Original
ISSN 2413-0516

Awareness of Passive Smoking Among the Adult Population in Northern Borders and Al Jouf Regions, Saudi Arabia

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(Submitted: 16 October 2024 – Revised version received: 30 October 2024 – Accepted: 25 November 2024 – Published online: 26 December 2024)

Abstract

Objective: To assess the knowledge of passive smoking (PS) among the adult population and their understanding of its harmful effects on their health.
Methods: A cross-sectional survey was carried out through social media channels (Twitter, and WhatsApp Snapchat).
Results: The study had 414 participants in total, their mean age was 35.7 ± 11.5, the majority (73.9%; 306) were males, and married participants comprise a significant portion of the population (62.3%, 258). Most of the participants reported having family members who smoke. The vast majority of respondents (78.5%, 325) believed that PS experienced the same risks as active smokers.
Conclusion: The majority of adults in Saudi Arabia's Northern and Al Jouf regions were exposed to passive smoking. More than 60% of respondents believed that being close to someone who smokes causes you to start smoking. Most people thought that PS increased children's risk of pneumonia and that passive smokers had the same hazards as active smokers.
Keywords: Passive smoking, awareness, harmful effects, adult population, Saudi Arabia

Introduction

The smoke that is present inside homes, workplaces, and other enclosed areas when tobacco products are smoked is known as passive smoking. PS exposure has no safe threshold. It results in the premature deaths of over 1.3 million people annually and causes major lung and heart diseases.[1]

According to a survey of women from 57 low- and middle-income nations, the prevalence of PS exposure was 24.4%; pregnant females were more likely to be exposed than non-pregnant.[2]

As per a survey that was conducted in Madinah, Saudi Arabia, 46.8% of pregnant women have been exposed to passive smoking, and The husband was the main source of exposure (86.4%), followed by the workplace (35%).[3]

A study carried out in Egypt found that pregnant women were very likely to have been exposed to passive smoking, and there were also misconceptions regarding the safety of PS exposure for a developing fetus.[4]

Serious health ailments are associated with passive smoking, which is the involuntary inhaling of tobacco smoke. Inhaling tobacco, whether through active or passive smoking, is the leading preventable cause of death globally.[5]

Sagar et al. in Nepal mentioned that nearly half of the participants were exposed to passive smoking, even though most of them were aware of the negative effects of PS exposure.[6]

People who are exposed to PS have a higher chance of developing certain cancers, such as pancreatic cancer.[7]

The findings of a systematic review, by Clementino et al. strongly indicate a significant association between dental caries in deciduous dentition and passive smoking.[8]

Adolescents and children are particularly susceptible to the negative health effects of SHS, such as elevated risks of infections of the respiratory tract.[9]

A study in Madinah, Saudi Arabia, highlighted that exposure to PS increases the risk of developing depression among women.[10]

As far as we know, neither the Northern nor the Al Jouf regions of Saudi Arabia have researched this topic. Therefore, we aimed to assess the study knowledge of PS of an adult population, and their understanding of its harmful impacts on their health and look into the participants' knowledge of the precautions needed.

Subjects and Methods

Study Design and Setting

A cross-sectional survey was conducted between October 1, 2023, and May 30, 2024, among adults (over the age of 18 years) in the Saudi Arabian regions of Northern Borders and Al Jouf.

Sampling Tool

Data was gathered using an Arabic version of a well-designed, structured questionnaire that was created after reviewing pertinent literature.

The following information was included in the questionnaire: Sociodemographic information, including age, gender, place of residence, income, marital status, and level of education, was included in the first part. Questions about the study participants' smoking behaviors were included in the second section. Questions about participants' behaviors about PS were asked in the third section, and questions about participants' awareness and perceptions of PS were asked in the last section.

The questionnaire was initially written in English, translated into Arabic, and then back into English by an English

consultant. Two independent family medicine consultants evaluated the questionnaire's content validity.

Sampling Method

Using social media channels (WhatsApp; Snapchat), we recruited participants from both areas using an online survey by convenient sampling method. The willing participants provided their informed consent after being briefed on the purpose of the study at the beginning of the questionnaire.

Sample Size

The following formula was used to determine the sample size.:

$$N = (Z1-\alpha/2)\ 2\ P\ (1-P)\ /d2 = (1.96)2\ X\ 0.50\ X\ (0.5)/(0.05)2 = 383.4 \sim 384$$

where (Z1−α/2) is the standard normal variate at 5% type 1 error (1.96); (P) is the expected proportion of awareness in Saudi Arabia (50%) and (d) is the absolute error (0.05). The sample size was expanded to 414.

Statistical Analysis

SPSS version 16 was used to enter, clean, and analyze the gathered data. Categorical data is displayed as frequency and percentage, and the numerical data as mean ± SD.

Ethical Consideration

The study received approval from Northern Border University's Local Bioethical Committee (HAP-09-A-043) on October 30, 2023, with decision number (99-23-H).

