Integrating Financial Coaching and Referrals into a Smoking Cessation Program for Low-income Smokers: a Randomized Waitlist Control Trial

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BACKGROUND: Financial distress is a barrier to cessation among low-income smokers.
OBJECTIVE: To evaluate an intervention that integrated financial coaching and benefits referrals into a smoking cessation program for low-income smokers.
DESIGN: Randomized waitlist control trial conducted from 2017 to 2019.
PARTICIPANTS: Adult New York City residents were eligible if they reported past 30-day cigarette smoking, had income below 200% of the federal poverty level, spoke English or Spanish, and managed their own funds. Pregnant or breastfeeding people were excluded. Participants were recruited from two medical centers and from the community.
INTERVENTION: The intervention ($n = 208$) offered smoking cessation coaching, nicotine replacement therapy, money management coaching, and referral to financial benefits and empowerment services. The waitlist control (n=202) was usual care during a 6-month waiting period.
MAIN MEASURES: Treatment engagement, self-reported 7-day abstinence, and financial stress at 6 months.
KEY RESULTS: At 6 months, intervention participants reported higher abstinence (17% vs. 9%, P=0.03), lower stress about finances (β, −0.8 [SE, 0.4], P=0.02), and reduced frequency of being unable to afford activities (β, −0.8 [SE, 0.4], P=0.04). Outcomes were stronger among participants recruited from the medical centers (versus from the community). Among medical center participants, the intervention was associated with higher abstinence (20% vs. 8%, P=0.01), higher satisfaction with present financial situation (β, 1.0 [SE, 0.4], P=0.01), reduced frequency of being unable to afford activities (β, −1.0 [SE, 0.5], P=0.04), reduced frequency in getting by paycheck-to-paycheck (β, −1.0 [SE, 0.4], P=0.03), and lower stress about finances in general (β, −1.0 [SE, 0.4], P = 0.02). There were no group differences in outcomes among people recruited from the community (P>0.05).
CONCLUSIONS: Among low-income smokers recruited from medical centers, the intervention produced higher abstinence rates and reductions in some markers of financial distress than usual care. The intervention was not efficacious with people recruited from the community.
TRIAL REGISTRATION: ClinicalTrials.gov Identifier: NCT03187730

KEY WORDS: smoking; smoking cessation; social determinants of health.

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INTRODUCTION

People with low income (defined as an annual household income below 150–200% of the federal poverty level, FPL[1,2]) are three times more likely to smoke than people with high income.[3–5] The income disparity in tobacco use has persisted over the past 50 years and is one of the greatest remaining tobacco control disparities.[6] People with low income are as interested in quitting, but less likely to be successful than people with high income.[3] Novel interventions are needed to address the unique needs and barriers to quitting low-income smokers.[7–9]

Tobacco use and financial hardship are linked through two circular pathways.[10–12] Tobacco use exacerbates financial hardship by limiting funds available to pay for essentials.[13–15] Low-income smokers can spend 10–30% of their household budget on tobacco, resulting in smoking-induced deprivation or going without essentials because of money spent on tobacco.[15,16] Conversely, the distress associated with financial insecurity and deprivation can lead one to smoke as a coping mechanism.[11,17,18] Given this cyclic relationship, interventions that address both smoking and financial hardship may have synergistic effects.

Behavioral economics further finds that people experiencing resource scarcity must focus on immediate needs,[19] leaving little time or attention to work on issues that benefit the future, such as quitting smoking.[20] Prior research has found that low-income smokers can be more responsive to financial

messaging to quit than health messaging,[21] because financial messaging aligns quitting with the immediate needs of financially strained smokers.[22–24]

Thus, interventions that alleviate financial distress and align smoking cessation with the immediate needs of low-income smokers may improve their quit rates. To explore this hypothesis, the current study sought to evaluate the acceptability, feasibility, and efficacy of an intervention that integrated financial coaching into a smoking cessation program for low-income smokers.

METHODS

Setting and Participants

The NYU Langone Health IRB approved the study (#s16-02177). The study was funded through a mechanism devoted toward improving low-income immigrant health. During the first four months of recruitment, enrollment was limited to low-income immigrants. However, potential participants expressed discomfort in disclosing their place of birth during screening. To improve participant comfort and remove questions about immigration from the screener, we expanded eligibility to people born within the US. The final eligibility criteria were as follows: New York City (NYC) resident; aged >17 years; smoked a cigarette in the past 30 days; household income below 200% of the FPL; spoke English or Spanish; and managed their own funds. People were excluded for pregnancy or breastfeeding. Readiness to quit and interest in receiving cessation coaching or financial services were not required.

