Research Article

A comparative study on the effect of designated indoor smoking areas on the behavior and attitude of adults attending coffee shops in Bahrain toward smoking

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ABSTRACT

Background: According to the world health organization, smoking causes five–six death cases annually. "Smoking areas" according to research done in La Salle University helps in reduction in exposure to second hand cigarettes. **Aims and Objectives:** The aim of the study was to evaluate the attitude of all adults attending coffee shops toward designates smoking areas and compare the effect of coffee shops with designated smoking areas in Bahrain on the change of behavior on smokers and non-smokers. **Materials and Methods:** A cross-sectional, two group comparative, and questionnaire-based study was carried out in coffee shops with and without designated smoking areas in Bahrain. A questionnaire was used to collect data which were entered and analyzed using SPSS program version 18. **Results:** It was shown that smoking inside a smoking areas will reduce the number of cigarettes smoked. As smokers inside smoking area, smoked 20 or more cigarettes having count 9 (10.3%) and outside the smoking area were 17 (17.7%), respectively. Furthermore, smokers who attend smoking area find it more difficult to refrain from smoking 48 (44.4%) in comparison to those who do not attend smoking area 19 (24.4%). **Conclusion:** Smoking inside designates smoking area may halt the amount of cigarettes smoked by smokers. Smokers within coffee shops with smoking area find it more difficult to refrain from smoking compared to smokers in coffee shops with no smoking area.

KEY WORDS: Designated; Smoking; Bahrain; Attitude; Behavior; Coffee Shops

INTRODUCTION

Smoking is considered to be the most adaptable habit that people used to do in the 20th century. It invaded the world as a whole, in which both adults and adolescents have been consuming it. Smoking is a modern scourge and a major risk of tremendous group of chronic diseases; thus, it is indeed an international duty to stand against and restrict its spread.

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Several studies have shown that tobacco smoking prevalence has been increasing significantly, which leads to illimitable negative consequences among societies, psychologically, and physically.

Recent reports showed that approximately 5–6 million people die under the effect of smoking annually.[1] Evidence shown that second-hand smoking may be directly associated with increasing the risk of respiratory diseases (lung cancers, asthma, etc.) and cardiovascular diseases.[2]

International efforts and rules have been implemented to prevent harm and stop the pervasion of cigarette smoking. One of these applied disciplines that are very interesting to study is designated smoking areas.[3]

While smoking is permitted in many places within countries, most governments around the world allocated smoking free places.[4]

This research will be focusing on "designated smoking areas" and their effect on the frequency of smoking in smokers. The study will examine whether the designated smoking areas have an effect on the number of cigarettes smoked.

Smoking area is an indoor place where smoking is permitted. It can be found in airports, shopping malls, and coffee shops.[5]

The smoking area was initiated in 1575, in Roman Catholic Church regulation, which forbids the use of tobacco in any church. In Mexico, it is considered as one of the earliest smoking bans. Later in 1975, the US state of Minnesota enacted the Minnesota Clean Indoor Air Act, making it the first state to restrict smoking in most public spaces.[6]

At later stage, smoking areas started spreading around the world because exposure to secondhand smoke from tobacco products causes diseases among nonsmokers. It can cause immediate harm. Studies in Scotland in 2006 were made in Hospitality Worker's Health and they found that within 2 months of banning smoking in all closed areas revealed reductions in respiratory symptoms, such as coughing, wheezing, and shortness of breath. Furthermore, there was an improvement in the quality of life among employees with asthma. Moreover, in the United States in 2012 a study in population health revealed substantial health improvement. There was a decrease in hospital admission rates for acute myocardial infarctions (heart attacks) and reduction in hospital admission rates for chronic obstructive pulmonary disease.[7]

Smoking rooms can be found in public buildings such as airports, and in semi-public buildings such as workplaces. Such rooms are equipped with chairs, ashtrays, and ventilation, and usually free to enter, although there may be a smoking age restriction (usually 18). A cigarette company sometimes sponsors these smoking rooms, displaying its brand names on the room walls and financing the room or its maintenance. Cigarette companies have worked hard to ensure smoking was accommodated in major airports, which high-profile locations are serving many people who are often bored or nervous. Initially, providing smoking and no smoking areas were their goal but when that policy failed they fell back on ventilated smoking rooms.[8]

One of the difficulties encountered in identifying smokers by the self-report is that there are many different ideas of what constitutes smoking behavior. For example, when asked about their smoking status, light or intermittent smokers will often classify themselves as nonsmokers. To maintain consistency in the use of various terms while gathering data on smoking behavior, the US Centers for Disease Control and Prevention have developed and updated the following definitions:

