Impact of Graphic Warning Labels on Cigarette Packs in Changing Smokers' Views and Habits: An Opinion Survey

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Original Article

Abstract

Background: Smoking has become a major issue worldwide. With the advancement in technology, more vulnerable populations, such as teenagers, are also being harmed. One deterrent is the presence of graphic labels on cigarette packs. With this rationale in mind, the objective of our study is to assess the impact of these warning labels on the habits and opinions of smokers.

Methods: A cross-sectional study was conducted by distributing a validated paper-based questionnaire. The sample size was calculated to be 200 using statistical software. The study targeted students of Islamabad, Pakistan, who were studying in twelfth grade and were smokers. The sampling method used was 'snowball sampling'.

Findings: 128 (64%) males and 72 (36%) females participated in the study. The mean age of the participants was 17.59 ± 0.51 years. 40 participants reported choosing local brands for cigarettes due to cigarette 'freshness', regardless of presence or absence of a graphic label, which was a new concept. 94% of participants believed that presence of a visual label helped with understanding the harm and 78% believed that the side effects were accurately portrayed. Participants who were more than 17 years of age believed that the graphic label provided a clear description of the consequences of smoking. Similar results were seen in the female participants of the study.

Conclusion: There is a general consensus on graphic labels altering the opinions of smokers. The presence of these labels is, however, targeting only a specific type of audience and hence, should be expanded for a larger audience.

Keywords: Smoking; Community surveys; Students; Pakistan

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Introduction

Smoking is one of the major public health problems in 2019 and the single most important cause of preventable deaths worldwide.[1] It is a major risk factor for diseases such as acute coronary syndrome (ACS), cerebrovascular accidents (CVAs), atherosclerosis, hypertension (HTN), and chronic obstructive pulmonary disease (COPD). It is a leading cause of malignancies including cancers of lung, oral cavity, larynx, pancreas, and transitional cell carcinoma of urothelium.[2] These diseases are mostly non-communicable ones, further increasing the 'double burden of disease'[3] that underdeveloped countries, such as Pakistan, suffer from.

Cigarettes sold in developing countries usually have low quality and a high tar content, making them even more injurious to health. According to World Health Organization (WHO), there were 5.4 million tobacco-related deaths worldwide in 2004.[4,5] Smoking also decreases immunity and hence, increases susceptibility to opportunistic infections, and complicates even simple viral infections in smokers.[6,7]

Majority of the cigarette smokers (88%)[8] start smoking in their teenage. Cigarette smoking is a learned behavior which passes through various stages namely: "preparation, initiation, experimentation, regular smoking, and finally addiction".[9] The issue is that this subgroup forms the majority of the demographics of Pakistan and also has to eventually contribute to its economy. Any erratic or addictive behavior would not only impact these teenagers individually, but also influence the economy of the country as a whole.

There are many methods being used to prevent such a crisis from occurring such as using social media to narrate stories of smokers who ultimately suffered a very painful fate and government policies about the legal age at which any young adult can acquire a pack of cigarettes. Another method of deterring people from smoking is to include graphic labels,[10] depicting malignancies or respiratory illnesses caused by smoking on top of cigarette packs. These labels are also widely marketed through electronic media to reach out to the masses.

The objective of this study was to assess the impact of these warning labels on the habits and opinions of smokers. Additionally, the study assessed the factors that led the teenagers in questions towards smoking.

Methods

We conducted a cross-sectional study of students from various academic institutions of Islamabad, Pakistan, from August 2018 to July 2019 [The approval was sought from Shifa International Hospital Institutional Review Board and Ethics Committee (IRB-1068-343-2018)]. These academic institutions mostly taught students of advanced level (A level). The students were verbally informed about the study, and those who gave their consent were included in the study. The sample size was 200 as calculated by 'Open Source Epidemiologic Statistics for Public Health' software (version 3.01). The sampling technique was 'snowball' sampling whereby one smoker would provide another plausible smoker with the questionnaire. The data were collected through a self-constructed questionnaire. There were parts of the questionnaire which had to be completed by the participants after that they were shown a photograph of a graphic label presented on one of the cigarette packs made in Pakistan. Cronbach's alpha was used to assess the internal consistency of the questionnaire, and it was found to be 0.66.

The questionnaire assessed if participants or their family members had been diagnosed with any illness caused by smoking, the number of cigarettes smoked in a day, and if there were any clear stimuli for the habit. The questionnaire then focused on questions associated with the photograph shown to the participants. There were specific statements related to the label that focused on changing the behavior of the participants by providing them with visual stimuli ('Makes me look away'), by providing awareness about the location of label ('Makes me consciously look for label'), by giving them an accurate description of the side effects and equipping them with understanding. The participants were then instructed to provide responses for all these statements on a five-point Likert scale with the options varying from 'strongly disagree' to 'strongly agree'.

