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Motivational Interviewing to Enhance Nicotine Patch Treatment for Smoking Cessation among Homeless Smokers: A Randomized Controlled Trial

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Abstract

AIMS—To assess the effects of adding motivational interviewing (MI) counseling to nicotine patch for smoking cessation among homeless smokers.

DESIGN—Two-group randomized controlled trial with 26-week follow-up.

PARTICIPANTS AND SETTING—430 homeless smokers from emergency shelters and transitional housing units in Minneapolis/St. Paul, Minnesota, USA.

INTERVENTION AND MEASUREMENTS—All participants received 8-week treatment of 21mg nicotine patch. In addition, participants in the intervention group received six individual sessions of MI counseling which aimed to increase adherence to nicotine patch and to motivate cessation. Participants in the Standard Care control group received one session of brief advice to

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quit smoking. Primary outcome was seven-day abstinence from cigarette smoking at 26 weeks as validated by exhaled carbon monoxide and salivary cotinine.

FINDINGS—Using intention-to-treat analysis, verified seven-day abstinence rate at week 26 for the intervention group was non-significantly higher than for the control group (9.3% vs. 5.6%, p=0.15). Among participants that did not quit smoking, reduction in number of cigarettes from baseline to week 26 was equally high in both study groups (−13.7 ±11.9 for MI vs. −13.5 ±16.2 for Standard Care).

CONCLUSIONS—Adding motivational interviewing counseling to nicotine patch did not significantly increase smoking rate at 26-week follow-up for homeless smokers.

Background

The prevalence of cigarette smoking among homeless adults remains an alarming 70%–80% or greater,(1, 2) which is 2–3 times that of the general adult population in the United States. Because homeless individuals are faced with meeting competing basic survival needs such as finding food and shelter, it is often assumed that smoking cessation is not a priority for this population. However, recent cross-sectional surveys showed homeless smokers reported a similar level of interest in smoking cessation and quit attempts compared to the general population of smokers.(3, 4) Nicotine replacement alone or in combination with other treatments was the most preferred treatment (42.2%), followed by counseling alone or in combination (24.6%).

Homeless smokers face multiple barriers to accessing and adhering to treatments(5) such as the daily need to find food, clothing and shelter; as well as practical limits on accessing and storing medicines. Furthermore, high rates of psychiatric and other substance abuse co-morbidity conditions(6) within homeless populations could create additional challenges to adherence to smoking cessation treatment and ultimately to smoking cessation.

While studies on motivational interviewing (MI) for smoking cessation have yielded mixed results, a recent meta-analysis (n=23 studies) suggest that MI significantly outperformed comparison conditions at long-term follow-up points.(7) Also, MI has been shown to improve treatment adherence and retention.(8) In a pilot study of nicotine patch among homeless smokers, MI was shown to be a feasible and acceptable intervention, however MI was not used to address adherence in that study.(9) To date there are no controlled trials of interventions to improve adherence to self-administered medications that specifically target homeless persons. To address the gap we conducted a smoking cessation randomized clinical trial (RCT) among smokers experiencing homelessness, called *Power To Quit* (PTQ). We tested the hypothesis that MI addressing smoking and NRT adherence will result in higher quit rates among homeless smokers compared to standard care. The current paper describes the smoking cessation (primary) and NRT adherence (secondary) outcomes of the study. Understanding the effectiveness of smoking cessation treatment for this underserved population will assist researchers and healthcare providers in developing and implementing smoking cessation interventions for homeless and other vulnerable populations.

Methods

Study design

This study was a community-based RCT of 430 homeless adult cigarette smokers that assessed the effectiveness of MI for smoking cessation. Participants were randomized to either the intervention arm (nicotine patch + MI) or to the control arm (nicotine patch + standard care). At baseline, participants in both groups received a two-week supply of 21-mg nicotine patches, and every two weeks they received an additional two-week supply of

21 mg nicotine patches. Participants randomized to the Intervention arm also received six individual MI counseling sessions each lasting 15 to 20 minutes, while participants randomized to the Standard Care arm received a one-time brief (10–15 minutes) advice to quit smoking. Participants provided written informed consent before they were enrolled into the study. The study procedures which have been published elsewhere,(10, 11) were approved and monitored by the University of Minnesota's Institutional Review Board.