- Current smoker: Includes daily smokers and non-daily smokers
- Daily smoker: An adult who has smoked at least 100 cigarettes in his or her lifetime, and who now smokes every day. Previously called a "regular smoker"
- Non-daily smoker: An adult who has smoked at least 100 cigarettes in his or her lifetime, who smokes now, but does not smoke every day. Previously called an "occasional smoker"
- Light smoker: Consuming between 1 and 10 cigarettes per day
- Moderate smoker: Consumes between 11 and 19 cigarettes per day
- Heavy smoker: Consumes 20 cigarettes or more per day.[9]

A study done by the University of Beirut in 2008 showed that the vast majority (90%) of undergraduate and graduate students surveyed, and over a third (36%) of them who smoked were satisfied with the new policy; with a full compliance (respecting the designated smoking areas) rate of 73% among the smokers surveyed. In addition, one in six smokers reported receiving a warning ticket when smoking in non-designated areas. Moreover, 20% of regular smokers reported a reduction in their smoking as a result of the ban. These results show that a network service provider on university campuses should be endorsed.[10] Another research was done by the same university in 2012 showed that students' attitudes toward the ban and the enforcement of a non-smoking policy in public places across Lebanon varied according to their smoking status whereby non-smokers possessed a more favorable attitude and strongly supported such policies compared to smokers. Despite this, smokers were generally compliant with the ban, and for some it led to a decrease in their smoking behavior. Perceived barriers to implementation of the non-smoking policy in American University of Beirut included lack of compliance with and strict enforcement of the policy as well as the small number and crowdedness of the smoking areas.[11]

A research about the smoking area in La Salle University, New York, was done in 2014. They found that smoking area helps in (1) reduction in exposure to second-hand smoke, and (2) decrease in cigarette consumption.[12] Another research was done in New South Wales, Australia in 2004. Their result showed that nicotine and particulate matter levels were significantly less in the "no smoking" areas, but were still readily detectable at higher than ambient levels.[13]

A study published in New Zealand Medical Journal 2014 about support toward smoke-free campuses found that most participants had never smoked, or were past smokers; few reported being current smokers. Participants agreed that exposure to second-hand smoke is harmful, disliked being exposed to second-hand smoke on campus, and felt the university should promote a healthy work and study

environment. Results indicated strong support for smoke-free policies, and participants made several recommendations regarding smoke-free policies. Most disagreed that compliance with a smoke-free policy should be voluntary, but felt that campus security should warn people who breach the policy.[14]

The aim of this research is to study the effect of designated indoor smoking areas on adults' attitudes (smokers and nonsmokers) attending coffee shops in Bahrain toward smoking and its effects on smokers behavior to strengthen the non-smoking areas policy.

MATERIALS AND METHODS

Type of Study

There are two groups of comparative study. In this research, we compared adult smokers and non-smokers that attend coffee shops with designated smoking areas throughout the country in addition to adults (smokers and nonsmokers) that attend coffee shops without designated smoking areas.

Data Sources

The population under study is adults that attended coffee shops in Bahrain. Coffee shops that have indoor designated smoking areas or do not have in Bahrain will be included. There are three known indoor smoking areas in coffee shops in Bahrain. Furthermore, we chose those coffee shops that only provide a place to smoke (indoor designated areas) instead of ones that offer "shishas" or any smoking products in their menus.

Study Population

Information was collected from consumers who attend a group of random popular coffee shops in Bahrain, both with and without indoor designated smoking areas. Costumers were chosen randomly based on sequence of five (Choosing the fifth person each time).

Sample Size

The sample size (SS) was determined using the following formula:

$$SS = [Z^2 * (p) * (1-P)/c^2$$

Where, Z = Z value (e.g., 1.96 for 95% confidence level)
p = expected percentage, expressed as decimal
(0.5 used for sample size needed)
c = confidence interval, expressed as decimal (e.g., 0.05)[15]
$SS = [(1.96)^2 * (0.5) * (0.5)/(0.05)^2$

A sample of 385 customers was selected, 192 customers attended coffee shops without designated indoor smoking area, and 193 customers attended coffee shops with designated indoor smoking area.

Costumers were given a questionnaire to fill out regarding the effect of the designated indoor smoking areas.

Study Instruments

We constructed a questionnaire that included the following sections:

- Demographic (age, gender, education, marital, and employment)
- Smoking history (smoking status, smoking duration, and cigarettes smoked)
- -Attitude toward smoking area (difficulty in refraining from smoking, reasons to visit smoking area)
- Effects of smoking area on smoking (cigarettes smoked inside and outside smoking area).

