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KNOWLEDGE AND PERCEPTION OF PASSIVE SMOKING EXPOSURE EFFECT ON CHILDREN OF A DEVELOPING COUNTRY

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ABSTRACT

Aim: The objective of the study was to find out the knowledge and perception of passive smoking exposure effects on children in the rural communities of Bangladesh.

Methods: A cross-sectional study has been conducted through a self-administrative questionnaire from six villages of Munshigonj district of Bangladesh. A multistage sampling method was used to select the sample. A total of 410 both smokers and non-smokers adult males and females participated in the study. Descriptive statistics were used to describe basic socio-demographic characteristics. Knowledge was analyzed and presented by frequencies and percentages and using a Chi-square test to compare the proportion of correct knowledge. Assessment of perception was carried out by percentages, frequencies and, using a Chi-square test. The overall score for each item was presented by means and standard deviations. All analyses were performed at a 5% level of statistical significance.

Results: Among Knowledge items, 4 variables include exposer of healthy child on tobacco smoke does not have any effect (0.019), tobacco smoke exposure causes cancer (0.048), little exposure has no harm to a child (0.045) and public smoking is ban in Bangladesh (0.006) showed a significant difference with exposure of passive smoking whereas, for perception, one variable indicate law on smoking banning inside home (0.041) was found significant difference with exposure of passive smoking.

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Conclusion: An appropriate intervention needs to be implemented further which will help to reduce the exposure rate of passive smoking among children.

Introduction

Passive smoking exposure is a significant public health problem and the exposure is a cause of huge numbers of death each year (1). Though passive smoking affects humans of every age, children are especially vulnerable for this exposure (2) and the prevalence is significantly high in both developed and underdeveloped countries (3, 4).

There is a significant health effect on children due to exposure to passive smoking. The exposure causes respiratory problems such as asthma, coughing, wheezing as well as lower respiratory infection. The exposure also triggered ear infection, allergic rhinitis, and dermatitis. Different types of cancer also cause by this exposure (5, 6).

Knowledge and perception are two important factors that influence to adopt a healthy behavior (7). Knowledge is the expertise and skills acquired by a person through experience or education and perception is the method by which humans interpret and organize sensations to produce a meaningful experience of the world (8). In Bangladesh, due to the low price and easy availability, the prevalence of tobacco smoking is high (1). The prevalence of passive smoking among children is also high in both rural and urban areas (9, 10). However, there are very few studies regarding exposure to passive smoking focusing on the child. To our knowledge, in Bangladesh, no study before measured the knowledge and perception of passive smoking exposure on children. The study aimed to find out the knowledge

and perception of passive smoking exposure effects on children in the rural communities of Bangladesh.

Methods

Study Design and Sampling

A cross-sectional survey has been carried out in six villages of Munshiganj district, Bangladesh from July to October 2018. The multistage sampling method was used to select the villages and the samples. A total of 410 both smokers and non-smokers adult males and females participated in the survey by using Cochran's formula (11). The study was approved by the Institutional Review Board of Naresuan University, Thailand (COA No. 675/2018, IRB No.0502/61), and all subjects provided informed consent before participation.

Data Collection

A close-ended self-administrative questionnaire containing four sections including demographics, exposure of passive smoking, knowledge, and perception of passive smoking exposure used to collect the data. Demographic variables consisted of age, gender, marital status, education, occupation, religion, and family income. Exposure of passive smoking indicated as exposure to another person's tobacco smoke in the household for at least 15 minutes daily for more than one day every week in the past 30 days (12). For each answer, a score of 1 (exposed) or 0 (non-exposed) was given. Knowledge was assessed with 9 items true or false questions containing harm, health and, the law of smoking. For each answer, a score of 1 (true) or 0 (false) was given. The perception was measured with 5 items by 3 Likert scale points (3 points for agreeing, 2 points for neutral and, 1 point for disagreeing) (13).

The quality of the research tool was measured by item objective congruence (IOC) and Cronbach's alpha coefficient. For IOC, three experts from the tobacco field were selected. Both IOC and the overall Cronbach's alpha were calculated as 0.87 and 0.76, respectively which qualified the acceptable criteria (14, 15). The questionnaire was distributed and collected by the principal researcher. Bengali (National language of Bangladesh) was used as the language of the questionnaire.

Statistical Analysis

The data were analyzed using SPSS version 20 for Windows (IBM Corp., Armonk, NY). Descriptive statistics were used to describe basic socio-demographic characteristics. Knowledge was analyzed and presented by frequencies and percentages. Chi-square test used to compare the proportion of correct knowledge. Assessment of perception was carried out by percentages, frequencies and, using a Chi-square test. The overall score for each item was presented by means

and standard deviations. All analyses were performed at a 5% level of statistical significance.

