

# Graphic warnings and text warning labels on cigarette packages in Riyadh Kingdom of Saudi Arabia: Awareness and perceptions

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#### Abstract:

**BACKGROUND:** Graphic warning labels have been shown to be effective in smoking initiation and cessation and were implemented in Saudi Arabia in 2012. To date, no study has assessed the effectiveness of these labels and the Saudi population's perceptions on the effectiveness of cigarette health warning labels.

**METHODS:** We used a cross-sectional qualitative study comprising of nine focus groups among 3 different community group members including health-care workers, adult women and adult men. We conducted in-depth interviews among community leaders. Both focus groups and interviews assessed awareness levels and elicited perceptions about health warning labels on cigarette boxes currently used in the Kingdom of Saudi Arabia.

**RESULTS:** While most participants in the study were aware and supported the use of graphic warning labels on cigarette packages, the awareness of the specific details on the labels was low. Participants perceived the effectiveness of current labels somewhat vague in smoking cessation and advocated for stronger and more aggressive graphics. Community leaders, however, preferred text-only labels and did not support aggressive labels which were deemed culturally and religiously inappropriate.

**CONCLUSIONS:** The study suggests that while graphic warning labels are perceived as necessary on cigarette packages the currently used messages are not clear and therefore do not serve their intended purposes. Measures should be undertaken to ensure that pictorial cigarette labels used in Saudi Arabia are culturally and ethnically appropriate and are rotated on a regular basis to ensure salience among smokers and nonsmokers alike.

#### Keywords:

Cigarette packages, health warning labels, smoking

Tobacco use is a major public health problem worldwide and represents the number one cause of preventable death in the world today.<sup>[1]</sup> Around 6 million people die yearly from tobacco-related causes with predicted mortality rates reaching 8 million by the year 2030.<sup>[2]</sup> Tobacco is the most commonly consumed worldwide in the form of tobacco smoking<sup>[3]</sup> and is associated with many diseases, including and not limited to respiratory diseases, cardiovascular diseases, and cancer.<sup>[2]</sup>

Moreover, it places a substantial burden on the country's economy. According to the World Health Organization (WHO) report on the Global Tobacco epidemic 2013, tobacco causes >500 billion dollars of economic harm yearly.<sup>[4]</sup>

In the Kingdom of Saudi Arabia (KSA), the overall prevalence of smoking is 12.2% and 23.3% for secondhand smoking.<sup>[5]</sup> Smoking was responsible for >177,000 premature deaths between the years 2005 and 2012.<sup>[6]</sup> Currently, 35%–45% of adult males and

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1%–16% of adult females in KSA are smokers.<sup>[5,7]</sup> Data from the Center for Disease Control Global Youth Tobacco Survey in KSA revealed that 29.7% intermediate school children reported ever smoking cigarettes (males: 39.5%, female: 16.1%) and 29.4% live in homes where others smoke in their presence.<sup>[8,9]</sup> The cost of the lost productivity and premature death due to smoking-related disability was estimated at SAR 25 billion within the same period.<sup>[6]</sup> Saudi Arabia, ranking fourth in cigarette imports globally, sells around 16 million cigarettes yearly with an approximate cost of 636 million Saudi Riyals.<sup>[10]</sup>

Worldwide, several policies have been introduced to address the economic and health burden of tobacco use. In 2003, the first international treaty on tobacco – WHO Framework Convention on Tobacco Control (WHO FCTC) – was adopted by the World Health Assembly. Saudi Arabia was among the 168 states who signed the treaty. In its eleventh article that addresses packaging and labeling of tobacco products, the FCTC recommends a rotating series of health warnings that cover at least 50% (or must cover at least 30%) on average of the front and back of the package. It also proposes the use of graphical health messages instead of textual ones.<sup>[11,12]</sup>

