



HHS Public Access

Author manuscript

Subst Use Misuse. Author manuscript; available in PMC 2015 June 01.

Published in final edited form as:

Subst Use Misuse. 2014 June ; 49(7): 852–863. doi:10.3109/10826084.2014.880724.

Changing Low Income Smokers' Beliefs about Tobacco Dependence Treatment

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Introduction

Impoverished smokers are as likely to express a desire to quit as the general population, but they are less likely to try to quit and are less likely to be successful when they do try (Gilman, Abrams, & Buka, 2003; Gilman et al., 2008; Giskes, van Lenthe, Turrell, Brug, & Mackenbach, 2006; Hiscock, Judge, & Bauld, 2011; Levy, Romano, & Mumford, 2005; Sheffer et al., 2012). They are also less likely to use an evidenced-based treatment method, relying more on unaided quit attempts than are smokers in the general population (Centers for Disease Control and Prevention, 2001, 2011; Cummings & Hyland, 2005; Kasza et al., 2012; Murphy, Mahoney, Hyland, Higbee, & Cummings, 2005). These findings suggest that compared with smokers in general, smokers of low income may experience greater or different barriers to accessing evidence-based treatments. These barriers may include insurance coverage (less likely to have health insurance that might pay for cessation treatment), financial constraints (less money to purchase over the counter cessation medication) and reduced access to quality healthcare (greater reliance on emergency departments) (DeNavas-Walt, Proctor, & Smith, 2009; Urban Institute, 2009).

Increasingly, beliefs about smoking and methods of quitting have been identified as treatment barriers. For example, this population is less knowledgeable than the general population about the harms of smoking (Cummings et al., 2004; Oakes, Chapman, Borland, Balmford, & Trotter, 2004; Siahpush, McNeill, Hammond, & Fong, 2006; Wilkinson, Vasudevan, Honn, Spitz, & Chamberlain, 2009) and the availability of effective treatment (McMenamin, Halpin, & Bellows, 2006; McMenamin, Halpin, Ibrahim, & Orleans, 2004;

Declaration of Interest: The authors report no conflicts of interest.

Murphy, et al., 2005; Murphy, Shelley, Repetto, Cummings, & Mahoney, 2003; Roddy, Antoniak, Britton, Molyneux, & Lewis, 2006). Further, beliefs that cessation medications are ineffective, dangerous, addicting, or too costly are more prevalent among those living in poverty and correlate negatively with intention to quit and quit attempts (Bansal, Cummings, Hyland, & Giovino, 2004; Borland, Cooper, McNeill, O'Connor, & Cummings, 2011; Christiansen, Reeder, Hill, Baker, & Fiore, 2012; Cummings & Hyland, 2005; Cummings, et al., 2004; Fu et al., 2007; Okuyemi et al., 2006; Roddy, Romilly, Challenger, Lewis, & Britton, 2006; Vogt, Hall, & Marteau, 2008).

Ferguson et al., (Ferguson et al., 2011) found that about half of interested quitters who held misperceptions about the safety of nicotine replacement products said they would be more likely to use such medications if they were shown evidence that their misperceptions were false. This suggests that interventions designed to change these beliefs may increase the use of evidence-based methods for quitting. Unfortunately, little is known about how to change such beliefs. One intervention (Willemsen, Wiebing, van Emst, & Zeeman, 2006) that targeted misperceptions of the effectiveness of various quitting methods has been evaluated amongst the general population of smokers. Willemsen, et al. (Willemsen, et al., 2006) used the internet to recruit 3391 smokers who had no intention to quit over the upcoming 6 months and provided them with a “decision aid kit” via the mail that contained information on effective versus ineffective methods of quitting. They found that, compared to a control group, smokers who received the aid kit were more likely to make a quit attempt and to be abstinent six months later, even though they were no more likely to use an evidenced-based quit method. Mooney et al. (Mooney, Babb, Jensen, & Hatsukami, 2005; Mooney, Leventhal, & Hatsukami, 2006), tested a brief intervention that addressed a different set of quitting beliefs. Smokers enrolling in a quit study were given specific, tailored feedback that addressed baseline beliefs about the effectiveness, safety, and necessity of using nicotine replacement therapy (NRT). This feedback reinforced accurate medication knowledge and beliefs and challenged incorrect, negative, and ambivalent beliefs, using non-confrontational language that allowed for engagement, reflection, and clarification. Compared to a control group receiving standard cessation treatment, smokers receiving this brief feedback held significantly lower perceptions of NRT drawbacks and a higher perceived need to quit. However, the groups did not differ in NRT compliance or in abstinence at seven weeks.

