

Knowledge, Attitude and Behaviour Related to Secondhand Smoke Exposure among Non-Smoking Pregnant Women with Smoking Husbands in Bhagalpur: A Cross-Sectional Survey

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Abstract

Background: Pregnant women's exposure to Secondhand Smoke (SHS) is an emerging problem in several low and middle-income countries, jeopardizing ongoing efforts to improve maternal and child health. In India exposure to SHS among pregnant women is highly prevalent. The present study aimed to assess knowledge, attitude, and behavior related to SHS exposure among non-smoking pregnant women with smoking husbands in Bhagalpur, Bihar. **Materials and Methods:** A descriptive cross-sectional study was conducted in Jawahar Lal Nehru Medical College and Hospital, Bhagalpur, Bihar. A pre-tested validated close-ended questionnaire was used. Data were collected from 160 non-smoking pregnant women visiting Dental Out Patient Department from July to October 2021. The questionnaire consisted of 18 close-ended questions and for knowledge, attitude, and behavior questions response to items was placed on a 3-point Likert scale. **Results:** The mean age of the study participants was 25 ± 3.9 years with a minimum of 18 years and maximum of 37 years. About half (48.1%) of the pregnant women were in their third trimester. About 41.9% of pregnant women reported that their husbands consumed <5 cigarettes/bidis/day. About 23.1% of the participants reported SHS exposure from husbands and 45.6% reported daily exposure to SHS. About 41.9% pregnant women were not aware about SHS and more than 50% of the participants exhibited favorable attitude and behavior toward avoidance of SHS. **Conclusion:** Knowledge regarding SHS exposure among non-smoking pregnant women with smoking husbands was poor. In spite of having favorable attitude and behavior toward avoidance of smoke exposure, majority of women felt helpless in refraining their husbands from smoking.

Keywords: Attitudes, Behavior, Knowledge, Pregnant women, Secondhand smoke.

INTRODUCTION

Tobacco smoking, now and in the past, has been a custom and addiction primarily of men, leaving women and children as the majority of the world's passive, or involuntary, smokers.^[1] Secondhand Smoke (SHS) is well-recognized as a public health concern, especially for vulnerable populations such as pregnant women. According to a World Health Organization (WHO) reporting 2009, about 35% of pregnant women were affected by SHS globally.^[2] It was estimated that more than one-third of all women worldwide are regularly exposed to SHS. The situation is worse in developing countries, where up to half of pregnant women are frequently exposed to SHS.^[3]

Secondhand tobacco smoke is the combination of smoke released from the burning end of a cigarette or other smoked tobacco and the smoke breathed out by smokers. Burning tobacco products, such as cigarettes, smoking pipes, or cigars releases side stream smoke and the tobacco smoke that is exhaled by a smokers is

the mainstream smoke. Both of these sources release harmful chemicals into the air that affect nonsmokers.^[4] According to the WHO (2019), SHS causes more than 1.2 million premature deaths/year.^[5] The need for protection from exposure to SHS has thus been addressed in Article 8 of the WHO Framework Convention on Tobacco Control (WHO, 2003), which stipulates comprehensive smoking-free policies in public places.^[6] There is no safe level of exposure to SHS. Even brief exposures can be harmful. Cotinine, a major metabolite of Nicotine is a useful biomarker with a half-life of about 16–20 h and can be used to

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distinguish tobacco users from non-users.^[7] Passive smoking, which is breathing other people's smoke, is also considered equally injurious to health as it contains approximately the same toxic substances and free radicals that are present in mainstream tobacco smoke.^[8]

