Evaluation and Program Planning 55 (2016) 120–125

Contents lists available at ScienceDirect

Evaluation and Program Planning

journal homepage: www.elsevier.com/locate/evalprogplan

A process evaluation of an intervention to promote home smoking bans among low income households

Cam Escoffery[a,*], Lujca Bundy[a], Regine Haardoerfer[a], Carla J. Berg[a], Lara S. Savas[b], Rebecca S. Williams[c], Michelle C. Kegler[a]

[a] Rollins School of Public Health, Emory University, 1518 Clifton Rd, Atlanta, GA 30322, United States
[b] University of Texas School of Public Health, 7000 Fannin St., Suite 2668, Houston, TX 77030, United States
[c] University of North Carolina at Chapel Hill, 200 N. Greensboro Street, Suite D-13, Carrboro, NC 27510, United States

ARTICLE INFO

Article history:
Received 13 August 2015
Received in revised form 11 December 2015
Accepted 22 December 2015
Available online 29 December 2015

Keywords:
Process evaluation
Smoking restrictions
Smoke-free home

ABSTRACT

Exposure to secondhand smoke occurs primarily in the home due to passage of smoke-free legislation. Creation of a total household smoking ban can reduce associated health conditions such as asthma, lung cancer, heart disease and stroke. This paper describes the results of a randomized control trial of a minimal intervention to create smoke-free homes. 2-1-1 callers were invited to participate in the trial and were randomized to an intervention (mailings and a coaching call) or a control group (no intervention). We assessed reach, dose, fidelity, and receptivity to the intervention through program records and a 3-month follow-up survey with intervention participants. For the intervention materials, materials were mailed to 244 participants (99.2%) and 227 participants (92.3%) received the coaching call intervention. 92.3% received all intervention components. Participants who had full household bans at 3 months were more likely to conduct behaviors leading to a smoke-free home (i.e., making a list of reasons, having a family talk, posting a pledge) than were those with no/partial ban. The intervention materials also were rated higher in relevance and usefulness by non-smokers than smokers. Results demonstrate that this minimal intervention had high fidelity to the delivery of components and relatively high receptivity.

1. Introduction

Process evaluation is a critical component of a comprehensive program evaluation plan to monitor and assess program coverage, delivery and fidelity of implementation. This paper reports findings from the process evaluation of a smoke free home (SFH) intervention, which was conducted to monitor the program, inform results and guide potential program modifications for future dissemination. SFH interventions focus on reducing secondhand smoke (SHS) in private households, without focusing on cessation as a primary goal. Children and nonsmoking adults who live with a person who smokes experience significant exposure to SHS in the home (CDC, 2008; Pirkle, Bernert, Caudill, Sosnoff, & Pechacek, 2006). Chronic exposure to SHS in children increases risk of lower respiratory infections, middle ear infections, severity of asthma symptoms, sudden infant death syndrome, and lung cancer later in life (USEPA, 1992; Gehrman & Hovell, 2003; Anderson & Cook, 1997). For adults, SHS exposure can lead to heart disease and stroke mortality and increases the risk for stroke and heart attacks (USDHHS, 2006). The prevalence of a total home smoking bans increased from 58.1% to 83.8% from 1995 to 2007; households with low income, one or two current smokers, parents with less than a college education, or single parents were less likely to report a total home ban (Zhang, Martinez-Donate, Kuo, Jones, & Palmersheim, 2012). Smoke-free homes have been shown to reduce exposure to SHS for both nonsmokers and children (Gehrman and Howevel, 2003; Biener, Cullen, Di, & Hammond, 1997; Wakefield et al., 2000; Pizacani et al., 2003). Because there is no safe level of exposure to secondhand smoke (USDHHS, 2014), interventions to promote total home smoking bans should be developed and evaluated. Our SFH intervention is the first to promote household smoking policy to reduce SHS exposure, without a focus on cessation.

Process evaluation measures the implementation of a health promotion intervention and the extent to which it reaches the

* Corresponding author. Fax: +1 404 727 1369.
E-mail addresses: cescoff@emory.edu (C. Escoffery), lbundy@emory.edu (L. Bundy), regine.haardoerfer@emory.edu (R. Haardoerfer), cjberg@emory.edu (C.J. Berg), lara.staub@uth.tmc.edu (L.S. Savas), rebeccawilliams@unc.edu (R.S. Williams), mkegler@emory.edu (M.C. Kegler).

http://dx.doi.org/10.1016/j.evalprogplan.2015.12.008
0149-7189/

target population (Linnan & Steckler, 2002; Saunders, Evans, & Joshi, 2005). Process evaluation data provide a unique opportunity to explore the feasibility of the delivery of intervention components and differential impacts of the various intervention components among different subgroups of participants. Different process indicators include: recruitment, reach, dose delivered (offered by implementers) and received (uptake/use by participants), fidelity, implementation, and context (Linnan & Steckler, 2002). In this study, we specifically will explore if there are differences in dose received (e.g., reading materials, engagement) between non-smokers and smokers receiving the intervention. This knowledge can assist in determining who appropriate change agents in the home are.

