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Evaluation of a Mass Media Campaign Promoting Using Help to Quit Smoking

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Abstract

Background—Although there is evidence that promoting individual cessation aids increases their utilization, mass media campaigns highlighting the benefit of using help to quit have not been evaluated.

Purpose—To analyze the effects of a Philadelphia adult smoking–cessation media campaign targeting using help in ad taglines from March–November 2012. This study distinctively analyzed the campaign's impact at both the population level (effects on the average person) and the individual level (effects among those who reported exposure).

Methods—The 16-month mass media campaign aired in Philadelphia PA from December 2010 to March 2012. A representative sample of adult Philadelphia smokers was interviewed by telephone at baseline (n=491) and new samples were interviewed monthly throughout the campaign (n=2786). In addition, a subsample of these respondents was reinterviewed 3 months later (n=877).

Results—On average, participants reported seeing campaign ads four times per week. Among individual respondents, each additional campaign exposure per week increased the likelihood of later reporting using help (OR=1.08, p<0.01), adjusting for baseline use of help and other potential confounders. This corresponded to a 5% increase in the use of help for those with average exposure relative to those with no exposure. Cross-sectional associations between individual campaign exposure and intentions to use help were consistent with these lagged findings. However, there was no evidence of population-level campaign effects on use of help.

Conclusions—Although the campaign was effective at the individual level, its effects were too small to have a population-detectable impact.

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Introduction

Clinical studies show that smokers are more likely to quit successfully with evidence-based assistance[1,2] (i.e., talking to a doctor,[3] using nicotine-replacement therapies (NRTs),[4,5] using prescription pills,[6] calling a quitline,[7] going to a website,[8] or enrolling in a program[9,10]). Indeed, smokers are up to twice as likely to quit successfully using help, as opposed to quitting "cold turkey."[1,11] Nevertheless, most smokers quit without help.[12–14] Increasing the use of help could positively impact public health.[15,16] Evaluations have shown that media campaigns promoting individual cessation aids can increase their utilization[17] (e.g., quitlines,[18–21] NRTs,[19,22,23] and online programs[21]).

There is mixed evidence that promoting the use of help increases quit rates (beyond just use of help). In two Australian studies, exposure to NRT ads did not affect quits or smoking prevalence.[24,25] However, an American study showed that pharmaceutical ads also increased the number of quits without help.[22] In all three cases, pharmaceutical companies sponsored the ads. If instead public health departments sponsored "help" ads, they might be more effective as they have no financial interest in NRT purchases. To make their lack of financial interest more obvious, public health departments might avoid targeting specific products. Thus, a general help ad could remind smokers of types of help, show the absence of a hidden agenda, and present at least one viable option for diverse smokers.

In March 2010, the Philadelphia Department of Public Health (PDPH) received a 2-year grant from the CDC to curb tobacco use as one of 50 regions participating in the CDC's Communities Putting Prevention to Work (CPPW) program. The PDPH created a mass media campaign intended to increase smokers' use of help by promoting the benefit of using help to quit in campaign ad taglines. Campaign planners expected that raising awareness that it is easier to quit with help would increase smokers' use of help. Mass media campaigns have successfully reduced smoking among adults.[24,26–30] However, previous campaigns did not target the benefit of using help to quit. Philadelphia's antismoking media campaign targeted adult smokers through TV, radio, transit, and convenience store ads.

The media campaign promoted the belief "it is easier to quit with help." This belief was strongly related to the intention to use help in a formative survey of 501 Philadelphia smokers.[31] According to the integrative model of behavioral prediction,[32] a campaign strategy convincing smokers of this belief could increase intentions and use of help.[33] Online pretests of drafts of some of the ads promoting this belief with 1269 smokers informed the final ad selections.[31]

The campaign aired from late December 2010 through March 2012, and included eight ads (two TV, four radio, and two print ads). As explained in the Methods section, only three of the ads (both TV and one of the radio ads) received sufficient exposure relative to baseline to be analyzed. The TV ads varied in their emphasis on the use of help. The cable TV ad featured a smoker repeatedly saying he would quit, but only succeeding after he "got help." The voiceover states that it is easier to quit with help and suggests talking to a doctor or a quit coach to learn about treatments. The on-screen tagline shows the quitline number, website address, and the words "Quit with help. Quit for good." The other TV ad, *Rick*

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Stoddard (the only recycled ad, originally developed for Massachusetts), started airing later in the campaign, primarily on broadcast TV, as part of CDC's television buy for the CPPW. It included the same on-screen tagline without the voiceover. The only radio ad that received wide exposure used an extended version of the TV voiceover (see the Appendix for all three scripts).