Recruitment and Randomization

Recruitment occurred from September 2017 through February 2019. Recruitment began at two safety-net medical centers in NYC using flyers in clinic waiting rooms, proactive outreach to people identified as smokers in the electronic medical record, and provider referrals. Enrollment delays led to the expansion of recruitment from the broader NYC community. The team placed bi-lingual (English, Spanish) study advertisements in free local newspapers. After confirming eligibility, participants signed an IRB-approved informed consent form. Following a baseline assessment, a research assistant randomized participants 1:1 to intervention or control (stratified by site) using randomization envelopes created by the statistician (BW).

Intervention

The intervention offered up to nine sessions of individual counseling. The first two sessions occurred in offices at participating sites. The remaining sessions were on-site or over the phone, depending on participant preference and needs. The study provided participants with subway cards to reimburse travel to in-person sessions, but participants did not receive compensation for participating in counseling

Table 1 provides an overview of the intervention's schedule and how the intervention components (smoking and financial) were integrated and covered during each session. All intervention participants received a base program that included evidence-based smoking cessation coaching to help them develop an individualized quit plan.[25–27] The coaching used problem-solving therapy[26] to enhance motivation and efficacy, learn from prior quit attempts, identify and cope with triggers, and address environmental barriers. The protocol included planning (pre-quit), quit date, and follow-up (post-quit) content. The composition of planning, quit date, and follow-up content depended on each participant's quit progress. Participants were also offered a free 4-week supply of nicotine replacement therapy (NRT). Participants smoking less than 10 cigarettes per day received a single NRT (patch, gum, or lozenge). Participants smoking 10 or more cigarettes per day received combination NRT (patch plus gum or lozenge). The intervention integrated two financial coaching components into the cessation coaching sessions:

(1) Screening and referral for financial benefits and empowerment programs: During the first session, counselors offered to screen participants for benefits using the "NYC Access" website—a centralized resource for identifying city, state, and federal programs. The counselors also offered to schedule participants an appointment with a NYC Financial Empowerment

Table 1 Overview of Intervention Components and Common Treatment Schedule

Session type	Session # and common timing	Smoking cessation coaching content	Financial coaching content integrated into the smoking cessation coaching
Planning	1 As soon as possible after enrollment	• Review smoking history, triggers, and coping strategies • Discuss quit plan • Review NRT	• Discuss financial health, stress, and tobacco spending • Screen and refer to public benefits (NYC Access) • Schedule NYC FEC appointment • Homework: budget and goals worksheets
Planning	2 1–2 weeks after session 1	• Continue reviewing triggers and coping strategies • Select and prepare for quit date • Review NRT	• Trouble-shoot NYC Access and FEC referrals • Review household budget and goal worksheets • Discuss financial goals, tobacco spending, and cessation
Quit date	3 On or near quit day	• Check-in on quit progress, address slips, or relapse • Update quit plan as needed	• Trouble-shoot NYC Access and FEC referrals • Check-in on budgeting progress and challenges • Discuss cessation of tobacco spending & goals
Follow-up	4–9 ~Weekly following quit date	• Check-in on quit progress, address slips, or relapse • Update quit plan as needed	• Check-in on budgeting progress and challenges • Discuss cessation of tobacco spending & goals

Center (FEC) to receive counseling to help with major financial issues. FEC counseling is free and confidential, regardless of income or immigration status. For participants who declined these services during session 1, the counselor offered them again at each subsequent session.

(2) Money management coaching: Participants were offered money management coaching following a protocol adapted from a money management-based substance use intervention.[28] The coaching followed best practices in financial coaching by working with participants longitudinally to develop and work toward client-centered goals.[29,30] The coaching had two primary objectives: (1) To help participants create and maintain a household budget to meet short- and long-term goals and (2) To highlight and reinforce the link between tobacco cessation and the participant's goals through the release of discretionary income spent on tobacco. The counselors helped participants create an ideal monthly budget and identify three goals that they would work on during the coaching. Participants were encouraged to set at least one short-term goal that could serve as an immediate reward for quitting. Tobacco spending and savings were discussed during each session to reinforce the link between quitting smoking and achieving one's goals.

