Reducing cigarette smoking among working adolescents: results from the SMART study

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Abstract

Objective: The SMART Teens Against the Risks of Tobacco Study was designed to test the feasibility and efficacy of tobacco control intervention methods for employed teens.

Methods: A randomized controlled pilot study tested the efficacy of a behavioral intervention delivered between September, 1999, and August, 2000. Baseline and final survey data were collected on 560 teens in four intervention and five control stores.

Results: Although smoking prevalence decreased and intention to quit increased more among teens in the intervention stores compared to those in the control stores, the differences were not statistically significant.

Conclusions: The worksite holds promise as a possible venue for tobacco prevention and cessation interventions for youth although further research is needed to increase the efficacy of interventions for this setting.

Introduction

Cigarette smoking in adolescents is a serious public health concern. The Healthy People 2010 objectives call for a 54% reduction in 30-day smoking prevalence and a 9% increase in cessation attempts by adolescents in grades nine to 12 [1]. Despite recent declines in 30-day smoking prevalence among teens, [2, 3] these objectives remain largely unmet. To meet the Healthy People 2010 objectives, innovative approaches are needed to boost the effectiveness of tobacco use prevention and cessation efforts among adolescents. School-based and community-based programs have been the primary locations for smoking prevention and cessation programs; however, these channels alone may not be sufficient to reduce smoking in older adolescents [4]. Similar to adults, interventions in the worksite environment may offer adolescents support for individual behavior change attempts [5].

No studies to date have specifically examined the feasibility and efficacy of implementing behavioral tobacco control interventions in worksites for employed teens. This paper reports the results of the evaluation of a smoking cessation and prevention program for teens working in grocery stores. After eating and drinking places, grocery stores are the second largest employer of teens during the school year. Between 1996 and 1998, 13.6% of boys and 9.9% of girls ages 15 to 17 were employed in this industry [6].

SMART Teens Against the Risks of Tobacco was a Phase-2 methods development study to design and test intervention and evaluation methods for reducing smoking among employed teens. The National Cancer Institute’s methodological framework for cancer control research presents Phase-2 studies as an important step in developing new approaches to health promotion. Lessons learned from a Phase-2 study may be used to inform a full-scale Phase-3 efficacy study. The study was implemented in two stages: (1) initial formative research

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and intervention design, and (2) a randomized controlled pilot study of the behavioral intervention implemented in grocery stores. The purpose of this paper is to report the results of the pilot study and the implications for further research.

Methods

Study setting

Intervention implementation and evaluation were conducted in nine grocery stores located in the Boston, Massachusetts, metropolitan area that were part of a single chain. To be eligible for the randomized trial, stores were required to employ at least 40 teens and be willing to be randomized to an intervention or control condition. We recruited and randomized 12 of 52 grocery stores located within a 45-mile radius of Boston, Massachusetts. Of these, three stores were dropped from the study because of excessive turnover of teen participants (two stores) or store closing (one store). The study was completed in four intervention and five control stores between September, 1999, and August, 2000. The study design was approved by the Institutional Review Board of the institution in which the study was located.

Intervention methods

The SMART intervention framework incorporated theories based on a social influences model [7, 8] and used peer-led methods of intervention delivery [9, 10]. The intervention focused on increasing social and behavioral skills related both to the prevention of smoking uptake and to smoking cessation [11, 12]. We used the planning process suggested by Perry [13] in which we: (1) identified factors predictive of teen smoking from the literature and from our qualitative research, (2) formulated intervention objectives stating how the intervention would change the predictive factors, and (3) planned program activities that have been shown to be associated with behavior change in teens, would attract employed teens to participate, and were feasible in the grocery store environment. We identified three categories of factors that predict teen tobacco use: social/environmental factors (social norms, role models, social support, barriers and opportunities for quitting), personal factors (beliefs about the health and social consequences of smoking, knowledge of nicotine addiction, awareness of resources for quitting, functional meaning of smoking, self-efficacy for quitting, and self esteem), and behavioral factors (behavioral intentions, skills to refuse to take up smoking or quit smoking, communication, goal setting, and stress management). Based on these factors we developed intervention objectives to guide our program activities. Examples of intervention activities designed to address social/environmental objectives included information on bulletin boards and table tents designed to correct the common mis-perception that most teens smoke. To address personal factors we conveyed information on nicotine addiction in games and teen-to-teen interviews. To enhance teens’ ability to resist influences to smoke from friends, siblings and the tobacco industry, peer leaders led discussions at teen advisory board meetings and we designed contests in which teens learned to deconstruct advertising.

Data collection

Cross-sectional samples of teen employees completed self-administered surveys prior to the beginning of the intervention activities (baseline) and following 12 months of intervention (final). All teens between the ages of 15 and 18 employed in the nine study stores at the time of the survey were eligible to participate. Non-paid workers, temporary employees, and workers on leave of absence were excluded from the survey. Eligible teens were identified from store lists provided by the individual store managers. Teens took the survey in the store on work time. Each participant provided written consent prior to survey administration. We offered incentives in the form of cash, gift certificates, or food to increase participation and compensate teens for their time.

A total of 322 teens (77% of those eligible) completed the baseline survey, while 252 (72%) responded to the survey at final. There were 78 teens who completed both surveys. At baseline, 14 teens who were not yet 15 years old completed the survey and these teens were excluded from analysis.

Measures

Both baseline and final questionnaires measured sociodemographic factors and assessments of smoking and quitting behavior. We computed three dichotomous measures assessing current smoking behavior: current smoker (smoked on one or more days in the last month), frequent smoker (smoked on 20 or more days in the last month), and heavy smoker (smoked 13 cigarettes per day or more on the days smoked). Among teens who reported smoking in the last 30 days we computed two dichotomous measures to ascertain intention to quit in the next 30 days and quit attempt in the last six months.