Results

Table 1 shows the sociodemographic features of the studied subjects. A total of 414 respondents were included in the research, with a mean age of 35.7 ± 11.5 years; the majority (73.9%; 306) were males, and more than fifty percent came from the Al-Jouf region. Married participants comprise a significant portion of the population (62.3%, 258); more than two-thirds had a university education, and more than 40% had an income of more than 10,000 Saudi Riyals.

Table 2 displays the smoking habits and behaviors of the participants. Most of them reported having family members who smoke; slightly less than thirty percent are smokers; of them, most have smoked for more than five years; a sizable fraction smoke around people (62.2%, 74); 94 (79%) use designated smoking areas; most take precautions (95; 79.8%); and most avoid smoking in public (50; 52.6%).

Table 3 shows participants' actions and reactions toward passive smoking. More than half (220; 53.1%) reported that they are surrounded by someone who smokes, and most of them take precautions to prevent exposure, such as moving away from them (136; 32.9%), asking to smoke somewhere else (82; 19.9. %) and putting away their cigarettes (48; 11.6%).

When asked about what to do when a smoker is surrounded by children, over one-third said to ask the child to walk away, slightly over thirty percent urged the smoker to smoke somewhere else, and little over twenty percent indicated the smoker put their cigarette away.

Almost half of the participants said that if they observed a smoker in a place where smoking is prohibited, they should advise him to stop and leave the place.

Table 1. **Sociodemographic characteristics of the studied participants**

Items		No (414)	%
Age	Age: Mean ± SD = 35.7 ± 11.5		
Gender	Male	306	73.9
	Female	108	26.1
Residence	Northern region	170	41.1
	Al-Jouf region	244	58.9
Marital status	Married	258	62.3
	Single	144	34.8
	Divorced	12	2.9
Educational level	High school or less	70	16.9
	University	303	73.2
	Postgraduate	41	9.9
Income	1000-5000SR	149	34
	6000-10000SR	80	19.3
	10000-15000SR	100	24.2
	>15000SR	85	20.5

Table 2. **Smoking habits and behaviors of the study subjects**

Item	No (414)	%
Are there any smokers in the family?		
Yes	362	87.4
No	52	12.6
Are you a smoker?		
Yes	119	28.7
No	295	71.3
If you are a smoker, for how long?*		
< one year	6	5
1-2 years	9	7.6
3-5 five years	13	10.9
>5 years	91	76.5
Do you smoke next to people?*		
Yes	74	62.2
No	45	37.8
Do you usually smoke in areas for smokers?*		
Only smoke in areas for smokers	94	79
Smoke anywhere	25	21
Do you take precautions for people around you when you smoke?		
Yes	95	79.8
No	24	20.2
What are the precautions you take?©		
Use ventilation and air filtration	45	47.4
Avoid smoking in the presence of others	50	52.6

*No (119) ©No (95).

Table 3. **Participants' behaviors and responses towards PS**

Item	No (414)	%
Is there anyone who smokes near you in the same place/room?		
Yes	220	53.1
No	194	46.9
What would you do if someone smokes next to you?		
Ask them to put out the cigarette	48	11.6
Ask them to smoke elsewhere	82	19.8
Go away from them.	136	32.9
I do nothing	148	35.7
What would you do when there are children beside a smoker at home?		
Ask them to put out the cigarette	94	22.7
Ask them to smoke elsewhere	132	31.8
Ask the children to go away from them	147	35.5
I do nothing	41	9.9
What would you do If a family member smoked in proximity to a pregnant woman?		
Ask them to put out the cigarette	133	32.1
Ask them to smoke elsewhere	139	33.6
Ask the pregnant to go away from them	91	22
I do nothing	51	12.3
What would you do when you see someone smoke in prohibited places?		
Ask them to stop the smoker	75	18.1
Go to them and ask them to stop smoking	101	24.4
Leave the place	103	24.9
I do nothing	135	32.6

Table 4. **Participants' awareness and perceptions of passive smoking**

Item	No (414)	%
PS is contact with a smoker while smoking.		
Agree	358	86.5
Disagree	23	5.6
I don't know	33	8.0
Being in the same room as someone who smokes also makes you a smoker.		
Agree	267	64.5
Disagree	104	25.1
I don't know	43	10.4
Passive smokers are exposed to smoking harms as active smokers.		
Agree	325	78.5
Disagree	40	9.7
I don't know	49	11.8
Children who are exposed to PS have the chance of developing pneumonia.		
Agree	319	77.1
Disagree	14	3.4
I don't know	81	19.6
Miscarriages are more common among pregnant women who are exposed to PS.		
Agree	231	55.8
Disagree	28	6.8
I don't know	155	37.4
Low birth weight babies are more likely to be born to pregnant women who are exposed to PS.		
Agree	193	46.6
Disagree	22	5.3
I don't know	199	48.1
PS denotes the smoke that a tobacco product burns and that the smoker exhales.		
Agree	222	53.6
Disagree	16	3.9
I don't know	176	42.5
What are the sources you get information from about PS?		
Internet	293	70.8
News	56	13.5
Posters & Advertising	57	13.8
Other	8	1.9

Table 4 displays participants' awareness and perceptions of passive smoking. Most respondents (358; 86.5%) agreed that PS is contact with smokers, and over sixty percent believed that you become a smoker by staying in a closed space with someone who smokes.

