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A pilot clinical trial of smoking cessation services implemented in the workplace for service industry employees

Krysten W. Bold, Ph.D¹, Lisa Kimmel, MS, RD², Tess H. Hanrahan, M.Res¹, Denise Romano, APRN, MSN, MA, HN-BC^{1,4}, Alana M. Rojewski, Ph.D^{1,5}, Suchitra Krishnan-Sarin, Ph.D¹, Lisa M. Fucito, Ph.D^{1,3,4}, Stephanie S. O'Malley, Ph.D^{1,3}

¹Yale School of Medicine, Department of Psychiatry, New Haven, CT

²Yale University, Being Well at Yale New Haven, CT

³Yale Cancer Center, New Haven, CT

⁴Smilow Cancer Hospital at Yale-New Haven, New Haven, CT

⁵Medical University of South Carolina, Charleston, SC

Abstract

Purpose: Evaluate the feasibility and preliminary efficacy of implementing evidence-based tobacco treatment at the workplace for service industry employees.

Design: Randomized trial using six paired worksites (3 test and 3 delayed intervention control sites).

Setting: US Northeast city

Subjects: Employees were recruited from university food service settings.

Intervention: Comprehensive smoking treatment was provided at the workplace including individual counseling, free pharmacotherapy (dual nicotine replacement therapy or varenicline), and 5 weeks of contingency management that reinforced abstinence or reductions in smoking to encourage progress toward quitting.

Measures: Primary measures included a smoking status survey administered at the end of treatment at the test sites and before treatment began at the delayed intervention control sites.

Analysis: Analyses compared rates of quit attempts and successful abstinence for at least 24 hours between the test and delayed intervention control sites.

Results: 25 employees enrolled in treatment. The majority were single (12/25), Black (16/25), and reported their educational attainment as GED or less (18/25). Employees in the test (vs. delayed intervention control) sites reported higher rates of quit attempts [66.7% vs. 12.5%, $p=.02$] and success quitting for at least 24 hours [53.3% vs. 12.5%, $p=.08$]. Participants rated the treatment as very helpful overall.

Conclusion: Findings support the feasibility and efficacy of providing workplace-based smoking cessation services and may inform strategies to increase access to treatment.

Keywords

smoking; smoking cessation; tobacco; treatment; tobacco control; substance abuse; underserved populations; workplace

Purpose

Tobacco use is the leading cause of preventable death and costs the United States more than \$300 billion dollars each year related to medical care and lost productivity due to illness and premature death.^{1,2} While smoking rates have declined in recent years in the general population, smoking rates remain elevated among certain populations such as racial/ethnic minorities and those with lower education and socioeconomic status.^{1,3,4} National data indicate that these vulnerable populations are significantly less likely to use evidence based treatments when trying to quit smoking^{3,5}, and are ultimately less likely to quit smoking successfully despite high rates of attempting to quit^{1,3}. Improving access to effective smoking cessation treatments is critical for reducing these tobacco-related health disparities. Low rates of smoking cessation treatment utilization may be due to several systemic barriers including limited time, cost, lack of transportation and/or childcare, or limited knowledge about what treatments are effective and how to properly use treatments such as nicotine pharmacotherapy⁶.

Providing smoking cessation treatment in targeted workplace settings to reach these vulnerable populations may be one way to overcome these barriers to treatment and reduce tobacco-related health disparities. Historically, workplace smoking cessation programs have shown promise for reducing smoking rates. For example, implementing smoke-free policies in the workplace has been associated with declines in smoking prevalence^{7,8}, and several studies have identified effective workplace-based smoking cessation programs, such as providing smoking cessation counseling or financial incentives to employees for quitting^{9,10}. However, certain low-income occupations, such as service industry settings, are less likely to have workplace-based smoking cessation programs, such as smoke-free policies¹¹. Service industry settings may provide a novel opportunity to deliver evidence-based smoking cessation treatment to a vulnerable population of smokers to help promote smoking cessation and reduce tobacco-related health disparities. While there is strong evidence to support the effectiveness of several smoking cessation treatment components including pharmacotherapy^{12,13}, one-on-one smoking cessation counseling¹², and contingency management (i.e., an intervention where abstinence or reductions in smoking are reinforced with financial incentives)^{14–16}, additional research is needed to evaluate the efficacy of these smoking cessation services delivered to employees in targeted workplace settings.

