

**THE RELATIONSHIP BETWEEN DEPRESSION AND MOTIVATION
TO QUIT AMONG RURAL SMOKERS**

Thesis

by

Laura M. Mussulman, MA

University of North Carolina Greensboro, 1992

University of North Carolina Chapel Hill, 1995

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Edward F. Ellerbeck, MD, MPH – Committee Chair

Aimee James, MA, PhD, MPH – Committee Member

Jonathan D. Mahnken, PhD – Committee Member

Date defended: _____

The Thesis Committee for Laura M. Mussulman certifies
That this is the approved version of the following thesis

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Edward F. Ellerbeck, MD, MPH – Committee Chair

Aimee James, MA, PhD, MPH – Committee Member

Jonathan D. Mahnken, PhD – Committee Member

Date approved: _____

ABSTRACT

This is the first study to examine the relationship between depression and autonomous motivation to quit smoking. A population-based sample of 750 smokers was identified from 50 rural primary care clinics across the State of Kansas. Participants were predominately female (58.5%), with a mean age of 47.2 years, and 234 (31.2%) were currently depressed. As hypothesized, we found that current depression was not significantly related to importance in quitting smoking or stage of change. In addition, depression was not significantly associated with autonomous motivation. Results suggest that depressed smokers are just as motivated to quit smoking and have similar autonomous reasons for quitting smoking as non-depressed smokers. The prevalence of current depression among this sample of rural primary care smokers is high and underscores the need to screen for depressive symptomatology and to continue to offer depressed smokers smoking cessation opportunities and treatment.

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INTRODUCTION

Smoking is the leading cause of preventable death and disease in the United States (McGinnis & Foege, 1993, "Tobacco use--united states, 1900-1999", 1999). Smokers have a disproportionately higher prevalence of psychiatric morbidity, including depression, compared to non-smokers (Farrell *et al.*, 2001; Murphy *et al.*, 2003). Specifically, there is consistent evidence supporting the association between smoking and depression. Lifetime major depression prevalence among smokers is appreciably higher than the general population (Glassman *et al.*, 1990). The prevalence of lifetime major depression disorder (MDD) in smokers ranges from 22% to 61% (Glassman *et al.*, 1988; Hall *et al.*, 1994; Hall *et al.*, 1996; Kinnunen *et al.*, 1996), compared to the general population 16 to 17% Blazer *et al.*, 1994; Kessler *et al.*, 2003).

Depression not only impacts prevalence of smoking but also nicotine dependence and cessation (Burgess *et al.*, 2002; Glassman *et al.*, 1988). A greater prevalence of depressive symptoms is also associated with symptoms of nicotine dependence (Anda *et al.*, 1990; Breslau *et al.*, 1991; C. Brown *et al.*, 2000; Lerman *et al.*, 1996). Depressed smokers are less likely to quit smoking (Anda *et al.*, 1990; Breslau *et al.*, 1992; Covey *et al.*, 1993; Glassman *et al.*, 1990; Lasser *et al.*, 2000) and those who quit tend to relapse earlier than non-depressed smokers (Glassman *et al.*, 1990; Kinnunen *et al.*, 1996; Shiffman, 1982). Smokers with a history of depression have greater post-quit mood disturbance (Hall *et al.*, 1996),

are more likely to experience a depressive episode when trying to quit (Covey *et al.*, 1998), and experience more severe withdrawal symptoms (Breslau *et al.*, 1992, 1993). The co-occurrence of depression and smoking may be partially explained by the self medication hypothesis (Catley *et al.*, 2005; Lerman *et al.*, 1996; Lerman *et al.*, 1998), mutual environmental or genetic factors (R. A. Brown *et al.*, 1996; Dierker *et al.*, 2002; Kendler *et al.*, 1993), fewer coping resources (Berlin & Covey, 2006; Copeland, 2003; Kahler *et al.*, 2003; Kinnunen *et al.*, 1996), and less motivation to quit smoking (Joseph *et al.*, 2004). The current study examines the relationship between depression and motivation to quit in current smokers.