Exposure to second-hand smoke also increases the risk of adverse fetal outcomes, including stillbirth and congenital malformations.^[9] SHS exposure from either maternal or paternal smoking may lead to postnatal health effects among children, including increased risk for Sudden Infant Death Syndrome (SIDS), reduced physical development, decrements in cognition and behavior, and increased risk for childhood cancers. The International Consultation on Environmental Tobacco Smoke and Child Health concluded that maternal smoking during pregnancy is a major cause of reduced birth weight, decreased lung function, and SIDS in newborns. Exposure to SHS can lead to ischemic heart disease, respiratory infections, asthma, and lung cancer. Complications, especially in pregnant women, are significant, such as preterm labor, rupture of membranes, cesarean delivery, decreased growth, and intrauterine growth retardation, low birth weight fetus, distress fetus, and small fetus compared to gestational age.^[10] It is well established that maternal behaviors and several conditions are associated with adverse pregnancy outcomes.

The WHO Framework Convention on Tobacco Control has prompted many countries to implement smoking bans in public places and workplaces to protect the health of non-smokers. These initiatives are a necessary but only partial step toward fully protecting non-smokers from SHS, as women and children spend a great deal of time in their homes, an environment beyond the reach of regulation.^[11] A literature search revealed lack of data in this area in India. Hence, this study was conducted with the aim to assess the knowledge, attitude, and behavior of non-smoking pregnant women to SHS exposure and in the process to create awareness regarding harmful effects of SHS exposure.

Objective

- To determine the effect of SHS on pregnant women.
- To determine the knowledge regarding the SHS.
- To determine the attitude and behavior of pregnant women towards SHS.

MATERIALS AND METHODS

A descriptive cross-sectional study was conducted among 160 non-smoking pregnant women who visited the Dental Outpatient Department of Jawahar Lal Nehru Medical College and Hospital (JLNCH) in the Bhagalpur district of Bihar. The study was conducted for a period of 4 months from July to October 2021 to assess knowledge, attitude, and behavior related to SHS exposure among non-smoking pregnant women of Bhagalpur. The sample size of 160 was calculated based on the study by Bloch *et al.*^[11] considering the prevalence of SHS exposure during pregnancy in Orissa (10.8%).

An investigator administered, closed-ended, 18-item questionnaire was used to assess the knowledge, attitude,

and behavior related to SHS exposure among non-smoking pregnant women with smoking husbands. The questionnaire was translated in Hindi language and the data was collected face to face by the investigator. The questionnaire consisted of five sections. Section I recorded socio-demographic details, Section II had four items to record the history of SHS exposure, Section III contained four questions designed to assess knowledge of pregnant women about SHS exposure, Section IV contained five items designed to assess the attitude of pregnant women toward SHS exposure and Section V had five items designed to assess the behavior of pregnant women toward SHS exposure.

The study was approved by the Institutional Ethics Committee, JLNCH, Bhagalpur, Bihar. Informed verbal consent was obtained from each participant prior to the data collection. Confidentiality and privacy of the participants was maintained.

Statistical analysis

For categorical data, the percentage of different parameters was calculated and for quantitative data, descriptive statistics were calculated. The data obtained were compiled systematically in a Microsoft Excel sheet and subjected to statistical analyses using statistical package for social sciences for window 26.0.

RESULTS

Socio-demographic characteristics of the participants

A total of 160 pregnant women participated in the study. The mean age of the study participants was 25 ± 3.9 years with a minimum of 18 years and maximum of 37 years. Majority of the participants completed their high school education (35%) and 86.9% were homemakers. Among the spouse, about half (51.9%) of them were higher secondary and above and 5.6% of the spouses were illiterate. Majority of the pregnant women were from rural area (71.9%). Among them, about half (48.1%) of them were in their third trimester.

History of SHS exposure

Around 41.9% of pregnant women reported that their husbands consumed <5 cigarettes/bidis/day, followed by 38.1% whose husbands smoked up to 5–10/day and 20% pregnant women reported that their husbands smoked more than 10 cigarettes/bidis daily. Around 25% of them reported SHS exposure from family members, 26.9% from relatives, 25% of them from friends/colleagues at workplace and 23.1% of them reported SHS exposure from husbands. Majority of the participants reported daily exposure to SHS (45.6%), 29.5% reported occasional/rare, 18.1% reported weekly and 6.9% reported monthly exposure. Majority said that smoking was allowed in all parts of their home (41.9%), 36.9% said allowed only in some part of their home and 21.2% said it is not allowed in any part of their home (Table 1).