In particular, very few workplace-based smoking cessation programs have provided smoking cessation pharmacotherapy^{9,10}, yet use of pharmacotherapy can more than double the odds of quitting smoking^{12,13}. Although many employers offer benefits through insurance that provide reimbursement for smoking cessation counseling and pharmacotherapy, some

employees may be unlikely to access these benefit services, perhaps due to time or cost barriers or lack of knowledge about how to use effective treatments such as pharmacotherapy. Delivering pharmacotherapy directly to people who smoke even for a trial period promotes use of the product¹⁷ and also may enhance the effectiveness of pharmacotherapy by providing an opportunity to discuss proper use and any concerns related to safety or side effects. Furthermore, there is evidence that using pharmacotherapy in preparation for quitting helps reduce smoking rates¹⁸ and can prompt quit attempts even among those who are not motivated to quit.^{19,20} Thus, providing smoking cessation treatment at the workplace may help optimize the use of these effective treatments and access hard-to-reach people who smoke who might otherwise not receive treatment.

The current study is a preliminary randomized clinical trial that evaluates the feasibility and efficacy of providing comprehensive smoking cessation services directly at the workplace to employees in a service industry. Using a dynamic wait-list study design with a delayed intervention control group, employees across 6 sites (3 test sites, 3 delayed intervention control sites) received 6 weeks of comprehensive evidence-based smoking cessation services. Treatment services included effective first-line pharmacotherapy (dual nicotine replacement therapy [NRT] or varenicline), brief one-on-one counseling, and contingency management (CM), where abstinence or reductions in smoking were reinforced with financial incentives.^{14–16} The study aims were to 1) test the preliminary efficacy of the intervention by examining whether smoking outcomes differed significantly between test and control sites and 2) evaluate the feasibility and acceptability of providing smoking cessation services at the workplace, measured by sign-up rates and employee satisfaction with the program. We hypothesized that providing comprehensive smoking cessation services at the worksite would result in a greater proportion of quit attempts and success quitting for at least 24 hours in the test sites compared to the control sites. Providing comprehensive smoking cessation services at targeted service industry worksites may help reach vulnerable populations of smokers, enhancing access to treatment for those with known disparities, such as ethnic/racial minorities and those with low education or income, to promote cessation success.

Methods

Design

All study procedures were approved by the university institutional review board. The research team first met with university employee union leadership and dining hall managers to attain their support for the study protocol and coordinate time within their employees' workday to administer the smoking cessation program. We also conducted initial focus groups with employees to ascertain their perspectives on smoking cessation and potential tobacco treatment service models at the worksite.

We conducted a randomized clinical trial to evaluate a workplace-based smoking cessation treatment program. We recruited employees who currently smoke from six food service settings within a university (i.e., university dining halls) in an urban area. Sites were paired (3 test and 3 delayed intervention control sites) and randomized within pairs by a coin flip to receive a 6-week comprehensive smoking treatment using a dynamic wait-list design with a

delayed intervention control group. Randomization was done by site rather than by individual within site, because we aimed to conduct a pragmatic trial of the intervention similar to how employee wellness services would be delivered at the worksite. Thus, all employees within a site were offered treatment at the same time. Identical treatment components were first offered at the test site then offered at the control site beginning 6 weeks later (i.e., delayed intervention control) (see Figure 1). All study procedures were completed at the workplace during employee work hours.