The PDPH complemented the media campaign with other efforts to increase quitting. These included two periods of free NRT distribution via 1-800-QUIT-NOW (November 2010 and 2011). Other complementary activities included expanding public and private insurance coverage for smoking-cessation medications and implementing a public health detailing program to improve doctors' ability to help patients quit smoking.[34] This evaluation focuses solely on the media component of the intervention.

The study objective was to test the effectiveness of taglines in a local mass media campaign to increase smokers' use of help. The overall evaluation design was distinctive for including three types of evidence for making inferences about campaign effects. The first was monthly rolling, cross-sectional data showing the secular trend of smokers' use of help. Second, as even a positive secular trend might be due to non-campaign forces, associations between monthly campaign advertising and behavior were also considered. Both of these analyses assessed population-level effects. The third approach, focusing on individual differences, associated self-reported exposure with use of help. Two major concerns for analyses relying on self-reports are potential confounders and causal direction (i.e., those using help are more likely to recall exposure). To address these concerns, the individual difference analyses tested lagged effects, adjusting for baseline outcomes and other potential confounders. It is important to note that population- and individual-level analyses ask distinct questions; they ask, respectively, whether the campaign affected the **average** person, and whether the campaign affected **those exposed to it**. In other words, population-level analyses miss effects if exposure is limited; individual analyses miss effects that diffuse to indirectly exposed individuals. This evaluation design benefited from doing both.

Methods

The main survey was administered to a substantial precampaign sample (n=498, December 2010) and then to 16 smaller monthly samples of adult smokers (n=2856 for the total campaign through March 2012, Figure 1). Social Science Research Solutions (SSRS) recruited and interviewed a representative sample monthly through random digit dialing of landline phones. To be eligible, participants had to be current smokers or quitters in the past 30 days. Recent quitters only represented 2% of the sample (n=77) and were removed. The response rate was estimated at 27% (American Association of Public Opinion Research Response Rate 3). SSRS also attempted to recontact respondents who were interviewed in 9 of the 16 months. On average, 50% of the approached smokers participated in the second interview (n=877). The University of Pennsylvania and City of Philadelphia IRB committees deemed this study exempt. Verbal consent was obtained before each interview.

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Measures

Exposure—The primary independent variable was campaign exposure. With individual ads going on and off the air and the smaller recontact sample size, ad-level analyses could not be calculated reliably. Creating a single measure was necessary for conducting lagged analyses. Exposure was measured in two ways: (1) combined recall for effective ads and (2) combined targeted rating points (TRPs).

Individual exposure was measured through aided recall. The eight ads were described and respondents were asked if they recalled hearing or seeing each of them in the past month, and how often (0–7 days per week). Aided recall may lead to over-reporting because the description may sound familiar or participants might feel obliged to agree. To estimate the magnitude of over-reporting,[35] estimates of recall before the ads aired were collected. While the ads aired for 5 of the 8 ads, recall estimates were not greater than baseline. Those ads were not included in total campaign exposure. Thus only the three effective ads, two TV ads and one radio ad, were included in the combined campaign exposure measure (0–21 exposures per week). Over-reporting might also taint these estimates; however, they likely yield conservative, rather than inflated, effect estimates.

Population-level exposure combined monthly TRPs for the effective ads. TRPs are a standard estimate of how many people were potentially in the target audience (for this campaign, adults aged 25–54 years) for purchased advertising. The percentage of the population exposed (*reach*) and the average number of exposures (*frequency*) are multiplied to estimate TRPs. Thus an ad earns 100 TRPs if 100% of the audience was exposed once. Figures 1 and 2 present the monthly combined TRPs for the effective ads (numerically and graphically).