Mixed results regarding depressed smokers' motivation to quit are reported in the literature. Among currently depressed psychiatric outpatients, severity, duration, and history of recurrent depression were not related to readiness to quit smoking as measured by the stage of change (Acton *et al.*, 2001; Prochaska *et al.*, 2004) or willingness to accept treatment (Haug *et al.*, 2005; Haukkala *et al.*, 2000). Similar results were found in a convenience sample of current cigarette smokers (Tsoh *et al.*, 2000). However, Haukkala *et al.* (2000) found that among female smoker's higher depression scores related to greater motivation to quit smoking. In contrast, alcohol-dependent smoker's level of depression was negatively associated with intent to quit smoking as measured by the Contemplation Ladder (0-10 score) and stage of change (Joseph *et al.*, 2004).

The inconsistent evidence for the relationship between depression and motivation to quit may be exacerbated by the difference in how motivation is defined and measured. Motivation to quit smoking is often measured using a single item question such as “would you like to stop smoking?” or using Prochaska and DiClemente’s multiple question algorithm to assess a smoker’s stage of change, a process of behavior change consisting of distinct stages; pre-contemplation (no immediate intention to quit smoking), contemplation (intending to quit in the next 6 months), preparation (intending to quit in the next month with at least one quit attempt in the past year), action (quit smoking for less than 6 months), and maintenance (quit smoking for at least 6 months). Although these measures are central markers of motivation to quit in smokers, such measures are not able to differentiate types of motivation (i.e. autonomous versus controlled motivation). According to self-determination theory, an empirically based theory of motivation, motivation for behavior change is distinguished between autonomous (acting with a full sense of volition and choice) and controlled (acting because of pressure or demand) (Deci & Ryan, 1985). The theory focuses primarily on autonomous motivation and states that the degree to which a person is autonomously motivated will have a positive effect on maintained behavior change and positive health outcomes. When quitting smoking, patients with greater autonomous motivation may have a personal commitment to quitting and improving their health and might be expected to have a higher likelihood of success.

The Treatment Self-Regulation Questionnaire (TSRQ), a valid and reliable measure of autonomous motivation, has been used in previous research to examine autonomous motivation and its association with positive behavior change. Autonomous motivation, the focus of this analysis, has been associated with maintenance of weight loss in obese patients (G. C. Williams *et al.*, 1996), time spent engaging in moderate-to-vigorous physical activity in cancer patients (Wilson *et al.*, 2006), adherence to prescription medication (G. C. Williams *et al.*, 1998b), reductions in HbA1c values in diabetics (G. C. Williams *et al.*, 1998a), and greater abstinence from smoking (Curry *et al.*, 1990). Additional research studies have explored autonomous motivation and increased cessation. A change in adolescent's autonomous reasons for not smoking predicted a reduction in smoking (G. C. Williams *et al.*, 1999). Patients' active involvement in a smoking cessation counseling session increased significantly when physicians used an autonomy supportive interpersonal style and this in turn increased smoking cessation (G. C. Williams & Deci, 2001). Furthermore, smokers have been found to be more likely to achieve abstinence from smoking when they had higher levels of autonomous motivation compared to controlled motivation (Curry *et al.*, 1990). Although these studies have examined non-depressed smokers' motivation as measured by the TSRQ, no published studies have examined the relationship between depression and autonomous motivation to quit using the TSRQ. Furthermore, few published studies have yet to explore the difference between autonomous and controlled motivation using the relative autonomous index

(Curry et al., 1990).

The purpose of this study is to examine the association of current depression and smoking cessation motivation in rural primary care patients. This study aims to extend previous research concerning depressed smokers' motivation to quit smoking by examining the relationship of depression with autonomous and controlled motivation in this population.

METHODS

Participants

Recruitment

Participants were recruited from fifty primary care practices throughout the state of Kansas for a randomized clinical trial designed to evaluate a disease-management program for smoking cessation among rural smokers, the Kan Quit Research Study. The project was conducted within the Kansas Physicians Engaged in Practice Research (KPEPR) Network, a practice-based research network of rural primary care physicians in collaboration with researchers at the University of Kansas Medical Center. The recruitment started in the summer of 2004 and ended in the fall of 2005.