Concerning the risks associated with smoking, a sizable majority (78.5%, 325) thought that passive smokers are subject to the same hazards as active smokers; slightly less than 80% believed PS increased the risk of pneumonia in children; over 50% assumed it raised the risk of abortion; and over 40% (193) thought it raised the risk of low birth weight.

Less than sixty percent of the participants accurately defined environmental tobacco smoking, and the internet is the primary source of information (70.8%; 293).

Discussion

The current study reveals that fewer than thirty percent (28.7%) of the participants smoke and the majority have a smoker in the family. According to comparable Saudi studies conducted in Madinah, 42% of close friends, 26.6% of parents, and 31.2% of themselves smoke.[11] In the same country, 68.2%

of Jazan University students smoke,[12] compared to 13.9% of medical students in Jeddah.[13] The discrepancy can result from regional variation and different study populations.

More than sixty percent of the participants' smokers practice the habit next to people, the majority smoke in places that are specifically designated for smoking, and most of them take precautions. Juraybi et al. mentioned that only fourteen percent of respondents practice it.[12]

In terms of the respondents' exposure to passive smoking, over half of them reported being exposed to it.

A survey in Riyadh, Saudi Arabia, revealed that PS was found outside of the house in 38.2% of individuals and at home in 27.9%.[14] Furthermore, Sam et al. in Riyadh found that about 30% of participants had received parental exposure to passive smoking.[15] About one-third of pregnant women in the United Arab Emirates were exposed to passive smoking, mostly at home.[16]

According to Stevens et al., 38% of Egyptian pregnant women were exposed to PS at home.[4] Women in developing nations face challenges in establishing smoke-free households because of the pervasiveness of gender inequality in the community and interpersonal interactions, according to Caixeta et al.[17]

A study in Hong Kong indicated that 42% of teenagers were found to be passive smokers.[18]

In India, the most prevalent places for PS reports were homes (34.7%), public spaces (34.4%), and workplaces (26.7%). Young age, rural residence, being female, and illiteracy were among the most prevalent predictors.[19]

PS rates at home, at work, and in public places ranged from 3.7% in Panama to 78.2% in Indonesia; at work, they ranged from 5.7% in Panama to 63.4% in China, and in public settings, they ranged from 4% in Qatar to 88% in China.[20]

Regarding the participants' response to passive smoking, a little over one-third cited that they do nothing when they see someone smoke next to them. According to Sam et al. in the central region of Saudi Arabia, 71.4% suggested that smoking be prohibited in public areas, and 26.2% of participants accepted guests to smoke next to them.[15]

Most participants correctly identified PS and the harm it causes to children and pregnant women. Consistent with related studies that found that 75% of people in the central,[15] 77.6%[12] in the south of Saudi Arabia were aware of passive smoking.

According to a 2007 Global Youth Tobacco Survey (GYTS) in Saudi Arabia, 58.8% of the participants stated their schools had informed them about the risks of smoking.[21] Only 26.6% in Madinah[11] Stated; the harmful effects of smoking. Different study populations could be the cause of the discrepancies.

Another study concluded that, to prevent smoking initiation it is important to inform the teen about the negative effects of PS as a preventative measure against smoking initiation.[22]

More than 90% of participants in an Australian survey were aware of the adverse health effects that PS has on pregnant women, children, and nonsmokers.[23]

A study in the United States reported that; Compared to current nonsmokers and people who have never smoked, present and former smokers are still less likely to recognize the harm that PS can do to children's health.[24]

About one-third (33%) of Indians knew that PS at home, 26% at work, and 35% in public areas had negative health impacts.[19]

Conclusion

The majority of adults in Saudi Arabia's Northern and Al Jouf areas are exposed to passive smoking. More than sixty percent of respondents believed that interacting with a smoker in a closed environment causes you to start smoking yourself. The vast majority believed that passive smokers faced the same risks as active smoker, and that PS raised children's risk of pneumonia.

This research highlights the necessity of creating a suitable and successful anti-smoking campaign that targets smoking determinants and includes. Exposure to PS increases the risk of smoking. Additionally, the results of this study give the country's officials substantial reason for concern about the necessity of implementing additional preventive measures in addition to the current smoking laws. Health promotion is urgently needed in favor of smoke-free regulations for residences, dining establishments, and cafés. Lastly, in this Muslim country, mosques seemed to play a significant role in educating the public about the negative effects of smoking as well as the position of religion on this behavior.

Strengths and Limitations

Among the study's many strengths are its population-based design, considerable sample size, and high interviewee response rate, all of which contribute to the study's findings' resilience. But it's important to keep in mind this study's limitations. We are unable to analyze temporal trends because the data is cross-sectional. Also, the study relied on self-administered questionnaires for data gathering.

Conflict of Interest

None.

Authors Contribution

MM, PI; M.M. K H, W L, ML, Conceptualization, methodology, MM; data collection and coding, K H, W L, ML: MM cleaning and analyzing data; M.M. K H, W L, ML. initial draft reviewing and the final draft; all authors have reviewed it and given their approval for publication.

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