The questionnaire was distributed to the attendees of the coffee shops during the study period and they were asked to fill them anonymously.

Statistical Analysis

All data from questionnaires were analyzed using the Statistical Package for the Social Sciences (SPSS) version 21. Student's *t*-test will perform for SPSS. The study population is divided into two groups: Group 1 (Attending coffee shops with designated indoor smoking area) and Group 2 (Attending coffee shops without designated indoor smoking area).

Ethical Consideration

Ethical approval of the CMMS ethical approval committee we took permission from the management of the coffee shops (where we collected our data). In addition to that, oral consent was taken from participants to fill the questionnaire and let them know that any information collected will be private and will only be used only for this scientific research.

RESULTS

A sample of 385 customers was taken; they were equally distributed between coffee shops with and without indoor designated smoking area; approximately 192 (50%) for each [Table 1]. Two hundred and sixty (67.5%) of the sample were males and 125 (32.5%) were female. The majority of the age group was – 196 (50.8%) – between 20 and 30, 85 (44%) attended coffee shops with designated indoor smoking areas. Although the percentage of single (23.2%) and married (24) in attending coffee shops without smoking area are similar, there is a slight increase in the group without partner attending coffee shops with smoking area; 95 (24.7%) single and 18 (4.2%) divorced. The majority of the sample was highly educated in both groups with designated smoking areas and without. Employed attending coffee shops without smoking area 122 (32.4%) are higher than those who attended with smoking area 84 (22.3%).

Table 1: Comparison between DEMOGRAPHIC DATA and attending coffee shops with/without smoking area

Variable	With smoking area (%)	Coffeshops	
		Without smoking area (%)	Total (%)
Gender			
Male	139 (72.5)	121 (62.5)	260 (67.5)
Female	53 (27.5)	72 (37.5)	125 (32.5)
Total	192 (100)	193 (100)	385 (100)
Age group			
<20	41 (21.2)	15 (7.8)	56 (14.5)
20 to 30	85 (44.6)	111 (57.3)	196 (50.9)
31 to 40	34 (17.6)	39 (20.3)	73 (19)
More then 40	32 (16.6)	28 (14.6)	60 (15.6)
Total	192 (100)	193 (100)	385 (100)
Martial			
Single	96 (50)	88 (45.8)	184 (47.9)
Married	78 (40.6)	92 (47.9)	170 (44.3)
Divorced	16 (8.3)	11 (5.7)	27 (7)
Widow	2 (1)	1 (0.5)	3 (0.8)
Total	192 (100)	192 (100)	384 (100)
Education			
Primary	5 (2.6)	4 (2.1)	9 (2.4)
Intermediate	6 (3.1)	0 (0)	6 (1.6)
Secondary	44 (23)	36 (19)	80 (21.1)
Collage	136 (71.2)	149 (78.8)	285 (75)
Total	191 (100)	189 (100)	380 (100)
Employment			
Student	67 (35.4)	34 (18.1)	101 (26.8)
Unemployed	12 (6.3)	11 (5.9)	23 (6.1)
Employed	84 (44.4)	122 (64.9)	206 (54.6)
Housewife	17 (9)	12 (6.4)	206 (54.6)
Retired	9 (4.8)	9 (4.8)	18 (4.8)
Total	189 (100)	188 (100)	377 (100)

Most of the samples are nonsmokers 178 (46.7%) [Table 2]. One hundred and sixty-one (42.3%) of the samples were smokers, 94 (24.7%) of them attended coffee shops with smoking area, and 67 (17.6%) attended without smoking area. Half of the smokers – 80 (50%) – smoke more than 10 years, and 30 (18.6%) of who attended coffee shops with indoor smoking area smoke more than 20 cigarettes in a typical day in comparison to those attending without 10 (14.9). Forty-eight (25.8%) smokers attended coffee shops with smoking area find that its difficult to refrain from smoking in comparison to those attending without 19 (24.4%).

Fifty-four (28%) of those attending coffee shops with indoor smoking area stated that they smoke a-lot as for why they attend the smoking area [Table 3]. About 26.8% of people are attending the smoking areas in coffee shop with smoking areas to meet their friends.