Confounders—All analyses adjusted for potential confounders: participant demographics (gender, race (white/nonwhite), age, education (years), marital status, children in household, and home ownership), religious attendance, Medicaid insurance, health status, and health orientation. Smoking-specific confounders included number of cigarettes smoked per day, percentage of other smokers in the household, and time to first cigarette (as a measure of nicotine dependence[36]). A dummy variable for the first 2 months of each phase of the NRT giveaways was also included. Individual-level analyses included a dummy variable for the first month each ad aired. Finally, all lagged analyses adjusted for use of the respective outcome prior to the first interview.

Outcomes

Overall use of help indicated whether a smoker used any of six types of help. It was created from six individual items (*Did you* [*seek advice from your doctor or another health care provider; call the telephone quitline: 1-800-Quit-NOW; go to the website: SmokeFreePhilly.org; go to any programs; use any NRTs; use any prescription pill medications*] *to help you quit smoking since* [*3 months prior to interview*]? *What about in the past 30 days?).* Seeking (non-doctor) advice indicated respondents had used any of three sources (quitline, website, or programs). Using medications indicated they had used either NRTs or pills. Parallel measures of intentions to do the six individual behaviors in 3 months

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were also assessed with four-point scales, where 1=*definitely will not* and 4=*definitely will*. Overall intentions to use help, seek (non-doctor) advice, and use medication were assigned based on the most likely rating of the individual intentions included in the respective sets.

Some researchers have raised concerns about advocating help in campaigns, as smokers may underestimate the risks of smoking or believe that they are too addicted to quit.[37,38] Although there is little direct evidence for this hypothesis,[39] the campaign's impact on quit attempts regardless of help and reductions in daily cigarettes were also assessed.

Data Analyses

The analysis first considered evidence for population-level change in behaviors and intentions from baseline to during the campaign. Logistic and linear regression analyses compared baseline behaviors in the past month and intentions to the overall average of those outcomes during the campaign. The analysis also considered evidence for an upward trajectory during the campaign, assuming that campaign effects accumulate. Population-level analyses also assessed covariation between monthly campaign activity and outcomes. Following Dunlop and colleagues,[40] a series of logistic regressions with increasingly larger accumulations of monthly TRPs tested ad activity's effects on behaviors in the past month and on intentions.

For the individual-level analyses, cross-sectional and lagged analyses regressed behavior and intentions on campaign recall and potential confounders. The cross-sectional regressions used past-month behaviors and intentions as outcomes. The lagged analyses, using the recontact sample with 3-month follow-up interviews, predicted 3-month behavior and intention outcomes, adjusting for the matching behaviors and intentions at first interview and the other confounders. Although the lagged analyses were conducted on a smaller sample, they provide stronger evidence for causal claims because the temporal order is clear.

All analyses were conducted in 2012 using Stata version 12 (StataCorp, 2011, Cary NC) and were weighted separately for the cross-sectional and recontact samples by age, race, education, gender, homeownership, number of adults in the household, and presence of children to the 2008 Public Health Management Corporation (PHMC) data on Philadelphia smokers (www.chdbdata.org). Missing data ranged from 8%–15% in the individual analyses and were listwise deleted. All demographic results reported in the text are unweighted.

Results

The cross-sectional sample consisted of 3010 adult Philadelphia smokers, of whom 64% were women and 47% were non-Hispanic black (Table 1). Mean age was 52 years (SD=14 years). Most participants (65%) earned less than $40,000 a year, the median income of Philadelphia. Nevertheless, most had a doctor (78%) and some type of health insurance (90%).

Participants on average smoked a little over half a pack per day (13 cigarettes). Twenty-eight percent of respondents reported high levels of nicotine dependence. Thirty percent lived with other smokers. Most reported that their health was at least good (64%), and the

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majority (70%) agreed that they had a healthy orientation (e.g., strongly agreed that their *health was important to them*). Baseline use of help in the past month was 11.5%, and that of making a quit attempt was 19.0% (Table 2).

Most respondents reported exposure to at least one of the three ads (74%, monthly range=34%–96%; details by ad are shown in the Appendix), and participants reported exposure to these ads four times per week on average (SD=4.3; range=1.3–6.6). The campaign purchased 8072 total TRPs for these three ads (median weekly TRPs=125, range=0–390, indicating 0–3.9 potential exposures per week assuming 100% reach). Self-reported exposure was higher than suggested by the purchased TRPs. This likely reflects some over-reporting bias.

