

SMOKING ACQUISITION: PEER INFLUENCE AND SELF-SELECTION

By: Min Qi Wang, [James M. Eddy](#), and Eugene C. Fitzhugh

Wang, M.Q., Eddy, J.M. & Fitzhugh, E.C.* (2000) Smoking acquisition: Peer influence and self-selection. *Psychological Reports*, 86, 1241-1246.

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Abstract:

Summary. *The study examined and contrasted the extent that peer influence and self-selection for smoking peers may affect acquisition of smoking by adolescents. Data for a U.S. national cohort sample of adolescents (N=4,444) who were nonsmokers in the 1989 Teenage Attitudes and Practices Surveys and were re-interviewed in 1993 were included. The information included measures of smoking behavior and smoking status of both boys' and girls' best friends. Analysis demonstrated that, although the effects of both peer influence and self-selection of smoking friends occurred, self-selection may play a greater role in adolescents' beginning to smoke. This implies that, while teaching adolescents to resist peer pressure may be necessary, it is perhaps more important to identify factors that influence adolescents' decisions in choosing friends who smoke. This could lead to more effective preventive strategies.*

Article:

Smoking literature has indicated that the influence of peers has been the single most important factor related to smoking acquisition (Petratis, Flay, & Miller, 1995). This concept has been repeatedly supported by empirical studies which showed that peer influences are among the strongest predictors of adolescent smoking (Urberg, Shyu, & Liang, 1990; Wang, Fitzhugh, Eddy, Fu, & Turner, 1997). Given the limitation that many of these studies were cross-sectional, however, researchers (Engels, Knibbe, Drop, & Hann, 1997) have pointed out that peer influence could be the result of social selection as adolescent smokers seek out friends who are smokers while also ceasing friendship with nonsmoking friends. Consequently, peer models cannot be regarded as a sole causal factor for initiation of smoking and progress by adolescents.

Longitudinal studies could shed new light on the role of peer influence on initiation of smoking by adolescents and progress. The purpose of this study was to examine to what extent the peer influence and self-selection for smoking peers may affect adolescents' smoking. Data from a U.S. national cohort sample of adolescents who participated in both the 1989 and 1993 Teenage Attitudes and Practices Surveys ("1989 survey" and "1993 survey," respectively) were analyzed.

METHOD

Sample

The Teenage Attitudes and Practices Surveys utilized a stratified multistage probability area sampling to generate a national representative sample of adolescents. A sample of 9,965 U.S. teenagers participated in the 1989 telephone survey. Of those, 9,135 were selected for re-interviewing in the 1993 survey, and 7,960 responded, representing an 87% response rate. The 1989 and 1993 surveys were conducted by the National Center for Health Statistics (Moss, Allen, Giovino, & Mills, 1992). At the time of the 1993 survey, the ages of the sample ranged from 15 to 22 years. For the purpose of examining transition to regular smoking behavior, only subjects who were identified as nonsmokers at the beginning of the study (1989 survey) were included in this study (N=4,444). The information obtained from this survey included measures of smoking behavior and a series of factors related to smoking models in the respondents' social environments. Specifically, subjects were asked "of their four best male friends, how many smoked," and "of their four best female friends, how many smoked,"

Analysis of Data

The analysis was performed by a multinomial logistic model using Survey Data Analysis (SUDAAN) software which is recommended for analysis of multistage sampling data by the National Center for Health Statistics (Moss, *et al.*, 1992). For the follow-up classification of smoking, regular smokers were defined as those adolescents who were currently smoking, had smoked in the past 30 days, and had smoked at least 100 cigarettes in their life. Experimental smokers were defined as those adolescents who had smoked or tried a cigarette but had not smoked 100 cigarettes in their lifetimes. Nonsmokers were defined as those adolescents who had never smoked a cigarette. Friends' smoking was categorized as "no smoking friends," "one to two smoking friends," and "three to four smoking friends."

RESULTS

Smoking Progress for Nonsmokers at the 1989 Survey for Adolescent Boys

Of the 4,444 nonsmokers at the beginning of the study (1989 survey), 28.2% ($n=1,252$) were experimental smokers and 10.9% ($n=486$) were regular smokers after a 3-yr. period. Three multinomial logistic analyses were performed for adolescent boys and girls, separately. The first analysis consisted of those who had no smoking friends at the 1989 survey, with three outcomes at the 1993 survey (1) no smoking friends, (2) one or two smoking friends, or (3) three or four smoking friends. The second and third analyses examined those who had one or two smoking friends and three or four smoking friends at the 1989 survey, with the three outcomes at the 1993 survey as described above. Because previous research found a specific effect for sex, i.e., boys were more influenced by their smoking male friends, while girls were more influenced by their female smoking friends (Wang, *et al.*, 1997), the present study analyzed adolescent boys' smoking as associated with their male friends' smoking status and adolescent girls' smoking as associated with their female friends' smoking status. Table 1 presents the percents and *ns* for three multinomial logistic comparisons for adolescent boys which were all significant ($p < .0001$). Of those who had no smoking friends at the 1989 survey but reported three or four best male friends who smoked at the 1993 survey, 41% ($n=74$) became regular smokers and 32% ($n=62$) became experimental smokers. Of those who had no smoking friends at the 1989 survey but reported one or two best male friends smoking at the 1993 survey, 1.2% ($n=64$) became regular smokers and 37% ($n=183$) became experimental smokers.