Participant Recruitment and Randomization

Recruitment occurred from May 2009 to August 2010 at a total of eight homeless shelters in Minneapolis/St. Paul, Minnesota. Recruitment was conducted at health fairs and via staff informational sessions and posted flyers at the study sites. Study eligibility criteria included being currently homeless and having lived in the Twin Cities for ≥6 months, having smoked at least one cigarette per day in the past 7 days and at least 100 cigarettes in their lifetime, aged ≥18 years, and willing to use nicotine patch for 8 weeks and participate in counseling sessions. Participants were classified as homeless based upon the Stewart B. McKinney Act passed by the US congress in 1987 in which homelessness was defined as anyone lacking "a fixed, regular and adequate nighttime residence;" or anyone staying at "a supervised publicly or privately operated shelter designed to provide temporary living accommodations, transitional housing, or other supportive housing program or a public or private place not meant for human habitation.(12) Smoking status was confirmed with exhaled carbon monoxide (CO) monitor using a cut-off of 5ppm. Exclusion criteria included: pregnancy, use of another tobacco cessation aid in the previous 30 days, severe cognitive impairment, suicidal ideation in the last 14 days, a major medical condition within the prior month, or scoring >5 on items assessing psychotic symptoms from the nine-item Mini International Neuropsychiatric Interview (M.I.N.I.).(13)

At the baseline visit, pre-assigned randomization numbers prepared by the study statistician determined which study arm the participant would be enrolled. The assignment to MI versus standard care was not blinded to participants. Sequential enrollment continued until a total of 430 participants were randomized into the study.

Treatment period

Eligible participants were scheduled for the baseline appointment which was 7–10 days after the initial contact. At the baseline visit participants were randomly assigned to either the MI intervention arm or to the Standard Care control arm. All participants received a health educational resource called, "The Power to Quit: A Quit Smoking Guide," a 23-page guide developed by the project investigators. The guide included messages on the health risks of smoking, common reasons for smoking, and cognitive exercises to improve self-directed quit attempts.

Intervention Components

Motivational Interviewing (MI)—Participants randomized to the MI intervention arm received six individual MI counseling sessions each lasting 15 to 20 minutes. The MI counseling sessions were conducted by trained counselors and occurred at baseline and weeks 1, 2, 4, 6, and 8 follow-up. The focus of the MI sessions was encouraging cessation and NRT adherence. Although MI has typically been used to build motivation to quit(7) we also applied the principles and strategies to encourage adherence to the patch..

Standard Care (SC)—Participants in the Standard Care control condition received a onetime session of brief advice to quit smoking lasting approximately 10–15 minutes and delivered by trained study counselors(10). Topics covered in the standard care session included smoking history, current smoking, direct advice about the health risks of smoking

and the health benefits of quitting, affirmation of the participant's decision to quit, an assessment of preparedness to quit, and addressing strategies for coping with smoking cues.

Retention

To minimize attrition, study staff made reminder calls to participants during the week prior to each appointment, both pending and missed, until the window for completing appointments closed. Calls were placed from the project office and made either to each participant's cell phone or to the shelter identified as the most recent nighttime residence in the participant's file. At each of the 15 visits, participants received incentives. For participants who attended all 15 sessions, the monetary incentives totaled $275 over six months.(10, 11)