There was no evidence for population-level change in the expected direction on any of the tested behaviors and intentions. No behavioral outcomes or intentions significantly increased during the campaign from baseline levels (Table 2) or showed an upward trajectory during the campaign (Figure 2). There was also no evidence of a negative effect on quit attempts or cigarette reduction. Additional analyses predicting behaviors and intentions from the sum of campaign activity 1, 2, 3, and 4 months prior to the respondents' interviews did not show evidence of a positive association (data not shown).

However, at the individual level, lagged logistic regression analyses indicated that campaign recall significantly predicted four behaviors: using help, seeking advice from a doctor, using medication, and making a quit attempt (Table 3). After adjusting for prior use of help (in the past 3 months) and the other confounders, each additional campaign exposure per week was associated with an 8% increase in the likelihood of using help in the next 3 months (OR=1.08, $p<0.01$). The predicted probability of using help for those reporting average campaign exposure was 30%, and that for those reporting no campaign exposure was 25%. The lagged analyses also showed that quit attempts in the past 3 months significantly increased with campaign exposure (OR=1.06, $p<0.05$). Follow-up analyses showed that quit attempts with any help increased with campaign exposure (OR=1.11, $p<0.01$). In contrast, quit attempts without help were not related to campaign exposure (OR=0.99, $p=0.65$).

Recall was significantly associated with five intention measures in cross-sectional linear regression models (Table 3). These associations were small but positive, and the remaining non-significant associations were also in a positive direction. However, recall did not significantly affect intentions in the lagged models. Observed cross-sectional associations between recall and three intentions corresponded to lagged effects of recall on actual behaviors, namely using any help, specifically seeking advice from a doctor, and a trend for using medication (intention $p=0.08$). Taken together, these results suggest that the campaign impacted the use of help among those exposed.

Discussion

Consistent with prior individual-level findings of the positive impact of cessation product ads on both utilization and quits,[22] this study provides individual-level evidence that the campaign increased smokers' use of any help among those exposed. Although the

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individual-level effects are small, they are striking, as they were produced primarily through ad taglines. Participants reporting more exposure were more likely to use help, even after adjusting for baseline use of help. Specifically, they were more likely to seek advice from a doctor and use medications. These lagged effects were also supported by cross-sectional associations between recall and intentions, adjusting for confounders. Although lagged analyses relied on a subsample of all participants, it was weighted to represent Philadelphia smokers, which reduces the threat of subsample bias.

At the population-level, however, there was no measurable evidence of change in using help. Considering the small size of the individual-level effect (the predicted probability of using help increased 5% for those with average levels of exposure relative to those with no exposure), the population-level effect is estimated to be only 2.5% (as half of the population did not see the campaign ≥four times a week). Thus, it is not surprising that population-level effects were not detected, as the sample size was only large enough to detect a 5% population increase in the use of help. The individual-level analysis, on the other hand, could detect smaller effects (1.9% change cross-sectionally; 4.6% change lagged). Sacrificing the ability to detect smaller population-level effects (using a larger sample) for the causal power of including a recontact sample was a valuable tradeoff in the study design.

Although small, a 2.5% population-level effect among 384,532 Philadelphia smokers (according to PHMC data, 25.2% of Philadelphians smoked in 2010) suggests that this campaign led to an estimated 9613 additional smokers in Philadelphia using some form of help to quit smoking. Given the evidence that using help to quit leads to more success,[1,2,11] these smokers will likely be more successful in their quit attempts.

This campaign was unique in that it encouraged the use of help primarily through a tagline. Thus, we would expect the impact to be small. Additional pretesting of the final ads (rather than only testing to choose between draft ads) may have alerted planners of the small effects. Ads that fully integrated help into the narrative, provided specific information about types of help, or modeled a smoker using help would be expected to have larger effects.[16] In addition, current research suggests that negative health effects messages have been the most persuasive, in part because of their emotional tone.[26,41–43] Finally, ads with clear narratives (like the three in this campaign) have also been shown to be more effective.[44] Integrating negative health effects into a quitting-with-help narrative could be quite powerful.