Prior to implementing the worksite intervention at either site, our research team attended an employee meeting to administer an anonymous survey to all employees (time 1). The survey was anonymous to encourage high rates of participation and reduce concerns about providing information about health status and smoking history in a workplace setting. All employees received a \$5 gift card for completing the survey. We then presented the research treatment program to all employees, and interested employees could complete their intake appointment with the research team the same day.

Research staff met with potential participants to obtain written informed consent. Participants completed additional questionnaires, provided a breath carbon monoxide (CO) sample, and met with a nurse practitioner to take vitals, review health history, and discuss medication options (20-30 minute assessment in total). Participants were given free pharmacotherapy and encouraged to sample nicotine replacement therapy at this first meeting (e.g., put on the nicotine patch, try the nicotine gum or lozenge) so that research staff could troubleshoot any concerns and help instruct participants about the correct way to use the pharmacotherapy. Specific details on treatment components are presented below. Additional treatment sign-up opportunities were available throughout the first two weeks in case employees were not present at the first meeting or decided later that they wanted to enroll. Once enrolled, all participants received the same 6-week treatment. Research staff returned weekly for contingency management (CM) payments and counseling appointments. Figure 2 displays a flow chart of participant enrollment by site.

Sample

To be eligible for participation in the treatment program, employees had to meet the following criteria: 1) at least 18 years old, 2) current smoker of combustible cigarettes or tobacco cigars (smoked at least 100 cigarettes or cigars lifetime and at least twice per week on average over the past 30 days, confirmed with CO > 4ppm), 3) interested in receiving treatment for quitting smoking, 4) employed for at least 20 hours per week by one of the residential college dining halls selected for inclusion in this study, and 5) English speaker.

Measures

Anonymous surveys were conducted at time 1 and time 2, which was 6 weeks later, in both test and delayed intervention control sites to assess the smoking status of employees. Primary smoking outcomes included the rate of quit attempts (measured by asking “in the last 6 weeks, did you try to quit smoking?”) and quit success (measured by asking “did you quit smoking for 24 hours or more?”) in test versus control sites at time 2. Quitting smoking

for at least 24 hours is a measure of cessation success that is a clinically meaningful outcome used in many treatment trials.²¹

Employees enrolled in treatment at both the test and delayed intervention control sites completed self-report questionnaires providing information about demographics and smoking history. Daily summary measures of cigarettes per day were collected using time-line follow-back interview methods²² during the treatment period. Smoking status at CM appointments was biochemically confirmed with expired breath CO, and smoking abstinence was determined by a report of no cigarettes smoked that day and expired breath CO < 4ppm, based on accepted thresholds^{23,24}. We followed up with all participants after treatment was completed at both the test and control sites to obtain satisfaction ratings about the various treatment components (rated 1=not at all helpful, 2=slightly helpful, 3=somewhat helpful, 4=very helpful, 5=extremely helpful).

Intervention

Pharmacotherapy: Participants were given free combination NRT (nicotine patch plus nicotine gum or lozenge) with doses prescribed based on recommended guidelines: 14 mg patches for those who smoke < 10 cigarettes per day or 21 mg patches for those who smoke > 10 cigarettes per day; 4 mg gum or lozenge if they smoke within 30 minutes of waking or 2 mg gum or lozenge if they smoke > 30 minutes after waking. Participants could sample multiple nicotine replacement products during the treatment period, such as switching from the gum to the lozenge or trying different gum flavors. We initially offered either combination NRT or varenicline to all participants who enrolled in treatment, although no one opted to start with varenicline. As a result, we began offering everyone combination NRT with the option of switching to varenicline if they were unsuccessful with initial reduction efforts using NRT. If a participant chose to discontinue all medication, they could still engage in the remaining treatment components.

Counseling: Participants received 3 brief (15 minute) smoking cessation counseling sessions at the workplace during their scheduled work hours. Counseling sessions followed standard care clinical practice guidelines¹² and included discussions of preparing for the quit day and preventing relapse after quitting. All participants were encouraged to set a quit day within the first 2-3 weeks of treatment.