Measures

All questionnaire items were read to, or along with, the participants by trained research assistants that included master's level public health students, medical students, or community mobilizers. Community mobilizers were individuals who had experienced homelessness either themselves or with a family member. At the baseline visit, we assessed demographic and smoking behaviors, psychosocial variables, environmental factors, and biological measurements. Demographic variables included age, ethnicity, gender, income, education level, marital status, and employment status and homelessness history including duration and type of homelessness. Psychosocial variables included social support(14, 15) and self-efficacy to refrain from smoking using the Smoking Self-Efficacy Questionnaire (SEQ-12).(16) Psychiatric co-morbidities of depression and anxiety were assessed with the 4-item Rost-Burnham screener for depression,(17) the patient health questionnaire (PHQ-9) for depression,(18) the 4-item perceived stress scale for stress in past 30 days,(19) and the M.I.N.I. generalized anxiety disorder assessment.(13) Further, study participants were asked questions about lifetime drug treatment history and drug and alcohol use and dependence. (17) Adherence to nicotine patch was measured by direct observation by study staff at weeks 2, 4, 6, and 8. Participants were asked if they had the patch on; for those who answered in the affirmative, study staff then asked to see the patch. Motivation and confidence for adherence to NRT patch was assessed with the Motivation/Confidence to Adhere Scale.(20) which is a 5-item scale with score range of 1–10 for each item and reflects participants' level of commitment, desire, need, and readiness to adhere to smoking cessation. Higher totals indicate higher levels of motivation for adherence (Cronbach's alpha=0.84); Self-Efficacy to Adhere(21) is a modified 10-item Adult AIDS Clinical Trials Group (AACTG) measure which asks participants to indicate their level of confidence in performing specific adherence tasks relating to treatment. Responses range from 0 (cannot do at all) to 10 (certain I can do). Higher scores indicate higher adherence self-efficacy.

The primary outcome was biochemically-verified self-reported 7-day point prevalence abstinence from smoking assessed at week 26 post-randomization defined as having smoked no cigarettes (not even a puff) during the previous seven days. Those who self-reported abstinence were verified using with an expired carbon monoxide (≤10ppm) test. Salivary cotinine testing was done if the expired CO was greater than 10ppm for those who self-reported abstinence. A cut-off of ≤20ng/ml for salivary cotinine was used to verify abstinence. The secondary outcome was adherence to the nicotine patch, measured by direct observation at in-person appointments during the treatment period.

Analysis

The sample size was determined a priori assuming a two-tailed type I error of 0.05, a power of at least 80% and a week 26 biochemically verified quit rate of 18% and 8% for MI intervention and Standard Care conditions, respectively based on previous research.(9) The

primary analysis was a Yates-corrected chi-square test of the difference between the proportions quit in the two groups. With these assumptions, using the Chi Square test we needed 214 participants per study arm. With the final sample achieved of 430 participants we had 83% power (at a 5% significance level) to detect statistically significant main effects. Following intention-to-treat analyses, participants who did not attend the 26-week visits were assumed to be smokers. We also compared CO-verified repeated 7-day abstinence at weeks 8 and 26 using the Chi Square test as a secondary outcome measure. The repeated point prevalence abstinence was defined as participants who self-reported and verified by CO or cotinine that they were abstinent both at week 8 and week 26. All the other participants were treated as smokers. We also performed longitudinal analysis using repeated measures logistic regression with generalized estimating equations for the CO verified abstinence at weeks 1, 2, 4, 6, 8 and 26 including time (continuous) and intervention group as predictors using PROC GENMOD in SAS v9.2.{SAS Institute Inc., 2009 #6990}.

Results

Of the 839 individuals screened for study eligibility, 568 were eligible and 430 were randomized, 216 to the MI intervention and 214 to the control group (Figure 1). Eligible participants who returned for randomization were older and more likely to have a phone number compared to eligible participants who were not enrolled in the study. Of the 430 enrolled, 76.1% completed their week 8 visit (end of treatment) and 75.4% completed the final week 26 visit. There were no significant differences in attrition rates (Table 4) between the two study groups.

There were no significant differences in baseline characteristics of participants between treatment groups (Table 1). Participants' mean age was 44 years and the majority were male; African American or White; unemployed; high school graduate or equivalent; with a monthly income of less than US$400. Nearly two-thirds reported sleeping in emergency shelters and 15% slept in transitional housing often in past 6 months. Participants smoked about a pack of cigarettes a day and 87% smoked their first cigarette of the day within 30 minutes of awakening. More than 80% of the sample screened positive for lifetime history of drug abuse or dependence. Self-reported and verified 7-day point prevalence abstinence rates for the MI and control study groups at various assessment points are shown in Table 2.