Interventionist Training

For each participant, a single counselor provided the entire intervention, so that the cessation coaching and financial coaching could be fully integrated. The three intervention counselors were bi-lingual, native speakers of both English and Spanish. The lead counselor was a licensed mental health counselor (LMHC) and had been a tobacco cessation counselor for over 8 years. The other two counselors were Masters-level trainees (LMHC and licensed master social worker). The PI developed a structured intervention manual that integrated the NYC Access, FEC referral, and money management coaching protocols into a smoking cessation coaching manual tested in prior RCTs.[25,27,31–33] The counselors received multi-day trainings in delivering the intervention, including didactic training about tobacco use, tobacco treatment guidelines, and financial coaching, and review of the intervention protocols. The counselors completed role-plays before working with participants. Counselors used standardized forms to document each session including its length, content covered, referrals completed, and NRT provision. Intervention cases were discussed during regular supervision meetings.

Waitlisted Control

Given the existence of clinical practice guidelines for tobacco use treatment that recommend multi-session counseling and pharmacotherapy,[26] a no-treatment or minimal control condition was considered unethical for a trial recruiting marginalized smokers. Conversely, given that this was the first effort to integrate financial coaching into a smoking cessation program, conducting a large effectiveness trial powered to compare the intervention to existing intensive tobacco treatment models was considered premature. Therefore, control participants received the intervention after a 6-month waiting period, during which time they could receive usual cessation services from providers or the community (e.g., Quitline).

Outcomes

Outcomes were treatment engagement and satisfaction, self-reported 7-day abstinence from cigarettes ("not even a puff") at 6 months, and financial stress at 6 months.

Assessments and Measures

Participants completed an in-person survey after enrollment (before randomization) assessing sociodemographics, current smoking,[34] cigarette spending, nicotine dependence,[35] smoking-induced deprivation,[36] and financial stress using the 8-item InCharge Financial Distress/Financial Well-being Scale (IFDFW).[37] For Spanish-speaking participants, the survey used published Spanish translations of sociodemographic, tobacco use, and IFDFW measures.[38,39] A native Spanish-speaking member of the team translated measures not available in Spanish. Participants completed in-person or telephone surveys at 6 months with a blinded research assistant. The first 85 intervention participants were asked to complete an interim 2-month (post-treatment) survey assessing intervention satisfaction and experience. Participants were paid $10 cash for each survey.

Statistical Analysis

Participant characteristics, treatment engagement, satisfaction, and outcomes data were summarized (e.g., means, standard deviations, frequencies). Logistic regressions compared groups on the primary cessation outcome using a complete case (respondents only) approach and an intent-to-treat (ITT) approach that treated non-respondents as smokers. An overall IFDFW score was calculated for each participant at baseline and follow-up by summing the 8-item scores and dividing them by 8. Linear regressions compared groups on the overall IFDFW scores and the individual item scores while controlling for baseline IFDFW scores.

During the study's supervision meetings, the interventionists noted that participants recruited from the community were less likely to begin the intervention than participants recruited from the medical centers. Therefore, we conducted post hoc subgroup analyses exploring treatment engagement and outcomes by recruitment source. A two-sided P-value < 0.05 was considered statistically significant for all analyses. Data were analyzed in 2020.

Sample Size

We estimated that the abstinence rate in the control group would be 10% based on previous research.[40] A sample of 600 was sought to provide 80% power to statistically detect a 10% increase (10% vs. 20%) in abstinence in the intervention group (at $\alpha = 0.05$). Study start-up and recruitment delays resulted in a smaller sample size than planned.

RESULTS

Recruitment and Retention

Staff screened 1,932 people, 1,152 (60%) of whom were ineligible (Figure 1). Of the 780 eligible, 88 (11%) declined participation, and 288 (37%) scheduled—but did not attend—their consent appointment. In total, 414 participants enrolled. We excluded four people from analysis who signed consent but later reported not smoking on the baseline survey. The final analytic sample was 410 participants (n = 208 intervention, n = 202 control).