Contingency Management (CM): Participants were eligible for 5 weeks of contingency management (CM) payments beginning within 1 week after starting treatment to allow for an initial trial period to adjust to pharmacotherapy and begin smoking reduction efforts. Contingency management visits occurred up to 5 times in the first 3 weeks and twice in the last 2 weeks. Research staff met briefly (1-2 minutes) with the participant for each CM appointment at the workplace during the employee's scheduled work hours. To accommodate participant preferences for abrupt smoking cessation or gradual smoking reductions, there were 2 escalating contingency management schedules: 1 based on reduction, and 1 based on successful quit attempts (see below). Participants could transition between the two CM payment schedules based on their progress with quitting or reducing smoking during treatment. The minimum that a participant could earn from CM

appointments was \$0 if they never reduced or quit smoking, and the maximum that a participant could earn was \$218.75 (if they were abstinent from the first CM day onwards).

CM Reductions: Participants who provided a breath CO reading less than their previous CO reading but who had not yet quit smoking received CM payments beginning at \$4.00 and increasing by \$0.25 for each subsequent day of gradual reduction. If reduction was not met at a subsequent appointment, the CM payment was withheld for that day, but earnings could continue from where they left off at the subsequent appointment to encourage continued reduction efforts (i.e., escalating payments were not reset).

CM Abstinence: For each day of verified abstinence during the treatment period (i.e., no cigarettes and expired breath CO < 4ppm, based on accepted thresholds^{23,24}), participants earned a CM payment of \$9.00 with payments increasing by \$0.25 for each subsequent day of continuous abstinence. Payments reset if participants returned to smoking (i.e., payment was withheld for breath CO > 4ppm and earnings were reset to \$9 beginning on the next day of confirmed abstinence). Participants who were abstinent at all CM appointments during the week were also entered in a raffle for a \$10 bonus.

Additional Treatment Resources: Participants were encouraged to enroll in additional smoking cessation support. They were offered resources through the state telephone quitline, the NCI text message service (SmokeFreeTXT), and a smartphone mindfulness-based application (Craving to Quit).

Analysis

Descriptive statistics were used to characterize demographic variables and outcomes of interest. The primary smoking outcomes were the rates of reported quit attempts and success quitting for 24 hours between the test and control sites. Given the small sample sizes, two-sided Fisher's Exact Tests were conducted to examine if the rates of quit attempts or success quitting for at least 24 hours differed significantly between the test and control sites. These outcomes were measured at the time 2 survey of all dining hall employees (i.e., the end of treatment for the test site and before treatment began for the control site).

To further evaluate treatment outcomes, additional measures were collapsed across all participants who received treatment across both the test and control sites ($n=25$). Summary measures of treatment adherence and satisfaction were presented since identical treatment components were offered at test and control sites using a delayed intervention control (i.e., the treatment phase was weeks 1-6 for the test site, weeks 7-12 for the control site). Descriptive statistics were used to characterize treatment adherence, including the total number of participants who tried nicotine replacement therapy and the average number of counseling sessions attended (out of 3 possible sessions). Additional treatment outcome measures included the total number of participants who achieved at least one CM reduction or CM abstinence payment during the treatment period (as described in the method) and within-person changes in expired breath CO as an indication of smoking reduction. A paired sample t-test was used to examine within-person differences in expired breath CO between baseline and the treatment phase.

Results

Baseline characteristics

We surveyed 64 employees at time 1 ($n=33$ female, average age 43.2, $SD=11.8$), and 40.6% ($n=26/64$) reported current smoking. Table 1 summarizes tobacco use and previous treatment experience among the sample of employees who reported current smoking at time 1. The majority reported smoking menthol cigarettes, and less than a quarter of the smokers had any previous experience using pharmacotherapy. Overall, these individuals rated their intentions to quit in the next month as moderate ($M=5.5$, $SD=3.4$, range 0-10). Basic demographic characteristics and smoking history of employees did not differ significantly between the test and delayed intervention control sites at time 1 (i.e., age, gender, cigarettes per day, rates of menthol cigarette use or e-cigarette use, recent quit attempts, past tobacco treatment, motivation to quit $ps>.23$).