Using intention-to-treat analysis, 7-day verified smoking abstinence rates at week 8 were 9.3% vs. 8.9% (p=0.89) and at week 26 were 9.3% vs. 5.6% (p=0.15) for the intervention and control groups respectively. The repeated point prevalence abstinence rate was 3.24% for MI group and 1.40% for SC group (Fisher exact p= 0.338). We used repeated measures logistic regression with generalized estimating equations (Figure 2) for the CO verified abstinence at weeks 1, 2, 4, 6, 8 and 26 while treating those lost to follow-up as smokers and included time (continuous) and intervention group as predictors. This yielded an odds ratio for the MI versus SC group of 1.33 (95% CI=0.88, 2.02; p= 0.17). If those lost to follow-up were treated as missing, the odds ratio for the MI versus SC group was 1.40 (95% CI: 0.93, 2.11; p=0.11.

Table 3 shows results of various measures of adherence. Motivation for adherence scores at week 6 were marginally higher for participants in the intervention group than those in the control group (45.8 ±6.9 for MI vs. 44.4 ±7.4 for Control, p=0.08). Table 3 also shows results of "patch checks", i.e. proportion of participants who had their nicotine patches on at various study visits. There were no differences between study groups in the proportion of participants who had their nicotine patches on at various study visits. Table 4 shows the attendance for various study contact points.

Discussion

Results from this study show that verified quit rates at week 8 and week 26 for MI were not significantly better than those for Standard Care. Although the quit rates for MI were consistently higher at all study time-points, the magnitude of the effects was small.

The 9.3% verified quit rate at week 26 is comparable to findings from a cluster-randomized trial that tested nicotine gum plus five MI sessions for smoking cessation in 20 low-income housing developments (n=173).(23) For that study, biochemically-verified 7-day abstinence rates were 6.1% vs. 5.6% at week 8 and 7.6% vs. 9.3% at week 26 for the intervention and comparison groups respectively. However, the quit rates in our current study are lower than rates reported from two pilot studies with homeless smokers.(9, 24) In one study (n=46)(9) that utilized five individual MI, six group meetings, and a choice of NRT, CO-verified abstinence rates at week 26 were 17.4% vs. 8.7% for intervention and comparison groups respectively. The second study(24) (n=58) which had no control group tested the effects of a 12-week group Cognitive Behavioral Therapy and choice of NRT, bupropion, or varenicline, reported a CO-verified quit rate of 13.6% at 24 weeks. These pilot studies had more intensive counseling interventions that may have contributed to higher quit rates. There are other reasons that could contribute to the low quit rates in our current study. In addition to multiple competing challenges that being homeless could pose to smoking cessation, our study sample had characteristics suggestive of high nicotine dependence including factors such as smoking a pack of cigarettes per day on average and nearly all participants smoked their first cigarette of the day within 30 minutes of awakening.

In addition, our study sample showed high rates of co-morbidities with depression, alcohol, and other substance abuse with nearly 40% having PHQ-9 scores in the moderate or worse depression range and nearly half considered themselves as alcoholic or chemically dependent. Studies in other populations have shown that these co-morbidities make quitting smoking more challenging.(2, 25, 26) In essence, our study had a lower dose of counseling and higher rate of co-morbidities than the two studies described above. Unlike the protocol of most smoking cessation studies in the general population that excludes smokers with these co-morbid conditions, smokers with these conditions were allowed to enroll in this study provided they were medically stable as determined by a psychiatrist. This protocol decision was made to ensure that the study sample was similar to homeless smokers in general which would enhance the study's external validity.

Given the challenges to smoking cessation in homeless populations, it could be argued that even these low cessation rates are likely higher than secular trends in this population and are therefore encouraging. These results highlight that homeless smokers are interested in quitting smoking and will enroll in a smoking cessation trial. Also, 75% of eligible participants returned for randomization and 75% of those enrolled completed their final week 26 visit. These results about interest within homeless populations in smoking cessation are consistent with findings from earlier studies.(3, 27, 28) However, these findings are in direct contrast to the presumption by some that homeless persons would not be interested in smoking cessation due to many competing daily challenges or that follow-up for longitudinal studies would be nearly impossible because of their transient housing situation.

