Short communication

Interest in quitting and lifetime quit attempts among smokers living with HIV infection

Lauren R. Pacek [a,b,*], Carl Latkin [c,d], Rosa M. Crum [a,b,d], Elizabeth A. Stuart [b,e], Amy R. Knowlton [c]

[a] Johns Hopkins University School of Medicine, Department of Psychiatry and Behavioral Sciences, Baltimore, MD 21205, United States
[b] Johns Hopkins University Bloomberg School of Public Health, Department of Mental Health, Baltimore, MD 21205, United States
[c] Johns Hopkins University Bloomberg School of Public Health, Department of Health, Behavior & Society, Baltimore, MD 21205, United States
[d] Johns Hopkins University Bloomberg School of Public Health, Department of Epidemiology, Baltimore, MD 21205, United States
[e] Johns Hopkins University Bloomberg School of Public Health, Department of Biostatistics, Baltimore, MD 21205, United States

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ABSTRACT

Introduction: Cigarette smoking is highly prevalent among people living with HIV, and is associated with many negative health outcomes, including death. There is little research on smoking behaviors such as interest in quitting and lifetime quit attempts among smokers living with HIV. Existing research has focused on individual-level characteristics, to the neglect of social environmental characteristics. We explored individual- and social-level characteristics associated with interest in quitting and lifetime nicotine replacement (NRT) or medication use for smoking cessation.
Methods: Data are from a study of participants recruited from clinic and community venues originally designed to examine social environmental influences on current/former drug users' HIV medication adherence and health outcomes. This analysis comprised 267 current smokers living with HIV. Chi-square tests were used to describe the sample; logistic regression was used to explore associations between covariates and outcomes.
Results: In adjusted analyses, older age (age 54–65: aOR = 4.64, 95% CI = 1.59–13.47) and lifetime use of NRT/medications (aOR = 2.02, 95% CI = 1.08–3.80) were associated with an interest in quitting smoking. Additionally, older age (age 45–49: aOR = 3.38, 95% CI = 1.57–7.26; age 54–65: aOR = 2.70 95% CI = 1.20–6.11), White race (aOR = 3.56, 95% CI = 1.20–10.62), and having a Supporter who had used NRT/medications for cessation (aOR = 2.13, 95% CI = 1.05–4.29) were associated with lifetime NRT/medications use.
Conclusions: Findings corroborate prior research concerning individual-level characteristics, and indicate the importance of social-level characteristics in association with prior use of NRT/medications for cessation. Findings have implications for the implementation of cessation interventions for smokers living with HIV.

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1. Introduction

The prevalence of smoking has declined among the US general population (Centers for Disease Control, 2012), but remains highly prevalent among people with HIV (40–70%; Gritz et al., 2004; Mamary et al., 2002; Burkhalter et al., 2005; Crothers et al., 2005; Lifson et al., 2010). Accordingly, smoking-related conditions have increasingly emerged among this group (Diaz et al., 2002; Crothers et al., 2006; Lifson et al., 2010; Miguez-Burbano et al., 2005; Kirk et al., 2007; Petoumenos et al., 2011; Friis-Møller et al., 2003). A Danish study found that HIV-infected smokers lose more life-years to smoking than to HIV (Helleberg et al., 2013) and among an international cohort 24% of deaths in the HAART era were attributable to tobacco use (Lifson et al., 2010).

Promoting smoking cessation is essential. In one study, 81% of smokers with HIV reported receiving medical advice to quit smoking (Burkhalter et al., 2005). Additionally, research indicates that most (63–75%) smokers with HIV are interested in or thinking about quitting (Mamary et al., 2002; Tesoriero et al., 2010).

Research on cessation aid use and factors influencing interest in cessation among people with HIV is scarce. Among one

* Corresponding author at: 5510 Nathan Shock Drive, Suite 1708, Baltimore, MD 21224, United States. Tel.: +1 410 550 1975; fax: +1 410 550 0030.
E-mail address: lpacek@jhmi.edu (L.R. Pacek).

sample, drug use, greater emotional distress, and fewer prior quit attempts were associated with less interest in quitting (Burkhalter et al., 2005). In other populations (e.g., homeless; injection drug users; methadone maintenance patients), self-efficacy for quitting, smoking-related health symptoms (Arnsten et al., 2004), older age, absence of alcohol abuse (Clarke et al., 2001), lower nicotine dependence, and lifetime cessation pharmacotherapy use (Nahvi et al., 2006) were associated with an interest in quitting.

Little research has explored factors associated with an interest in quitting and use of cessation aids among smokers with HIV. Previous research has focused on individual-level factors, like age and drug use, to the exclusion of social-level factors. Social factors are associated with drug use and medication adherence behaviors (Knowlton et al., 2006; Magura et al., 2011), and may influence interest in quitting or quit attempts.

The aim of this study was to examine individual- and social-level characteristics and their association with two outcomes: interest in quitting smoking and lifetime use of nicotine replacement therapy (NRT) or medications for cessation among smokers with HIV. A second aim was to explore the types of interventions that current smokers were interested in utilizing.

2. Methods

2.1. Data source

Data came from the BEACON Study, described previously (Pacek et al., 2013). Briefly, the study recruited: (1) Index participants on antiretroviral therapy who were current/former injection drug users; and (2) Supporter participants (i.e., individuals who provided social support to the Index participants), recruited with authorization from Index participants. This sample includes 267 Index participants who reported current smoking. The Institutional Review Board at Johns Hopkins University Bloomberg School of Public Health approved this study.