To the extent that the poor face substantial knowledge gaps and dysfunctional beliefs about smoking and smoking cessation methods (Christiansen, et al., 2012; Cummings, et al., 2004; Oakes, et al., 2004; Roddy, Antoniak, et al., 2006; Siahpush, et al., 2006; Wilkinson, et al., 2009), the above findings encourage exploration of interventions that might address such barriers. However, such interventions should be offered in contexts that ensure adequate exposure and reach. The healthcare system may not be ideal since people living in poverty are less likely to access preventive health services and are less likely to receive treatment for tobacco dependence from primary care providers (Browning, Ferketich, Salsberry, & Wewers, 2008; Centers for Disease Control and Prevention, 2011; Chase, McMenamin, & Halpin, 2007). Instead, such interventions could be provided by a community agency (community assistance programs, transitional living facilities, drop in mental-health centers etc.). Such agencies offer advantages as venues for tobacco interventions directed at the poor: (1) these agencies see service to the poor as a central responsibility; (2) the poor

constitute a large portion of their clientele; (3) the cost-structures of these agencies permit them to be low-cost providers; (4) these agencies have earned the trust of the poor; and (5) impoverished smokers visit these agencies on a regular basis. Indeed, evidence shows that brief tobacco interventions delivered in community agencies are well received by both agency staff and clients (Bryant, Bonevski, Paul, O'Brien, & Oakes, 2010; Christiansen, Brooks, Keller, Theobald, & Fiore, 2010; Hull, Salmon, O'Brien, Chapman, & Williams, 2012) and can be effective (O'Brien, Salmon, & Penman, 2012).

The current field study tested the effects of a brief tobacco intervention that was designed to modify perceptions of the effectiveness of different tobacco dependence treatments. This intervention targeted beliefs about the effectiveness of different methods of quitting because the alteration of such beliefs yielded promising effects in earlier research (Willemsen, et al., 2006) and because impoverished smokers exhibit knowledge gaps about the effectiveness of various quitting approaches (Fu, et al., 2007; McMenemy, et al., 2006; Roddy, Romilly, et al., 2006). Moreover, to increase both the real world relevance of this research and the likelihood of reaching low income smokers, this study was conducted in Salvation Army sites by regular agency staff. We hypothesized that when smokers seeking general assistance from the Salvation Army are provided a brief intervention designed to alter beliefs about the effectiveness of various quitting methods, the intervention will change those beliefs and lead to greater intent to quit, greater likelihood of making a quit attempt, and greater use of evidenced-based cessation interventions.

Method

Subjects

This study sought to enroll 250 subjects recruited from clients seeking services from two Salvation Army sites in Waukesha and Sheboygan, Wisconsin. These clients were seeking emergency lodging, clothing, food, and/or emergency assistance for utility bills. Eligibility criteria were: age over 18, current smoking (at least one cigarette daily or at least 10 cigarettes weekly) and availability to be contacted by telephone a month later. Subjects were recruited via flyers posted at the Salvation Army sites that indicated the availability of a study about smoking, in which participants would not be asked to quit. The flyers also informed potential participants that they would receive a \$25.00 grocery card as a “thank you” and that Salvation Army staff were available for more information.

Procedure

Salvation Army case managers received three hours of study procedure training. After establishing eligibility and obtaining written informed consent, case managers assigned each subject to one of two groups by selecting the next file from a set that had been randomly ordered, thus ensuring random assignment to group. The intervention group ($n=126$) received a brief intervention, designed to last 10 – 15 minutes that addressed the effectiveness of various quit methods. This intervention had three components. First, intervention subjects were asked to indicate the number of smokers out of 100 that would quit successfully using each of five methods: quitting all at once, without any help, cold turkey; using a quit smoking medicine; receiving counseling/coaching; using a quit smoking

medicine *and* getting counseling/coaching together; and using hypnosis. Each method was briefly described in writing on the “What is the Best Way to Stop Smoking” worksheet to ensure that subjects understood what was meant by the various types of treatment. Subjects indicated their answer on a scale from 1 to 100. The research assistant then placed a transparency over the answers that displayed the expected quit rate gleaned from the Federal clinical practice guideline (Fiore, Jaen, Baker, Bailey, Benowitz, ... Wewers, 2008), for each method: quitting cold turkey (4%), using a quit smoking medicine (20%), getting counseling/coaching (15%), using a quit smoking medicine and getting counseling/coaching (25%) and using hypnosis (4%). The research assistant compared the subject’s guesses with the data based answers, and suggested that since quitting is difficult it is important to use the most effective method (medicine plus counseling/coaching). The second portion of the intervention consisted of a brief discussion of previous quit attempts as an opportunity to build self-efficacy and reinforce the use of both a cessation medication and counseling/coaching. Third, intervention subjects were provided information about quitting, including a brochure about the Wisconsin Tobacco Quit Line (WTQL). The research assistant underscored attractive features of use of the WTQL (e.g., free assistance, availability of both counseling and medication). Research assistants recorded the duration of the intervention. Throughout the study research staff made periodic visits to the two Salvation Army sites to directly observe the provision of the intervention to ensure fidelity, to answer any questions and to retrieve collected data.

Intervention subjects were then administered a survey consisting of 35 questions that took 10 – 15 minutes to complete (intervention survey). Control subjects, ($n= 119$) who did not receive the intervention described above received the same survey after they signed the consent form. Assistance was provided to those with reading difficulties. This survey consisted of: two demographic questions (age and gender); four questions about past and current smoking, including time to first cigarette of the day; five questions about future quitting (intent, readiness, confidence, willingness to seek help, and willingness to set a quit date); five questions about how many smokers out of 100 would quit by using each of five quitting methods; seven questions about the safety, effectiveness, effect on cravings and addiction potential of medicines; five questions about the WTQL; five questions about the quality of services provide by the Salvation Army; and two open-ended questions: name three reasons to quit and the method the person would use if a decision to quit were made (se appendix).