The FCTC policy is one of the policies that have shown to be effective as they are a direct means of communicating the risks associated with smoking. Moreover, the structure of the health warning labels plays an important role in their effectiveness.<sup>[13]</sup> Accordingly, larger and clear text placed on the front of packs with pictures covering at least 50% of both sides of the package, increases the chances of smokers noticing the labels.<sup>[11,12]</sup>

In Saudi Arabia, several legislations, orders, and royal decrees have been established and implemented. On August 9, 2012, and as part of the Gulf Cooperation Council (GCC) Standardization Organization, the Kingdom adopted the national technical regulation regarding Labeling of Tobacco Product Packs.<sup>[14]</sup> The national technical regulation governed that all countries of the GCC including the KSA to adopt the same graphic health warning labels on all cigarette packs [Figure 1]. Globally, several studies have been conducted to assess people’s perceptions and effectiveness of health warning labels on cigarette packs.<sup>[15-19]</sup> However, at the regional level, as well as at the national level, and to the best of our knowledge, no previous research has examined the views of the Saudi population on graphic warning labels on cigarette packages since they were implemented. In addition, there is a lack of published data on warning labels in KSA. As such, this study aims at exploring people’s awareness and perceptions on cigarette health warning labels and assessing the impact of those labels on adult smoking behavior in Saudi Arabia.







English text	Arabic text
<p><b>Objective: Death represented by skeleton head</b></p>  <p>Smoking causes early death</p>	 <p>التدخين يسبب الوفاة المبكرة</p>
<p><b>Objective: Pregnant woman/ Second hand smoking</b></p>  <p>Passive smoking affects fetus and leads to growth retardation and premature labor</p>	 <p>دخان التبغ يؤدي الجنين وقد يؤدي لتخلف الوزن عند الولادة أو الولادة المبكرة</p>
<p><b>Objective: Diseases</b></p>  <p>Smoking increases risk of more than 25 diseases including cancer and cardiovascular disease</p>	 <p>التدخين يحرق أعضاء الجسد بأكثر من 25 مرضاً بما في ذلك السرطان والأمراض القلبية</p>

Figure 1: Health warning labels currently applied on cigarette boxes in Saudi Arabia

## Methods

### Study design

We utilized a cross-sectional qualitative study design with focus groups and semi-structured interviews as the methods for data collection. Focus groups primarily elicited participants’ opinions on tobacco use and the health warning labels on cigarette boxes in Saudi Arabia where they were presented with images of the warning labels currently used in KSA [Figure 1] during the focus groups. Face-to-face semi-structured interviews were conducted among community leaders (religious leaders, known as Imams of masjids or mosques) to assess perceptions about health warning labels and suggestions for interventions for tobacco control in the communities. The feedback from the focus groups and responses from the interviews were collated to form emerging themes. The study was approved by the Institutional Review Board at King Abdullah International Medical Research Center.

### Participants

Participants were recruited using convenience sampling from Riyadh City with the assistance of employees of King Saud bin Abdulaziz University for Health Sciences (KSAU-HS). Four types of community group members were targeted: health-care providers, adult women, and adult men (ages 18–45), and community

leaders (religious leaders known as Imams of Masjids or Mosques). Separate focus groups were conducted for each of the participant groups, and in-depth interviews were conducted among the community leaders.

In total, nine focus groups were conducted with 82 participants (28 health-care providers, 30 women, and 24 men) and face-to-face interviews with 32 male individuals. Focus group sessions were all conducted on the KSAU-HS campus, and community leaders were approached in their place of work.

### Procedures

The focus groups were facilitated by a trained moderator in the presence of a scribe for recording field notes and observing group dynamics and interactions. The duration of each focus group lasted about 1 h or until saturation was achieved. All sessions were audio recorded and transcribed verbatim and rechecked for accuracy. Participants signed a consent form and were asked to complete a self-administered survey for demographic data before the start of the focus group. During each focus group session, participants were presented with the images of the currently used graphic and text health warning labels as well as other warning labels used in other countries. The moderator followed the same instructions and the same topic guide for all group discussions. All participants' comments, attitudes, reactions, and suggestions were explored and probed for clarification. All sessions were conducted between January and August 2015.