Most smokers 110 (75.3%) smoke around ten or less cigarettes inside the smoking areas, having no significant difference whether they smoke inside smoking area 66 (75.9) or outside of it 44 (74.6) [Table 4]. Only 11 (7.5%) smoke more than 20 cigarettes inside the smoking area, while 22 (14.2%) smoke more than 20 cigarettes outside the smoking area. When the smoking area is full, the percentages of people going to indoor and outdoor areas are nearly equal 37.1% and 38.7%, respectively. People that prefer attending coffee shops without smoking area 141 (38.8%) are more than those who prefer to attend with smoking area 102 (28.1%). It is also noticed that 64 (36.6) people inside smoking area would prefer to attend smoking areas in comparison to 38 (20.2%) of who attend coffee shops without smoking area. Mostly people in smoking areas 62 (35.4%) found no difference in attending either coffee shops.

Ninety-seven (25.2%) who attend coffee shops without smoking area do not attend because they do not smoke; where 63 (16.4%) do not attend to protect their selves from second-hand smoking [Table 5]. Ninety-five (24.7%) those who

Table 2: General smoking factors and their effect on attending coffee shops with smoking areas

Variable	With smoking area (%)	Coffee shops		*P*-value
		Without smoking area (%)	Total (%)	
Smoking status				
Smoker	94 (49.2)	67 (35.3)	161 (42.3)	0.022
Never smoked	78 (40.8)	100 (52.6)	178 (46.7)	
Ex-smoker	19 (9.9)	23 (12.1)	42 (11)	
Total	191 (100)	190 (100)	381 (100)	
Smoking duration				
<5 years	36 (38.7)	17 (25.4)	53 (33.1)	0.206
5–10 years	14 (15.1)	13 (19.4)	27 (16.9)	
More than 10 years	43 (46.2)	37 (55.2)	80 (50)	
Total	93 (100)	67 (100)	160 (100)	
Cigarette no.				
10 or less	37 (39.4)	29 (43.3)	66 (41)	0.036
11–19	27 (28.7)	28 (41.8)	55 (34.2)	
20 or more	30 (31.9)	10 (14.9)	40 (24.8)	
Total	94 (100)	67 (100)	161 (100)	
Refrain from smoking				
Yes	48 (44.4)	19 (24.4)	67 (36)	0.019
No	35 (32.4)	35 (32.4)	70 (37.6)	
No difference	25 (23.1)	24 (30.8)	49 (26.3)	
Total	108 (100)	78 (100)	186 (100)	

Table 3: Reasons of attending designated indoor smoking area

Variable		Coffee shops	
Reasons	With smoking area (%)	Without smoking area (%)	Total (%)
Smoke a lot	54 (28)	28 (14.6)	82 (21.3)
Meetings friends	61 (31.6)	42 (21.9)	103 (26.8)
Not feeling guilty	40 (20.7)	15 (7.8)	55 (14.3)
Do not attend	38 (19.7)	61 (31.8)	99 (25.7)

smoke and do not attend smoking area because they want to limit the number of cigarettes they smoke daily. About half of the sample, 168 (44.4%) do not feel comfortable inside the smoking areas, while only 100 (26.5%) feel comfortable.

DISCUSSION

Our data concerning the effect of designated indoor smoking areas on adult's attitude (smokers and nonsmokers) attending coffee shops in Bahrain showed that the result of the males is double that of females the cause of this is the traditions and culture in Bahrain, and the acceptance of the female attendance inside smoking areas is not yet achieved by a large group of Bahrain's population.

Another important aspect is who of the population mostly attends these coffee shops with smoking areas. The results were overall similar to the study, which was done by the University of Beirut in 2008, in which students have the highest percentage among all education levels. Moreover, employees have also the highest percentage of all employment statuses. This may be related to stress, emotion.[10]

According to the study which was done in the University of Beirut in 2008 which showed that regular smokers reported a reduction in their smoking as a result of the ban, and smokers were generally compliant with the ban, and for some it led to a decrease in their smoking behavior. This somehow compatible with the results of our study, which showed that a smoker behavior will change whether it was inside a coffee shop with indoor smoking area or in a coffee shop without, in relation to cigarette number as it reduced inside.[11]

The majority picked that they are attending designated indoor smoking areas to meet their friends. This can point out that people attending smoking areas can attend for reasons other than smoking. The second main reason selected for attending smoking areas was because the smoker smokes a lot, this may be because it would be easier and more efficient to finish