Eligibility

Men and women over the age of 18 years who (a) reported smoking more than 10 cigarettes per day; (b) smoked at least 25 of the last 30 days; (c) were not pregnant or planning to become pregnant in the next two years; (d) were not planning on moving in the next two years; (e) had a home telephone or a cellular

telephone; and (f) considered one of our participating physicians to be their regular doctor were deemed eligible. Intention to quit smoking was not an eligibility criterion, as we wanted to work with a general population of smokers. Of the 1,827 smokers identified, 714 were ineligible, 305 refused to participate and 58 were unable to be reached between the screening and the administration of the baseline assessment. A final sample of 750 was randomized to one of three treatment conditions: usual care, low intensity disease management or high intensity disease management (see *Figure 1*).

Procedures

University of Kansas medical students on a rural clinical rotation assessed patients' smoking status, identified eligible smokers, and obtained written informed consent from interested individuals during a regular office visit or by approaching patients who came forward and volunteered to participate. Medical students underwent an intensive standardized research training curriculum prior to going on the 6 to 8 week rotation. Participant information was forwarded to the research staff located at the University of Kansas Medical Center. The staff contacted the participants, verified eligibility, and conducted the baseline survey via telephone. The baseline questionnaire included an assessment of the following variables: (a) demographic characteristics (i.e., age, gender, race, total annual income, education level, employment status, marital status); (b) smoking history (i.e., number of cigarettes smoked per day, time to first cigarette, number of previous quit attempts, longest prior abstinence, previous nicotine replacement

usage, previous bupropion usage); (c) motivation to quit smoking (i.e., stage of change, importance for quitting 0 to 10 point scale, types of motivation including autonomous motivation, controlled motivation); (d) depression (i.e., current depression, and lifetime diagnosis of depression) (see Appendix I for a copy of the survey).

Instruments

Patient Health Questionnaire-9 (PHQ-9).

The PHQ-9 is a valid and reliable 9-item scale assessing depression symptom severity during the prior two weeks (Kroenke *et al.*, 2001, 2002; Lowe *et al.*, 2004). This brief questionnaire commonly used in primary care and research settings is a substitute for The Primary Care Evaluation of Mental Disorders (PRIME-MD) diagnostic instrument for common mental disorders. The PHQ-9 scores the nine DSM-IV criteria on which the diagnosis of depression disorders is based. Each of the items may be scored on a 4-point Likert scale (from 0 = “not at all” to 3 = “nearly every day”). As a diagnostic measure, major depression is diagnosed if five or more of the nine items have been present at least “more than half the days” (a score of 2 on each item), and one of the symptoms is depressed mood or anhedonia (the inability to enjoy activities that normally give pleasure). One of the nine items (“thoughts that you would be better off dead or thoughts of hurting yourself in some way”) counts as major depression if present at all. Scores can range from 0 – 27. The current recommended single screening cut point for current depression is a PHQ-9 score of 10 or more (Kroenke *et al.*,

2002). Sensitivity and specificity for a PHQ-9 less than or equal to 10 ranges from 88-91% and 88-89% respectively for major depression (Kroenke et al., 2001; L. S. Williams *et al.*, 2005). We chose to use a PHQ-9 score of 10 or more to define current depression.

Motivation to Quit.

Motivation to quit smoking was assessed with two measures. The first measure, stage of change, categorized participants into one of three pre-action stages of change (pre-contemplation, contemplation, preparation) since all participants were current smokers. The stages were based upon asking participants “Are you seriously considering quitting smoking within the next 30 days?”, “Are you seriously considering quitting smoking within the next 6 months?” and “In the last six months, how many times have you tried to quit smoking and were able to stay off cigarettes for at least 24 hours?” (DiClemente *et al.*, 1991; Fava *et al.*, 1995). Pre-contemplation consisted of smokers who were not seriously considering quitting smoking with the next 6 months, irregardless of whether they made a quit attempt or not in the past 6 months. Contemplation consisted of smokers who were considering quitting smoking within the next 6 months or those who were considering quitting smoking within the next 30 days but had not made a serious quit attempt in the past 6 months. Preparation consisted of smokers who were considering quitting smoking within the next 30 days and had made at least one quit attempt in the last 6 months. The second indicator of participants’ motivation to quit smoking was assessed on a continuum

by asking “On a scale of 0 to 10, where 0 is ‘not at all important’ and 10 is ‘extremely important,’ how important is it for you to quit smoking?” (Rollnick *et al.*, 1997).

