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Predictors of past quit attempts and duration of abstinence among cigarette smokers

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ABSTRACT

Objective: Despite the widespread awareness of the harms of smoking, millions continue to smoke around the world partly due to the difficulty it takes to quit smoking. Identifying the factors associated with making quit attempts is an essential pillar to reach successful quitting. The purpose of this study is to assess the factors associated with the past quit attempts and their past length of abstinence in a Lebanese sample of cigarette smokers.

Methods: This study was conducted between March 2014 and March 2015, involving 382 patients randomly chosen from 5 outpatient clinics in 5 hospitals in Lebanon. A standardized questionnaire was completed including socio-demographic characteristics, smoking behavior, chronic respiratory symptoms, Fagerstrom scale, Mondor scale, packaging perception, quitting behavior and readiness to quit ladder.

Results: Smokers who have chronic allergies (ORa = 2.45, p = 0.03), those who have ever stopped smoking for at least one month due to the warnings implemented on the packages (ORa = 4.6, p < 0.0001) and smokers with an intention to quit in 2 months (ORa = 2.49, p < 0.0001) had significantly more past quit attempts.

Results: Furthermore, longer quit attempts duration (more than 1 month) were significantly associated with low-nicotine dependent smokers (ORa = 0.56, p = 0.02), higher-motivated smokers (ORa = 1.85, p = 0.01), people with chronic allergies (ORa = 2.07, p = 0.02), smokers who have ever stopped smoking for at least one month due to the warnings (ORa = 3.72, p < 0.0001) and those with an intention to quit in 2 months (ORa = 1.98, p = 0.05).

Conclusion: The promoters of smoking cessation services should consider these factors when designing comprehensive tobacco control initiatives and in service planning.

1. Introduction

Tobacco use is the number one cause of preventable mortality. Five million deaths each year are attributable to smoking, with an estimated rise of as much as 10 million deaths per year by the 2030s [1]. Yet, despite the widespread awareness of the harms of smoking, millions continue to smoke around the world partly due to the difficulty it takes to quit smoking. The Centers for Disease Control and Prevention suggests 8–11 attempts before

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quitting permanently [2]. However, a recent study suggests that a current smoker tries to quit on average 30 times or more before successfully quitting for 1 year or longer [3].

Several studies found that being in daily contact with other smokers reduced the likelihood of success in quitting [4,5]. Similarly, Senore et al. [6] and Gourlay et al. [7] found that the likelihood of success in quitting was lower among smokers who lived with other smokers than among those who did not. Furthermore, Farkas et al. [8] found that bans in both the workplace and in the home were significant predictors of successful quitting.

Most past studies of factors affecting quit attempts and their outcomes have been limited to specific populations or have addressed individual demographic or environmental characteristics. Recognizing the dynamic nature of smoking behavior, Horn [9], Prochaska et al. [10–12] and DiClemente et al. [13] found that change in smoking behavior followed a series of stages, with each stage individually influenced by different factors. A previous study showed that smokers who are highly motivated to quit smoking, having one or less smoker at work, who consider shocking pictorial warnings as more effective than textual ones already implemented on cigarettes packages in helping to reduce/stop smoking, who consider the health warnings on packs as very important, having past quit attempt during the last year and real quit attempts duration for 1 month or more, were all factors associated with the stages of readiness to quit [14].

Cigarette packages in almost every jurisdiction in the world carry health warnings to inform consumers about the risks of smoking. Indeed, health warnings on packages are appealing both because of their low cost to regulators and their unparalleled reach among smokers. However, the effectiveness of package warnings depends on their size, position, and design: whereas obscure warnings have been shown to have relatively little impact, more comprehensive warnings, including picture-based warnings, have been associated with a greater recall, an increased motivation to quit smoking, and greater attempts to quit [15–17].

To the best of our knowledge, no study has been conducted in Lebanon to assess factors affecting past quit attempts and their duration. Therefore, our aim was to assess factors associated with the past quit attempts and their past length of abstinence in a Lebanese sample of cigarette smokers.