One month later the subjects were contacted via telephone by research staff from the Center for Tobacco Research and Intervention. A 32-item follow-up survey was administered; subsets were administered based on whether the subject had quit or not (point prevalence – no cigarettes in the past week). Questions included 23 that were the same as on the pre-intervention survey (the five questions about how many smokers out of 100 would quit by using each of five quitting methods; the seven questions about the safety, effectiveness, effect on cravings and addiction potential of medicines; four of five questions about the WTQL; the two open ended questions and five questions about future quitting (intent, readiness, confidence, willingness to seek help, and willingness to set a quit date) [asked only if the subject was still smoking]) and 9 outcome questions. (see Appendix) Subjects

were then sent the \$25.00 grocery card and the control subjects were also sent the same quit materials provided as part of the intervention session at the Salvation Army.

The University of Wisconsin IRB approved this study and data were collected in 2009 – 2010.

Results

Recruitment

As an initial field study, detailed records were not made of the number of people who expressed an interest but were not eligible. Anecdotally, the study was very popular and there were very few people found to be ineligible. No one who was eligible declined to sign the consent form. The study enrolled 245 subjects, 119 control subjects and 126 intervention subjects. One month follow-up was completed on 197 subjects, 80.4%. Very few subjects needed help reading the survey.

Group Equivalence

The participants had an average age of 43.4 and 58.7% were male. The average age of regular smoking onset was 16.6 years. A little more than a third (36.9%) had their first cigarette of the day within 5 minutes of waking. Regarding amount smoked daily, 49.6% smoked between half a pack and a pack and 24.2% smoked more than a pack. There were no differences between the intervention and control group on these variables or on follow-up contact rates. (See Table 1)

Duration of Intervention

The median duration of the intervention was 13 minutes, the mean duration was 15.3 minutes and the range was 3 – 37 minutes.

Worksheet

Intervention subjects evaluated the effectiveness of the five quit methods as much higher than the clinical trial research literature suggests about treatment effectiveness (Figure 1).

Impact of the intervention on perceived treatment effectiveness

Intervention participants judged each intervention to be significantly *less* effective than control subjects both immediately after the intervention and one month later ($p < .01$) (but still more effective than they were told in feedback on their worksheet answers). There were no changes in perceived effectiveness of the interventions for either group over time except control participants perceived hypnosis as less effective at follow-up ($t = 2.53$, $df = 94$, $p = .013$) (Figure 2).

Immediate impact of the Intervention

More intervention participants than control participants said they definitely intended to quit (5 point Likert scale from “definitely not” to “definitely will”) in the next six months (32.8% vs. 20.2%, $X^2 = 9.83$, $df = 4$, $p = .043$.) The groups did not differ in willingness to set a quit date or to ask for help if a decision to quit were made. The open-ended questions about method

of quitting if a decision to quit were made was scored for specific content such as relying only on will power, use of medicines, seeking counseling/coaching, and calling the WTQL. There were no significant differences between the two groups. Unexpectedly, intervention subjects reported that they were significantly less ready to quit than control subjects (5.2 vs. 6.0, respectively, on a 10-point scale from “not at all ready” to “most ready”, $t=2.13$, $df=236$, $p=.034$). Likewise, intervention subjects were not as confident about successful quitting as were control subjects (5.3 vs. 6.2, respectively, on a 10-point scale from “not at all likely” to “very likely”, $t=2.57$, $df=237$, $p=.01$). Of the seven questions about medications, more intervention participants than control participants disagreed that medicines to quit are more expensive than smoking (35.5% vs. 21.2%, respectively $X^2=6.19$, $df=2$, $p=.045$). Finally, intervention subjects had a significantly better overall evaluation of the Salvation Army than control subjects (9.2 vs. 8.7, respectively, on a 10-point scale from “worst possible” to “best possible”, $t=-2.98$, $df=236$, $p=.003$.)

Impact of the intervention at follow-up

There were no significant differences in the percent of participants who reported point prevalence abstinence (7.9% for intervention and 3.1% for control) nor in the percent who tried to quit. More intervention participants than control participants reported cutting down a lot (47.5% vs. 29.5%, respectively $X^2=9.24$, $df=2$, $p=.01$) vs. cutting down a little (Figure 3). But there were no differences between the groups on variables such as the number of cigarettes smoked in the past 30 days, the number of days on which smoking occurred, making a quit attempt, the number of quit attempts, intention to quit, the amount of thinking about quitting, willingness to set a quit date, and likelihood of asking for help when a decision to quit is made. For those who tried to quit there were no differences between the two groups in method used. As in the first survey, for those participants who had not quit, there groups did not differ in the method that would be chosen if a decision to quit were made. Unlike the survey administered immediately after the intervention, the groups did not differ in readiness to quit or confidence about successful quitting.

The intervention did affect some beliefs about the medications. Fewer intervention participants than control participants believed that cessation medications are dangerous (13.9% vs. 33.3%, respectively $X^2=12.93$ $df=2$, $p=.002$), and more intervention participants than control participants believed that such medications lower cravings to smoke (85.1% vs. 74.0%, respectively $X^2=3.81$ $df=1$, $p=.051$).