Treatment Self-Regulation Questionnaire (TSRQ).

The TSRQ for smoking (G. C. Williams *et al.*, 2004) is a 15-item instrument that assesses one’s motivation to quit smoking using three subscales—autonomous motivation, controlled motivation, and amotivation. The TSRQ for smoking is designed to determine the degree to which one’s motivation to quit smoking is relatively autonomous (i.e., acting with a full sense of choice and willingness to engage in behavior change), controlled (i.e., acting with a sense of pressure or demand), or amotivated (i.e., referring to a lack of motivation).

Examples of autonomous reasons include “The reason I would not smoke is because I personally believe it is the best thing for my health” and “...because I have carefully thought about it and believe it is very important for many aspects of my life”. Examples of controlled reasons include “The reason I would not smoke is because I feel pressure from others not to smoke” and “because others would be upset with me if I smoked”. Examples of amotivation include “I don’t really think about the [reasons for quitting],” “I don’t really know why [I would not smoke]”. Participants completed six items for each of the autonomous and controlled subscales and completed three items for the amotivation subscale by rating each reason on a 7-point Likert scale ranging from “not at all true” to “very true”. The autonomous motivation and controlled motivation subscales have a

range of 6 to 42, with higher scores indicating greater motivation. The amotivation subscale scores range from 3 to 21. The autonomous and controlled motivation scales were shown to be internally consistent (Cronbach's $\alpha = 0.84$ and 0.82 , respectively) in our data. The coefficient of reliability for the amotivation scale was low ($\alpha = 0.44$) and thus amotivation was not used in the analyses. A relative autonomous index was also calculated by subtracting the average for the controlled reasons from the average of the autonomous reasons. A higher index score indicating greater autonomous motivations and less controlled motivations for quitting smoking.

Fagerström Test for Nicotine Dependence (FTND).

The FTND is a 6-item scale used to assess the level of nicotine addiction (Heatherton *et al.*, 1991). Scores on the FTND range from 0 to 10. Nicotine dependence was classified with 0-5 indicating a low levels and 6-10 indicating a high levels of dependence (Fagerstrom *et al.*, 1997).

SPECIFIC AIMS AND HYPOTHESES

I. Specific Aim 1: To compare motivation to quit smoking between depressed smokers and non-depressed smokers.

Hypothesis 1: Depression will not be significantly associated with motivation to quit smoking as measured by stage of change and importance for quitting smoking.

II. Specific Aim 2: To compare autonomous motivation and relative motivation index between depressed smokers and non-depressed smokers.

Hypothesis 2: Depression will be significantly associated with less autonomous motivation and a smaller relative autonomous index.

III. Specific Aim 3: To compare autonomous motivation and relative autonomous index between depressed smokers and non-depressed smokers after adjusting for age, gender, income, nicotine dependence.

Hypothesis 3: Depression will be significantly associated with less autonomous motivation and a higher relative autonomous index after adjusting for age, gender, income, nicotine dependence.

ANAYLSIS

Statistical Analysis

I Univariate analyses

Frequencies and percentages (categorical variables) or mean and standard deviations (continuous variables) of participant characteristics were examined. Tables and histograms were generated to examine the distributions of these variables.

II Aim 1 and 2: Bivariate relationship of depression and motivation

A) Initially the PHQ-9 was treated as a continuous variable (0-27). The correlation coefficients between depression scores and continuous variables' scores [importance for quitting smoking (0-10), and TSRQ subscales of autonomous motivation, controlled motivation, and the relative autonomous index (RAI)] were examined. Scatter plots were generated to assess the trend in this relationship visually and to determine if the Pearson's correlation coefficient or

the Spearman's correlation coefficient was more appropriate.