A trained male moderator was recruited to conduct the face to face interviews with community leaders in their place of work. Each interview lasted approximately 30 min, and all participants provided consent before the start of the interview. Interviews were not audio recorded; however, details of the interview and responses were documented. Images of the warning labels for Saudi Arabia were first presented to the interviewee and their opinions were recorded. Following this, images and warning labels used on cigarette packs abroad were presented to the community leader to explore their opinions as leaders on the possible impact of introducing similar images locally and whether or not they would be effective for smoking cessation.

### Data analysis

Basic descriptive data were collated and analyzed using IBM SPSS Version 20 (Armonk, NY:IBM Corp., US) into percentages, means, and standard deviations.

The focus group transcripts and interview data were verified by the two researchers and coded and categorized using the qualitative data management software NVivo

QSR International Pty Ltd. Version 11<sup>[20]</sup> and analyzed using a thematic approach. Emerging themes from all focus group sessions and interviews were compared for all participants, and similar themes were extracted and reported.

## Results

### Demographics

Most participants were males (58.8%), married (79.8%), and employed (96.5%) [Table 1]. Most health-care providers and 83.3% of men had a college degree, with less women (76.7%) and community leaders (40.6%) achieving a higher educational level. About 10% of participants reported being current smokers, 8.8% were former smokers.

### Focus group discussions

There were similarities in the group responses of adult women, adult men, and health-care providers. Therefore, we combined the emergent themes and have presented them below.

### General perspectives about health warning labels on cigarette packages

#### *Awareness of the cigarette warning labels*

Focus groups participants were mostly aware of the presence of the health warnings/graphics on cigarette packages. They recalled that there were three pictorial warnings; however, were unable to describe the details of the pictures. They mostly recalled that there is a picture of a pregnant woman on some cigarette boxes. However, they were unable to describe the other two pictures (skeleton head cigarette and burning hand). They mainly attributed their knowledge of the existence of the picture to excessive littering of cigarette boxes. They were also able to specify the approximate space the picture takes up on a regular size cigarette package (1/3 of the front space). None of the participants recalled the time that the warning labels began to appear on cigarette boxes in Saudi Arabia.

The majority (87%) of the focus group participants were nonsmokers. Smokers were mostly males (99%). Nearly, all smokers stated they were aware of the presence of warnings (pictures and text labels) on cigarette packages; however, similarly to nonsmokers they did not recall the details of the pictures and the contents of the label. One of the participants, a male smoker stated, "it has pictures showing harm to health by tobacco smoke, which indicates that if you smoke you will get sick-a pregnant women is also shown on the box to tell women not to smoke."

#### *Reading the health warning messages*

Most of the participants did not recall reading the warning messages on the cigarette package even though

they stated that they were quite sure that it had to do with presenting information on the bad consequences of tobacco smoke on health. One woman who works as an administrative assistant stated, "I never paid attention to the warning labels before; my husband smokes, but I still did not notice."

### *Impact and salience of current health warnings*

Awareness levels of the specific details on the warning labels were low and none of the participants reported any recollection of thinking about their meaning before the day of the focus group meeting. When presented with the pictures and the text of the warning labels, the main response was that the message the picture is conveying is clearly related to the danger of cigarette smoke but with no specific details on how cigarette smoke is harmful to health. The quality of the image was described as "not clear" [A summary of the discussions about each of the three pictorial health warning labels is presented in Table 2]. On the contrary, the written text message was described as clear in meaning and in communicating the risk of smoking. The general impression was that the current warnings pictures/messages will partially reduce the appeal of the cigarette box especially among those that do not smoke and may prevent the initiation of smoking: One participant reported, "people do not like to think about the meaning of the picture; they try to avoid it."

As for the effectiveness of the warning labels in promoting smoking cessation among smokers, the consensus among

focus group participants was that currently used labels do not seem to be effective. A male health-care worker said, "Not effective at all - Way far from being effective. People are starting to develop a preference for which picture they like the best on their cigarette box."