This study also found that contrary to expectations MI did not improve adherence measures among participants who received MI. The lack of effect of MI to promote treatment adherence is contrary to several studies(8) that have reported large effects of MI in promoting treatment adherence. It should be noted however that despite not requiring motivation to quit or adhere to treatment as study enrollment criteria in current study, participants reported high motivation to quit smoking as well as high motivation and self-

efficacy to adhere to nicotine patch use. Having less favorable outcomes with MI is consistent with other studies in non-homeless settings that have shown that MI works better among people who are resistant, angry or demonstrate low motivation to change a particular health behavior(29) and therefore may be contraindicated for patients who are ready for action. Another study,(30) in a non-homeless sample found that MI was less effective than health education for smoking cessation among a sample of African American light smokers who were highly motivated to quit smoking at study enrollment.

This study has many strengths. To our knowledge, this is the largest and the first adequately powered randomized smoking cessation clinical trial in homeless populations. We successfully randomized a diverse sample of 430 homeless smokers in 15 months. We were able to achieve a study sample that is reflective of the general homeless population of the same community.(1, 31) We also achieved 75% retention for 26 weeks. This suggests that smokers regardless of their housing situation want to quit and can be successful in doing so when provided with the opportunity.

This study has limitations. First, it was conducted at a single metropolitan area in the upper Midwest of the United States and there may be differences between cities, states, or regions within a country and between countries that limit external validity. However, this generalizability concern is somewhat mitigated by the fact that participants were recruited from a variety of emergency shelters and transitional housing units. Data about emergency shelters from a tri-annual statewide survey{Wilder Foundation, 2009 #5998} shows that mean age for homeless person in Hennepin and Ramsey Counties encompassing the Twin Cities were 42.4 years and 42.9 years respectively compared to 44.4 years in our study sample. Also, our study sample was 74.7% male which is comparable to that in Hennepin (72.7%) but lower than that in Ramsey (86.5%) Counties(31). Second, because this was a treatment study, the sample was self-selected and motivated to quit smoking and thus may not be representative of homeless smokers generally. The high motivation of participants may also have made MI less effective since MI is best suited for less motivated people.(7, 30) However, the sample represents the group of smokers that would seek smoking cessation treatment if it were to become available in homeless populations.

Our results reveal that despite many competing daily challenges, homeless smokers are interested in smoking cessation and that motivational interviewing and nicotine replacement showed promising effects for smoking cessation for homeless populations. The low quit rates of the study calls for more studies and programs to enhance smoking cessation rates in homeless populations. It is possible that other counseling approaches besides MI might be more effective or perhaps more intensive interventions are needed for smokers experiencing homelessness. Due to the high rates of psychiatric and substance abuse co-morbidities in this population, will intervening in these co-morbid conditions concurrently or in sequence result in improved smoking cessation rates? Because of the strikingly high prevalence of smoking and associated morbidity in homeless populations, developing and implementing programs to improve smoking cessation outcomes is critical for reducing the tobacco-related health disparities in homeless and other underserved populations.

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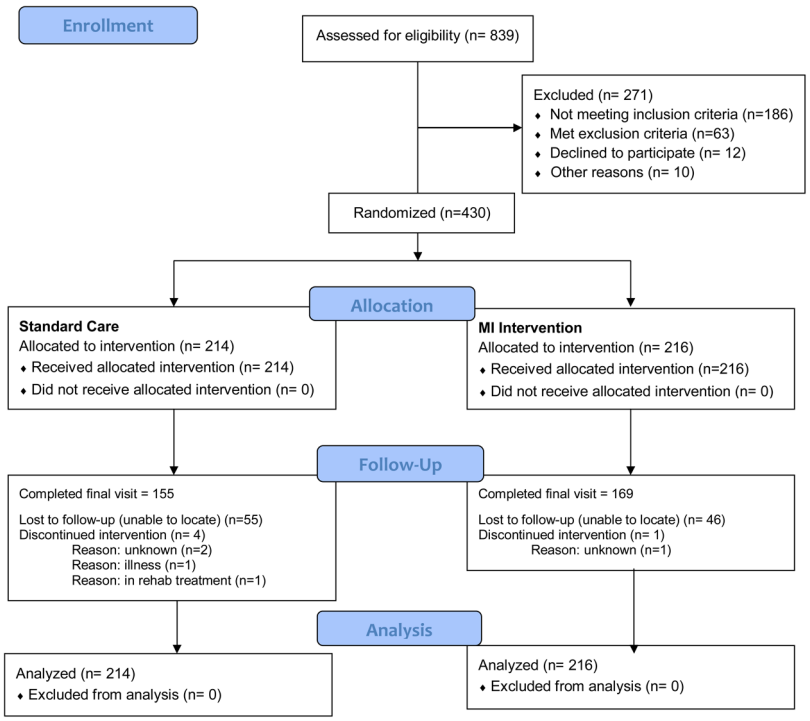

