Reactivity to smoking cues in adolescent cigarette smokers

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Abstract

This study examined reactivity to smoking cues in adolescent smokers (n=12) and nonsmokers (n=32), between 14 and 19 years of age. Participants were presented with videotaped smoking and neutral cues in a counterbalanced order. Subjective and physiological responses to each cue type were obtained. Findings indicated that smokers reported greater desire to smoke cigarettes in response to smoking cues, relative to neutral cues, when the smoking cues were presented first. Smokers also reported greater dominance (i.e., sense of control) during smoking-cue presentations, but only when these cues were presented second. Finally, smokers’ heart rate was faster during the initial portion of the smoking-related video, relative to the neutral cue. Overall, this study demonstrates the feasibility of conducting laboratory-based cue-reactivity studies with adolescent smokers. Findings suggest that adolescents smokers show similar patterns of responding to smoking cues as adult smokers, although effects were not particularly robust in this sample and subjective effects were dependent on cue order. © 2004 Elsevier Ltd. All rights reserved.

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1. Introduction

Nicotine use among adolescents is an area of considerable public health concern. Recent estimates suggest that 17% of high-school seniors smoke daily (Johnston, O’Malley, & Bachman, 2002), and that 80% of adult smokers become addicted to tobacco by age 18 (American Health Association, 1995). As with adults, craving is a prominent symptom of
nicotine withdrawal (see Colby, Tiffany, Shiffman, & Niaura, 2000), and craving appears to contribute to ongoing smoking and relapse among adolescents (McNeill, West, Jarvis, Jackson, & Bryant, 1986; Stanton, Lowe, & Gillespie, 1996). While there has been substantial research on craving in adult smokers, few studies have examined craving in adolescent smokers. The present laboratory study is a preliminary evaluation of whether smoking-related cues would elicit craving and associated physiological reactivity in a group of adolescent smokers. Ultimately, this type of cue-reactivity assessment could be useful for determining the nature of craving during adolescence, as well as evaluating methods to reduce craving.

Adult smoking-cue-reactivity studies have utilized various paradigms to examine subjective and physiological reactions to salient smoking-related stimuli (see review by Carter & Tiffany, 1999). In the current study, we presented cues that were ostensibly salient for adolescent smokers. In particular, we developed a smoking-related videotape that depicted adolescents smoking in various situations, as well as a control videotape of adolescents drinking water. The primary hypothesis was that adolescent smokers would exhibit differential subjective and physiological reactivity between smoking-related and neutral videotaped cues.

2. Method

2.1. Participants

Forty-four adolescents (12 smokers and 32 nonsmokers) between the ages 14 and 19 were recruited for the present study. Both alcohol abusing (n=19) and nonabusing (n=25) participants were included, with alcohol abusers evenly divided across the smoker and nonsmoker groups. All smokers reported an average of at least four cigarettes daily. The current study was approved by the Institutional Review Board at the Medical University of South Carolina.

2.2. Materials and apparatus

The smoking cue in this study consisted of a compilation of video clips from movies showing teenagers smoking. This cue included smoking content from the outset of the video. The neutral cue consisted of video clips of adolescents and young adults drinking water. Both cues were initially shown to groups of smokers and smoking researchers, who rated them for clarity, believability, and the likelihood that they would generate cravings to smoke. After feedback was provided, modifications were made prior to the present study.

2.3. Procedures

After providing informed consent (or assent for participants under age 18), participants filled out a smoking-history questionnaire, a modified Fagerström Tolerance Questionnaire (mFTQ; Prokhorov, Pallonen, Fava, Ding, & Niaura, 1996), and the Questionnaire on Smoking Urges-brief (QSU-brief; Cox, Tiffany, & Christen, 2001). The mFTQ contains seven
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