Drug and Alcohol Dependence 115 (2011) 30–34

Contents lists available at ScienceDirect

Drug and Alcohol Dependence

journal homepage: www.elsevier.com/locate/drugalcdep

Enjoyment of smoking and urges to smoke as predictors of attempts and success of attempts to stop smoking: A longitudinal study

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ARTICLE INFO

Article history:
Received 8 June 2010
Received in revised form 1 October 2010
Accepted 2 October 2010
Available online 15 December 2010

Keywords:
Smoking cessation
Tobacco use disorder
Behaviour addictive
Health behaviour
Longitudinal studies

ABSTRACT

Background: 'Enjoyment' and 'addiction' have been proposed as opposing reasons why people continue to smoke despite the manifest dangers. This study examined the roles of these as barriers to smoking cessation.

Methods: 2257 smokers taking part in a national household survey completed postal-follow-up questionnaires 6 months later. Enjoyment of smoking was measured at baseline as was strength of urges to smoke during a normal smoking day as a subjective marker of addiction. Smoking status, quit attempts and quit success were assessed at follow-up. Data on age, sex, social grade and method of cessation support used were also collected. Associations between baseline measures and smoking outcomes were assessed using logistic regression.

Results: Only enjoyment of smoking predicted whether a quit attempt was made (OR = 0.70, $p < 0.001$, 95% CI = 0.62–0.78) and only strength of urges to smoke predicted whether a quit attempt was successful (OR = 0.70, $p < 0.001$, 95% CI = 0.57–0.87). This pattern of results remained when controlling for sociodemographic factors and method of support used.

Conclusions: Both enjoyment of smoking and strength of urges to smoke are important in the smoking cessation process, but in different ways. Interventions to promote cessation need to address both in order to maximise the rate of quit attempts and their chances of success.

1. Introduction

Tobacco smoking remains one of the most important global health problems, accounting for 6 million deaths per year (Shafey et al., 2009). Although considerable progress has been made in reducing smoking prevalence in many westernised countries (Schaap et al., 2008; Wakefield et al., 2008), there remain hundreds of millions of smokers who cannot, or do not want to, stop. Logic dictates that smokers continue to smoke because (a) they have not yet made a quit attempt or (b) a quit attempt has been made but was unsuccessful. Concerns about health and cost are established key drivers of quit attempts (Lader, 2009; Vangeli and West, 2008). The question is what are the main barriers that prevent progression from smoker to non-smoker?

There are conflicting views expressed on how motivation to smoke acts as a barrier to quitting. The tobacco industry and pro-smoking, or pro-choice, advocates claim that smokers continue to smoke primarily because they enjoy it: quite simply, they like it and believe that the health risks are worth it (Action on Smoking and Health, 2000; Robinson and Pritchard, 1992; Smith, 2007). Conversely, those working in the field of tobacco control argue more strongly that smokers continue to smoke largely because of the addictive properties of nicotine, resulting in smokers often being unable to stop regardless of fears of the consequences (Difranza et al., 2010; Jarvis, 2004; United States Department of Health and Human Services, 1988).

In support of the first view, our previous work has shown that one of the most commonly cited motives for continued smoking is enjoyment, and along with 'liking being a smoker', was the only smoking motive associated with not having previously made a quit attempt (Fidler and West, 2009). Thus, although many smokers reported smoking to relieve stress, this was not associated with failing to make a quit attempt (Fidler and West, 2009). It has also been found in clinical studies and some population studies that smoking very soon after waking up predicts failure of quit attempts (Baker et al., 2007; West et al., 2001). This has been taken as evidence that smokers carry on smoking because of a need to smoke or 'addiction' to cigarettes, but there are no data as yet to show that this is not in fact mediated by enjoyment. Preliminary evidence does suggest that enjoyment and addiction may play distinctly different roles in understanding continued smoking (West et al., 2001).