There was full support among participants for placing health warning labels on tobacco products. They all believed that they were necessary because they convey the message in a more direct way. However, their impressions of the current labels were not as positive. They agreed that they should have more impact in terms of severity of harm associated with smoking and should convey a stronger message than the one currently communicated. There was an agreement by the majority that the pictures should be stronger/more aggressive. When pictorial warning labels from other countries were shown, participants from all focus groups reported that they felt the severity of harm to health due to exposure to cigarette smoke and were emotionally impacted by the labels' severity. A woman (mother of teenagers) expressed, "it takes a lot of effort to see these images on the KSA cigarette boxes. Images should include pictures of people who have suffered serious consequences because of smoking. Pictures should be of lungs and children who were harmed by smoking". Another one said, "There should be more emotional impact. Pictorial warnings should stress the bad effect of smoking on family's health as well as dying and leaving people behind."

**Table 1: Characteristics of study participants**

Characteristics	Health-care providers, n (%) 28 (100)	Women, n (%) 30 (100)	Men, n (%) 24 (100)	Religious leaders, n (%) 32 (100)
Age ( $\mu \pm$ SD; years)	48 $\pm$ 7	29 $\pm$ 3	32 $\pm$ 6	36 $\pm$ 7
Gender				
Female	17 (60.7)	30 (100)	0	0
Male	11 (39.3)	0	24 (100)	32 (100)
Marital status				
Single	4 (14.3)	9 (30)	4 (16.7)	1 (3.1)
Married	22 (78.6)	19 (63.3)	19 (79.2)	31 (96.9)
Widowed/divorced	2 (7.1)	2 (6.7)	1 (4.2)	0
Education				
High school	0	3 (10)	1 (4.2)	0
Diploma or certificate	4 (22.2)	4 (13.3)	3 (12.5)	19 (59.4)
College or more	24 (85.7)	23 (76.7)	20 (83.3)	13 (40.6)
Employment				
Full time/part time	28 (100)	26 (86.7)	24 (100)	32 (100)
Unemployed	0	4 (13.3)	0	0
Smoking status				
Current smokers	4 (14.3)	0	7 (29.2)	0
Former smokers	6 (21.4)	1 (3.3)	0	3 (9.4)
Never smokers	18 (64.3)	29 (96.7)	17 (70.8)	29 (90.6)
Income (SAR)*				
<5000	0	5 (16.7)	1 (4.2)	3 (9.4)
5000-9999	6 (21.4)	12 (40)	11 (45.8)	28 (87.5)
10,000-15,999	8 (28.6)	10 (33.3)	8 (33.3)	1 (3.1)
>15,999	14 (50)	3 (10)	4 (16.7)	0

SD=Standard deviation

## Opinions of community leaders (religious leaders known as imams of masjids or mosques)

### Perceptions of pictorial and text health warnings

About 69% (22/32) of participating religious leaders were aware of the anti-tobacco pictorial health warnings on the cigarette boxes and 37.5% claimed that they knew about the anti-tobacco text warning on the cigarette box [Table 3]. One leader expressed that he had seen the same labels in neighboring countries in the Arab Gulf. There was a general agreement among community leaders that the labels were necessary to motivate smokers to quit. Approximately a third of them (34.4%) thought that the currently used pictorial labels were effective while all thought that the text warnings were clear and effective in promoting smoking cessation. The majority (68.8%) expressed that they have thought about the meaning of the pictures and less than half (40.6%) thought that they had a clear meaning. Almost all of the religious leaders (28/30) did not support the use of pictorial warning labels from other countries because they were too revealing of body imagery and deemed inappropriate for the country's religious and cultural values. No one supported the use of more aggressive graphic anti-tobacco labels for tobacco control.

### Suggested reasons for smoking and strategies for warning against tobacco use

All the religious community leaders claimed that bad company is the main reason people smoke and 71.9% attributed it to the weakness of the soul when faced with temptations. There was a suggestion by the majority (93.8%) to address faith and religious beliefs that prohibit self-harm in smoking cessation interventions.