Results

Out of a total of 410 respondents, the majority were male (70.7%) and age more than 30 years (78%). The mean age was 40.39 ± 11.44 (95% CI: 39.28, 41.50) years. However, most of the respondents finished below secondary schooling (62.4%) and were Muslim (88.3%). Additionally, 141 (34.4%) of the respondents were service holder and 240 (58.7%) respondents family income was less than 15000 Bangladeshi Taka (BDT). The mean income was 18533.99 ± 15080.56 (95% CI: 17068.12, 19999.85) BDT. Gender (0.016), Education (0.000), religion (0.010), occupation (0.000) and family income (0.000) showed a significant difference with exposure of passive smoking (Table 1). Among the respondents, 260 (63.41%) were found non-expose to passive smoking whereas 150 (36.58%) responded marked them to expose on passive smoking.

Table 1: Socio demographic characteristics of the respondents

Characteristics	n=410 (%)	P-value
Gender		.016
Male	290 (70.7)	
Female	120 (29.3)	
Age (years)		.261
<30	90 (22.0)	
>30	320 (78.0)	
Marital status		.652
Single	55 (13.4)	
Married	355 (86.6)	
Education		.000
Below secondary schooling	256 (62.4)	
Above secondary schooling	154 (37.6)	
Religion		.010

Characteristics	n=410 (%)	P-value
Muslim	362 (88.3)	
Other	48 (11.7)	
Occupation		.000
Service holder	141 (34.4)	
Business	73 (17.8)	
Farmer/Day labor	84 (20.5)	
Housewife	84 (20.5)	
Student	21 (5.1)	
Unemployed	7 (1.7)	
Family income (BDT)		.000
<15000	240 (58.7)	
>15000	170 (41.3)	

$\alpha < 0.05$, Chi-square test

Out of the 9 questions of knowledge on passive smoking exposure variable, tobacco smoke causes harm to a child and tobacco smoke exposure causes cancer were most agreed by 99.3% (407/410) of the respondents. The second most agreed question was tobacco smoke exposure causes asthma by 98.8% (405/410) respondents. The least agreed question was exposer of a healthy child on tobacco smoke does not have any effect by 47.1% (193/410) of the respondents. Furthermore, exposer of healthy child on tobacco smoke does not have any effect (0.019), tobacco smoke exposure causes cancer (0.048), little exposure has no harm to a child (0.045) and public smoking is ban in Bangladesh (0.006) showed a significant difference with exposure of passive smoking (Table 2). The total mean score of knowledge on passive smoking exposure found 6.45 ± 1.07 (95% CI: 6.35, 6.56).

Table 2: Correct knowledge on the exposure of passive smoking among children across gender

Knowledge items	Total, n=410		Male, n=290		Female, n= 120		P value
	n (%)	\bar{X} (SD)	n (%)	\bar{X} (SD)	n (%)	\bar{X} (SD)	
Q1	407 (99.3)	.99 (.085)	288 (99.3)	.99 (.083)	119 (99.2)	.99 (.091)	.254
Q2	193 (47.1)	.47 (.500)	137 (47.2)	.47 (.500)	56 (46.7)	.47 (.501)	.019
Q3	204 (49.8)	.50 (.501)	138 (47.2)	.48 (.500)	66(55.0)	.55 (.500)	.278
Q4	407 (99.3)	.99 (.085)	288 (99.3)	.99 (.083)	119 (99.2)	.99 (.091)	.048
Q5	405 (98.8)	.99 (.110)	287 (99.0)	.99 (.101)	118 (98.3)	.98 (.129)	.259
Q6	340 (82.9)	.83 (.377)	242 (83.4)	.83 (.372)	98 (81.7)	.82 (.389)	.092
Q7	218 (53.2)	.53 (.500)	161 (55.5)	.56 (.498)	57 (47.5)	.48 (.501)	.045
Q8	245 (59.8)	.60 (.491)	173 (59.7)	.60 (.491)	72 (60.0)	.60 (.492)	.006
Q9	229 (55.9)	.56 (.497)	152 (52.4)	.52 (.500)	77 (64.2)	.64 (.482)	.138

$\alpha < 0.05$, Chi-square test

Q1: Tobacco smoke cause harm to a child

Q2: Exposer of healthy child on tobacco smoke does not have any effect

Q3: Tobacco smoke exposure causes the respiratory problem of children

- Q4: Tobacco smoke exposure causes cancer
- Q5: Tobacco smoke exposure causes asthma
- Q6: Tobacco smoke has only effect on sick children
- Q7: Little exposure has no harm to a child
- Q8: Public smoking is ban in Bangladesh
- Q9: Selling smoking product under 18 years old is illegal

Regarding the perception on exposure of passive smoking among children, majority of the respondent form both gender agreed on smoking is harmful for children and parents responsibility to keep away children from tobacco smoking. However, law on smoking banning inside home (0.041) was found significant difference with exposure of passive smoking (Table 3) and the total mean score of perception on passive smoking exposure found 14.07±1.25 (95% CI: 13.94, 14.19).