The data obtained were analyzed by SPSS software (version 21, IBM Corporation, Armonk, NY, USA). Descriptive statistics were used for the analysis and description of the data. Frequencies and percentages were calculated for participant distribution according to gender.

Results

A total of 200 students participated in the study.

Out of 200 participants, 128 (64%) were male and 72 (36%) were female. The mean age of the participants in the study was 17.59 ± 0.51 years.

Out of 200 participants, 190 reported that they already had a family member who smoked, 9 reported that they were unsure of a family member's smoking habits, and 1 participant reported that no family member smoked. 169 participants reported smoking their first cigarette when they were at an age more than 17.

The participants also indicated various stimuli and times of the day when they felt like smoking. In this case, the participants could opt for more than one of the options indicated. This is shown in figure 1.
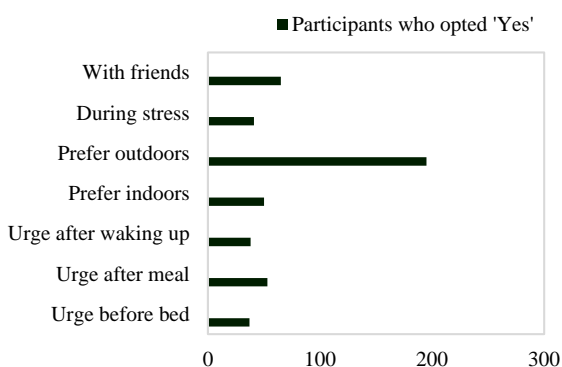

Figure 1. Stimuli associated with smoking

It was also found that students who were more than 17 years of age were more likely to smoke one to five cigarettes per day. The difference was found to be statistically significant (P < 0.005). Males were also more likely to smoke one to five cigarettes per day when compared to females. The difference was tested using chi-square test and found to be statistically significant (P < 0.005). The participants then answered various questions related to the cigarettes that they smoked and the responses are tabulated in table 1.

The participants were also instructed to answer questions related to a photograph of a label as printed on a cigarette pack. The statements and their responses are recorded in table 2.

All the participants of various age groups agreed that the graphic label was more effective at warning people. There was a significant difference in the number of participants who showed agreement in each age group (16, 17, and 18 years old) and this difference was tested using chi-square test. The difference was found to be significant.

Participants who were more than 17 years of age and smoked one to five cigarettes per day believed that the label showed an accurate description of the consequences of smoking. The results of chi-square test in this case were also significant and P-value was less than 0.05. Similar results were seen for the female gender who smoked one to five cigarettes per day.

However, it was found that participants who were more than 17 years of age and smoked one to five cigarettes per day believed that an additional textual warning should be provided. This difference was found to be significant (P < 0.05). Females were also found to report that an additional textual warning should be provided. This difference was significant (P < 0.05).

It was found that the participants aged more than 17 years were also easily deterred by just looking at the graphic label. The difference was found to be significant (P < 0.05).

Discussion

The percentage distribution of gender of participants in our study was similar to a study that was conducted in 2014.[11] The study is the first of its kind from Pakistan in determining the efficacy of graphic labels that have already been printed on cigarette packs. Our study results are in agreement with a study that had been conducted[12] which concluded that pictorial labels were more appropriate in spreading awareness about the harmful effects of smoking.

Table 1. Types of cigarettes smoked and associated reasons

Statement	Strongly disagree n (%)	Disagree n (%)	Undecided n (%)	Agree n (%)	Strongly agree n (%)
Local brands are 'fresh'	3 (1)	0 (0)	157 (79)	40 (20)	0 (0)
Imported brands have more quality	0 (0)	0 (0)	4 (2)	194 (97)	2 (1)
Use more imported brands as no graphic labels	0 (0)	0 (0)	11 (5)	167 (84)	22 (11)
Purchase in packs of 20 cigarettes	193 (97)	0 (0)	4 (2)	3 (1)	0 (0)

Table 2. Specific questions for graphic labels

Statement	Strongly disagree	Disagree	Undecided	Agree	Strongly agree
	n (%)	n (%)	n (%)	n (%)	n (%)
Makes me quit smoking	2 (1)	0 (0)	1 (1)	193 (96)	4 (2)
Makes me aware of harm	1 (1)	0 (0)	1 (1)	16 (8)	182 (90)
Provides an understandable warning	0 (0)	0 (0)	3 (2)	188 (94)	9 (4)
Makes me consciously look for label	0 (0)	11 (6)	4 (2)	169 (85)	16 (7)
Label covers too little of side effects	0 (0)	4 (2)	185 (93)	11 (5)	0 (0)
Exaggerates the side effects	0 (0)	18 (9)	144 (72)	23 (12)	15 (7)
Accurate portrayal of side effects	0 (0)	22 (11)	16 (8)	155 (78)	7 (3)
Labels are effective	0 (0)	0 (0)	2 (1)	0 (0)	198 (99)
Textual warning is effective	0 (0)	0 (0)	4 (2)	193 (96)	3 (2)
Every pack should be labelled	0 (0)	0 (0)	154 (77)	0 (0)	46 (23)

Our study results show that women are more likely to react to the graphic labels printed on top of cigarette packs and therefore, graphic labels seem more effective in motivating the female gender to quit. This is in accordance with a 2019 study that toted strong negative emotions[13] to be the cause in women.