Participant Characteristics

Most participants were male (65%), Black or African American (54%), had a high school education or less (59%), and had Medicaid insurance (60%; Table 2). Participants' mean age was 51 (SD = 12) years and participants had an average annual income of $13,641 ($SD$ = $10,061). Nearly all (95%) participants were daily smokers and 50% had tried to quit in the past

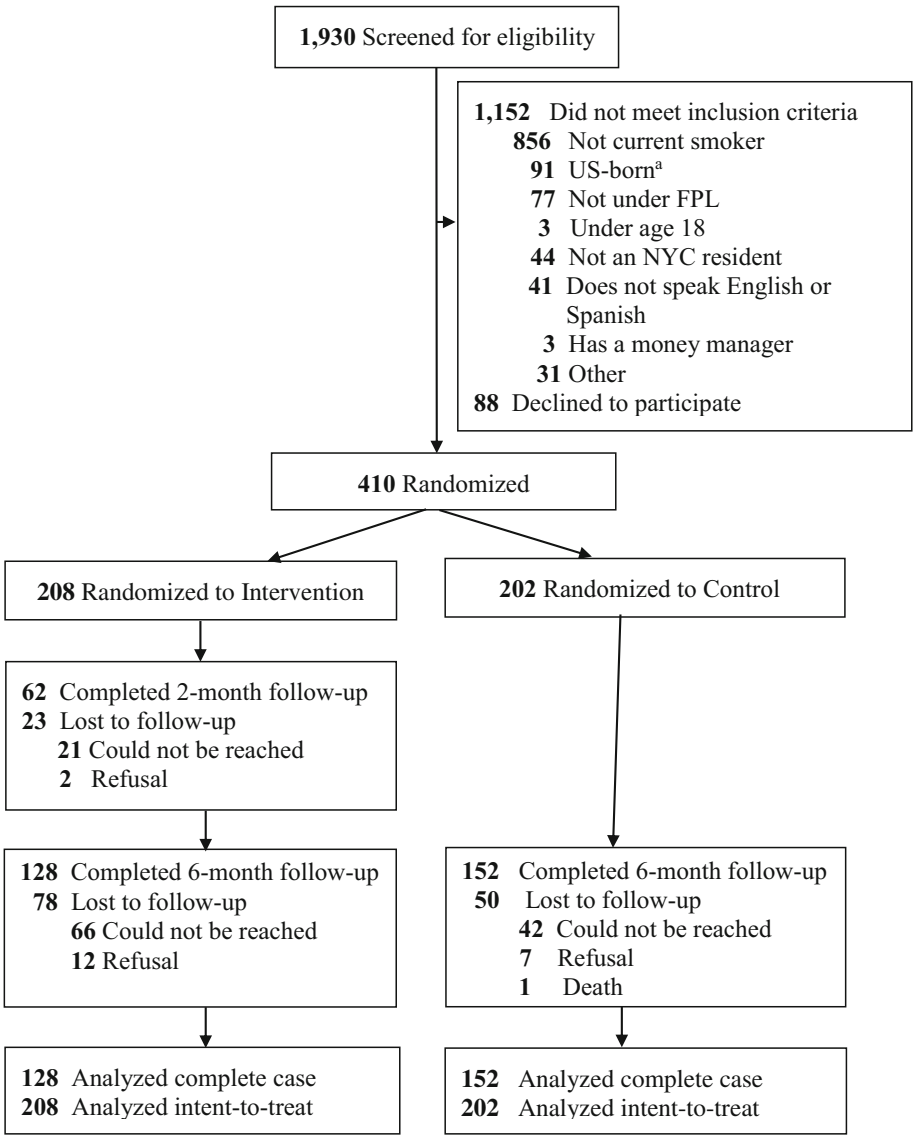

Figure 1. Flowchart of participant enrollment and follow-up. Abbreviations: FPL, federal poverty level; NYC, New York City. [a]During the first 4 months of recruitment, people had to be born outside of the US to be eligible. Enrollment to US-born smokers was opened in January 2018. [b]An enrollment failure represents either a person who (1) was eligible but did not attend their consent appointment or (2) who was determined to not be a current smoker after enrollment.