Figure 1.
CONSORT(22) flow diagram for the study

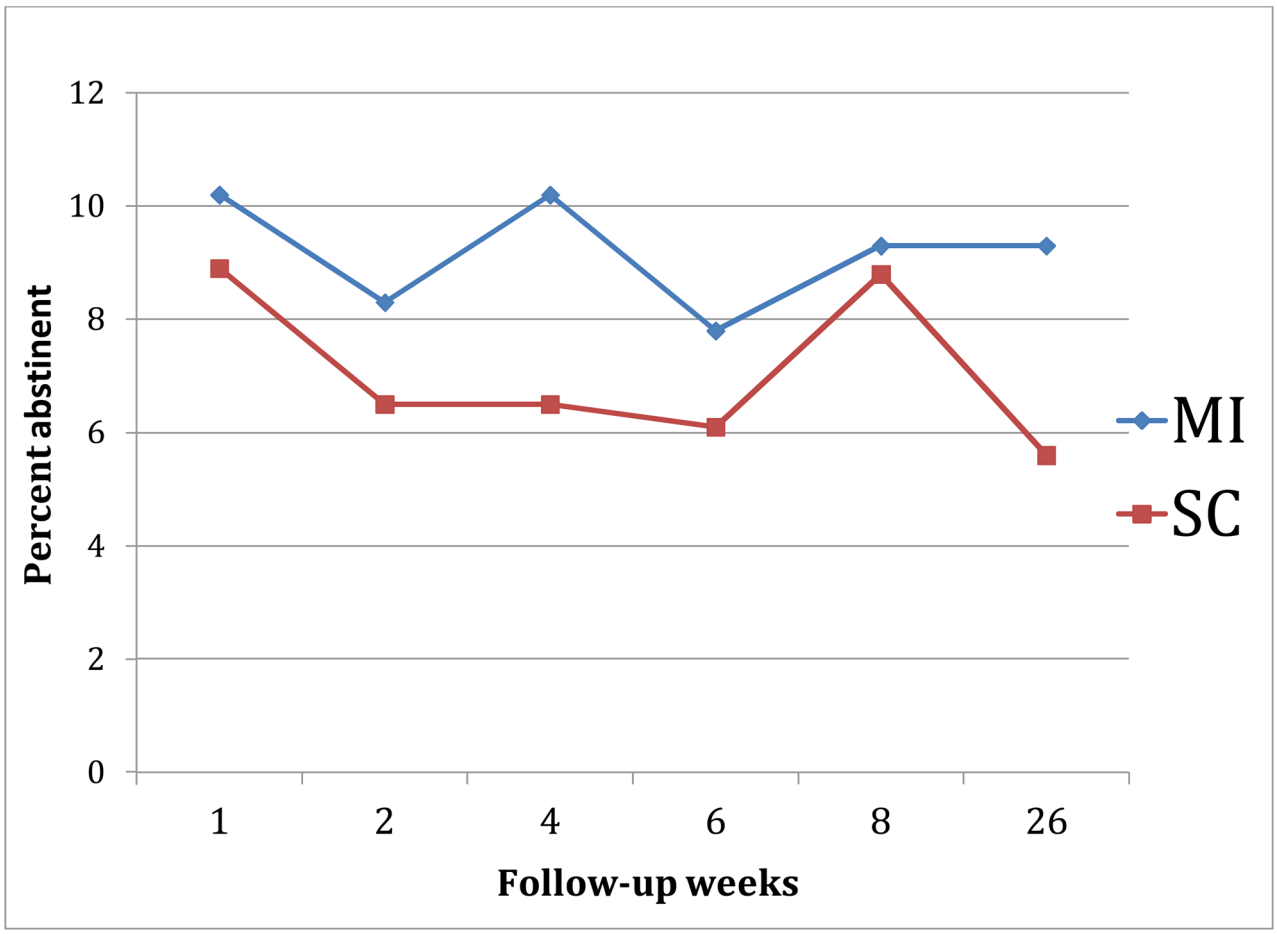

Figure 2.
Verified Abstinence by time

Table 1

Baseline characteristics of 430 Study Participants enrolled in the PTQ Study

	Total N=430	Motivational Interviewing Arm N=216		Standard Care Arm N=214	
		Mean (SD)	N	Mean (SD)	N
Demographic Variables					
Age, mean ± SD, years	44.4 (9.9)	44.5 (9.7)	216	44.2 (10.1)	214
Male, n (%)	321 (74.7)	158 (73.1)	216	163 (76.2)	214
Race/Ethnicity, n (%)			216		214
African American/Black	242 (56.3)	130 (60.2)		112 (52.3)	
White, non-Hispanic	153 (35.6)	69 (31.9)		84 (39.3)	
Hispanic/Latino	10 (2.3)	5 (2.3)		5 (2.3)	
Native American/Alaska Native	10 (2.3)	5 (2.3)		5 (2.3)	
Other	14 (2.3)	7 (3.3)		7 (3.3)	
Monthly family income < $400, n (%)	273 (63.5)	140 (64.8)	216	133 (62.1)	214
Education ≥ High school, n (%)	330 (76.8)	166 (76.9)	216	164 (76.6)	214
BMI, mean (SD)	30.1 (7.6)	30.3 (7.8)	215	30.0 (7.5)	211
Psychosocial Variables					
Depression (PHQ9, in past 2 weeks), mean (SD)	8.5 (6.4)	8.8 (6.7)	216	8.1 (6.1)	212
PHQ9 ≥ 10 in past 2 weeks, n (%)	148 (34.6)	92 (42.5)	216	81 (38.2)	212
Stress (PSS-4, in past 30 days), mean (SD)	8.4 (2.3)	8.5 (2.5)	215	8.3 (2.1)	213
Tobacco Related Variables					
Serum cotinine in ng/ml., mean (SD)	213.7 (159.0)	229.2 (179.9)	204	198.3 (133.8)	205