Our study results show that graphic labels are more effective in smokers aged 17 years of age and above or those who had a habit of smoking less number of cigarettes. This is different from the findings of a psychological study[14] in which the results showed that habitual smokers and especially adolescents were less likely to show any response to such graphic warnings. The strong response evident in females and 17-year-old students shows that graphic warning labels activate brain regions that are involved in cognition, emotion, and memory formation,[15,16] amygdala/hippocampus, insula, and visual association cortices. The neural activity in these aforementioned regions is a predictor of positive cessation outcomes.[17,18]

There are very few studies discussing the characteristics of local and imported brands of cigarette packs. The statements in our study were very different from results of other studies that focused on tobacco control.[19] These studies showed that the appearance of the cigarette pack mattered.[20] The appearance of the pack was associated with the amount of tobacco that each and every cigarette was found to contain, for example, a brand with stylish packaging was found to have more sales simply based on this opinion.

Conclusion

There is a general consensus on graphic labels altering the opinions of smokers. The presence of these labels is, however, targeting only a specific type of audience and hence, should be expanded for a larger audience. These labels should include very clear information about the risks and complications of smoking. It would also be helpful if these labels are placed at a strategic location.

Conflict of Interests

The authors have no conflict of interest.

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Authors' Contribution

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تأثیر برچسب‌های هشدار گرافیکی روی جعبه‌های سیگار بر تغییر عقاید و عادات افراد سیگاری: یک نظرسنجی

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مقاله پژوهشی

چکیده

مقدمه: سیگار کشیدن به یک معضل عمده در سراسر جهان تبدیل شده است. با پیشرفت تکنولوژی، جمعیت‌های آسیب‌پذیر مانند نوجوانان نیز در معرض آسیب قرار دارند. یک عامل بازدارنده، وجود برچسب‌های گرافیکی روی جعبه‌های سیگار است. با در نظر داشتن این موضوع، هدف از انجام پژوهش حاضر، ارزیابی تأثیر این برچسب‌های گرافیکی روی عادات و عقاید افراد سیگاری بود.

روش‌ها: این مطالعه مقطعی با توزیع یک پرسش‌نامه معتبر کاغذی انجام شد. حجم نمونه با استفاده از نرم‌افزار آماری، ۲۰۰ نفر برآورد گردید. جمعیت هدف تحقیق، آن دسته از دانش‌آموزان کلاس دوازدهمی اسلام‌آباد پاکستان بودند که سیگار می‌کشیدند. نمونه‌ها به روش نمونه‌گیری گلوله برفی انتخاب شدند.

یافته‌ها: ۱۲۸ پسر (۶۴ درصد) و ۷۲ دختر (۳۶ درصد) در پژوهش حاضر شرکت کردند که میانگین سن آن‌ها، ۰/۵۱ ± ۱۷/۵۹ سال بود. ۴۰ شرکت‌کننده انتخاب برندهای بومی سیگار را به علت تازگی، صرف‌نظر از وجود یا عدم وجود برچسب گرافیکی، گزارش دادند که مفهوم جدیدی بود. ۹۴ درصد شرکت‌کنندگان اعتقاد داشتند که وجود برچسب بصری به درک آسیب کمک می‌کند و ۷۸ درصد بر این باور بودند که اثرات جانبی به درستی تصویرسازی شده است. شرکت‌کنندگان بیشتر از ۱۷ سال عقیده داشتند که برچسب گرافیکی توصیف روشنی از عواقب سیگار کشیدن را ارایه می‌دهد. در مشارکت‌کنندگان دختر نیز نتایج مشابهی مشاهده گردید.

نتیجه‌گیری: یک توافق عمومی در مورد این که برچسب‌های گرافیکی عقاید افراد سیگاری را تغییر می‌دهد، وجود دارد. با این حال، وجود این برچسب‌ها تنها یک دسته خاصی از مخاطبان را هدف قرار می‌دهد و از این‌رو، باید برای مخاطبان بیشتری توسعه یابد.

واژگان کلیدی: سیگار کشیدن؛ بررسی‌های جامعه؛ دانش‌آموزان؛ پاکستان

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