Knowledge of pregnant women about SHS exposure

Around 41.9% pregnant women were not aware of what SHS was and around 48.8% of them were aware that SHS was injurious to health. More than 50% of the participants were aware that SHS was associated with cancer and cardiac problems. Almost half of the participants (53.1%) were not aware that SHS

was associated with cancer, respiratory and cardiac problems. Majority of the pregnant women (more than 60%) were unaware of the association of SHS with low birth weight babies, crib death, spontaneous abortions, preterm delivery, respiratory problems in children, and heart problem (Table 2).

Attitude of pregnant women toward SHS exposure

About 81.9% of the pregnant women found it unpleasant to be in the vicinity of smoking person, 62.5% found SHS to

be offensive, 66.9% felt smoking in public places should be banned, 54.4% felt helpless regarding restraining themselves from husbands who smoked, and 76.2% felt the need to be educated regarding harmful effects of SHS (Table 3).

Behavior of pregnant women toward SHS exposure

Around 62.5% of the pregnant women said that they distanced themselves from SHS exposure when they encounter someone who is smoking, 30.6% never allowed people to smoke in their house, 68.8% distanced themselves from SHS exposure in public places and 50.6% of them avoided SHS exposure while traveling by asking smoker to stop smoking. However, 46.9% of the pregnant women occasionally avoided going to places where they sensed the threat of SHS exposure (Table 4).

DISCUSSION

The present cross-sectional study was conducted to assess the knowledge, attitude, and behavior related to SHS exposure

Table 1: Distribution of study population based on SHS exposure history

Exposure history	n (%)
Daily cigarette/bidi consumption of husband	
<5	67 (41.9)
5–10	61 (38.1)
>10	32 (20)
Source of SHS exposure?	
Husband	37 (23.1)
By her family member	40 (25)
Relatives	43 (26.9)
Friends/colleagues at workplace	40 (25)
Frequency of exposure	
Daily	73 (45.6)
Weekly	29 (18.1)
Monthly	11 (6.9)
Occasionally	23 (14.4)
Rarely	24 (15)
Household smoking ban	
Allowed in all parts of home	67 (41.9)
Allowed in some parts of home	59 (36.9)
Not allowed in any part of home	34 (21.2)

SHS: Secondhand Smoke

Table 2: Distribution of study population based on responses of knowledge related questions

Knowledge related questions	Number of responses, n (%)		
	Yes	No	Don't Know
Do you know what SHS is?	60 (37.5)	67 (41.9)	33 (20.6)
Do you know that SHS is injurious to you?	78 (48.8)	44 (27.5)	38 (23.7)
SHS is associated with-			
Cancer	87 (54.4)	25 (15.6)	48 (30)
Respiratory problems	59 (36.9)	26 (16.2)	75 (46.9)
Cardiac problems	81 (50.6)	20 (12.5)	59 (36.9)
All of the above	49 (30.6)	26 (16.3)	85 (53.1)
SHS exposure during pregnancy is associated with-			
Low birth weight babies	35 (21.9)	23 (14.3)	102 (63.8)
Crib death	21 (13.1)	25 (15.7)	114 (71.2)
Spontaneous abortions	27 (16.9)	19 (11.9)	114 (71.2)
Preterm delivery	31 (19.4)	19 (11.8)	110 (68.8)
Frequent respiratory problems in children	39 (24.4)	21 (13.1)	100 (62.5)
Heart problems in children	37 (23.1)	16 (10)	107 (66.9)

SHS: Secondhand Smoke

Table 3: Distribution of study population based on responses to attitude related to secondhand smoking