Exhaled carbon monoxide in ppm., mean (SD) *	15.6 (9.0)	15.0 (8.3)	202	16.2 (9.65)	207
Cigarettes per day, mean (SD)	19.3 (13.7)	19.1 (11.1)	215	19.4 (16.0)	212

	Total N=430	Motivational Interviewing Arm N=216		Standard Care Arm N=214	
		Mean (SD)	N	Mean (SD)	N
Time to first cigarette, ≤30 minutes, n (%)	374 (87.0)	188 (87.0)	216	186 (87.0)	270
Smoke menthol cigarettes, n (%)	268 (62.6)	138 (64.2)	216	130 (61.0)	214
Number of 24 hour quit attempts in the past year, mean (SD)	2.5 (5.2)	2.5 (5.3)	212	2.6 (5.1)	212
Age started smoking regularly, mean (SD)	16.2 (5.9)	16.3 (6.0)	215	16.1 (5.7)	214
Motivation to quit, mean (SD)	9.1 (1.6)	9.0 (1.8)	216	9.1 (1.5)	214
Confidence to quit, mean (SD)	7.3 (2.4)	7.3 (2.4)	216	7.3 (2.5)	214
Substance Abuse Variables					
Ever used illicit drug * more than 5 times in lifetime, n (%)	355 (82.8)	182 (84.3)	216	173 (81.2)	213
Ever needed larger amount of illicit drugs to get an effect, n (%)	170 (39.6)	80 (37.0)	216	90 (42.3)	213
Ever had emotional or Psychological problems from using illicit drugs, n (%)	140 (32.6)	65 (30.1)	216	75 (35.2)	213
Ever thought you were an excessive drinker, n (%)	195 (45.5)	95 (44.0)	216	100 (46.9)	213
Ever drank one-fifth of liquor in one day, n (%)	179 (41.7)	90 (41.7)	216	89 (41.8)	213
Ever drank 7 or more alcoholic drinks daily for 2 weeks, n (%)	174 (40.7)	83 (38.6)	216	91 (42.9)	213