The intervention had an effect on knowledge about and using the WTQL. More intervention participants reported calling the quit line than control participants (18.2% vs. 7.4%, respectively, $X^2=4.13$, $df=1$, $p=.042$); more knew that the WTQL can be called an unlimited number of times (83.8% vs. 64.2%; $X^2=8.76$, $df=1$, $p=.002$); that calling is free (90.9% vs. 71.6%; $X^2=10.74$, $df=1$, $p=.001$); more knew that the WTQL provides both counseling and coaching (97.0% vs. 75.8%; $X^2=16.96$, $df=1$, $p<.001$); and more knew that the WTQL provides free medication (78.8% vs. 41.1%; $X^2=27.28$, $df=1$, $p<.0001$).

Discussion

The intent of this research was to produce data to inform the development of an effective intervention that could be used in community agencies by paraprofessional personnel and that would increase knowledge of smoking treatment effectiveness, knowledge of treatment resources, use of evidence-based treatment resources, quit attempts, and quitting success. This research was successful in that it suggested directions for the refinement or improvement of the tested intervention. First, the data suggested that the beliefs of the participants could be influenced by the intervention. This encourages the further exploration of such educational-motivational interventions. Second, this research suggests that some sorts of intervention elements were beneficial while others were not.

What seemed to be most helpful was information about the various treatments that were available to them. For instance, the intervention included a very brief discussion of the WTQL and relevant printed material (not mailed to control participants until after the follow-up survey had been completed). Participants who had received this brief discussion and material as part of the intervention knew more about the WTQL. Further, more intervention participants than control participants reported calling the WTQL in the month following the intervention. Thus, not only did the intervention create a more accurate knowledge base about the WTQL, but there was evidence that it increased utilization.

There was also some evidence that the intervention enhanced knowledge regarding cessation medication, even though that was not an intended target of the intervention. In comparison to control participants, those receiving the intervention came to believe that medicines were more affordable, less dangerous, and more effective in reducing cravings. The intervention did inform participants that cessation medication was free via the quit line, and that cessation medications reduce craving (as part of the description of the medications in the pre-intervention worksheet). Willemsen et al., (Willemsen, et al., 2006) similarly speculated that their educational, decision aid intervention had a general motivating effect. Thus, it seems that one important sort of content to incorporate into an educational-motivational intervention is information about available treatments: i.e., their safety, availability, low cost, use strategies, and relative efficacies.

The data also suggest that specific information about level of effectiveness of interventions *based on a single cessation attempt*, does not spur greater quitting activity. Intervention participants judged all quitting methods to be less effective than did control participants. Further, this effect persisted through the one month follow-up period, suggesting some persistence of the change. Clearly, the absolute effectiveness of quitting methods highlighted in this intervention was very salient to the participants. The provision of discouraging data on levels of effectiveness may be one reason for the little evidence that the educational-motivational intervention affected quitting activity: there were no differences in more specific measures such as number of days smoked and number of quit attempts and may explain why intervention subjects became less ready to quit and less confident that a quit attempt would be successful compared to control subjects.. This suggests that educational-motivational interventions should perhaps stress the *relative* effects of evidence based

treatments (e.g. that cessation medications double or triple a person's chances of quitting) rather than the absolute levels of effectiveness in a single quit attempt.

Three studies have now found that brief interventions to address beliefs relevant to quitting held by smokers drawn from the general population affected these beliefs (Mooney, et al., 2005; Mooney, et al., 2006; Willemsen, et al., 2006). However there were differences in findings. For example, Willemsen found a positive effect on quit attempts and subsequent six month point prevalence while the current study did not. Differences between the studies make it very difficult to explain the discrepant results. For example, the current study provided information about the absolute effectiveness of quit methods while Willemsen only categorized methods as "effective" or "ineffective". Also the studies differed in the motivational state of recruited participants (interested in quitting vs. a broader range of motivation) as well as their socio-economic status. Interestingly, despite their recruitment of smokers motivated to quit, both Willemsen and Mooney speculate that interventions such as theirs may have the greatest effect on smokers who have not yet decided to quit or have not yet settled on a particular quitting method. These features fit the vast majority of low income smokers seeking services from community agencies.

Finally, intervention participants held a more favorable overall opinion of the Salvation Army than control participants. This is consistent with the literature (Bryant, et al., 2010; Christiansen, et al., 2010; O'Brien, et al., 2012) and should be reassuring to community agencies concerned about both the high prevalence of tobacco use by their clientele and also that efforts to address their tobacco use would alienate them. Clearly, this latter concern was not supported by the data and community agencies should be encouraged to address this vital health issue.

The results of this study suggest likely elements of a brief tobacco dependence that should be effective for the poor. Such an intervention would include clear information about available treatments – information about how and why they work, their effectiveness, how they can be accessed and the safety and low addiction potential of cessation medications. However, information about treatment effectiveness should be presented in relative rather than absolute terms. Finding that relevant beliefs are quite malleable and persist once changed suggests it might be helpful to add corrective, non-confrontational elements that target beliefs other than beliefs about treatment such as smoking is normative and it's all right to smoke a little as long as it's done outside and not around children (Christiansen, et al., 2012; Flint & Novotny, 1997; Stead, MacAskill, MacKintosh, Reece, & Eadie, 2001). It should be possible to address additional beliefs while keeping the intervention brief if the intervention is tailored to each smoker's particular beliefs.