Some researchers are concerned that help-focused advertising will reduce quits overall.[17,45] The evidence from this study, contrarily, showed a positive effect of the tagline promoting help on overall quitting.

Conclusion

The Philadelphia campaign was the first to measure the impact of a tagline on the use of help. The evaluation design provided an understanding of the efficacy of this tagline on the use of help among those who noticed the campaign (small, but reliable) and of the overall effect of the campaign on the average smoker (not detectable). We speculate that the

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campaign could have had a larger impact if ads had targeted using help to quit more aggressively.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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	Base line Dec 2010	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16 Mar 2012	Total
Survey (N per timepoint)																		
Fresh sample	491	177	192	194	195	88	89	88	198	196	197	194	203	195	193	191	196	3277
Recontact sample						95	82	101				90	84	102	102	109	112	877
Ads on air (TRPs per timepoint)																		
Cable TV ad			966	725	242				541	541	541	430	430	430	623			5469
Rick Stoddard Ad												250	250	250		250	250	1250
Radio		591	148				233	155			154	72						1353

Figure 1.

Sample sizes for the evaluation of rolling, cross-sectional and cohort smoker samples and monthly campaign media buys: Philadelphia antismoking campaign, 2010–2012

Targeted rating points (TRPs) are a standard estimate of how many people were potentially in the target audience (for this campaign, adults aged 25– 54 years) for purchased advertising.

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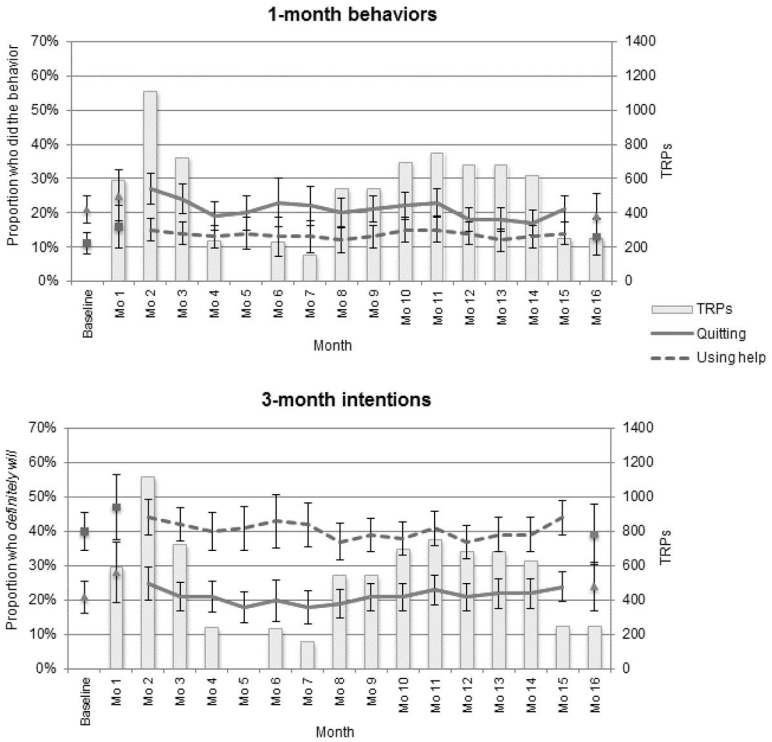

Figure 2.

Population-level effects of ad activity on quitting and using help: Philadelphia antismoking campaign, 2010–2012

Lines depict 3-month moving averages with CIs of ±2 SEs. Note that a moving average cannot be calculated for baseline, the first month, or the last month of the campaign period. Bars indicate the amount of campaign targeted rating points (TRPs) purchased each month (labeled on the right axis).

