



Full length article

Socioeconomic status and smokers' number of smoking friends: Findings from the International Tobacco Control (ITC) Four Country Survey



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ABSTRACT

Background: Smoking rates are higher among low socioeconomic (SES) groups, and there is evidence that inequalities in smoking are widening over time in many countries. Low SES smokers may be more likely to smoke and less likely to quit because smoking is heavily concentrated in their social contexts. This study investigated whether low SES smokers (1) have more smoking friends, and (2) are more likely to gain and less likely to lose smoking friends over time. Correlates of having more smoking friends and gaining or losing smoking friends were also considered.

Method: Respondents included 6321 adult current smokers (at recruitment) from Wave 1 (2002) and Wave 2 (2003) of the International Tobacco Control Project (ITC) Four Country Survey, a nationally representative longitudinal cohort survey of smokers in Australia, Canada, UK, and US.

Results: Low SES smokers reported more smoking friends than moderate and high SES smokers. Low SES smokers were also more likely to gain smoking friends over time compared with high SES smokers. Smokers who were male, younger, and lived with other smokers reported more smoking friends, and were also more likely to gain and less likely to lose smoking friends. Smoking behaviours, such as higher nicotine dependence were related to reporting more smoking friends, but not to losing or gain smoking friends.

Conclusions: Smoking is highly concentrated in the social networks of lower SES smokers and this concentration may be increasing over time. Cessation interventions should consider how the structure of low SES smokers' social networks affects quitting.

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1. Introduction

The high rate of smoking among low socioeconomic status (SES) groups illustrates the striking relation between the social context and health behaviour (Cavelaars et al., 2000; Huisman et al., 2005; Jarvis and Wardle, 2006). In 2009, smoking rates were twice as high among routine and manual workers (28%) in England

compared with managerial and professional workers (14%; The NHS Information Centre: Lifestyle Statistics, 2011). Smoking rates are similarly high among low SES groups in other countries, including Australia, Canada, and the United States (Centers for Disease Control and Prevention, 2011; Reid et al., 2012; Smith and Leggat, 2007).

Smoking may be more prevalent among low SES groups due to a combination of factors, including targeted marketing by the tobacco industry, positive norms towards smoking, easier access to cigarettes, lower social support for quitting, higher nicotine dependence, life stress/psychological differences, and lower adherence to smoking cessation treatments (Hiscock et al., 2012). Low

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SES smokers might also be less likely to successfully quit if their social networks have a high proportion of smokers (Hiscock et al., 2011; Jarvis, 2004; Kotz and West, 2009; Rose et al., 1996; Wiltshire et al., 2003). Indeed, some of the factors contributing to high smoking rates in low SES groups, such as positive smoking norms, may be related to having a social network with more smokers (Christakis and Fowler, 2009; Ellickson, 2001; Horne, 2001; Levine and Moreland, 1990; Shiffman and Rathbun, 2011).

Despite the impact that smoking in social networks may have on quit success among low SES smokers, only a few studies have examined whether there are SES differences in adult smokers' number of smoking friends. Rose et al. (1996) found that young adult smokers with low education from the mid-Western US reported more smoking friends. Additionally, although differences in number of smoking friends were not explicitly addressed, a 32-year social networking study conducted in Framingham, Massachusetts, US, found evidence of increasing stigmatisation of smoking in high SES groups, such that over time, smokers with higher education moved to the periphery of their social networks (Christakis and Fowler, 2008).

This study sought to expand the literature by examining whether low SES smokers (low education and low income) have more friends who smoke among nationally representative samples of smokers from Australia, Canada, the United Kingdom (UK), and the United States (US). Because previous research shows that losing smoking friends predicts quit success (Hitchman et al., 2014), this study also sought to expand the literature by examining whether low SES smokers are more likely to gain and less likely to lose smoking friends over time.

Because people are generally friends with similar others, low SES smokers were expected to report more smoking friends (Blieszner and Adams, 1992; McPherson et al., 2001). Low SES smokers were also expected to be more likely to gain and less likely to lose smoking friends over time, due to higher smoking rates and lower smoking cessation rates among low SES groups (Harper and Lynch, 2007; Smith et al., 2009). For other demographics included in the analyses, it was expected that other groups with higher smoking rates and lower cessation rates (e.g., younger smokers) would also report more smoking friends, and be more likely to gain and less likely to lose smoking friends over time.