2.2. Measures

2.2.1. Individual-level variables. Sociodemographic variables included sex, age (28–44; 45–49; 50–53; 54–65), race (Black/White), past-month income (<$500/>$500), and marital status. Past-month use of drugs and alcohol and 12-step program use were assessed (yes/no) and a composite variable for "any past-month drug use," excluding alcohol was created. Depressive symptoms were assessed with the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977); a score of 16+ identified individuals with clinically meaningful depressive symptoms (Radloff, 1977). HIV primary care visits in the past 6 months was broken into approximate tertiles (0–2; 3–4; 5+).

2.2.2. Cigarette smoking variables. Smokers reported the number of cigarettes smoked per day (i.e., CPD: <1; 1–10; 11–20; 21+), time to first cigarette (TTFC) upon waking (i.e., ≤30 min; 31–60 min; 60+ min), and lifetime NRT/medications use (yes/no). The Heaviness of Smoking Index (HSI) (Heatherton et al., 1989), a measure of nicotine dependence, was conceptualized as a 3-level variable: low, medium, high (Chaiton et al., 2007).

2.2.3. Dyadic-level variables. Dichotomous variables were created based on Supporters' responses to questions regarding: (1) smoking status, (2) interest in quitting, and (3) lifetime NRT/medication use. 169 Index participants (63%) had a main Supporter who participated in the study.

2.2.4. Family level variables. Index participants answered the following questions: "How many of your family [smoke cigarettes; encourage you to smoke; believe that smoking causes health problems; dislike smoking; have rules about smoking within their home]?" Responses included "none", "some", "most", "all". Dichotomous variables were created (none/any).

2.2.5. Statistical analysis. Analyses were performed using STATA SE version 12.0 (StataCorp, 2011). Chi-square (χ^2) tests were used to assess the statistical significance between individual-level, dyadic-level, and family level variables with outcomes: (1) interest in quitting smoking; and (2) lifetime NRT/medication use. Since 37% of Index participants did not have a participating Supporter, missing data were correspondingly high for the following variables: Supporter smoking status, Supporter interest in quitting, and Supporter's lifetime NRT/medication use. We used a multiple imputation by chained equations approach ("mi impute chained" STATA commands) with 100 imputations, and incorporated these covariates: sex, age, race, marital status, income, nicotine dependence, past-month drug use, past-month alcohol use, past 6 month 12-step program use, CESD score, family smoking,

smoking status, interest in quitting, and lifetime NRT/medication use. Using "mi estimate, or: logistic" commands, unadjusted and adjusted logistic regression analyses were used to calculate unadjusted (ORs) and adjusted (aORs) odds ratios and 95% confidence intervals (CIs). Variable selection for adjusted models was based on prior literature, a priori theory, and χ^2 *p*-values <0.05. Variables selected for the adjusted model concerning interest in quitting included: sex, age, race, income, marital status, nicotine dependence, past-month drug use, lifetime NRT/medication use, Supporter smoking, and Supporter interest in quitting. Variables selected for the adjusted model concerning lifetime NRT/medication use included: sex, age, race, income, marital status, nicotine dependence, and Supporter's lifetime NRT/medication use.

3. Results

3.1. Participant characteristics

Most participants were interested in quitting smoking (74%), reported lifetime NRT/medication use (59%), male (60.3%), and the average age was 48.6 years (SE = 0.37). The majority was Black (90.6%), reported a monthly income of $500+ (81.6%), and not married (68.2%). There were 39% with a CESD score of 16+, and 42.3% had 0–2 HIV primary care visits in the past 6 months. Forty-one percent reported past-month alcohol use, 50.9% past-month drug use, and 55.8% reported 12-step program participation within the past 6 months.

Among Index participants with participating Supporters, 78.1% had a Supporter who currently smoked, 58.6% had a Supporter interested in quitting, and 38.5% had a Supporter with lifetime NRT/medication use. The majority reported that their family: included smokers (85.4%), encouraged them to quit (85.1%), believed that smoking causes health problems (97.4%), dislikes smoking (89.1%), and has rules about smoking within their home (86.9%). Few (8.2%) reported that their family encourages smoking.

Index participants interested in quitting were older (χ^2 (1, N = 267) = 15.10, p = 0.002), less likely to have past-month drug use (χ^2 (1, N = 267) = 7.38, p = 0.039), and more likely to have lifetime NRT/medication use (χ^2 (1, N = 267) = 4.28, p = 0.007) as compared to those not interested in quitting. In terms of differences between those who had ever used NRT/medications and those who had not, lifetime users were more likely to be White (χ^2 (1, N = 267) = 4.79, p = 0.029) and to have a Supporter with lifetime NRT/medication use (χ^2 (1, N = 169) = 4.15, p = 0.042).

3.2. Smoking characteristics

Most smokers (75.7%) smoked 1–10 CPD, and had a TTFC within 30 minutes of waking (64.0%) (Table 1). More than half (64.1%) exhibited a medium-level of nicotine dependence.

3.3. Interest in smoking cessation

Of those interested in quitting, most were interested in participating in a smoking cessation intervention with a family member (70.4%), friend (73.4%), main partner (75.0%), in a group (79.9%), or in a group with someone they knew (88.1%) (Table 1). Of those who had not utilized NRT, 39.7% were interested in trying NRT. Of those who had not utilized pills/medications, 32.4% were interested in trying pills/medications.

3.4. Logistic regression analyses

When examining interest in quitting smoking, older individuals (54–65 vs. 28–44; aOR = 4.64, 95% CI = 1.59–13.47), and those with lifetime NRT/medication use (aOR = 2.02, 95% CI = 1.08–3.80) were more likely to be interested in quitting (Table 2). In terms of lifetime NRT/medications use, older age (45–49 vs. 28–44: aOR = 3.38, 95% CI = 1.57–7.42; 54–65: aOR = 2.70, 95% CI = 1.19–6.11), White race (aOR = 3.56, 95% CI = 1.20–10.62), and having a Supporter with