Treatment enrollment

In total, we enrolled 25 employees ($n=16$ female) in smoking cessation treatment across the 6 sites. On average, we enrolled 4 participants ($SD=3$) from each dining hall. We obtained additional demographic and smoking history information from participants who enrolled in treatment. The majority were single ($n=21$, 84.0%), 12.0% were married ($n=3$), and marital status was not reported by one participant. Participants reported their race as Black or African American ($n=17$, 68.0%), White ($n=4$, 16.0%), or other ($n=4$, 16.0%). The majority of participants had low educational attainment: 20.0% ($n=5$) reported less than a high school education, 52.0% ($n=13$) reported completing a GED or equivalent, 16.0% ($n=4$) reported some college, and 12.0% ($n=3$) did not report educational status. On average, participants who enrolled in the treatment program reported smoking 11.5 cigarettes per day ($SD=3.9$) for an average of 25.0 years ($SD=13.4$). Additionally, the majority reported smoking within 30 minutes of waking, an indication of moderate to severe nicotine dependence.²⁵

Treatment outcome

The primary smoking outcomes were rates of reported quit attempts and success quitting for 24 hours between the test and control sites. A greater proportion of employees in the test sites reported recent quit attempts [66.7% vs. 12.5%; $p=.02$] and success quitting for at least 24 hours [53.3% vs. 12.5%; $p=.08$] compared to the control sites (Figure 3).

Additional measures of treatment adherence and acceptability were collapsed across all participants who received treatment at both the test and control sites ($n=25$) (Table 3). Across the 5 weeks of contingency management that included monitoring of expired breath carbon monoxide and smoking, all participants ($n=25$; 100%) achieved at least one reduction payment, indicating they reduced their expired breath carbon monoxide from one visit to the next. There was a significant within-treatment reduction in expired breath CO, measured as a reduction from baseline CO ($M=18.0$ ppm, $SD=7.2$) to the lowest value obtained during the treatment phase ($M=3.8$ ppm, $SD=3.8$), $t(24)=9.44$, $p<.001$). On average, participants reduced their expired breath CO by 79.4% ($SD=19.9\%$). Additionally, 36% of people ($n=9$) achieved at least one abstinence payment during the 5 weeks of CM, meaning they reported smoking no cigarettes and had an expired breath carbon monoxide level that confirmed this

self-report (CO = 4ppm). Furthermore, all participants (100%) tried nicotine replacement therapy (nicotine patch plus the gum or lozenge), and the majority ($n=23$, 92%) reported continued use of at least one of the nicotine replacement therapies during the 6-week treatment phase.

Treatment satisfaction

The majority of the enrolled participants were available to provide satisfaction ratings at the end of treatment ($n=22$). Some participants could not be reached due to changes in their employment (e.g., re-location, loss of employment). On average, participants rated the overall program as very helpful (Figure 4). In particular, participants reported that it was very helpful to have the program at the workplace and all treatment components were rated as at least somewhat helpful.

Discussion:

The current study evaluated the feasibility and preliminary efficacy of implementing evidence-based smoking cessation treatment at the workplace for service industry employees. We used a randomized, dynamic wait-list design with a delayed intervention control group to deliver comprehensive smoking cessation treatment to employees at 6 worksites. Overall, this program resulted in 5 times more quit attempts and success quitting for at least 24 hours in test sites compared to control sites at the 6-week follow-up. These findings suggest that targeted workplace implementation of smoking cessation services may be an effective method for enhancing access to evidence-based treatments for vulnerable populations (such as racial/ethnic minorities and those with low education or income) to reduce tobacco-related health disparities and improve public health.