Attitude related questions	Number of responses, n (%)		
	Yes	No	Don't Know
I find it unpleasant to be in vicinity of a smoking person	131 (81.9)	15 (9.4)	14 (8.7)
I find secondhand smoking to be offensive	100 (62.5)	37 (23.1)	23 (14.4)
I feel smoking in public places should be banned	107 (66.9)	13 (8.1)	40 (25)
I feel helpless as I am unable restrain my husband while he smoked	87 (54.4)	52 (32.5)	21 (13.1)
I feel the need to be educated regarding harmful effects of SHS	122 (76.2)	7 (4.4)	31 (19.4)

SHS: Secondhand Smoke

Table 4: Distribution of study population based on responses to behavior related to secondhand smoking

Behavior related questions	Number of responses, n (%)		
	Always	Occasionally	Never
When I encounter someone (including my husband) who is smoking, I distance myself to ensure that I will not be exposed to smoke	100 (62.5)	37 (23.1)	23 (14.4)
I do not allow people to smoke in my house	49 (30.6)	67 (41.9)	44 (27.5)
When I am in public places such as restaurants, workplace, outdoor functions, etc., I distance myself from SHS exposure	110 (68.8)	44 (27.5)	6 (3.7)
When I am traveling I avoid SHS exposure by requesting the smoker to stop smoking	81 (50.6)	59 (36.9)	20 (12.5)
I avoid places where I sense threat of SHS exposure	52 (32.5)	75 (46.9)	33 (20.6)

SHS: Secondhand Smoke

among non-smoking pregnant women with smoking husbands. The present study reported highest daily exposure (45.6%) of pregnant women to SHS by smoking husbands. This finding is similar to a study by Yavagal *et al.*^[12] and Mistry and Dasika^[13] In the present study, 78.8% reported that smoking was allowed in the home while a study done by Yavagal *et al.*^[12] had similar finding, i.e., around 75.1% of smoking was allowed in homes. Another study done by Bloch *et al.*^[11] revealed that around 55.4% and 43.3% in Orissa and Karnataka respectively allowed smoking in home.

In the present study, pregnant women showed poor knowledge regarding the harmful effects of SHS. About 41.9% pregnant women did not know about SHS. This result is in line with the results of a study done by Yavagal *et al.*,^[12] Goel *et al.*^[14] and Yang *et al.*^[15] The present study results indicated that more than 60% were unaware that SHS is linked with low birth weight babies, crib death, spontaneous abortive, preterm delivery, respiratory problems, and heart problems in children. In comparison to this, in a study done by Goel *et al.*^[14] majority of women (80%) were aware of the harmful effects of SHS on the fetus. Poor knowledge regarding the harmful effects of SHS in the present study is concerning as literature shows that SHS exposure during pregnancy may lead to low birth weight babies, SIDS and preterm births.^[16]

In the present study the pregnant women exhibited favorable attitude and behavior toward avoidance of SHS, majority of them felt helpless in restraining husbands from smoking (54.4%) and 76.2% felt the need to be educated regarding harmful effects of SHS. A few findings of the present study reflect the cultural and traditional barrier toward preventing SHS exposure among pregnant women. Since this study included pregnant women of Bhagalpur city, results cannot be generalized to the vast population.

CONCLUSION

Knowledge regarding SHS exposure among non-smoking pregnant women with smoking husbands was poor. Study results highlight the importance of encouraging smoke-free home rules and taking measures to empower the non-smoking pregnant women in reducing their exposure to SHS. WHO in its recommendations for the prevention and management of tobacco use and SHS exposure in pregnancy has emphasized on the need for effective screening by healthcare provider for tobacco exposure among pregnant women during routine antenatal visits. Therefore there is an arising need of evaluation of SHS among pregnant women during antenatal care. Primary healthcare workers and nurses should emphasize on adverse maternal and child health effects

of SHS in preventive programs and help pregnant women against SHS exposure.

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