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Smoking relapse situations among a community-recruited sample of Spanish daily smokers

Bárbara Piñeiro[a,*], Ana López-Durán[a], Carmela Martínez-Vispo[a], Elena Fernández del Río[b], Úrsula Martínez[a], Rubén Rodríguez-Cano[a], M. Carmen Míguez[a], Elisardo Becoña[a]

[a] Smoking Cessation and Addictive Disorders Unit, Department of Clinical Psychology and Psychobiology, Faculty of Psychology, Universidade de Santiago de Compostela, Galicia, Spain
[b] Department of Psychology and Sociology, University of Zaragoza, Zaragoza, Spain

HIGHLIGHTS

- We identify smoking relapse situations among a community sample of Spanish smokers
- The majority of relapses occur in situations of positive and negative affect
- Relapses in situations of positive affect may be related to recreational contexts
- Negative life events are associated with relapse in situations of negative affect
- Most of the sample reported having tried to quit smoking unassisted

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ABSTRACT

Introduction: Relapse is a common factor within the behavior change process. However, there is scarce and limited knowledge of smoking relapse situations in population-based samples. The aim of this study was to identify smoking relapse situations among a sample of Spanish relapsers from the general population.
Methods: A sample of 775 relapsers was recruited among the general population using a snowball method. Participants completed a survey including sociodemographic, smoking-related and psychopathology variables. Smoking relapse situations were identified through specific questions assessing different aspects related to the last relapse episode.
Results: The majority of smoking relapse situations were attributed to positive affect (36.6%) and negative affect (34.3%), followed by lack of control (10.1%), smoking habit (6.7%), craving or nicotine withdrawal (6.3%), and social pressure (5.9%). Being unemployed and having a mental disorder in the past increased the likelihood of relapse in situations of negative affect. Being single and having quit smoking to save money were associated with an increased likelihood of relapse in situations of positive affect.
Conclusions: Affect plays a significant role in smoking relapse among a community sample of unassisted Spanish smokers. Relapse may be much more of an affective and situational process than a habit, physiological or social pressure. Findings from this study may help develop tailored community smoking relapse prevention strategies or programs.

1. Introduction

Smoking is one of the most serious public health problems in developed countries. Despite a considerable decline in cigarette smoking in developed nations over the past several decades, smoking is still common (World Health Organization [WHO], 2015). In Spain, the prevalence of tobacco smoking decreased over the past 10 years from 32% in 1993 to 24% in 2013 (Spanish Ministry of Health, 2015). If tobacco control efforts continue at the same intensity, the WHO predicts that in 2025, around 21% of the Spanish population (approximately 8,528,400 persons) will be smokers. However, tobacco use continues to be the leading cause of preventable disease, general morbidity and mortality and health expenses in developed countries and reduction of cigarette smoking continues to be one of the highest public

* Corresponding author at: Smoking Cessation and Addictive Disorders Unit, Department of Clinical Psychology and Psychobiology, Faculty of Psychology, Universidade de Santiago de Compostela, Campus Universitario Vida, 15782, Santiago de Compostela, Galicia, Spain.
E-mail address: barbara.pineiro@usc.es (B. Piñeiro).

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health priorities (WHO, 2015).

Most smokers make a number of quit attempts before becoming completely abstinent, making relapse a common factor within the behavior change process (e.g., Brandon, Vidrine, & Litvin, 2007; Piasecki, 2006; Piñeiro & Becoña, 2013). Despite the availability of quit aids, a vast majority of smokers report quitting or making a quit attempt on their own and not with assisted treatments (Edwards, Bondy, Callaghan, & Mann, 2014; Smith, Carter, Chapman, Dunlop, & Freeman, 2015), and it is significantly more difficult for smokers to achieve long-term abstinence from a given cessation attempt without such assisted treatments (Hughes, Keely, & Naud, 2004). Even with evidence-based treatment (consisting of behavioral counseling and/or medication), only around 10% to 30% achieve long-term abstinence; a great majority eventually relapse. In fact, relapse or cessation failure is the common outcome of smoking cessation attempts (Fiore et al., 2008). These data reflect the fact that effective relapse prevention remains an unachieved goal of smoking treatment research (Hajek et al., 2013). Increased knowledge of the situations or determinants of relapse may hold the key to improved relapse prevention interventions.

Situations or determinants of smoking relapse after a quit attempt are well known, especially in clinical samples. For example, research on relapse has identified negative affectivity (anger, stress, anxiety, depression) with relapse (Brandon, Tiffany, Obremski, & Baker, 1990; Shiffman & Waters, 2004). Positive social experiences (e.g., socializing) have also been linked to relapse (Borland, 1990; Japuntich et al., 2011). Craving and urges have also been found to trigger relapse (Killen & Fortmann, 1997; Shiffman, Paty, Gnys, Kassel, & Hickcox, 1996). Moreover, it is also known that the risk of relapse increases with greater exposure to other smokers at home, or in social or professional settings (Carlson, Taenzer, Koopmans, & Bultz, 2000; Deiches, Baker, Lanza, & Piper, 2013) and with higher nicotine dependence (Japuntich et al., 2011).