Variables previously shown to predict smoking cessation outcomes were included in the analyses to control for their potential influence on number of smoking friends and changes in smoking friends over time (Hyland et al., 2006; Vangeli et al., 2011). For example, smokers with intentions to quit may avoid smoking friends in preparation for a quit attempt. The relation between these smoking cessation predictor variables and number of smoking friends and changes in smoking friends was subsequently considered. It was expected that the smoking cessation predictor variables that have been previously shown to be related to a higher likelihood of quitting (lower nicotine dependence, previous quit attempts) would be related to having fewer smoking friends and losing smoking friends over time (Hyland et al., 2006).

Demographic and country differences in the relation between SES, and number of smoking friends and changes in number of smoking friends over time were also considered. It was thought that for younger smokers, SES differences in number of smoking friends may not be as pronounced due to the importance of smoking for socializing (Fidler and West, 2009). No country differences were expected.

Changes in smoking status were then considered to test for the possibility that SES may only be related to changes in smoking friends over time because SES is related to changes in smoking status. For example, it could be that high SES and losing smoking friends may only be related because high SES smokers are more

likely to quit smoking, and quitting smoking is related to losing smoking friends.

Finally, the potential influence of living with non-smoking adults was examined. Household composition of smokers was not considered in the initial analyses because the influence of smoking friends was the primary interest. Smokers who lived with non-smoking adults were expected to have fewer smoking friends, and be more likely to lose and less likely to gain smoking friends over time.

2. Methods

2.1. Respondents

The International Tobacco Control (ITC) Four Country Survey is a nationally representative longitudinal cohort survey of current adult smokers at recruitment (100 lifetime cigarettes and smoked at least once in the past 30 days) in Australia, Canada, UK, and US, who were recruited using random digit dialing methods starting in 2002. The current study used the Wave 1–Wave 2 longitudinal sample ($N=6682$). The Wave 1–Wave 2 follow-up rates were 81% in Australia, 76% in Canada, 78% in the UK, and 63% in the US. Data collection involved Computer Assisted Telephone Interviewing, with Wave 1 data collected between October and December of 2002, and Wave 2 between May and September of 2003. A mean of 6.7 months separated the surveys. This time period has been shown to be sufficient for showing a relation between changes in smoking friends over time and smoking cessation outcomes, thus it was deemed adequate for the present study (Hitchman et al., 2014). Respondents with missing or “don't know” responses were deleted. The final sample size was ($N=6321$). Further details on methodology are available elsewhere (Fong et al., 2006; ITC Project, 2004, 2011; Thompson et al., 2006).

2.2. Measures

2.2.1. Outcome variables.

2.2.1.1. Number of smoking friends at Wave 1. Respondents were asked: Of the five closest friends or acquaintances that you spend time with on a regular basis, how many of them are smokers (0, 1, 2, 3, 4, or 5)?

2.2.1.2. Change in number of smoking friends between Wave 1 and Wave 2 (friend change). Friend change was calculated as the difference between number of smoking friends at Wave 1, and number of smoking friends at Wave 2 (Wave 2 measure same as Wave 1 measure above); an 11-category variable was derived that ranged from a loss of five friends (−5), to no change (0), to a gain of five friends (5). From the 11-category variable, a 3-category variable was derived that was used in all analyses: loss, no change, or gain in number of smoking friends. All analyses that included friend change controlled for number of smoking friends at Wave 1, because the number of friends that respondents could lose/gain depended on the number with which they started.

2.2.2. Key predictor variables at Wave 1.

2.2.2.1. Demographics. Country, sex, age group, ethnicity: Data on sex (female vs. male) and age (18–24, 25–39, 40–54, or 55+) were collected. Countries included Australia, Canada, UK, and US. Ethnicity was categorised based on methods from each country's census. In Canada, UK, and US, white was categorised as the majority group, and non-white as the minority group. In Australia, English spoken in the home was categorised as the majority group, and language other than English as the minority group.

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