This study had limitations. Follow-up was for only 1 month. It would be helpful to measure the persistence of intervention effects across a longer period of time. This study relied exclusively on self-report. Objective confirming information, such as reports of contacts from the quit line, should be included in future research. In addition, the intervention was tested against a 'no treatment' control group. Future research should include an attention-control condition. Because this study did not include such a control it is possible that the higher evaluations of the Salvation Army by intervention subjects reflected social

desirability. Previous research has found that tobacco interventions at least do not impair evaluations of the delivering community agency (Christiansen, Reeder, Hill, Baker, & Fiore, 2012). One strength of the research is the targeted population, one that is little studied but that faces a heightened risk for tobacco use and tobacco related disease. In addition, the follow-up rate is strikingly high for this hard-to-contact population. This may reflect the potency of incentives for this population.

In closing, this research produced some reassuring evidence regarding the feasibility and potential effectiveness of both an educational-motivational intervention for the poor, and the delivery system that was used to provide it. The community agencies and their staffs were not only enthusiastic about delivering the intervention, but the staffs appeared able to learn the intervention easily and deliver it with fidelity. These low-income smokers not only learned, but retained for one-month, information provided by Salvation Army staff and there was evidence that this information affected smoking related behaviors. Specifically, participants in the intervention condition were more likely to report calling the quit line than were the control participants and they also reported greater reductions in their smoking. And, while no significant difference was observed in the 1-month abstinence rate, the intervention condition reported an abstinence rate that was more than double that of the control condition (7.9 vs. 3.1%). These data support the need to further develop and refine the educational-motivational intervention, and to study it in larger groups of participants with an enhanced set of outcome measures.

Acknowledgements

We would like to acknowledge Meg Feyen for her assistance during data collection, Cassandra Donna and Sarah Slomski for their contributions during data analysis and Dr. Wendy Theobald for her assistance in manuscript preparation.

This research was supported by grant UL1TR000427 from the Clinical and Translational Science Award (CTSA) program of the National Center for Advancing Translational Sciences, NIH

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Appendix – Survey Items

Question	Response	Intervention Survey	Follow-up Survey	Purpose
Demographic				
How old are you?	years	X		Test equivalency of groups
What is your gender?	Male/female	X		Test equivalency of groups
Past/current smoking				
How old were you when you FIRST started smoking on a regular basis?	Years	X		Test equivalency of groups
For how many years have you smoked?	Years	X		Test equivalency of groups
On average, how soon after you wake up in the morning do you have your first cigarette?	Within 5 min. 6–30 min. 31–60 min. >60 min.	X		Test equivalency of groups
About how many cigarettes do you smoke each day?	10 11–20 21–30 31	X		Test equivalency of groups
Future Quitting				
Do you think you will try to quit smoking in the next 6 months?	I definitely will <u>not</u> I don't think I will I might I will probably I will definitely	X	X	Measure intention to quit
How ready are you to stop smoking at this time?	1 (not at all ready) to 10 (most ready)	X	X	Measure readiness to quit
If you tried to stop smoking in the next six months, how likely is it that you would be able to?	1 (not at all likely) to 10 (very likely)	X	X	Measure confidence about quitting
If you decided to quit smoking, do you think you would ask for help from someone?	Definitely not Probably not Maybe Probably yes Definitely yes	X	X	Measure willingness to get help
If you were to be asked right now to set a date to stop smoking, would you set a date to stop smoking?	Yes/no	X	X	Measure willingness to set a quit date
Treatment Effectiveness				
If 100 smokers quit using how many would be able to quit:				
will power alone	0 – 100	X	X	Measure perceived method effectiveness
medicine	0 – 100	X	X	Measure perceived method effectiveness
coaching/counseling	0 – 100	X	X	Measure perceived method effectiveness
medicine plus coaching/counseling	0 – 100	X	X	Measure perceived method effectiveness
hypnosis	0 – 100	X	X	Measure perceived method effectiveness

Question	Response	Intervention Survey	Follow-up Survey	Purpose
Medicines				
Medicines to help you stop smoking ...				
are dangerous	Agree/disagree/ I don't know	X	X	Measure perceived beliefs about quit medicines
can be more dangerous than if you keep smoking	Agree/disagree/ I don't know	X	X	Measure perceived beliefs about quit medicines
are as addicting as tobacco itself	Agree/disagree/ I don't know	X	X	Measure perceived beliefs about quit medicines
cost more than smoking	Agree/disagree/ I don't know	X	X	Measure perceived beliefs about quit medicines
are not needed because all you need to quit is will power	Agree/disagree/ I don't know	X	X	Measure perceived beliefs about quit medicines
will lower your cravings to smoke once you quit	Agree/disagree/ I don't know	X	X	Measure perceived beliefs about quit medicines
To be safe, you should only take medicines to help you quit for only a short time – about a week	Agree/disagree/ I don't know	X	X	
Wisconsin Tobacco Quit Line (WTQL)				
Have you heard of the Wisconsin Tobacco Quit Line?	Yes/no	X		Conditional question for next four questions
How many times can a smoker call the Wisconsin Tobacco Quit Line?	Number/ I don't know	X	X	Measure knowledge of WTQL
How many times can a smoker call the Wisconsin Tobacco Quit Line?	Number/ I don't know	X	X	Measure knowledge of WTQL
Will the Wisconsin Tobacco Quit Line send you free medication to help you quit?	Yes/no/I don't know	X	X	Measure knowledge of WTQL
Do you have to pay the Wisconsin Tobacco Quit Line when you call them?	Yes/no/ I don't know	X	X	Measure knowledge of WTQL
Salvation Army Evaluation				
The Salvation Army is helping you get help for your needs. Is it all right for the Salvation Army to also ask you about your smoking and give you advice about that as well?	Definitely not Probably not I'm not sure Probably yes Definitely yes	X		Measure satisfaction with the Salvation Army
Is it alright for the Salvation Army to ask you again about your smoking and desire to quit at a later date?	Definitely not Maybe not Maybe it's OK Definitely it's OK	X		Measure satisfaction with the Salvation Army
Question: The Salvation Army asked if you were a smoker. What do you think about that? (Select the one statement that best describes your opinion.) Response Options: 1. The Salvation Army should not ask me about my smoking, smoking is none of their business. 2. The Salvation Army should focus on my other needs and not my health or smoking 3. I don't mind being asked about my smoking by the		X		Measure satisfaction with the Salvation Army