TABLE 1
PERCENT OF ADOLESCENT BOYS' SMOKING ACQUISITION BY SMOKING STATUS
OF THEIR BEST MALE FRIEND AT 1989 AND 1993 SURVEYS

Friend Smokes		Smoking at 1993 Survey					
1989	1993	Experimental		Regular Smoking		Total Acquisition	
		%	<i>n</i>	%	<i>n</i>	%	<i>n</i>
0	0	25.1	281	2.3	25	27.4	306
1-2	0	31.4	36	4.5	5	35.9	41
3-4	0	17.9	5	1.0	1	18.9	6
<i>p</i> < .05							
0	1-2	37.6	183	12.4	64	50.0	247
1-2	1-2	37.3	42	18.3	23	55.6	65
3-4	1-2	42.1	8	13.3	3	55.4	11
<i>p</i> < .05							
0	3-4	31.5	62	40.6	74	72.1	136
1-2	3-4	31.1	19	36.9	24	68.0	43
3-4	3-4	32.9	8	27.8	7	60.7	15
<i>p</i> < .05							

Note.—Those who remained nonsmokers at the 1993 survey were not presented in this table.

Of those who reported three or four friends who smoked at the 1989 survey and three or four best male friends who smoked at the 1993 survey, 28% ($n = 7$) became regular smokers and 33% ($n = 8$) became experimental smokers. Of those who reported three or four smoking friends at the 1989 survey but had nonsmoking friends at the 1993 survey, only 1% ($n = 1$) became a regular smoker.

Smoking Progress for Nonsmokers at the 1989 Survey for Adolescent Boys

A similar trend is observed for the adolescent girls (see Table 2). It is worth noting that regardless of the smoking status of their friends, those adolescents reporting no smoking friends at the 1989 survey were least likely to become regular smokers when compared with those who reported having smoking friends at the 1993 survey. This is true for both adolescent boys and girls.

TABLE 2
PERCENT OF ADOLESCENT GIRLS' SMOKING ACQUISITION BY SMOKING STATUS
OF THEIR BEST FEMALE FRIEND AT 1989 AND 1993 SURVEYS

Friend Smokes		Smoking at 1993 Survey					
1989	1993	Experimental		Regular Smoking		Total Acquisition	
		%	<i>n</i>	%	<i>n</i>	%	<i>n</i>
0	0	21.2	247	1.9	27	23.1	274
1-2	0	9.2	46	4.0	6	13.2	52
3-4	0	15.7	3	6.3	1	22.0	4
<i>p</i> < .05							
0	1-2	39.2	192	11.6	52	50.8	244
1-2	1-2	33.3	53	14.9	23	48.2	76
3-4	1-2	29.6	8	8.2	4	37.8	12
<i>p</i> < .05							
0	3-4	21.6	35	49.0	74	70.6	109
1-2	3-4	29.1	21	32.1	28	61.2	49
3-4	3-4	16.8	3	37.5	12	54.3	15
<i>p</i> < .05							

Note.—Those who remained nonsmokers at the 1993 survey were not presented in this table.

DISCUSSION

The present study examined the extent to which peer influence or self-selection for peer smoking related to adolescents' smoking acquisition. When adolescents reported having no friends who smoked at the 1989 survey but having smoking friends at the 1993 survey, self-selection may have occurred. When adolescents reported having friends who smoked at the 1989 survey and changed at the 1993 survey, it may suggest peer influence. In addition, when adolescents may report having friends who smoked at the 1989 survey but no smoking friends at the 1993 survey, this may indicate a deselection process.

Findings from this analysis are consistent with existence of a self-selection process. When adolescent boys reported having no friends who smoked at the 1989 survey but had three or four best male friends who smoked at the 1993 survey, they were more likely to report being regular smokers at the 1993 survey than any other group. A similar pattern held also for adolescent girls. This conclusion assumes that these adolescents had no initial influence from their peers as they reported having no smoking friends at the 1989 survey. This finding is consistent with previous research which indicated that adolescents choose their friends by corresponding smoking status (Ennett & Bauman, 1994; Engels, *et al.*, 1997).

When adolescents reported having three or four friends who smoked at the 1989 survey but had no smoking friends at the 1993 survey, they were less likely to become regular smokers than those whose number of friends who smoked remained the same. This deselection process supplements the findings of the self-selection process noted above. If adolescents who are nonsmokers separate themselves from friends who smoke, they are more likely to remain nonsmokers (Ennett & Bauman, 1994). It is worth noting that, when adolescents reported having no friends who smoked at baseline and follow-up, only 2% of the boys and 2% of the girls became regular smokers. The sex differences were not compared statistically; however, the frequency distributions of adolescent boys and girls looked similar (see Tables 1 and 2).

The analyses described in this article were conducted with data derived from two surveys with an interval of three years. Therefore, there is no knowing whether choosing friends who smoked preceded adolescents' smoking behavior. As a result, we can only draw the conclusion that, while both peer influence and self-selection of smoking friends occur, the self-selection process may play a greater role in adolescents' smoking acquisition. The limitation of this study could be overcome by conducting surveys at shorter intervals on adolescent cohorts so that the exact nature of the selection and peer influence could be delineated.

Many programs for smoking prevention for adolescents emphasize teaching adolescents to resist peer pressure for taking up cigarette smoking. However, most programs may have ignored the fact that peers' smoking influence may simply be the result of social selection as adolescent smokers seek out smoking friends (Ennett & Bauman, 1994). While teaching adolescents to resist peer pressure may be necessary, it is perhaps more important to identify particular factors that influence adolescents' decisions in choosing smoking friends. Doing this would allow development of more effective prevention strategies.

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