B) Next, the PHQ-9 was treated as a dichotomous variable [≥ 10 (current depression) and < 10 (not depressed)]. A two-sample t-test was performed (current depression vs. not depressed) for the following continuous variables: importance for quitting smoking (0-10) and TSRQ subscales of autonomous motivation, controlled motivation, and RAI. A Pearson chi-square statistic was calculated and odds ratios were generated to investigate the bivariate relationship with the PHQ-9 and the following categorical variable: stages of change.

III Aim 3: Multivariable model

A linear regression was used to further examine the relationship between the dependent variable autonomous motivation and with depression as the independent variable controlling for age, gender, income, and nicotine dependence. A linear regression was also used to examine the relationship between RAI and depression controlling for age, gender, income, and nicotine dependence. Backward elimination with a cut point of $p < 0.05$ to stay in the model was performed.

All univariate, bivariate, and multivariable model analyses were conducted using SPSS version 13.0 (SPSS Inc., Chicago, IL).

RESULTS

Participant characteristics

The demographic and key characteristics of the study participants are displayed in Table 1. Participants were predominately female (58.5%), non-

Hispanic Caucasian (89.5%), middle aged ($M = 47.2$ years, $SD = 13.1$), employed (67.1% at least part time), had an annual household income of less than or equal to 40K (60.4%), and had a high school education or less (51.3%).

Participants smoked on average 23.7 cigarettes/day ($SD = 10.4$); 76.8% reported smoking a pack or more per day (≥ 20 cigarettes). The mean FTND score was 5.2 ($SD = 2.2$); 45.7% had a score of greater than or equal to 6, indicating a considerable level of nicotine dependence. Most of the sample started smoking regularly at 18 years of age or younger (72.9%). One third of smokers were in the preparation stage of change for quitting smoking.

Depression characteristics

The mean PHQ-9 score for the sample was 7.3 ($SD = 5.7$). A total of 234 (31.2%) met PHQ-9 criteria for current depression (score of ≥ 10). One third of those with current depression were in the moderately severe to severe range. Participants who were currently depressed and non-depressed differed on key demographic variables as t tests and chi square analysis (see Table 2) revealed that depressed patients had a lower mean age (45.7 vs. 47.9 years; $t[748] = 2.1$, $p < 0.05$) and a higher mean FTND score (5.6 vs. 5.0; $t[748] = -3.9$, $p < 0.01$). Additionally females (36.7% were depressed vs. 23.5% for males, $p < 0.01$) and those with a total annual household income less than or equal to 40K were more likely to be depressed (37.3% vs. 21.8% for those with an income greater than 40K).

Aim I: Motivation to quit and depression

Current depression (PHQ-9 \geq 10) was not significantly related to motivation to quit smoking as measured by the stage of change. Of those smokers with current depression, 9.0% were in the pre-contemplation (PC) stage of change, 56.8% were in contemplation (C), and 34.2% were in preparation (PR). Non-depressed smokers across each stages of change were not statistically different from depressed smokers; 8.5%, 62.8%, 28.7%, in PC, C, and PR respectively [$\chi^2 = 2.58$, d.f. = 2, $p = 0.28$].

Additionally the *t* test revealed that current depression (PHQ-9 score \geq 10) was also not significantly related to importance (see Table 3). However, when left as a continuous variable, the PHQ-9 was slightly but significantly correlated with importance for quitting smoking. ($r = .105$, $p < 0.01$) (see Figure 2).

Aim II. Treatment self-regulation questionnaire and depression

Autonomous motivation and the relative autonomous index (RAI) were not significantly related to current depression (PHQ-9 \geq 10). Currently depressed and non-depressed smokers did not differ statistically on any of the motivation variables (see Table 3). In addition, there was no significant correlation when using the PHQ-9 and the motivation variables (autonomous motivation, controlled motivation, and RAI) as continuous scores.

Aim III. Multivariable models of depression and motivation

Model building results of the linear regression analyses demonstrated that depression was not significantly associated with autonomous motivation and the

relative autonomous index. In fact, none of the other predictors, age, gender, income, and nicotine dependence, remained in the models either (see Table 4 and 5).