Religious leaders in this sample were willing to discuss and emphasize on the harmful effects of tobacco use and the importance of smoking cessation in their community sermons.

## Discussion

This study has examined the views of different community groups on three smoking warning labels adopted by Saudi Arabia following the adoption of the WHO assembly – FCTC in an attempt to limit smoking initiation. The KSA was among the 168 states who signed the treaty in 2012.<sup>[11,14]</sup> The perceived effectiveness and awareness of these warning labels within the community was examined in this study.

Overall, awareness levels of warning labels on cigarette boxes were high among participants however specific recall of the messages being depicted on the labels was low. Warning labels are essential in communicating the consequences of smoking and must be clear and effective in influencing behavioral changes such as quitting smoking or preventing smoking initiation.<sup>[18,21]</sup> Pictorial warning labels in our study, however, were described as being vague by the majority of participants and while previous studies have argued that level of education may influence an individual's reaction and attention to warning labels,<sup>[22]</sup> this was not the case in our study. The FCTC has set guidelines for the need to carefully consider literacy levels when choosing pictorial warnings to take into account different levels of education,<sup>[12]</sup> however, cultural and social backgrounds should also be considered. The meanings of the warning labels were

**Table 2: Focus groups themes and quotations regarding individual pictorial warnings labels on cigarette boxes for Saudi Arabia**

Label	Pros	Cons
#1: Skeleton cigarette	The message is good Women (nonsmoker): "The skeleton head on the burning tip is repulsive and scary"	It is well known that smoking causes death Male (smoker): "This picture is meaningless and has no impact on smokers. It doesn't look that bad. If you look at it carefully you see the skeleton head but not sure if everyone is going to notice the skeleton head and understands that it means death"
#2: Pregnant woman	It clearly states that smoking is harmful to fetus Health-care provider (nonsmoker): "This one is my favorite warning picture. Pregnant women exposure to cigarette smoke causes harm to the fetus and the mother and have serious health consequences from low birth weight to sudden infant death and asthma and birth defects"	Smokers do not usually care about the effect of smoking on other people Women (nonsmoker): "Men smoke all the time in their homes and in the presence of their wives and children" It is not clear how mother and child are affected by cigarette smoke Men (smoker): "The picture is vague and there is no apparent serious harm and people may develop a liking for it because it has the figure of a woman"
#3: Hand with burning cigarette	Graphic and effective Men (smoker): "The fingers are turning into ashes now this is pretty effective because it would make them think that their entire body is going to burn"	Image looks not real Health-care provider (nonsmoker): "That looks like it is not realistic. No one is going to think that their fingers are going to turn into ashes from holding a cigarette. The picture is fake"

**Table 3: Results from religious leader's face-to-face interviews regarding pictorial health warnings and labels on cigarettes packs in the Kingdom of Saudi Arabia (n=32)**

Response	n (%)
Aware of the pictorial warning labels	22 (68.8)
Aware of the text warning labels	12 (37.5)
Thought about the meaning of the warning labels	22 (68.8)
Recalled the approximate start date of placing health warning labels on cigarette boxes	0
The meaning of the pictorial warning labels is clear	13 (40.6)
Meaning of the text health warning labels is clear	32 (100)
Current warning pictorial health warning labels are effective/influential in promoting smoking cessation	11 (34.4)
Currently used text warning labels are effective/influential in promoting smoking cessation	32 (100)
Health warning labels on cigarette boxes are necessary	32 (100)
Currently used pictorial health warning labels on cigarette boxes are appropriate	14 (43.8)
Stronger/more aggressive pictures should be used for the warning labels (sample of pictures from other countries)	0
Pictorial warning labels from other countries are not appropriate because they are too revealing of body imagery	28 (87.5)
Bad company is the main reason why people smoke	32 (100)
Weakness of the soul is a reason why people smoke	23 (71.9)
Faith should be stressed in warning against smoking cessation	30 (93.8)
Religious teaching is against doing self-harm by smoking	32 (100)
Willing to address smoking cessation in community speeches	21 (65.6)