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Table 1

Demographics and smoking behaviors

	Cross-sectional (n=3010)[a] % or M ± SD		Recontact (n=804)[a] % or M ± SD	
	Unweighted	**Weighted**	**Unweighted**	**Weighted**
Female	64	52	66	53
Race/ethnicity[b]				
Non-Hispanic white	43	42	45	42
Non-Hispanic black	47	44	48	44
Hispanic	6	9	4	9
Other	3	5	3	5
Age (years)	52 ± 14	45 ± 15	54 ±13	46 ± 14
Education (years)	13 ± 2	13 ± 2	13 ± 2	13 ± 2
Marital status				
Married/living as married	36	37	35	34
Divorced/widowed/separated	33	24	36	26
Never married	31	39	29	40
Children present	33	37	28	38
Own (versus rent)	61	49	61	50
Income (<$40,000)	65	66	66	68
Employed	42	45	41	42
Religious attendance (more than monthly)	43	39	42	36
Insurance				
Any insurance other than Medicaid	55	50	58	50
Medicaid	35	38	34	40
Not covered by insurance	10	12	8	10
Has a doctor	78	73	80	76
Health status[b]				
Very good/excellent	25	25	26	26
Good	39	37	38	35
Fair/poor	36	38	37	39
Health orientation[b]				
Strongly agree	70	68	72	71
Somewhat agree	26	27	25	24
Disagree	4	4	3	4
Daily cigarettes	13 ± 10	13 ± 10	14 ± 10	14 ± 10
<5 minutes to first cigarette	28	30	30	30
Living situation				
All smokers	19	29	19	23
Some smokers	11	17	11	13
All others non-smokers	35	28	34	38

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	Cross-sectional (n=3010)[a] % or M ± SD		Recontact (n=804)[a] % or M ± SD	
	Unweighted	**Weighted**	**Unweighted**	**Weighted**
Alone	35	26	36	26

[a]Sample size reflects the unweighted analysis sample, which does not include 30-day quitters or those missing on confounders.

[b]Percentage breakdowns within the variable do not always add up to 100% because of rounding.

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Table 2

Campaign exposure and cessation outcomes

	Cross-sectional		Recontact (*n*=808)	
	Baseline (*n*=473) M (SD)	**Campaign (*n*=2567) M (SD)**	**Campaign Time 1 M (SD)**	**Campaign Time 2 M (SD)**
Campaign activity (median weekly TRPs[a])	0 TRPs	125 TRPs	215 TRPs	–
Aided campaign recall (exposures per week)	0.56 (1.44)	4.00 (4.27)	3.82 (4.18)	–
Intentions (1–4-point scale)				
intend to use help	2.99 (1.01)	3.04 (1.01)	2.96 (1.04)	2.95 (1.03)
intend to seek advice from MD[b]	2.63 (1.06)	2.60 (1.08)	2.54 (1.09)	2.50 (1.14)
intend to seek advice from non-MD[c]	2.57 (0.99)	2.65 (1.02)	2.55 (1.03)	2.56 (1.03)
intend to call the quitline	2.23 (0.96)	2.28 (1.02)	2.18 (1.01)	2.20 (1.00)
intend to go to the website	2.30 (1.01)	2.30 (1.04)	2.18 (1.02)	2.19 (1.05)
intend to go to a quit program	1.97 (0.87)	1.98 (0.94)	1.91 (0.94)	1.89 (0.90)
intend to use medications	2.34 (1.04)	2.44 (1.08)	2.38 (1.09)	2.37 (1.10)
intend to use NRTs[d]	2.13 (1.00)	2.22 (1.06)	2.17 (1.07)	2.12 (1.10)
intend to use pills	1.85 (0.99)	1.90 (1.02)	1.87 (1.01)	1.84 (1.00)
intend to quit	2.66 (0.94)	2.63 (0.98)	2.58 (0.98)	2.69 (0.99)
intend to reduce cigarettes	3.15 (0.89)	3.14 (0.90)	3.18 (0.91)	3.15 (0.90)
Behaviors (0/1)	Last 1 month (%)		Last 3 months (%)	
used help	11.5	13.0	33.6	30.5
sought advice from MD[b]	7.8	9.9	25.9	23.0
sought advice from non-MD[c]	2.4	1.4	4.9	6.9
called the quitline	1.8	0.9	2.5	3.3
went to the website	0.4	0.2	1.3	2.6
went to a quit program	0.6	0.6	1.8	1.9
used medications	4.2	4.4	11.0	11.1
used NRTs[d]	2.5	3.1	8.3	8.2
used pills	2.0	1.5	3.8	3.2
quit attempt	19.0	19.5	36.6	37.7
reduced cigarettes	34.4	36.1	54.2	60.7

All data are weighted and limited to the analysis sample, which does not include 30-day quitters at Time 1 or those missing on confounders.