Question	Response	Intervention Survey	Follow-up Survey	Purpose
Salvation Army. It's for my own good. 4. I'm glad the Salvation Army asked me about my smoking. It means they really care about the whole me – including my health. 5. None of the above describe my opinion. What is your opinion? _____ _____				
Will you return to the Salvation Army for additional services?	Definitely not Probably not Probably yes Definitely yes	X		Measure satisfaction with the Salvation Army
What is your overall opinion of the service the Salvation Army has provided you?	0 (worst possible) to 10 (best possible)	X		Measure satisfaction with the Salvation Army
Open Ended questions				
Please name three reasons why you should quit smoking.		X	X	
If you would decide to quit right now, how would you do it?		X	X	
Additional Outcomes at Follow-up				
Have you smoked any cigarettes in the last 7 days – even a puff?	Yes/no		X	Measure smoking point prevalence and as conditional to following question
Did you try to quit smoking cigarettes in the last month?	Yes/no		X	Measure quit attempts during the follow-up period
How many times in the past 30 days have you tried to quit?	Number		X	Measure number of quit attempts in follow-up period
How many times did you go without smoking for at least 24 hours because you were trying not to smoke?	Number		X	Measure success of quit attempts during follow-up period
I'm going to list ways people use to quit smoking. Please indicate all those that you have tried in the past 30 days.	Yes/no/not sure to 14 quit methods		X	Measure quit methods used
On how many of the past 30 days did you do no smoking at all – not even a puff?	Number		X	Measure number of smoke free days during follow-up period
How much have you been thinking about quitting in the past 30 days?	Not at all Just a little bit Quite a bit A lot		X	Measure thinking about quitting
Have you called the Wisconsin Quit Line in the last 30 days?	Yes/no		X	Measure call to the WTQL
Did you get any medication to help you quit in the last 30 days?	Yes/no		X	Measure receipt of quit medication