A clear idea of the roles that enjoyment and addiction play in maintaining smoking behaviour is important when it comes to policies to reduce smoking. If addiction is the major issue then

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doi:10.1016/j.drugalcdep.2010.10.009

it is reasonable to curb the activities of tobacco companies, regulate access to tobacco and provide treatment to help smokers recover. This is because they are marketing a product that, once it has been tried, undermines free choice and rational decision making. If enjoyment is the key, such coercive measures are harder to justify if there is no harm caused to others by the behaviour. Although clearly complex, with enjoyment and dependence potentially at times inextricably linked, this dichotomy lies at the heart of much harmful human behaviour so answers here can perhaps also help with understanding how human motivation operates more generally.

This study aimed to investigate the roles of enjoyment of smoking and addiction in continued smoking by examining first of all the association of measures of enjoyment and addiction with smoking status 6 months later, and secondly the association of enjoyment and addiction with (a) making a quit attempt and (b) successful quitting.

Strength of urges to smoking during a normal smoking day was used as the preferred measure of addiction. This is a novel measure but was preferred to other measures for two reasons. First, we have found that it outperforms the most commonly used measure, the Fagerstrom Test for Nicotine Dependence (FTND, Heatherton et al., 1991) in predicting failure of quit attempts (Fidler et al., in press). Other, less well known measures of addiction or dependence have limited or no published data showing that they predict success in stopping smoking. Predicting success of quit attempts would be expected to be a minimum criterion for validity of a measure of cigarette addiction or dependence. Secondly, strength of urges to smoke is a subjective measure at a similar conceptual level to ratings of enjoyment whereas the FTND is a composite measure involving both objective behaviours and subjective feelings which may blur the enjoyment/addiction distinction we were interested in assessing.

2. Methods

The data were taken from the Smoking Toolkit Study (West, 2006a). This is an ongoing series of national household surveys, and subsequent postal follow-up questionnaires, run by the British Market Research Bureau. Initial baseline surveys were carried out using a random location sampling design whereby participants were recruited from randomly selected grouped output areas (containing 300 households) which had been stratified by ACORN characteristics (CACI, 2003) and region. Trained interviewers then selected participants within these areas using quotas taking into account the probability of being at home (gender, part time working and age), and carried out face to face computer assisted interviews with one member per household (aged over 16) until quotas were filled. Six months later all current smokers and recent quitters who agreed to be re-contacted were sent a postal follow-up questionnaire. The study was granted ethical approval by the University College London ethics committee.

2.1. Sample

The following analyses include data from current smokers who took part in the baseline household survey between November 2006 and March 2009, and who responded to the follow-up questionnaire sent 6 months after their initial interview.

2.2. Measures

2.2.1. Motivation measures. As a marker of addiction to cigarettes, all smokers at baseline were asked 'How much of the time have you felt the urge to smoke in the past 24 hours? Not at all, a little of the time, some of the time, a lot of the time, almost all of the time, all of the time or don't know'. Those who responded that they felt the urge to smoke a little of the time or more often were also asked 'In general, how strong have the urges to smoke been?' with the response options 'slight', 'moderate', 'strong', 'very strong', 'extremely strong', and 'don't know'. These questions were combined to create a derived strength of urges scale: 'not at all' (0), 'slight' (1), 'moderate' (2), 'strong' (3), 'very strong' (4), 'extremely strong' (5) (Fidler et al., in press).

As a measure of enjoyment of smoking smokers were asked 'how much do you enjoy smoking?' and could respond 'not at all' (1), 'not particularly' (2), 'quite a bit' (3), 'very much' (4).

2.2.2. Smoking measures. At baseline smokers were asked 'Which of the following best applies to you? I smoke cigarettes (including hand-rolled) every day, I smoke cigarettes (including hand-rolled), but not every day, I do not smoke cigarettes at all, but I do smoke tobacco of some kind (e.g. pipe or cigar), I have stopped smoking completely in the last year, I stopped smoking completely more than a year ago, I have never been a smoker (i.e. smoked for a year or more), Don't Know'. Those who responded that they smoked cigarettes everyday or that they smoked cigarettes but not every day have been included in these analyses.

