

PHYSIOLOGICAL SENSATIONS OF INITIAL SMOKING IN THE DEVELOPMENT OF REGULAR SMOKING BEHAVIOR

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Abstract:

This study examined the relationships between adolescents' physiological sensations of smoking during initiation and early experience. For a national sample of a birth cohort of 2,043 adolescents, ages 15 to 22 years at the follow-up, variables of interest included measures of smoking behavior and physiological sensations reported from the initial smoking experience. Analysis showed that adolescents experimenting with smoking were more likely to become regular smokers over three years if they indicated that they felt relaxed, felt dizzy, did not feel sick, and did not cough during the initial smoking experience. Antismoking interventions may impede the transition to regular smoking by helping adolescents interpret the physiological sensations as negative and unhealthy.

Article:

Literature has indicated that nearly ninety percent of high school seniors try at least one cigarette (Hirschman, Leventhal, & Glynn, 1984); however, approximately only one-third of those who initiate smoking become regular smokers (U.S. Department of Health and Human Services, 1994). Becoming a regular smoker is a developmental process. This process of becoming a regular smoker typically proceeds through five distinct behavioral stages beginning with preparation (never smoked), initiation (trying the first cigarette), experimentation (repeatedly trying cigarettes), habituation (becoming a regular smoker), and finally the maintenance stage (addiction) (Leventhal & Clearly, 1980; Flay, d'Avernas, Best, Kersell, & Ryan, 1983). Studies suggest that, among many factors which may influence smoking progress, the physiological sensations occurring with the first cigarette may facilitate or deter subsequent use (U.S. Department of Health and Human Services, 1994). To date, no study has utilized a national birth-cohort sample to examine the association between physiological sensations experienced by experimenting smokers and their progress towards becoming regular smokers. This study investigated the relationships between smoking progress and the self-reported physiological sensations of initial smoking using a national birth-cohort sample.

METHOD

The sample selected was a group of birth cohort adolescents ($N=7,960$) who participated in the 1989 and 1993 Teenage Attitudes and Practices Survey (TAPS I and TAPS II, respectively) conducted by the National Center for Health Statistics (Moss, Allen, Giovino, & Mills, 1992). At the time of the TAPS II survey, the ages of the sample ranged between 15 to 22 years. For the purpose of examining transition to regular smoking status, only subjects who were identified as experimenting smokers at the TAPS I were included in this study ($N = 2,043$). The information obtained from the TAPS included measures of smoking status and a series of questions related to the prediction of smoking behavior. Among these were four questions related to physiological sensations during the initial smoking experience. Respondents who had reported trying a cigarette were asked during the first smoking experience, if they felt relaxed, dizzy, sick, or started to cough.

Experimenters were defined as those who had tried five or more cigarettes but had not smoked 100 cigarettes in their lifetime and had not smoked in the past 30 days. Regular smokers were defined as those who were currently smoking, had smoked in the past 30 days, and had smoked at least 100 cigarettes in their lifetime.

Odds ratios (ORs) and 95% confidence intervals (CIs) were calculated. The dependent variable of smoking was dichotomized as current regular smokers ($n = 582$) or experimenting smokers ($n = 1,461$).

RESULTS

Of all experimenting smokers at TAPS I, 28.5% had become regular smokers at the TAPS II. The 95% confidence interval for the ORs indicated that chances of experimenting smokers becoming regular smokers were significantly related to physiological sensations during the first cigarette smoking experience (see Table 1). Experimenting adolescents who indicated they felt relaxed, felt dizzy, did not feel sick, and did not cough during the first cigarette-smoking experience were associated with a greater chance of becoming regular smokers at the TAPS II. When separate analyses were performed for male and female adolescents, three of the four variables of physiological sensation for males and for females were significant.

TABLE 1
ODDS RATIOS (OR) AND 95% CONFIDENCE INTERVAL (CI) OF SMOKING STATUS ACCORDING TO REPORTED PHYSIOLOGICAL SENSATIONS DURING THE INITIAL SMOKING EXPERIENCE

When Smoked First Cigarette	All Subjects		Male		Female	
	OR	95%CI	OR	95%CI	OR	95%CI
Felt Sick						
Yes vs No	0.85	0.74, 0.97*	0.89	0.73, 1.07	0.81	0.65, 0.99*
Coughed						
Yes vs No	0.83	0.73, 0.95*	0.83	0.70, 0.98*	0.84	0.69, 1.02
Felt Relaxed						
Yes vs No	1.77	1.55, 2.03*	1.73	1.44, 2.07*	1.83	1.50, 2.25*
Felt Dizzy						
Yes vs No	1.69	1.48, 1.94*	1.49	1.25, 1.77*	2.03	1.64, 2.52*

* $p < .05$.

DISCUSSION

The findings showed that adolescents who were experimenting with smoking were more likely to become regular smokers during the three-year span if they indicated that they felt relaxed, felt dizzy, did not feel sick, and did not cough during their first cigarette smoking experience. These findings seem to support previous literature which indicates that the initial smoking experience was the most important predictor of future smoking over a 2.5-yr. interval (Collins, Sussman, Rauch, Dent, Johnson, & Hansen, 1987). Those who experienced more positive sensations, i.e., relaxed, and less adverse physiological effects (sick, coughing) during the first cigarette-smoking experience were more likely to proceed to regular smoking (Hahn, Charlin, Sussman, Dent, Manzi, & Stacy, 1990; Flay, 1993). The explanation for these findings may be that experiencing fewer unpleasant sensations (sick, coughing) and more positive sensations (relaxed) during the initial smoking experience may facilitate the development of smoking dependency (Shiffman, 1989, 1991). One unexpected finding in the current analysis was that more adolescents who felt dizzy during the first cigarette smoking became regular smokers than adolescents who did not feel dizzy. This finding was not consistent with previous literature (Hahn, *et al.*, 1990; Shiffman, 1991). Unfortunately, no confirmation about whether these adolescent smokers interpreted the initial smoking experiences as positive or negative were obtained. For example, feeling dizzy during the initial smoking experience could be interpreted by adolescents as stimulating and so a positive experience. It is necessary for researchers to investigate this expectancy.

Since no prior studies have utilized a national birth cohort sample to examine the association between physiological sensations experienced during the initial cigarette smoking and the progress of becoming a regular smoker, these results provide some useful insights for smoking interventions. Literature indicates that a large number of adolescents experiment with cigarettes and that experimenting smokers are more likely to become regular smokers (Gordon, 19886). Present findings underscore the need for antismoking efforts to focus on helping adolescents interpret the physiological sensations of initial smoking as negative and unhealthy. For example, experiencing sickness and coughing during smoking should be interpreted as harmful symptoms to a person's physical health which may overweight any other temporary physiological sensations such as a sense of relaxation.

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