Table 2 Baseline Characteristics of Study Sample

Variable	Intervention (*n*=208)	Control (*n*=202)
Sociodemographics		
Age, mean (SD)	53.8 (10.8)	52.2 (11.4)
Immigrant, no. (%)	71 (34%)	78 (39%)
Spanish language preferred, no. (%)	36 (18%)	28 (14%)
Male, no. (%)	139 (67%)	127 (63%)
Race, no. (%)		
Black/African American	98 (47%)	89 (44%)
White	42 (20%)	39 (19%)
American Indian/Alaskan Native	6 (3%)	8 (4%)
Asian	3 (1%)	2 (1%)
Native Hawaiian/Pacific Islander	1 (1%)	1 (1%)
Other	68 (33%)	78 (39%)
Ethnicity, no. (%)		
Not of Hispanic, Latinx, or Spanish origin	129 (62%)	118 (58%)
Mexican, Mexican American, Chicano	14 (9%)	9 (5%)
Puerto Rican	34 (17%)	38 (19%)
Cuban	3 (2%)	4 (2%)
Other Latinx	27 (13%)	32 (16%)
Missing	1 (1%)	1 (1%)
Education, no. (%)		
8th grade or less	21 (10%)	19 (9%)
Some high school	27 (13%)	39 (19%)
High school graduate/GED	73 (35%)	64 (32%)
Associate's degree or some college	59 (22%)	60 (29%)
4-year college graduate or other	25 (12%)	19 (9%)
Other education (e.g., trade school)	3 (2%)	1 (1%)
Marital status, no. (%)		
Married or living with partner	31 (15%)	42 (21%)
Separated, divorced, or widowed	74 (36%)	58 (29%)
Never married	96 (47%)	91 (45%)
Other	5 (2%)	7 (4%)
Missing	0 (0%)	4 (2%)
Living alone, no. (%)	97 (47%)	83 (41%)
Unemployed, no. (%)	151 (73%)	156 (77%)
Health insurance, no. (%)		
Uninsured	23 (11%)	17 (8%)
Medicaid	119 (57%)	129 (64%)
Medicare	49 (24%)	34 (17%)
Private	17 (8%)	15 (7%)
New York City (Metroplus, Healthfirst)	38 (19%)	34 (17%)
Other	10 (5%)	9 (5%)
Smoking characteristics		
Daily smoker, no. (%)	194 (93%)	197 (98%)
Smoke within 30 min of waking, no. (%)	130 (63%)	139 (69%)
Quit attempt in past year, no. (%)	106 (51%)	97 (48%)
Cigarettes per day, mean (SD)	10.9 (7.3)	12.3 (7.1)
Quit motivation*, mean (SD)	7.7 (2.5)	7.7 (2.6)
Quit confidence†, mean (SD)	6.8 (2.9)	7.0 (2.9)
Financial characteristics		
Annual household income, mean (SD)	$14,126.9 ($10,274.8)	$13,144.5 ($9,838.9)
Average IFDFW‡ score, mean (SD)	6.9 (2.0)	6.9 (2.0)
Financial stress today	6.1 (3.0)	6.4 (2.9)
Satisfied with present financial situation	3.9 (2.8)	3.7 (2.6)
Worry about current financial situation	6.9 (2.6)	7.0 (2.7)
Worry about meeting monthly expenses	6.6 (2.9)	6.4 (3.0)
Confidence in paying for $1,000 emergency	3.8 (3.3)	3.8 (3.3)
Unable to afford activities	6.7 (2.9)	6.7 (2.9)
Getting by paycheck-to-paycheck	8.2 (2.6)	8.2 (2.8)
Stressed about finances in general	6.5 (2.6)	6.7 (2.6)
Smoking-induced deprivation§, no. (%)	98 (47%)	96 (48%)

Abbreviations: GED, general education development

**Motivation to quit was measured on a scale from 0 (not at all motivated to quit) to 10 (the highest possible motivation)*

†Confidence to quit was measured on a scale from 0 (not confident at all) to 10 (the highest possible confidence)

‡Financial stress items are from the In Charge Financial Distress/Financial Well-being (IFDFW) Scale, which measures financial stress in 8 domains using scales from 1 (no stress) to 10 (overwhelming stress).[37] Measures of satisfaction with one's present financial situation and confidence in paying for a $1,000 emergency are reversed-scored (1 = low confidence/satisfaction; 10 = high confidence/satisfaction)

§Smoking-induced deprivation was measured with the question "In the last 30 days, has there been a time when the money you spend on cigarettes resulted in not having enough money for any of these items: housing, food, household utilities, health care, transportation, and necessary apparel?"[13]

year. Participants smoked on average 12 cigarettes per day (*SD* = 7) and spent on average $181 (*SD* = $121) per month on cigarettes.