Abbreviation: MI= Motivational Interviewing; SC-Standard Care; SD, standard deviation; BMI, body mass index; PHQ9, Patient Health Questionaire-9 Depression Scale; PSS-4=Perceived Stress Scale-4 items.

* List of drugs included Marijuana (Hashish, Pot, Grass); Amphetamines (Stimulants, Uppers, Speed); Barbiturates (Sedatives, Downers, Sleeping Pills, Seconal, Quaaludes); Tranquilizers (Valium, Librium); Cocaine (Coke, Crack); Heroine; Opiates (Codeine, Demerol, Morphine, Methadone, Darvon, Opium), Psychedelics (LSD, Mescaline, Peyote, Psilocybin, DMT, PCP).

Table 2

Self-report and biochemically verified 7-day point-prevalence abstinence rates of 430 Study Participants enrolled in the PTQ Study *

	MI	Standard Care	P value
Self-report			
Quit at Week 8, n (%)	33 (15.28%)	26 (12.15%)	0.350
Quit at Week 26, n (%)	36 (16.67%)	25 (11.68%)	0.140
Verified			
Quit at Week 8, n (%)	20 (9.26%)	19 (8.88%)	0.890
Quit at Week 26 n (%) **	20 (9.26%)	12 (5.61%)	0.150

* Those lost to follow-up were treated as smokers;

** CO (<=10 ppm) or Cotinine (<= 20ng/ml) verified

Table 3

Adherence measures of 430 Study Participants enrolled in the PTQ Study

Variables	Total (n=430)	MI (n=216)	Standard Care (n=214)	p-value
Baseline Motivation to adhere, mean (SD)	45.4 (6.5)	45.4 (6.3)	45.3 (6.7)	0.77
Week 6 Motivation to adhere, mean (SD)	45.1 (7.3)	45.8 (7.0)	44.4 (7.5)	0.08
Motivation to adhere change in scores from Baseline to Week 6, mean (SD)	0.02 (8.2)	0.4 (8.4)	−0.4 (8.1)	0.40
Baseline Self-efficacy to adhere, mean (SD)	78.4 (17.6)	78.2 (18.0)	78.7 (17.1)	0.76
Week 6 Self-efficacy to adhere, mean (SD)	84.1 (18.3)	85.4 (19.1)	82.9 (17.5)	0.22
Self-efficacy to adhere change in scores from Baseline to Week 6, mean (SD)	5.7 (20.8)	5.7 (22.5)	5.7 (19.2)	0.99
Had nicotine patch on at visit (“patch check”), % yes				
Week 1	52.8	49.1	56.5	0.12
Week 2	52.6	49.1	56.1	0.15
Week 4	44.7	46.8	42.5	0.38
Week 6	38.6	40.7	36.5	0.36
Week 8	33.7	33.8	33.7	0.97

Table 4

Summary of Attendance at study visits of 430 Study Participants enrolled in the PTQ Study

Study Visit Time Points	Study Visit Completed			
	SC (n= 214)		MI (n= 216)	
	N	%	N	%
Week 1	191	89.3	189	87.5
Week 2	190	88.8	172	79.6
Week 4	184	86.0	174	80.6
Week 6	171	79.9	159	73.6
Week 8	168	78.5	162	75.0
Week 10	146	68.2	145	67.1
Week 12	143	66.8	155	71.8
Week 14	140	65.4	145	67.1
Week 16	137	64.0	143	66.2
Week 18	142	66.4	146	67.6
Week 20	136	63.6	146	67.6
Week 22	139	65.0	155	71.8
Week 24	141	65.9	156	72.2
Week 26	155	72.4	169	78.2