pregnancy were 25%. It means that 150,000 newborn per year have been exposed to passive smoking before birth. Its long term effects have been observed in the form of chronic diseases in later life⁹. Bozkart (2006) reported from Turkey that the mean of total cigarette consumption was 6.5 packs per year in women for both active/passive smoking. There was at least one current smoker in 70.1% of passive smokers in the family¹⁰. Acharua showed that smoking during pregnancy (active or passive) is associated with increased health risks to the unborn child¹¹. Fantuzzi et al. From German in 2002 reported that the prevalence is higher in pregnant women of low social status, living with smoking partners. Only 12 % Gynecologists in Berlin feel responsible for anti-smoking counseling and convinced for its success¹². A decrease birth weight is associated with passive smoking which in turn has a risk of developing chronic disease as an adult later in life¹³.

This study aimed to estimate the proportion of passive smoking during pregnancy and determine the level of awareness and practices among pregnant women regarding the adverse effects on fetus in a semi urban community. The study will also provide a baseline proportion of passive smokers and development of community based preventive strategies for antismoking campaign to reduce the adverse effect on fetus.

Subjects and Methods

A community based cross sectional survey was conducted at Malir Town which is a small semi urban community of 77216 populations. Three union councils (UCS) were selected by random sampling out of eight Union councils. The study population is a diverse community of all ethnic and socioeconomic classes residing in Pathan Goth and its vicinity. Pregnant women (n=190) were interviewed regarding passive smoking consumption and their adverse fetal outcome. A semi structured questionnaire was implemented from June to August 2011 among pregnant women exposed/unexposed to passive smokers and their knowledge and practice for adverse fetal outcome.

There were 404 households in the union council 2, 5 and 8 of Malir Town and every alternate house was selected with a random start. Initially the study subjects were selected among women of any age between 19-45 years. The questionnaire was administered to those present in house at the time of interview and provided the consent. The study population included pregnant women whose spouse and other family members were tobacco users. Mothers exposed to passive smoking may lead to adverse fetal outcome including small for gestational age, preterm birth and low birth weight ,still birth, congenital fetal abnormality.

Passive smoking was defined as the presences of a regular daily smoker in a house. The demographic data, level of knowledge and practices regarding passive smoking were observed in the pilot survey. The demographic variables included age, ethnicity, parity, educational level, income per month, employment status and family setup. The participants were investigated for the knowledge about passive smoking. Women included in the study were pregnant at the time of interview and were nonsmoker. They were asked about the habit of tobacco consumption before, during and after pregnancy previously. Women active smokers were excluded from the study. Women who never used tobacco but exposed to passive smoking were recruited for the study. All variables were entered and analyzed in SPSS windows version 17. The data was analyzed in frequencies and cross tabulations performed for both passive and non-passive smokers. The association of passive smoking with adverse fetal outcome was analyzed by univariate and multivariate regression analysis.

Result

A total of 190 mothers were interviewed. The response rate was 98.6 %. In the study 133(70%) women were found subjected to passive smoking. Women 133(85.5%) were knowledgeable about adverse effect of maternal passive smoking on fetus. The fetal adverse effect observed by mothers included stillbirth 35 (63.6%), small size baby 65 (100%), fetal congenital abnormality 33 (86.8%) and fetal growth restriction 33 (%86.8).

The mean age of respondents was 27.9 ± 5.8 years, mean gestational age at the time of interview was 63.1 ± 14.3 days, average number of family per respondent was 7, number of family members with regular habit of smoking in the presence of pregnant women at the time of interview was three on an average. Table 1 shows characteristics of study subjects. The bulk of women exposed to passive smoking were 98(63.2%) and belonged to the Baloch community. Mostly 125(83.3%) pregnant women were housewives exposed to passive tobacco smoking and 32(80%) employed. Most of the respondents belong to joint family exposed to passive tobacco smoking compared to non smokers from joint and nuclear family system 149 (78.4%) and 41(21.6 %) respectively. Table 2, presents univariate analysis of risk factors among pregnant mothers exposed to passive tobacco smokers. Table 3, shows factors found to be associated with passive tobacco smoking for adjusted logistic regression. The multivariate analysis showed risk factors were booking status, monthly income Pak Rupees > 5000/ per month, house wife, gestational age, and number of family members who smoke.

Discussion

In this study 133 (70%) pregnant women were passive smokers and the main source was second hand smoke at home mostly practiced in joint family setting. Several studies have shown that low socioeconomic status, less education and urbanization are the main reasons for passive smoke exposure¹⁰. Matsubara in a prospective study indicated an adverse effect of maternal active smoking on fetal growth but also a small influence of maternal passive smoking¹⁴. The factor most often cited is associated with low birth weights and premature births⁵. Nakamura showed only 35.5% prevalence in Sao Paulo compared to high rate in our study but he suggested that active and passive smoking has unfavorable effect on both mother-infant units as evident from this study¹⁵. Campbell et al. stated difficulties in determining the contribution of passive exposure and inconsistencies between biochemical and self-reported measures¹⁶. There has been significant association with low income $p < 0.0001$, house wife two times more at risk and total number of active smokers in family and their ad-

verse fetal outcome. The knowledge about the adverse effect on fetus and subjective observations was considered as consistent and correlated in 85.5% with small size baby, stillbirth and fetal congenital abnormality. Hang K et al. showed the difference in mean birth weight between nonsmokers and smokers mothers. Also the study, reported no significant effect of paternal smoking on birth weight when mother was a non-smoker¹⁷. There is a causal relationship proven by animal experiments¹³. Therefore human research is needed in developing countries. Hofhuis showed 85.5% as compared to 70% in this study woman were well aware about the adverse fetal outcome of passive smoking. There is no awareness among parents regarding the negative effects of passive smoking on their off-