Intervention Engagement and Satisfaction

One hundred sixteen (56%) intervention group participants began the intervention (i.e., met with a counselor at least

once). Participants recruited from the medical centers were more likely to begin than community participants (69% vs. 32%, $P<0.001$). Overall, intervention participants completed on average two sessions ($SD = 2.5$) and spent 99 min ($SD = 117$) in counseling. Among those who began the intervention, participants completed on average four sessions ($SD = 2.5$) and spent 178 min ($SD = 103$) in counseling. The first two sessions were longest, averaging 71 min ($SD = 25$); the remaining sessions averaged 24 min ($SD = 16$).

Table 3 shows that 116 (56%) intervention participants received cessation coaching, 99 (48%) received money management coaching, 94 (46%) received NRT, 55 (27%) completed NYC Access screening, and 42 (20%) scheduled an FEC appointment. In contrast, 6-month survey data showed that 34 (17%) control participants received cessation coaching, 46 (23%) used cessation medications, 13 (6%) used the NYC Access portal, and two (1%) attended an FEC appointment during their 6-month waiting period ($P<0.01$).

Of the 85 intervention participants asked to complete a 2-month survey, 62 (73%) responded, 45 (73%) of whom had received at least one counseling session (Table 4). Eighty-four percent of respondents were "very satisfied" overall with the intervention, 93% were "very/somewhat" satisfied with the smoking cessation coaching, and 80% were "very/somewhat" satisfied with the financial coaching. Fifty-one percent of participants felt the number of sessions they received was "just right," while 36% wanted more sessions.

Smoking and Financial Outcomes

Intervention participants were more likely to report 7-day abstinence using a complete case approach (27% vs. 13%, $P<0.01$) and ITT approach (17% vs. 9%, $P<0.05$; Table 4). Intervention participants also reported lower stress about personal finances in general ($P=0.02$) and reduced frequency of being unable to afford leisure activities ($P=0.04$). Group differences in the remaining IFDFW domains were in the hypothesized directions but were not statistically significant ($P>0.05$). Among the 35 intervention participants who had quit, 25 (71%) achieved at last one post-quit financial goal. Table 5 displays the relationships between use of the intervention components and abstinence, adjusting for baseline quit motivation, confidence, and nicotine addiction. Intervention participants were more likely to quit if they received cessation coaching (24% vs. 8%, $P<0.01$), accepted an FEC referral (29% vs. 14%, $P=0.03$), or received money management coaching (23% vs. 11%, $P=0.02$).

Subgroup Analyses

Appendix Table 1 shows that among people recruited from the medical centers, intervention participants were more likely to

Table 3 Receipt of Treatment, Smoking Outcomes, and Financial Outcomes at 6 Months

Variable	Intervention (n=208)	Control (n=202)	OR (95% CI) or adjusted β (SE)	P
Receipt of treatment[§], no. (%)				
Cessation counseling	116 (57%)	34 (17%)	6.2 (3.9 to 9.9)	<0.01
Cessation medications	94 (46%)	46 (23%)	2.5 (1.7 to 3.9)	<0.01
NYC Access benefits screening	55 (27%)	13 (6%)	5.2 (2.8 to 9.9)	<0.01
Money management coaching	99 (48%)	0 (0%)	–[‖]	<0.01
FEC appointment	42 (20%)	2 (1%)	25.3 (6.0 to 106.1)	<0.01
Primary smoking outcome				
Self-reported 7-day abstinence, no. (%)				
Intent-to-treat[*]	35 (17%)	19 (9%)	2.0 (1.1 to 3.6)	0.03
Complete case[†]	35 (27%)	19 (13%)	2.6 (1.4 to 4.9)	<0.01
Financial outcomes				
Average IFDFW[‡] score, mean (SD)	6.2 (2.1)	6.8 (2.3)	−0.4 (0.2)	0.10
Financial stress today	5.2 (3.1)	5.8 (3.1)	−0.4 (0.4)	0.28
Satisfied with present financial situation	4.6 (3.2)	4.0 (3.0)	0.4 (0.3)	0.25
Worry about current financial situation	6.2 (3.0)	6.6 (2.7)	−0.3 (0.3)	0.40
Worry about meeting monthly expenses	6.0 (3.2)	6.6 (3.2)	−0.4 (0.4)	0.23
Confidence in paying for $1,000 emergency	3.8 (3.6)	3.6 (3.4)	0.3 (0.4)	0.46
Unable to afford leisure activities	5.8 (3.8)	6.6 (3.2)	−0.8 (0.4)	0.04
Getting by paycheck-to-paycheck	7.5 (3.5)	8.1 (2.9)	−0.4 (0.4)	0.27
Stressed about finances in general	5.7 (3.0)	6.6 (2.7)	−0.8 (0.4)	0.02
Achieved post-quit financial goals[¶], no. (%)				
Yes, all three goals	5 (15%)	n/a	–	–
Yes, at least one goal	19 (56%)	n/a	–	–
No	10 (29%)	n/a	–	–