Table 3: Perception regarding exposure of the passive smoking among children

Perception Items	Male, n=290				Female, n= 120			P value	
	n(%)	n(%)	n(%)	\bar{X} (SD)	n(%)	n(%)	n(%)		\bar{X} (SD)
	Agree	Neutral	Disagree		Agree	Neutral	Disagree		
Q1	280(96.6)	5(1.7)	5(1.7)	2.95(.290)	117(97.5)	0(0.0)	3(2.5)	2.95(.314)	.548
Q2	249(85.9)	22(7.6)	19(6.6)	2.79(.544)	106(88.3)	8(6.5)	6(5.0)	2.83(.491)	.619
Q3	176(60.7)	68(23.4)	46(15.9)	2.45(.753)	78(65.0)	27(22.5)	15(12.5)	2.53(.710)	.625
Q4	269(92.8)	14(4.8)	7(2.4)	2.90(.369)	115(95.8)	3(2.5)	2(1.7)	2.94(.298)	.041
Q5	280(96.6)	3(1.0)	7(2.4)	2.94(.322)	113(94.2)	3(2.5)	4(3.2)	2.91(.389)	.816

$\alpha < 0.05$, Chi-square test

- Q1: Smoking is harmful to children
- Q2: Parents can protect their child from tobacco smoke exposure
- Q3: Parents have the right to decide whether smoking is allowed in front of a child
- Q4: Should have a law of smoking ban inside the home like public place banning
- Q5: Parents responsibility to keep away children from tobacco smoking

Discussion

The present study examined participants' knowledge and perception of the exposure of the passive smoking effect on children. Almost all of the respondents (99.3%) recognized exposure to passive smoking is harmful to children. Global adult tobacco survey (GATS) report of 2017 found that the knowledge of the harmful effect of passive smoking among Bangladeshi is 93.1% (16). The difference may be due to GATS data represented the whole country whereas, this study represented only a specific district. The finding is also in line with another study conducted among Vietnamese (17). This study also found that the knowledge regarding the passive smoking consequence of

cancer and asthma is high among respondents. The previous study conducted in Bangladeshi adult's also found the same result (18). This result is also reflected in the same line with the GATS data. Though, in this case, GATS data reflected the overall knowledge of tobacco smoking (16). Another study in Pakistani women also found the association of high knowledge and lung diseases (19). Surprisingly this study found the knowledge regarding healthy child's exposure to passive smoking is low. It may due to this study conducted in the rural area and people of the rural area may not differentiate the tremendous health effect between the healthy and sick child. One of the studies from Brazil also reflected the same result

(20). Additionally, the knowledge regarding smoking law was also found low. In Bangladesh, the practice of smoking law is not properly implemented and monitored which may be a cause of low knowledge on smoking laws (21).

The study finding also showed that the majority of the respondents agreed in the statements that smoking is harmful to children and parents' responsibility to keep away children from tobacco smoking. Additionally, introducing a government law to ban smoking inside the household found statistically significant. These results reflected that Bangladeshi people are aware of the effect of passive smoking and also agreed the importance of government law to reduce the rate of exposure rate. The study also showed significant differences with different socio-demographic variables regarding exposure to passive smoking. Previous research found that male attitude is a significant barrier to reduce passive smoking exposure (9). Besides that, another study conducted in Bangladesh found higher education is related to reduce exposure of passive smoking (18) As Bangladesh in a Muslim country, previous study conducted in Bangladesh also emitted that Islamic rules can help to reduce exposure (22). Additionally, former research confirmed that lower-income has a significant effect on increases smoking exposure (23).

The study results has some limitations. The study is cross-sectional in nature and all the variables were measured in a single point of time. Additionally, all variables were self-reported which may lead to recall and reporting bias. Despite all the limitations, the research has its strength as it is the reflection of both smoker and nonsmoker

populations which helped to get the actual picture of the research objective.

Conclusion

The study concludes that proper measurements need to be taken to improve the knowledge and perception among the rural community to reduce the exposure of passive smoking. An appropriate intervention needs to be implemented which will help to reduce the exposure rate of passive smoking among children.

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Conflict of interest

There is no Conflict of interest by the authors.

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