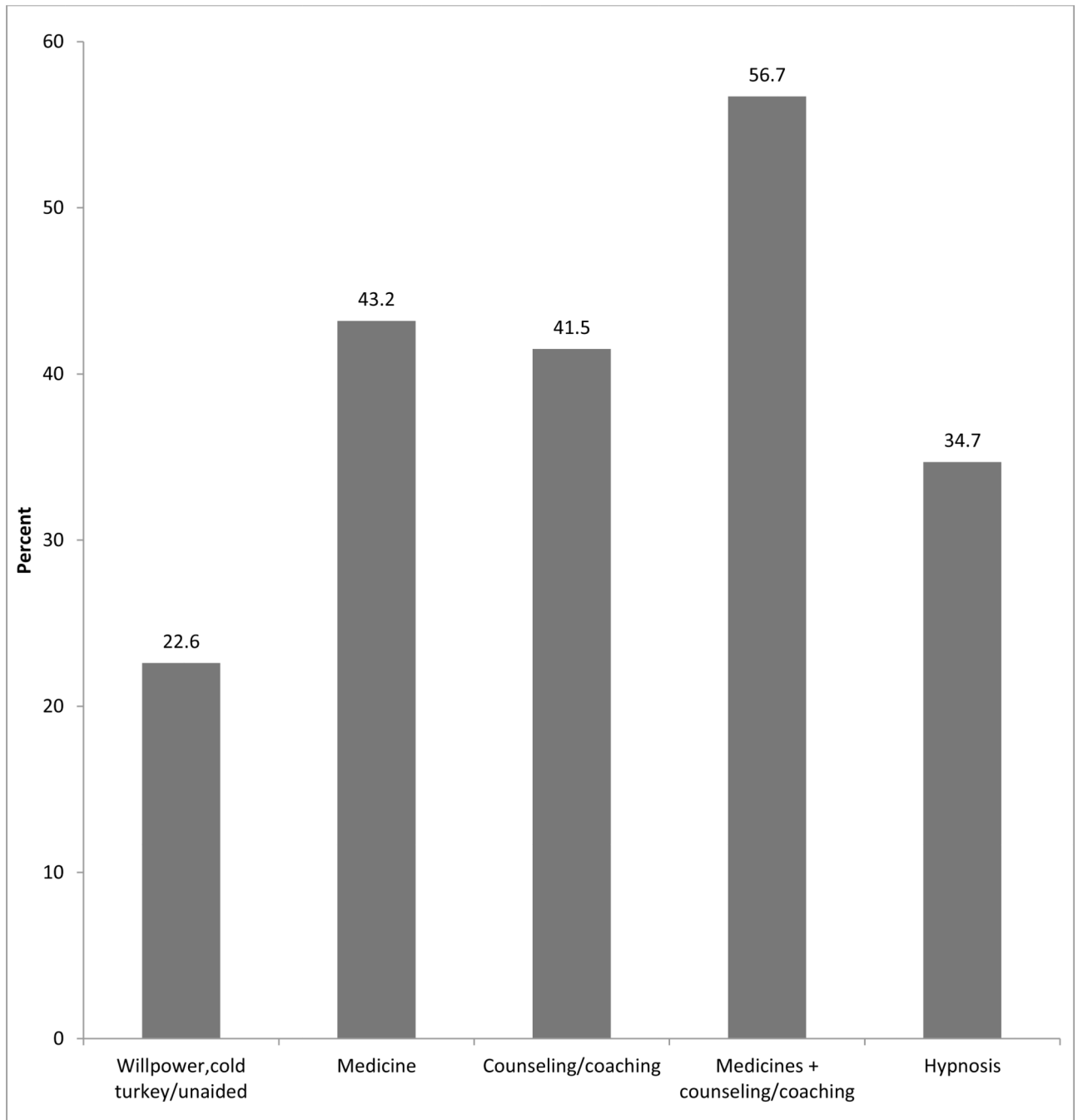


Figure 1.
Perceived Effectiveness of Various Tobacco Dependence Treatments by Intervention
Participants before the Intervention

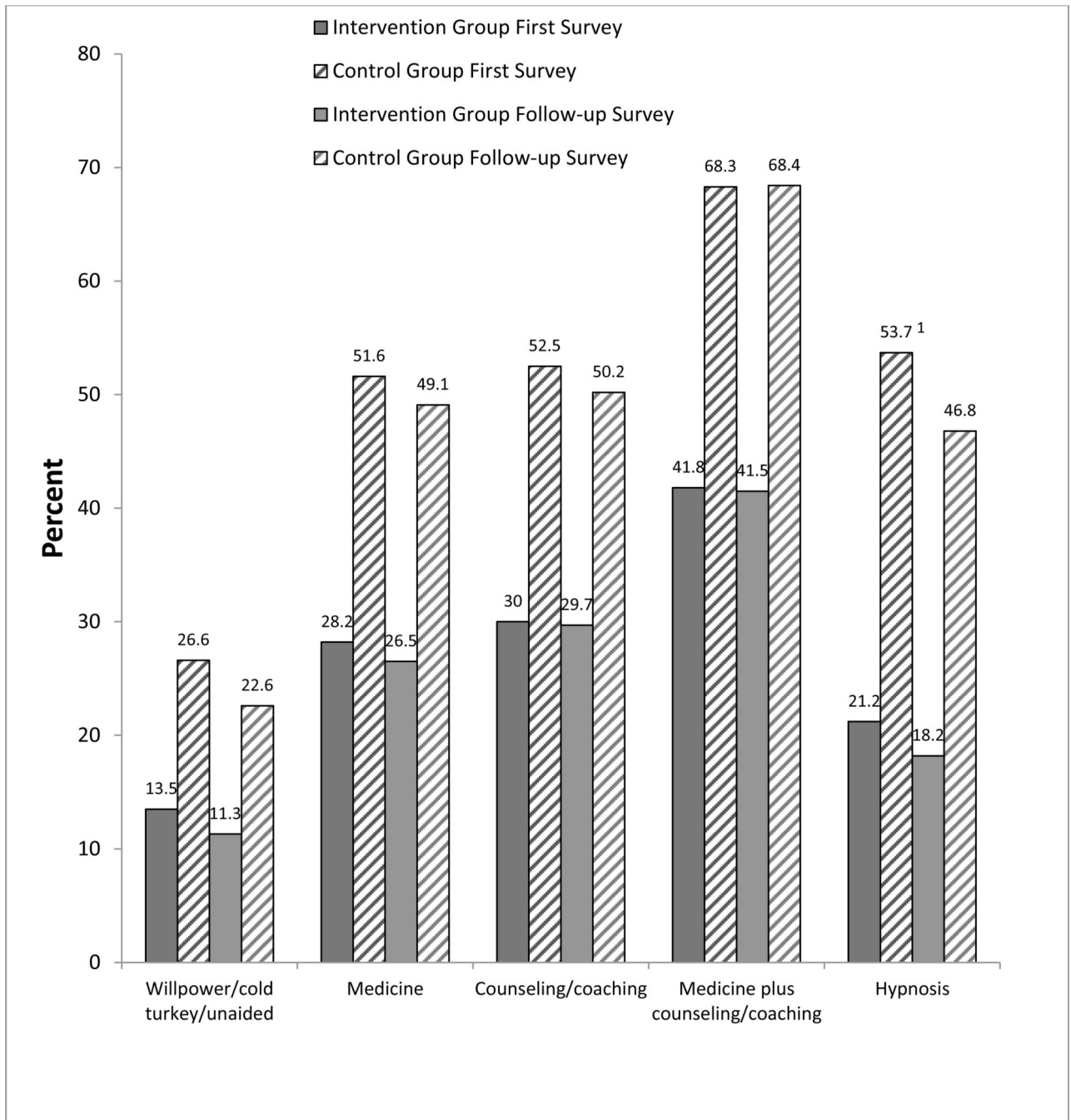


Figure 2.