Table 1. Characteristics of pregnant women interviewed to estimate the level of knowledge and practices regarding passive tobacco smoking and its adverse fetal outcome (n= 190)

Characteristics	No	%
Passive smoking		
Present	133	70
Absent	57	30
Booked:	89	46.8
Non Booked	101	53.2
Education (years)		
5	132	69.5
> 5	58	30.5
Occupation		
Employee	40	21.1
House wife	150	78.9
Socioeconomic status		
Middle	19	10
Low	171	190
Knowledge about Passive Smoking and adverse fetal outcome		
Yes	166	87.4
No	24	12.6
No of family members in house		
1-5	134	70.5
> 5	56	29.5
Family type		
Nuclear	41	21.6
Joint	149	78.4

Table 2. Univariate Analysis: Risk Factors for passive tobacco smoking in pregnant women interviewed to estimate the level of knowledge and practices regarding passive tobacco smoking and its adverse fetal outcome. N= 190

S.	Variable	†OR	95% C.I	p - value
1	Maternal Age	1.04	0.99 - 1.10	0.15
2	Booking Status			< 0.01
	No	1		
	Yes	3.22	1.66 - 6.17	
3	Educational Level			0.84
	Up to Primary	1		
	Primary and above	0.93	0.48 - 1.82	
4	Monthly Income			< 0.01
	Rs. 5000	1		
	Rs. 5000 – 8000	13.71	3.14 - 59.68	
	Rs. 8000 – 10000	8.8	71.99 - 39.55	
	Rs. > 10 000	4.03	1.11 - 14.71	
5	Occupation			< 0.01
	Employers	1		
	House wife	20.00	8.25 - 48.50	
6	Gravidity	1.04	0.93 - 1.16	0.51
7	Parity	1.03	0.92 – 1.16	0.58
8	History of Abortion			0.35
	No	1		
	Yes	0.35	0.67 - 3.09	
9	Gestational age	1.06	1.03 - 1.08	< 0.01
10	Hemoglobin	0.97	0.64 - 1.47	0.89
11	No. of family members	1.08	0.94 - 1.24	0.27
12	No. of family members smoke	1.56	1.17 - 2.09	< 0.01
13	Family setup			0.79
	Nuclear	1		
	Joint	1.11	0.53 - 2.23	

† Crude Odd Ratio

spring¹⁸. Raphael J. Witorsch reviewed forty studies and one third of them failed to demonstrate a statistically significant association between tobacco smoke exposed to pregnant women and low birth weight. The absences of association reflect methodological difficulties including misclassification, type II error, recall bias and control of confounders¹⁹. In the present study mainly recall bias and misclassification of level of passive smoking were significant at the time of interview due to low lit-

Table 3. Multivariable Analysis: Risk Factors for Passive tobacco Smoking and Adverse Fetal Outcome in pregnant women interviewed to estimate the level of knowledge and practices regarding passive tobacco smoking and its adverse fetal outcome (n=190)

S.	Variable	††OR	95% C.I	p - value
1	Booking Status			< 0.01
	No	1		
	Yes	5.25	1.59 - 17.40	
2	Monthly Income			0.03
	Rs. = 5000	1		
	Rs. 5000 – = 8000	8.68	1.26 - 59.70	
	Rs. 8000 – = 10 000	6.84	1.02 - 46.00	
	Rs. > 10 000	3.34	0.57 - 19.70	
3	Occupation			< 0.01
	Employers	1		
	House wife	25.65	7.44 - 88.50	
4	Gestational age	1.05	1.01 - 1.09	< 0.01
5	No. of family members smoke	2.31	1.46 – 3.65	< 0.01

†† Adjusted Odd Ratio

Factors found to be associated with passive smoking are booking status for delivery, monthly income > Rs. 5000, being house wife, increasing gestational age, and increasing number of family members who smoke.

eracy among study subjects. Badlissi showed the relative risk linked to smoking was 1.54 for premature birth and 2.21 for low birth weight⁵. In this study 65 women were knowledgeable regarding small size baby low birth weight / preterm, 35 about stillbirth and 33 had awareness for fetal congenital abnormality. A study from Atlanta showed the role of passive smoking was difficult to assess due to the small number of nonsmoking women exposed²⁰. This study revealed that although passive smoking is high during pregnancy and awareness is present due to electronic media but adverse effect is still debated and requires research in future.

Risk factors found to be associated with passive smoking are booking status, monthly income Pak Rupees >5000/ Per Month , house wife, increasing gestational age, and three or more family members who smoke at home. Couples with low income practice have more consumption of tobacco therefore, housewife were exposed for a longer period in smoke environment at home facing adverse

effect on fetus compared to women who were employed. Mothers in late pregnancy were more exposed to passive smoking.

The average number of family members were 7 and 4 member were tobacco user at a single time and mothers were exposed for passive smoking for longer time period during pregnancy in houses. Therefore, antismoking home based campaign during antenatal care is recommended.

Conclusion

The proportion of passive tobacco smoking exposure during pregnancy was 70 % and 85.5% mothers were knowledgeable regarding passive tobacco smoking exposure. Adverse fetal outcome including risks of stillbirth 63.6%, small size baby 100%, and fetal congenital abnormality 86.8% in exposed group compared to non-exposed mothers.

Conflict of Interest

All the authors declare no conflict of interest for this study.

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