There is a great need to enhance access to evidence-based smoking cessation treatments. In our study, over 40% of the employees reported current smoking, which is much higher than national estimates of smoking prevalence⁴. However, our findings are consistent with evidence indicating that tobacco use rates remain high among vulnerable subpopulations, including racial/ethnic minorities and individuals with lower income and education levels,^{1,3,4} highlighting the critical importance of addressing this health disparity. Furthermore, although employees in our study could have accessed nicotine replacement therapy for free or reduced cost through their insurance provider prior to entering the study, the majority (over 75%) had no prior experience using pharmacotherapy to quit smoking. Yet when free smoking cessation services were offered at the workplace to employees who smoked, 100% of these individuals tried nicotine replacement therapy. Research consistently indicates that using evidence-based pharmacotherapy can more than double the odds of quitting smoking,¹³ so efforts to increase the adoption of these medications are essential for improving quit rates. Bringing nicotine replacement therapy directly to the individual may help reduce barriers to pharmacotherapy use by providing direct instruction on proper use and troubleshooting any concerns. For example, many participants required assistance affixing the nicotine patch, using the nicotine gum correctly, or opening the nicotine lozenge tube, and our research staff were able to discuss the safety and benefit of using nicotine replacement therapy in preparation for quitting.¹² Additionally, we noticed that participants

preferred combination NRT compared to varenicline pharmacotherapy when given a choice between the two. NRT may be especially advantageous in the workplace given its safety and ease of administering since it is available over the counter and does not require a medical consult or prescription.

Furthermore, workplace smoking cessation treatment was highly acceptable to employees. The majority of employees who reported current smoking signed up to participate in the treatment study, and end-of-treatment ratings indicated that participants were very satisfied with the program. In particular, participants provided high ratings for the helpfulness of receiving individual counseling and treatment directly at the workplace. Importantly, our results indicated that treatment implementation in the workplace was highly feasible; most appointments with research staff took only a few minutes and all were easily completed during regular work hours for the employee. Our experience highlighted the importance of evaluating multiple stakeholder interests (e.g., employees, managers) to identify the optimal way of implementing smoking cessation treatment at the workplace. Initial discussions between research staff and workplace managers were essential for explaining the importance of the treatment as a part of employee wellness and encouraging the managers to foster a workplace culture that was supportive of quitting smoking. Collaborating with the managers also helped troubleshoot issues during treatment, such as modifying workplace restrictions about gum use to permit nicotine gum for smoking cessation and encouraging alternative activities during employee breaks (i.e., to replace smoke breaks).

Additionally, the workplace smoking cessation program was effective at promoting changes in smoking behavior as evidenced by significant reductions in CO level and high rates of verified abstinence during the contingency management period. Achieving success quitting for at least 24 hours is a clinically important outcome that is used in many treatment trials,²¹ and there is evidence that longer durations of quitting success are associated with future quitting success.^{26,27} People who smoke may learn from past quit attempts, and population based studies support the notion that successfully quitting smoking often requires multiple attempts.²⁸ Therefore, interventions that encourage quit attempts and introduce effective quitting supports (e.g., counseling and pharmacotherapy) may also help meaningfully improve future cessation success. Our results extend earlier research indicating that proactively reaching out and engaging smokers in treatment can promote quitting^{29,30} by demonstrating the feasibility and efficacy of this strategy to reach vulnerable populations of smokers in a workplace setting.

The current study has several limitations that should be considered. Specifically, we decided to conduct a pragmatic clinical trial to assess the potential impact and scalability of this workplace intervention. Accordingly, participants and researchers were not blind to study condition, and we had a small number of participants for this pilot study. Additional large-scale studies are needed to further evaluate the intervention efficacy. Our comparison of rates of quit attempts and quit success between the test and delayed intervention control sites was limited by the self-report nature of the survey data. However, the efficacy of the overall intervention is further supported by observed reductions in CO level and biochemically confirmed abstinence during the treatment phase for all participants combined across both the test and delayed intervention control sites. Furthermore, given that the study design

included multiple treatment components and additional quitting resources, we are unable to ascertain which treatment components were most beneficial in promoting changes in smoking. Future investigations should consider comparing individual treatment components to help optimize and streamline intervention delivery.