DISCUSSION

This is the first study to examine autonomous motivation to quit smoking in a clinic based population with a high proportion of currently depressed smokers. Previous studies of depressed smokers' motivation to quit smoking have increasingly demonstrated that history, symptomology, and severity of depression are unrelated to readiness to quit (Acton et al., 2001; Haug et al., 2005; Prochaska et al., 2004; Tsoh et al., 2000). Consistent with these earlier studies and our first hypothesis, we found that motivation to quit smoking as measured by the stage of change for depressed smokers was not statistically different from that for non-depressed smokers. In addition, current depression was not significantly related to importance in quitting smoking. These findings suggest that depressed smokers have similar motivation as compared to non-depressed smokers. However, since previous studies examining the relationship between motivation to quit smoking and depression noted that a limitation of the measure of motivation is that it is often asked with a simple or single item questionnaire, we further examined the relationship between motivation, as measured by the 15-item Treatment Self-Regulation Questionnaire, and depression.

Autonomous motivation, controlled motivation and the relative autonomous index (RAI) also were not significantly related to current depression

(PHQ-9 \geq 10). Our results did not lend support to our hypothesized relationship between depression and autonomous motivation for quitting smoking. It is important to consider *why* there was not a difference in autonomous motivation among depressed versus non-depressed smokers.

First, all study participants had relatively high baseline levels of autonomous motivation ($M = 36.8$, $SD = 6.84$, Minimum = 7, Maximum = 42). High levels of autonomous reasons for quitting smoking is significant given that smokers at all stages of readiness to change were approached for inclusion in this study. While the vast majority of treatment interventions have targeted only smokers preparing to stop smoking (Fiore, 2000), this study uniquely enrolled smokers irregardless of their intention to quit. Our results of high baseline levels of autonomous motivation is consistent with those reported in a study among a group of alcohol and drug dependent veterans with moderate levels of depression who were requesting treatment that observed high levels of internal motivation pretreatment (Cahill *et al.*, 2003). This may suggest that irregardless of current depressive symptomology and intention to quit smoking, participants who voluntarily enroll into a research study from the health care system may already present with high levels of autonomous reasons (i.e., being motivated by choice and willingness to engage in a health behavior change) compared to participants recruited through other avenues. Since autonomous motivation and depression in this study was not measured in treatment refusers, it is impossible to make a definitive conclusion regarding depression and autonomous motivation among

this group of smokers. However, non- participants in a community based smoking intervention had less desire or motivation to quit smoking compared with those who participated (Kviz *et al.*, 1992) which suggests further exploration of autonomous motivation for quitting smoking among treatment refusers is warranted.

Second, since participants were recruited as part of a physician office visit this population of depressed smokers may have been more likely to be receiving antidepressant pharmacotherapy and thus their depression is not impacting their motivation to quit smoking. Previous research (Haug *et al.*, 2005), found that tobacco treatment acceptors were more likely to be in the preparation stage of change at baseline and were significantly more likely to be taking psychiatric medication for their depression. Psychiatric medication may play an important role in motivation to quit smoking and engaging in cessation treatment by currently depressed smokers.

Since our data does not support a relationship between depression and motivation to quit smoking it is important to consider other variables besides motivation that might be mediating the relationship between depression and smoking cessation. One explanation may be that depression negatively affects other cessation related variables such as self-efficacy. Self-efficacy has been shown to be an important predictor of smoking cessation outcomes (Schnoll *et al.*, 2005; Willemsen *et al.*, 1996). We have previously reported higher self-efficacy was correlated with lower depression scores and higher autonomous motivation

(Berg *et al.*, In press). Similar results have been reported in a population sample of Finnish men and women (Haukkala *et al.*, 2000). Future studies aimed at increasing self-efficacy among depressed smokers may be an effective strategy for improving cessation rates among this population.