Table 4: Attitude toward designated smoking areas

Variable	With smoking area (%)	Coffee shops	Total (%)
		Without smoking area (%)	
Number cigarette inside			
10 or less	66 (75.9)	44 (74.6)	110 (75.3)
11–19	12 (13.8)	13 (22)	25 (17.1)
20 or more	9 (10.3)	2 (3.4)	11 (7.5)
Total	87 (100)	50 (100)	146 (100)
Number cigarette outside			
10 or less	53 (55.2)	34 (57.6)	87 (56.1)
11–19	26 (27.1)	20 (33.9)	46 (29.7)
20 or more	17 (17.7)	5 (38.5)	22 (14.2)
Total	96 (100)	59 (100)	155 (100)
If smoking area full			
Leave	30 (25.6)	17 (22.1)	47 (24.2)
Go to indoor	46 (39.3)	26 (33.8)	72 (37.1)
Go to outdoor	41 (35)	34 (44.2)	75 (38.7)
Total	117 (100)	77 (100)	194 (100)
Prefer			
With smoking area	64 (36.6)	38 (20.2)	102 (28.1)
Without smoking area	49 (28)	92 (48.9)	141 (38.8)
No difference	62 (35.4)	58 (30.9)	120 (33.1)
Total	175 (100)	188 (100)	363 (100)

Table 5: Reasons for not attending smoking areas

Variable		Coffee shops	Total (%)
Do not attend reason	With smoking area (%)	Without smoking area (%)	
Do not smoke	78 (40.4)	97 (50.5)	175 (45.5)
Limit number of cigarettes	43 (22.3)	52 (27.1)	95 (24.7)
Protect self	48 (24.9)	63 (32.8)	111 (28.8)
Feel comfortable inside			
Yes	55 (29.1)	45 (23.8)	100 (26.5)
No	69 (36.5)	99 (52.4)	168 (44.4)
No difference	65 (34.4)	45 (23.8)	110 (29.1)
Total	189 (100)	189 (100)	378 (100)

their work while smoking in their places instead of walking outside the coffee shops every once in a while.

A comparison between the number of cigarettes smoked inside and outside the smoking area is done to show how can the availability of designated indoor smoking area affect the number of cigarettes smoked by each individual. The highest percentage of the total sample was smoking ten cigarettes or less inside the smoking areas. However, smoking a greater number of cigarettes (20 or more) is showing a higher percentage outside the smoking area by almost the double of smoking the same number but inside the smoking area. This shows that indoor smoking areas have no significant influence on the number of smoked cigarettes. In addition, indoor smoking areas are not affecting smokers' attitudes if the smoking areas are full. The number of those who are going to an outdoor area to smoke when the indoor smoking area is full is almost the same number as those who go to other indoor areas. Thus, the absence or availability of indoor smoking areas will not hinder their smoking behavior. Furthermore, the majority of people are preferring coffee shops without smoking areas.

The reasons for not attending smoking areas are also highlighted in this research. However, the significant percentages for the reasons of not attending go to those who are in coffee shops without smoking areas. The highest percentage is for the reason because they do not smoke. Furthermore, being protected from second-hand smokers scored the second higher percentage. This supports the previous result that number of individuals who prefer attending coffee shops without smoking area is

the highest. Limiting the number of smoked cigarettes daily is shown the least percentage of not attending coffee shops with smoking areas although it may play an important role. About half of the sample is not feeling comfortable inside the smoking areas, which can indicate the reason why a significant number of smokers are smoking outside and may have no difference if the indoor smoking areas are full or absent.

Indoor smoking areas in the future can be affected by an individual's attitude toward them. Thus, their opinions are taken into consideration. The number of individuals who thinks that indoor smoking areas must be small and less and that it should be canceled was the lowest in both groups. However, the majority are having the opinion that indoor smoking areas must be bigger and more. This may be because smokers and nonsmokers would prefer to have an isolated place where smokers can smoke and that passive smoking danger resulting in smoking next to the coffee shop door may be avoided.

Limitation

As for the design we used for our study "cross-sectional," the information may differ due to some factors including; recall bias, as our data collection was dependent on the memory of the customers of the specific coffee shop which may be not very specific. Adding to that, participants bias some of the subjects may have answered the questions without fully understanding it.

Other limiting factors were the selection; data were collecting during the summer vacation which is known to have high temperature which may lead smokers to choose somewhere indoor to smoke. Others include that we did not visit all the coffee shops in Bahrain; this may lead also to having altered results.

CONCLUSION

We concluded that there is a change in behavior toward smoking when it comes to smoking inside the designated smoking areas, as the amount of cigarettes smoked outside is more than the amount smoked inside, with similar results when it comes to smaller number of cigarettes. Furthermore, smokers tend to visit coffee shops with smoking areas unlike non-smokers, but both groups prefer if the smoking areas were provided to be more and bigger in space.

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