2. Methods

2.1. Study design and ethics

A cross-sectional survey was conducted between March 2014 and March 2015 in 5 outpatient clinics in 5 hospitals in Lebanon: 2 in Beirut, 1 in Mount Lebanon, 2 in North of Lebanon and included cigarette adult smokers age ≥18 years) and in a smoking cessation center located in one hospital in Beirut. The Lebanese University waived approval of the study since it is an observational non-invasive study that respects participants' autonomy and anonymity; the study followed principles of the Declaration of Helsinki for such types of studies [18].

2.2. Study participants

Subjects were invited to complete a standardized questionnaire in the waiting rooms of respiratory outpatient clinics in the hospitals and of the smoking cessation center. The individuals were patients coming to the clinic for an ordinary checkup, for an acute respiratory disease such as pneumonia or acute bronchitis or for a chronic respiratory disease; they had to be exclusive current cigarette smokers. Healthy individuals (with no respiratory disease) were also included, provided they were current cigarette smokers "defined as currently smoking ≥1 cigarette per day". In addition, they could be seeking advice for a smoking cessation program. The interview was carried out by trained pharmacists and nurses. A written consent in Arabic was given by participants in order to be included in the study.

2.3. Study tool and variables

The pretested questionnaire from the standardized questionnaire of the American Thoracic Society was given to all participants [19]. It was adapted to local Arabic language (the native language in Lebanon); details about the translation process were presented previous studies in [20–24]. Socio-demographic characteristics, including age categorized into ≤45 years and >45 years, gender, region categorized into Beirut, Mount and North, employment status divided into employed, unemployed and never employed, educational level divided into low education (illiterate, primary, complementary and secondary levels) versus high education (university level) and the marital status categorized into married versus single status (single, divorced or widowed) were assessed.

Concerning the smoking behavior, we asked about the cigarette smoking status, the number of cigarettes smoked per day categorized into 1–9, 10–25 and >25 cigarettes per day [25], the family smoking status categorized into ≤1 person who smoked in the same house versus >1 person, if the patient smoked indoor, the number of smokers at work categorized into ≤1 smokers or >1 person and submission to tobacco smoking at work. The age of cigarette smoking onset was categorized into 10 to 14, 15 to 17 and ≥18 years [26].

The presence of chronic respiratory symptoms was defined as an affirmative answer to the questions "did the doctor tell you that you have a respiratory disease?", "do you have symptoms of chronic wheezing (whistling sounds heard on expiration more than 2 years)? A chronic cough (defined as the presence of a cough for 3 consecutive months in 2 consecutive years)? Chronic phlegm (presence of phlegm for 3 consecutive months in 2 consecutive years)? A chronic cough with phlegm for more than 3 weeks per year? Chronic allergy? Classification into the presence of chronic respiratory symptoms category required a positive answer to one of the previous questions.

The cigarette nicotine dependence status was measured via the Fagerstrom scale. Scores were categorized into 1–4 "low dependency" and ≥5 "high dependency" [25]. The motivation to quit smoking was measured using the Mondor scale; scores were categorized into ≤12 reflecting a low motivation to quit and >12 reflecting a high motivation to quit [27].

In order to assess the packaging perception, we asked patients how much the labels of the cigarette packaging were actually appreciated and their perceived effectiveness for smoking cessation or reduction. Two different types of warnings were shown to the smokers during the interview: Only text (current warning used in Lebanon) versus pictorial "shocking" warnings (i.e., diseased lungs, throat cancer and rotting teeth). To quantify the effect of the warning, two questions were asked: "If your favorite cigarette brand decides to change its look using these pictorial warnings on tobacco packaging, would you think of buying another cigarette brand?" (Yes/No) and "If you could choose the types of warning labels on cigarette packs, which one do you feel as more effective in helping to stop smoking?" (Graphic images/texts/a combination of both).

In addition, we asked some questions about the influence of the warnings on the patient's decision or intention to quit: have you ever stopped smoking for at least one month during the last year due to the warnings? "no/yes"; Are you or have you been influenced by the health warnings on cigarette packages (in relation to the daily number of cigarettes smoked)? "no/yes"; Have you changed your