Group Differences Regarding Perceived Treatment Effectiveness after the Intervention and at One Month Follow-up

¹All intervention vs. control group differences at both first survey and follow-up survey $p < .01$; no difference within group, across time except for hypnosis for control participants ($p = .013$)

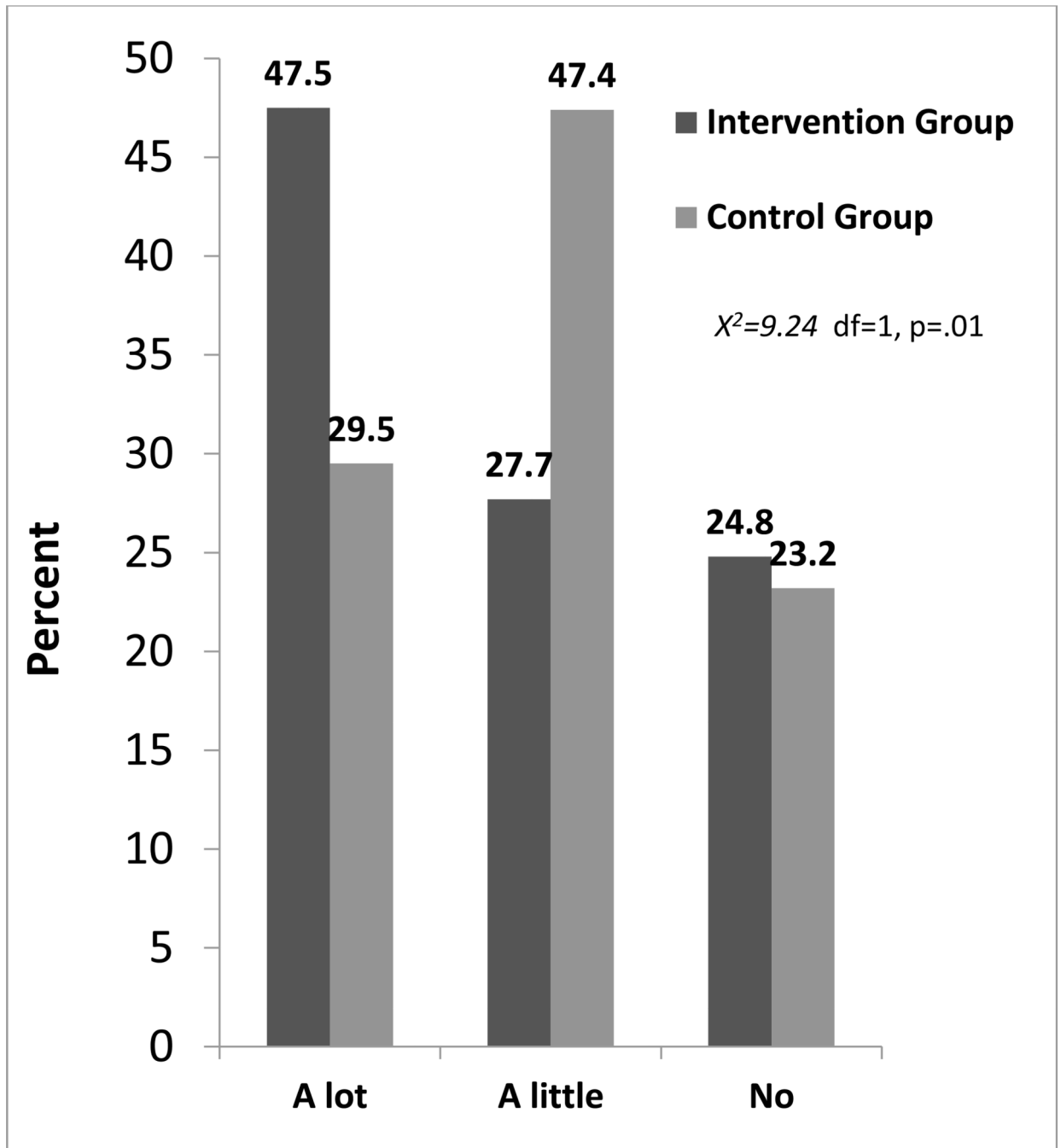


Figure 3.
Reduced Smoking Resulting from the Intervention

Table 1Sample Characteristics¹

Variable	Intervention	Control	All
Age (mean)	43.3	43.6	43.4
Gender (male)	60.0%	57.3%	58.7%
Age of regular smoking (mean)	16.3	16.8	16.6
Years smoked (mean)	25.5	25.2	25.3
First AM cigarette			
5 min.	36.8%	37.0%	36.9%
6 – 30 min.	44.0%	43.7%	43.9%
31 – 60 min.	12.8%	10.1%	11.5%
> 60 min.	6.4%	9.2%	7.8%
Daily smoking (%)			
10 cigarettes	24.0%	28.6%	26.2%
11 – 20 cigarettes	47.2%	52.1%	49.6%
21 – 30 cigarettes	18.4%	16.0%	17.2%
31 cigarettes	10.4%	3.4%	7.0%
Follow-up (%)	79.8%	81.0%	80.4%

¹ There were no significant differences between the groups