Despite these limitations, the study results provide compelling evidence that the comprehensive smoking cessation intervention was feasible and effective at promoting changes in smoking behavior. Providing smoking cessation counseling and pharmacotherapy at the workplace may be a useful strategy to enhance the use of evidence-based smoking cessation treatments and access hard-to-reach people who smoke who might otherwise not receive treatment. Increasing access to evidence-based smoking cessation treatment will be critical for addressing health disparities in tobacco cessation. Further research is needed to evaluate the most effective methods for widespread dissemination of workplace smoking cessation interventions for service industry employees.

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So what? Implications for Health Promotion Practitioners and Researchers**What is already known on this topic?**

Enhancing access to evidence-based smoking cessation treatments is critical for reducing tobacco-related health disparities.

What does this article add?

This study examines a comprehensive smoking cessation intervention delivered to service industry employees at their workplace. Findings suggest workplace treatment is feasible and effective at promoting change in smoking behavior.

What are the implications for health promotion practice or research?

Providing smoking cessation interventions at the workplace may help reduce barriers to treatment to help reduce tobacco-related health disparities.

Figure 1.
Intervention Timeline. Note: Figure depicts treatment components and timing. Treatment components were delivered to test and control sites using a dynamic wait-list design with a delayed intervention control group. CM=Contingency Management.

Figure 2.

Flow chart of participant enrollment. Note: ^aBaseline survey prior to beginning the worksite intervention, time 1 for test site, time 2 for delayed intervention control site. ^bAdditional sign-up opportunities were offered in the first two weeks in case employees were not in attendance on the day of the survey and initial sign-up. ^cCompleted treatment defined as attending 5 weeks of contingency management appointments and 3 counseling sessions. One participant was relocated to a different food service setting during the study so did not complete treatment.

Figure 3.
Rate of self-reported quit attempts and quit success at 6-week follow-up survey

Figure 4.

End of treatment satisfaction ratings. Note: Horizontal bars depict the mean and standard deviation of the satisfaction ratings for each treatment component. Satisfaction was rated 1=Not at all helpful, 2=Slightly helpful, 3=Somewhat helpful, 4=Very helpful, 5=Extremely helpful.

Table 1.

Tobacco use and previous treatment experience among the sample of employees who reported current smoking at time 1 (N=26)

Menthol cigarettes, N(%)	21 (80.8%)
Cigarettes per day, M (SD)	9.9 (5.0)
Currently using e-cigarettes, N(%)	2 (7.6%)
Recently tried to quit ^a , N (%)	7 (26.9%)
Ever used NRT, N(%)	6 (23.1%)
Ever used varenicline, N (%)	0 (0.0%)
Interest in quitting (rated 0-10) ^b , M (SD)	5.6 (3.4)

Note:

^aRecent quit attempt defined as the past 6 weeks.

^bRated as the intention to quit smoking in the next month from 0 (very definitely no) to 10 (very definitely yes).

Table 2.

Adherence and satisfaction during the treatment period across both test and delayed intervention control sites (N=25)

Tried NRT at least once, N (%)	25 (100%)
Continued NRT use during the treatment phase, N (%)	23 (92.0%)
CM for reduction ^a , N (%)	25 (100%)
CM for CO-confirmed abstinence ^b , N (%)	9 (36.0%)
Number of counseling sessions (out of 3), M (SD)	2.8 (0.4)
Overall program satisfaction (1-5) ^c , M (SD)	3.9 (1.2)

Note: NRT=nicotine replacement therapy (nicotine patch plus the gum or lozenge). CM=contingency management payments.

^aCM for reduction=lower CO reading compared to a previous appointment.

^bCO-confirmed abstinence=no cigarettes smoked and breath carbon monoxide reading < 4ppm.

^cProgram satisfaction rated 1=not at all helpful to 5=extremely helpful.