interpreted differently among members of the same group irrespective of levels of education. There was a general understanding that the labels represented harm associated with tobacco use however, there seemed to be no clear understanding of the severity or type of harm or what these pictures represented. Participants elicited that the currently used pictorial health warnings were not effective in encouraging smokers to quit smoking among smokers with the majority of participants reporting a preference for the current text warning labels for expressing the dangers of smoking over the currently used pictorial labels. These findings contradict previous research which found that graphic warning labels were more effective than text-only labels in encouraging smokers to quit smoking or educate them about the dangers of smoking.<sup>[23-25]</sup> Participants in this study also felt that the graphic warning labels were too vague and did not truly reflect the dangers of smoking as they were most likely misunderstood even with the short text supporting the pictures. Furthermore, participants expressed that smokers may become immune towards the messages on the labels while some even claimed finding the labels amusing over text warning labels.

It was believed that the effectiveness and impact of the labels decreased over time to a point that they just became part of the packaging. Warning labels have been found to lose effectiveness with time<sup>[26,27]</sup> and introducing new labels occasionally is necessary to ensure salience and fear among smokers and nonsmokers. This recommendation is also consistent with the WHO FCTC Article 11 which states that warning labels will not remain effective over time and advises countries to periodically rotate health warnings to avoid “wear-out” of the effectiveness of these labels.<sup>[11]</sup> Furthermore, the use of less aggressive labels which elicit low-emotion have been found to backfire and reduce perceived risk and quit intentions of smoking.<sup>[28]</sup>

Findings from the study are similar to studies conducted and indicate an overall support for warning labels on cigarette boxes regardless of whether they were text messages or pictorial messages.<sup>[15-19,28,29]</sup> Despite the participants' opinions of the warning labels currently used, participants expressed overall general support for graphic warning labels and women in particular supported the use of more aggressive labels with preference to the labels used in other countries. The majority of community/religious leaders in our study did not support the use of pictorial warning labels while all of them supported the use of text warning labels as an alternative. They believed that tobacco initiation and use to be influenced by peers and the lack of self-control to resist addiction and harmful behavior rather than the use of pictorial warning labels. Community/religious leaders also referred to as “Imams” in Saudi Arabia are regarded spiritual role models and have the potential to influence youth in their teachings and behaviors. They play an important role in communal decision-making and act as the gatekeepers for many social and cultural issues.<sup>[30]</sup> Almost all of the imams in our study did not advocate for the use of any of the graphic warning labels they were shown from other countries due to religious or cultural factors. This finding emphasizes the importance of maintaining ethnically and culturally appropriate warning labels to ensure their effectiveness in this community.

The study is limited in that we used a convenience sample which may not be representative of the entire Saudi population. Our study included participants from the same geographical area and mostly self-reported nonsmokers. We did, however, attempt to ensure a diversity of focus group participants and the qualitative nature of the study elicited in-depth perceptions and insights on the effectiveness of existing pictorial warning labels. Future research should ensure a wider representation of geographical areas in Saudi Arabia and avoid self-reports of smoking.

## Conclusion

While more research in this area is recommended, the results of this study have provided baseline results on the awareness and perceptions of the efficacy of graphic and text warnings labels on cigarette packages in a Saudi population. These results suggest that graphic warning labels are perceived as necessary on cigarette packages, however, the messages currently being portrayed are not clear and therefore do not serve their intended purposes. Measures should be undertaken to ensure that graphic cigarette labels used in Saudi Arabia are culturally and ethnically appropriate and are rotated on a regular basis to ensure salience among smokers and nonsmokers alike. Rigorous anti-smoking campaigns incorporating and explaining cigarette warning labels should be implemented for the prevention of smoking initiation and quitting as well as introducing regulatory practices in Saudi Arabia.

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## Conflicts of interest

There are no conflicts of interest.

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