NYC, New York City; FEC, Financial Empowerment Center

[*] *Intent-to-treat = non-respondents counted as smokers (N = 410)*

[†] *Complete case = survey respondents only (N = 280)*

[‡] *Financial stress items are from the InCharge Financial Distress/Financial Well-being (IFDFW) Scale, which measures financial stress in 8 domains using scales from 1 (no stress) to 10 (overwhelming stress).*[37] *Measures of satisfaction with one's present financial situation and confidence in paying for a $1,000 emergency are reversed-scored (1 = low confidence/satisfaction; 10 = high confidence/satisfaction). Group comparisons control for baseline financial stress scores*

[§] *Control group participants reported receipt of cessation counseling, medications, NYC Access benefits screening, and FEC appointments outside of study procedures on the 6-month surveys*

[‖] *Odds ratios were not calculated where cell sizes = 0*

[¶] *Among people who reported 7-day abstinence on the 6-month survey*

Table 4 Treatment Satisfaction Among Intervention Participants Surveyed at 2 Months

Variable	Participants who received at least one counseling session (*n*=45)
Overall satisfaction with treatment, no. (%)	
Very satisfied	38 (84%)
Somewhat satisfied	7 (16%)
A little satisfied	0 (0%)
Not satisfied at all	0 (0%)
Number of sessions received, no. (%)	
Too few	16 (36%)
Just right	23 (51%)
Too many	2 (4%)
Refused/missing	4 (8%)
Usefulness of smoking counseling, no. (%)	
Very	36 (80%)
Somewhat	6 (13%)
A little	1 (2%)
Not at all	0 (0%)
Refused/missing	2 (4%)
Usefulness of financial counseling, no. (%)	
Very	28 (62%)
Somewhat	8 (18%)
A little	4 (9%)
Not at all	0 (0%)
Refused/missing	4 (8%)

Notes: We aimed to survey the first 85 patients randomized to the intervention. Sixty-two participants (73%) responded to the survey, 45 of whom (73%) had received at least one counseling session and were asked about their satisfaction with the counseling

report 7-day abstinence (complete case: 28% vs. 10%, *P*=0.002 and ITT: 20% vs. 8%, *P*=0.01). Intervention participants also reported lower stress about personal finances in general (*P*=0.02), lower frequency of being unable to afford leisure activities (*P*=0.04), lower frequency of having to get by paycheck-to-paycheck (*P*=0.03), and higher satisfaction with their present financial situation (*P*=0.01). Of the 27 medical center participants in the intervention group who had quit smoking by 6 months, 16 (69%) achieved at last one post-quit financial goal. There were no significant group differences in any outcome among participants recruited from the community (*P*>0.05, data not shown).

Table 5 Self-reported Abstinence at 6 Months Among Participants in the Intervention Group Who Did and Did not Use a Specific Intervention Component

Component	Used component *n* (%) who quit	Did not use component *n* (%) who quit	aOR (95%CI); *P*-value
Cessation counseling	28/116 (24.1%)	7/92 (7.6%)	5.14 (1.79–14.81); <0.01
Money management coaching	23/100 (23.2%)	12/108 (11.0%)	3.07 (1.28–7.36); 0.02
FEC appointment	12/42 (28.6%)	23/166 (13.9%)	3.45 (1.41–8.43); 0.03
NYC Access Benefits screening	13/55 (23.6%)	22/153 (14.4%)	1.77 (0.75–4.20); 0.12