The purpose of this study was to report on the reach, program delivery/fidelity in terms of dose delivered and received, and reactions to the Smoke-free Homes program. We further explored differences in the intervention among participants who were smokers or non-smokers to assess variability in intervention impact. We examined differences in reactions and participation in intervention behaviors between households with different smoking and ban status. Specifically, we answer the following questions: (1) What was the reach and dose received of the intervention? (2) Was success in creating a full ban associated with greater engagement with the intervention? and (3) Did intervention engagement and reactions vary by household ban status (partial vs. no ban) or by participant smoking status (smoker vs. nonsmoker) ?

2. Methods

2.1. Smoke-free homes intervention

We conducted a randomized controlled efficacy trial of the smoke-free homes program with 3- and 6-month follow-up surveys after the intervention, the outcomes of which are detailed elsewhere (Kegler et al., 2015). Callers ($n = 498$) to the United Way of Greater Atlanta 2-1-1 social services referral hotline were recruited to participate in the research study. The 2-1-1 information and referral system covers over 240 state and local call centers operating in all 50 states (Daily, 2012). Callers to 2-1-1 request assistance with basic human needs such as finding or paying for shelter, heat, electricity and food (Kreuter, 2012). Half of study participants received four smoke-free homes intervention components at two-week intervals (the remainder, in the control group, received no intervention components). Intervention components included three mailings and one coaching call to help participants create a smoke-free home. Reading levels for the materials ranged from 4th to 7th grade. The first mailing included a Five-Step Guide to a Smoke-free Homes, information on secondhand smoke, reasons for going smoking free, and a smoke-free homes pledge. The one-time, 20-minute phone-based brief coaching call employed motivational interviewing and was delivered by an English-speaking research staff. The second mailing contained a photo story of a family going smoke-free and a challenges and solutions booklet. The third and last mailing included a newsletter, a thirdhand smoke factsheet, stickers and a window cling to promote and remind about the household's smoke-free home policy. The content of the print materials and the coaching call were based on Social Cognitive Theory (Bandura, 1986) and the Transtheoretical Model's stages of change (Prochaska, DiClemente, & Norcross, 1992). Behavioral change strategies included persuasion, role modeling, goal setting, environmental cues to action, and reinforcement. A full detailed description of each of the intervention components was previously published (Kegler et al., 2015).

2.2. Procedures

2-1-1 Information and referral specialists (call agents) recruited participants from United Way 2-1-1 of Greater Atlanta program. The 2-1-1 referral service program connects people to the assistance and information they need to address every day challenges of living, primarily related to health and human services (e.g. rent and utility assistance, health, employment and financial assistance programs). Callers who reached any one of 5 line agents trained in study procedures were invited to participate in the study. The 2-1-1 Informational & Referral Specialists recruited 2-1-1 callers from the United Way of Metropolitan Atlanta (UWMA) program from date to date. To be eligible, participants had to: be at least 18 years of age or older, have a combination of at least one smoker and one non-smoker in the home (including children), allow at least some smoking in the home, and speak English. Callers who were clearly in crisis (very distressed about a problem they were calling about, such as facing homelessness) were not invited to participate. Callers deemed eligible to participate were invited to participate, read a consent form, and took a brief baseline survey, after which they were randomized into the brief intervention or control (measures-only) arm.

2.3. Measures

Enrolled participants completed a baseline survey by telephone which lasted approximately 5–10 min. The baseline survey included questions related to smoking history, secondhand smoke exposure, cigarette consumption, cessation attempts, household composition and smoking status, and demographics. For home smoking ban status, participants were asked, "Which statement best describes the rules about smoking regular cigarettes inside your home? (Centers for Disease Control and Prevention, 2015)" Response options were: "Smoking is not allowed anywhere inside your home; smoking is allowed in some places or at some times; there are no rules about smoking inside the home or smoking is allowed anywhere inside the home."

All components of the intervention were delivered prior to the 3-month follow-up interview. An online application system tracked the delivery of each intervention component. Study staff members were trained on the system and survey data collection. For the coaching call, the intervention research team made up to 12 attempts on different days and times. We conducted 3 and 6 months follow-up surveys to assess outcomes but only the 3 month is reported here since it includes the process data. For the surveys, we also had a non-response protocol with up to 12 attempts. Process measures were collected at the 3-month follow-up to assess the proportion of materials mailed, received and reviewed, and the usefulness, relevance, and satisfaction of the materials and coaching calls (responses 1 = *not at all* to 5 = *very*). Participants also reported on conduct of behavioral targets: posting smoke-free home signs, signing and/or posting the pledge, coming up with a list of reasons for making the home smoke-free, having a family talk, or calling a smoking cessation services. They were also asked what materials they liked the most and least. Participants were compensated with a $25 gift card for completing each survey. The study protocol was approved by the Emory University Institutional Review Board.

2.4. Analyses

At 3-month follow up, 192 intervention participants were asked process evaluation questions about the receipt of mailed materials, the proportion of materials read, the usefulness and relevance of materials, satisfaction with the coaching call, and utilization of