

Craving, withdrawal, and smoking urges on days immediately prior to smoking relapse

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Rates of smoking relapse remain high, despite the wide availability of cessation aids. Presumably factors such as craving, withdrawal symptoms, and smoking urges are key contributors to relapse, but empirical support for this presumption is not conclusive and is complicated by the high variability in symptoms across individuals and time, as well as by the lack of an absolute symptom threshold for response. Data were analyzed from 137 female smokers, aged 18-40 years, who completed 30 days of a protocol for a longitudinal smoking cessation trial. Subjects were assigned a quit date and followed regardless of subsequent smoking status. At baseline, subjects completed written measures of nicotine craving, withdrawal symptoms, and smoking urges. They also completed these measures daily for 30 days, beginning on their quit date. Scores were standardized within subjects and graphed to identify temporal symptom patterns. A total of 26 women quit smoking and 111 relapsed (at least one cigarette puff). The intensity of subjects' craving, withdrawal, and smoking urges Factors 1 and 2 peaked on the day of relapse by an average of 1.4, 1.1, 1.2, and 1.1 standard deviations, respectively, with symptoms rising during the previous 2-5 days and dropping precipitously over the 2 days subsequent to relapse. Additionally, women who relapsed had higher absolute (unstandardized) symptom scores on their quit day than those who were abstinent for 30 days. These findings imply that escalation of withdrawal symptoms, craving, and smoking urges during a quit attempt may contribute to smoking relapse. Frequent symptom monitoring might be clinically important for relapse prevention.

Introduction

Rates of relapse to smoking within 1 year after initiating a quit attempt are 70%-90% (Hughes, Goldstein, Hurt, & Shiffman, 1999; Osler, Prescott, Godtfredsen, Hein, & Schnohr, 1999; Schwartz, 1987), with the highest incidence of relapse occurring within the first 2 weeks (Swan, Ward, Carmelli, & Jack, 1993; Transdermal Nicotine Study Group, 1991). Many smokers fail to attain even 24 hr of continuous abstinence after a target quit date (Spanier, Shiffman, Maurer, Reynolds, & Quick, 1996; Westman, Behm, Simek, & Rose, 1997). This high rate of relapse contributes to the 21.5% of

people still smoking (19.4% women; U. S. Department of Health and Human Services, 2005), despite the availability of pharmacologic, behavioral, and community-based cessation methods.

Abrupt cessation of tobacco use results in withdrawal symptoms that are frequently, yet controversially, implicated in relapse (Hughes, 1992; Killen & Fortmann, 1997; Piasecki, Jorenby, Smith, Fiore, & Baker, 2003a; West, Hajek, & Belcher, 1989). Craving is perhaps one of the most troublesome symptoms, noted for its early onset, persistency, and severity (Sommese & Patterson, 1995). Other symptoms of nicotine withdrawal include negative affect (e.g., depressed mood, sadness, irritability, frustration, anxiety), anger, difficulty concentrating, restlessness, decreased heart rate, insomnia or changes in sleep quality, increased appetite or weight gain, and diminished cognitive performance (American Psychiatric Association, 1994; Hughes, 1992; Pritchard, Robinson, & Guy, 1992; Snyder, Davis, & Henningfield, 1989; Stitzer & Gross, 1988). These symptoms typically begin within 4-24 hr after smoking cessation and may contribute to risk for early

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