However, despite the high prevalence of relapse, there is scarce and limited knowledge of smoking relapse situations in the general population of smokers (e.g., García-Rodriguez et al., 2013; Herd, Borland, & Hyland, 2009; Zhou et al., 2009). Nearly all the studies that identified predictors of smoking relapse were conducted with treatment-seeking smokers in clinical samples. Therefore, identifying those situations or contexts that influence individuals' smoking relapse in community-based studies remains a huge public health concern. A first step in understanding behavior change is to obtain an adequate description of it in its natural (i.e., untreated) state (Vaillant, 1983). Shiffman et al. (2002) made the first study of smoking antecedents in naturalistic settings with a large sample of smokers seeking smoking cessation treatment (N = 304), finding that smoking is under partial control of situational antecedents (e.g., urge to smoke, alcohol or coffee consumption, smoking restrictions, social and sensory smoking cues), and that certain locations and activities were associated with enhanced likelihood of smoking.

There is strong evidence that situational or contextual factors play a major role in determining relapse occurrence and consequences. Unfortunately, relatively little research has been directed at understanding the nature of the contextual influences on relapsing in population-based samples. The current research sought to identify the smoking relapse situations among a sample of Spanish smokers from the general population. To our knowledge, this is the first study to examine the situations of relapse in this population. Understanding the situations of relapse among unassisted smokers in the general population may be important for understanding relapse mechanisms in its natural context. Such information could help develop tailored smoking relapse programs that reach entire community and not just smokers seeking treatment. This information will inform public health interventions to increase sustainable smoking cessation.

2. Methods

2.1. Participants

Participants in the current study were adult daily smokers recruited from the general population from two regions on the North of Spain (Galicia and Aragón) through a snowball sampling strategy in which respondents were asked to refer other smokers who might be willing to participate. Participants met the following criteria: (1) being 18 years of age or older, (2) smoking at least 10 cigarettes per day, (3) having smoked cigarettes in the last 10 years, (4) having reported a history of daily smoking for at least one year within the last 10 years, (5) having stopped smoking for at least one month in the past 5 years and having relapsed, and (6) smoking for at least one month at the time of data collection.

Exclusion criteria included the following: (1) being abstinent, (2) having a diagnosis of a severe mental disorder (bipolar disorder and/or psychotic disorder) or cognitive deficits that prevent completing the questionnaire.

Of the 1017 participants assessed for eligibility, 775 met inclusion criteria and completed the survey.

2.2. Measures

2.2.1. Survey instrument

An anonymous self-administered pencil-and-paper questionnaire was used in this study. The questionnaire included closed and open-ended questions. Average completion time was approximately 10 min. Components of the survey that were analyzed in this study included the following:

2.2.1.1. Sociodemographics. The following demographic information was collected: age, gender, marital status, education, and employment status.

2.2.1.2. Smoking variables. Participants answered a series of questions about their past and current use of tobacco cigarettes including number of cigarettes smoked per day (CPD), age at the first cigarette, number of years smoking, reasons for quitting smoking in the past, method for smoking cessation, stages of change, nicotine dependence, and situations of smoking relapse.

Stages of change were assessed with the Stages of Change Questionnaire (Prochaska, Diclemente, & Norcross, 1992). For the assessment of nicotine dependence, we used the Fagerström Test for Nicotine Dependence (FTND; Heatherton, Kozlowski, Frecker, & Fagerström, 1991; Spanish version by Becoña & Vázquez, 1998), a six-item scale with scores ranging from 0 to 10. A score of 6 or more indicates high nicotine dependence. We also used a brief version of the Nicotine Dependence Syndrome Scale (NDSS-S; Shiffman, Waters, & Hickcox, 2004; Spanish version by Becoña et al., 2011). This scale assesses nicotine dependence based on DSM-IV criteria. The NDSS-S is made up of 6 items with a Likert-type response format ranging from 1 (*not true*) to 5 (*completely true*). Total score on the scale ranged from 6 to 30, and the cut-off point for nicotine dependence was 11 or above, according to criteria of sensitivity (0.87) and specificity (0.37) indicated by the authors (see Becoña et al., 2011).

2.2.1.3. Smoking relapse situations. Smoking relapse situations were identified with specific questions about various aspects related to the last relapse episode, following the more relevant relapse models (Marlatt & Donovan, 2005; Marlatt & Gordon, 1985; Shiffman, 2005; Velicer, Diclemente, Rossi, & Prochaska, 1990). Participants were asked: "Focusing on your last attempt to quit smoking, how did the relapse occur?", "Where were you?", "What were you doing?", "Was anyone else smoking?", and "Were you drinking coffee or alcohol?"

Relapse situations were coded in six categories by two psychologists trained in this process: 1) positive affect (PA), 2) negative affect (NA),