FEC, Financial Empowerment Center; NRT, nicotine replacement therapy; aOR, adjusted odds ratio; CI, confidence intervals. Quit rates were compared between groups using logistic regression and an ITT approach (with non-respondents to the 6-month survey classified as smokers). Group comparisons (adjusted odds ratios) controlled for baseline quit motivation, confidence, and nicotine addiction

DISCUSSION

This is one of the first RCTs to intervene upon the socioeconomic challenges faced by low-income smokers. The study found higher abstinence rates and lower markers of financial distress among participants randomized to the intervention. The study's odds ratios of 2.8–3.4 estimating the intervention's impact on cessation are larger than many prior RCTs with low-income smokers.[41–43] A 2019 meta-analysis reported a pooled risk ratio of 1.56 (95%CI 1.39–1.75) for the effectiveness of cessation interventions for low-SES groups.[43] The study's quit rates are not as strong as a recent RCT published by Vidrine et al., who found that combining NRT with multi-session telephone counseling doubled quit rates (26%) among low-SES smokers compared to NRT alone (12%).[42] However, their trial was limited to smokers who were willing to set a quit date within 1 week of enrollment, whereas the current study did not require readiness to quit. Our results are similar to the only previous RCT to our knowledge to test a cessation intervention that incorporated referrals to social services. Haas et al. tested an intervention for low-SES smokers that offered telephone counseling, NRT, and referral to community-based resources. At 9 months, their intervention group had higher self-reported 7-day abstinence than a usual care group, and participant use of the resources referral was associated with higher abstinence rates. The current study extends their work by demonstrating that integrating financial coaching and social services referrals into a cessation program can improve both smoking and financial outcomes.

There is limited rigorous research evaluating financial coaching programs,[29] but this study's results are largely consistent with published research.[29,40,44] Theodos et al. found that among people randomized to receive financial coaching from community organizations, only 37–56% (depending on location) began coaching, and most completed 1–2 sessions. Consistent with the current trial, Theodos et al. further found that participants randomized to receive financial coaching reported progress toward attaining financial goals and had 0.4–0.5-point reductions in financial stress, frequency of being unable to afford to go out to eat, and financial dissatisfaction.[44] Observational and case study research has similarly reported that financial coaching can have positive impacts on financial goal attainment and increases in budgeting and savings.[29]

The intervention did not impact participants' confidence in paying for a $1000 emergency or their worry about monthly expenses.[30,44] This may be due to the intervention's limited ability to alleviate poverty itself or due to participants' modest intervention uptake. Of note, the intervention was not efficacious among participants recruited from the community, very few of whom began treatment. People recruited from the community were also more likely to be unemployed and living in homeless shelters and thus living in financial crisis. Financial coaching is commonly recommended only for people who have stable financial stressors and who can benefit from longitudinal client-centered goal setting. Directive, crisis-focused financial counseling—such as that provided by the

FECs—is more suitable for people experiencing financial emergencies.[29,44] Thus, increasing the intervention's impact on financial outcomes will require increasing overall intervention engagement *and* uptake of the FEC referrals in particular.

Among participants who began the intervention, money management coaching was the most popular financial component of the intervention (received by 85%) and the most feasible to integrate within the cessation coaching process. The study counselors reported barriers to participant uptake of the benefits screening and FEC referrals that have been reported in the literature.[44] These included time and geographic constraints, a reluctance to discuss finances or admit a need for financial assistance, and hesitation about being referred to government-based programs. Future research should examine the feasibility and efficacy of referring participants to non-governmental financial services or mobile financial coaching programs.[45]

Limitations

Readers should interpret results with caution. Abstinence was not biochemically verified. The study occurred in a single, high-cost city with robust social services. There was also considerable drop-off from screening to eligibility and completion, limiting generalizability and highlighting barriers to participation. Further to this, the two-group waitlist control design does not allow us to disentangle the impacts of the individual intervention components. Future multi-group RCTs should study the impact of the financial components on outcomes above-and-beyond standard intensive cessation treatment. Lastly, although the IDWFW is acceptable to use with Spanish-speaking clients,[39] the cultural appropriateness of the scale is not validated.

CONCLUSIONS

The current findings have relevance to discussions about addressing sociocontextual determinants of smoking and integrating social needs screening and referrals into health programs.[46,47] Results were robust despite the modest treatment engagement rates, suggesting that the intervention is a promising approach for assisting low-income smokers with both health and financial needs and warrants further investigation.

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