At the six month follow-up participants were asked 'Do you smoke cigarettes at all nowadays? (including hand rolled cigarettes)' and could answer 'yes' or 'no'. Participants were also asked 'Have you made a serious attempt to stop smoking in the past 12 months? By serious attempt I mean you decided that you would try to make sure you never smoked another cigarette? Please include any attempt that you are currently making'. Those who answered yes were asked 'How long ago did your quit attempt start? In the last week, more than a week up to a month, more than 1 month and up to 2 months, more than 2 months and up to 3 months, more than 3 months and up to 6 months, more than 6 months and up to a year, can't remember'. If a quit attempt had been made the following question about medication and support used was completed 'Which if any of the following did you try to help you stop smoking? (Choose any that apply for each quit attempt): Nicotine replacement product (e.g. patches/gum/inhaler) without a prescription, nicotine replacement product on prescription or given to you by a health professional, Zyban (bupropion), Champix (varenicline), attended an NHS Stop Smoking Service group, attended an NHS Stop Smoking Service one to one counselling session, smoking helpline such as NHS smoking helpline or Quitline etc., something else, none of these, cannot remember'. Details of the definition of smoking status, recent quit attempts and successful quit attempts are described in the statistical analysis section below.

2.2.3. Sociodemographic measures. Information on gender, age and social grade (AB = higher and intermediate professional/managerial, C1 = supervisory, clerical, junior managerial/administrative/professional, C2 = skilled manual workers, D = semi-skilled and unskilled manual workers, E = on state benefit, unemployed, lowest grade workers) was collected at baseline.

2.3. Statistical analysis

Logistic regression was used to examine the association of enjoyment and strength of urges at baseline with three outcome variables 6 months later: (1) smoking status in all respondents, (2) quit attempts made within the past 6 months in all respondents and (3) 'quit success' in those who made quit attempts within the past 6 months. Recent quit attempts were defined as those that had taken place in the last 6 months (i.e. since the baseline interview). Quit success was defined operationally as making a quit attempt within the past 6 months but more than a month ago and still being a non-smoker at the 6 month follow-up. Although relapse is common after one month of abstinence, the first month is the time window with by far the greatest relapse rate (Hughes et al., 2004). For all analyses looking at quit success those who made a quit attempt within the last month were therefore removed from the sample ($n = 225$).

Following frequency analyses, a series of correlations were run to show the simple associations between all variables. Logistic regression analysis was then used, running first separate analyses with (a) enjoyment and (b) strength of urges predicting smoking status, recent quit attempts and quit success. Both enjoyment and strength of urges were then entered into each model together to establish the independent role of enjoyment and strength of urges in predicting each outcome variable. Adjusted analyses were then repeated also controlling for gender, age and social grade. Finally method of treatment used (none, NRT over the counter, medication on prescription, behavioural support plus medication) was added to the cessation success model as a potential confounding variable. SPSS 17 was used for all analyses.

3. Results

2257 participants responded to the follow-up questionnaire and had complete data at both time points (20% of cigarette smokers at baseline, 22% of current cigarette smokers at baseline who agreed to be re-contacted in the future). Table 1 shows the demographic and motivation characteristics of this sample compared with the total baseline sample of smokers. Those who were followed up were slightly older ($p < 0.001$), more likely to be female ($p < 0.001$) and had slightly higher scores on urges ($p < 0.001$) and enjoyment ($p < 0.001$) measures than those who were not followed up. There were no differences by social grade ($p = 0.376$). Of those responding at follow-up 92.9% ($n = 2097$) were still smokers and 30.4% ($n = 686$) reported that they had made a quit attempt since the initial survey (i.e. within the last 6 months). Of those who made a quit attempt in the last 6 months 18% ($n = 125$) had