Intentions were not asked of 30-day quitters at Time 2, so the recontact sample size for intentions is 734.

[a]TRPs are a standard estimate of how many people were potentially in the target audience (for this campaign, adults aged 25–54 years) for purchased advertising.

[b]MD refers to the participant's doctor or another health care provider.

[c]Non-MD refers to the quitline: 1-800-QUIT-NOW, the website: SmokeFreePhilly.org, or a quit smoking program.

[d]NRTs such as the patch.

NRTs, nicotine-replacement therapies; TRPs, targeted rating points

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Table 3

Individual-level, cross-sectional and lagged campaign effects

	Cross-sectional (*n*=2567)		Lagged (*n*=734)	
Intentions (1–4-point scale)	**b**	**95% CI**	**b**	**95% CI**
intend to use help	**0.01***	**0.00, 0.02**	0.01	−0.01, 0.03
intend to seek advice from MD[a]	**0.01***	**0.00, 0.03**	0.01	−0.01, 0.03
intend to seek advice from non-MD[b]	**0.02****	**0.01, 0.03**	0.01	−0.01, 0.03
intend to call the quitline	**0.02****	**0.01, 0.03**	0.01	−0.01, 0.03
intend to go to the website	0.01	0.00, 0.02	0.00	−0.02, 0.03
intend to go to a quit program	**0.02****	**0.01, 0.03**	0.00	−0.02, 0.01
intend to use medications	0.01	0.00, 0.02	0.02	0.00, 0.04
intend to use NRTs[c]	0.01	0.00, 0.02	0.02	0.00, 0.04
intend to use pills	0.01	0.00, 0.02	0.01	−0.01, 0.03
intend to quit	0.01	0.00, 0.02	0.01	−0.01, 0.03
intend to reduce cigarettes	0.00	−0.01, 0.01	0.01	−0.01, 0.03

Behaviors (0/1)	Cross-sectional (past 1 month) (*n*=2567)		Lagged (past 3 months) (*n*=808)	
	OR	**95% CI**	**OR**	**95% CI**
used help	1.03	0.99, 1.06	**1.08****	**1.03, 1.13**
sought advice from MD[a]	1.03	0.99, 1.06	**1.08****	**1.02, 1.14**
sought advice from non-MD[b]	**1.10****	**1.04, 1.17**	1.04	0.97, 1.12
called the quitline	**1.09***	**1.00, 1.18**	1.11	0.99, 1.24
went to the website	1.11	0.97, 1.28	1.08	0.96, 1.21
went to a quit program	**1.14***	**1.02, 1.27**	0.87	0.75, 1.01
used medications	0.99	0.94, 1.05	**1.09***	**1.01, 1.18**
used NRTs[c]	1.02	0.95, 1.08	1.08	0.98, 1.19
used pills	0.92	0.84, 1.01	1.06	0.97, 1.16
quit attempt	1.02	0.99, 1.05	**1.06***	**1.00, 1.11**
reduced cigarettes	**1.03***	**1.00, 1.05**	1.01	0.96, 1.06

Note: Boldface and shaded estimates indicate statistical significance (*p<0.05, **p<0.01).

All data are weighted and limited to the analysis sample, which does not include 30-day quitters at Time 1 or those missing on confounders.

Cross-sectional associations adjust for: gender, race (white/nonwhite), age, education (years), marital status, children in household, home ownership, religious attendance, Medicaid insurance, health status, health orientation, number of cigarettes smoked per day in the last week, percentage of other people in the household who smoke, time until first cigarette, first 2 months of NRT giveaways, and first month an ad airs.

Lagged analyses additionally adjust for first interview outcome levels.

[a]MD refers to the participant's doctor or another health care provider.

[b]Non-MD refers to the quitline: 1-800-QUIT-NOW, the website: SmokeFreePhilly.org, or a quit smoking program.

[c]NRTs such as the patch.

NRTs, nicotine replacement therapy