The current findings, which are consistent with the literature, indicated that depressed patients were more likely to be younger (Blazer *et al.*, 1994; Kessler *et al.*, 2003), female (Blazer *et al.*, 1994; Kessler *et al.*, 2003), have lower incomes (Blazer *et al.*, 1994; Kessler *et al.*, 2003), and have higher nicotine dependence (Anda *et al.*, 1990; C. Brown *et al.*, 2000; Farrell *et al.*, 2001; Lerman *et al.*, 1996) compared to non-depressed patients. Higher nicotine dependence among depressed smokers lends support to the self-medication hypothesis. This hypothesis theorizes that individuals with a history of depression use cigarettes to self-medicate depressive symptoms. Additional factors that may explain the relationship between depression and smoking cessation may include greater post-quit mood disturbance (Hall *et al.*, 1996), increased depressive episodes while quitting (Covey *et al.*, 1998) and more severe withdrawal symptoms (Breslau *et al.*, 1992, 1993). Although it appears depressed smokers are just as motivated to quit smoking and have similar level of autonomous reasons for quitting smoking as non-depressed smokers there is consistent evidence in the literature to support the association between depression and smoking. Further work is needed to ascertain the determinants of complicated relationship between depression and cessation.

Clinical Implications

The current study has a number of practice implications for primary care practitioners. First, it demonstrates that depressed smokers are interested in quitting smoking and are willing to participate in a structured smoking cessation program. Practitioners should be performing the 5 A's (asking, advising, assessing, assisting, and arranging) and following current treatment guidelines recommending the integration of smoking cessation with psychiatric care (Dalack & Glassman, 1992; Hughes & Frances, 1995). Second, the prevalence of current depression (31%) among this sample of rural primary care smokers is high. These results underscore the need to screen for depressive symptomatology among smokers seeking treatment, and to develop cessation treatments that are tailored to the needs of depressed smokers. Furthermore, previous studies have found the degree of physician autonomy support for smoking cessation has resulted in better maintained cessation rates (G. C. Williams & Deci, 2001). Physicians using an autonomy supportive approach may be able to increase depressed patient's cessation rates and ultimately improve long term health outcomes.

Limitations

Limitations of the study include that participants were predominantly presenting for an appointment at a rural primary care clinic; generalizability of these findings are limited to patients in similar settings. This sample was predominantly white and may not represent rural smokers of other racial and ethnic groups. These participants also had access to regular medical care.

Assessment of depressive symptoms was made using the PHQ-9, a self-report instrument. Participants may not accurately report their depression symptoms and a clinician administered assessment may have been more reliable. Nevertheless, the PHQ-9 is a well validated and reliable criterion-based measure for diagnosing depression, assessing severity, and monitoring treatment (Kroenke et al., 2001, 2002; Lowe et al., 2004). Thus we feel that our depressive assessment is likely accurate and reliable. This study used cross-sectional data at baseline to examine autonomous motivation. Further work is needed to examine depression and motivation longitudinally.

Longitudinal analyses may reveal that the current intervention, which utilized a counseling style (motivational interviewing) aimed at increasing participant's motivation for behavior change, may in turn further increase autonomous reasons for quitting and ultimately enhance cessation outcomes. Recent efforts to assess repeated measures of depressive symptoms using the PHQ-9 are important in examining the relationship of persistent depression and smoking cessation. In a study of hospitalized acute coronary syndrome patients, persistently depressed patients reported lower rates of adherence to quitting smoking, taking medications, exercising, and attending cardiac rehabilitation. (Kronish *et al.*, 2006) Corroborating these findings may lead to greater understanding of the relationship among depression and adherence to health behavior change.

CONCLUSIONS

Overall, motivation and depression are important constructs to study because of their relationship to successful smoking cessation. Furthermore, both smoking and depression are more prevalent among rural patients and thus future smoking cessation studies in this population should incorporate a comprehensive program integrating autonomy supportive counseling and pharmacotherapy aimed at addressing depression during smoking cessation. By understanding that depressed smokers are just as motivated to quit smoking as other smokers, we should continue to offer depressed smokers smoking cessation opportunities and treatment. Further understanding of the relationships between depression, motivation, and smoking cessation may better assist these smokers in their efforts in quitting smoking.

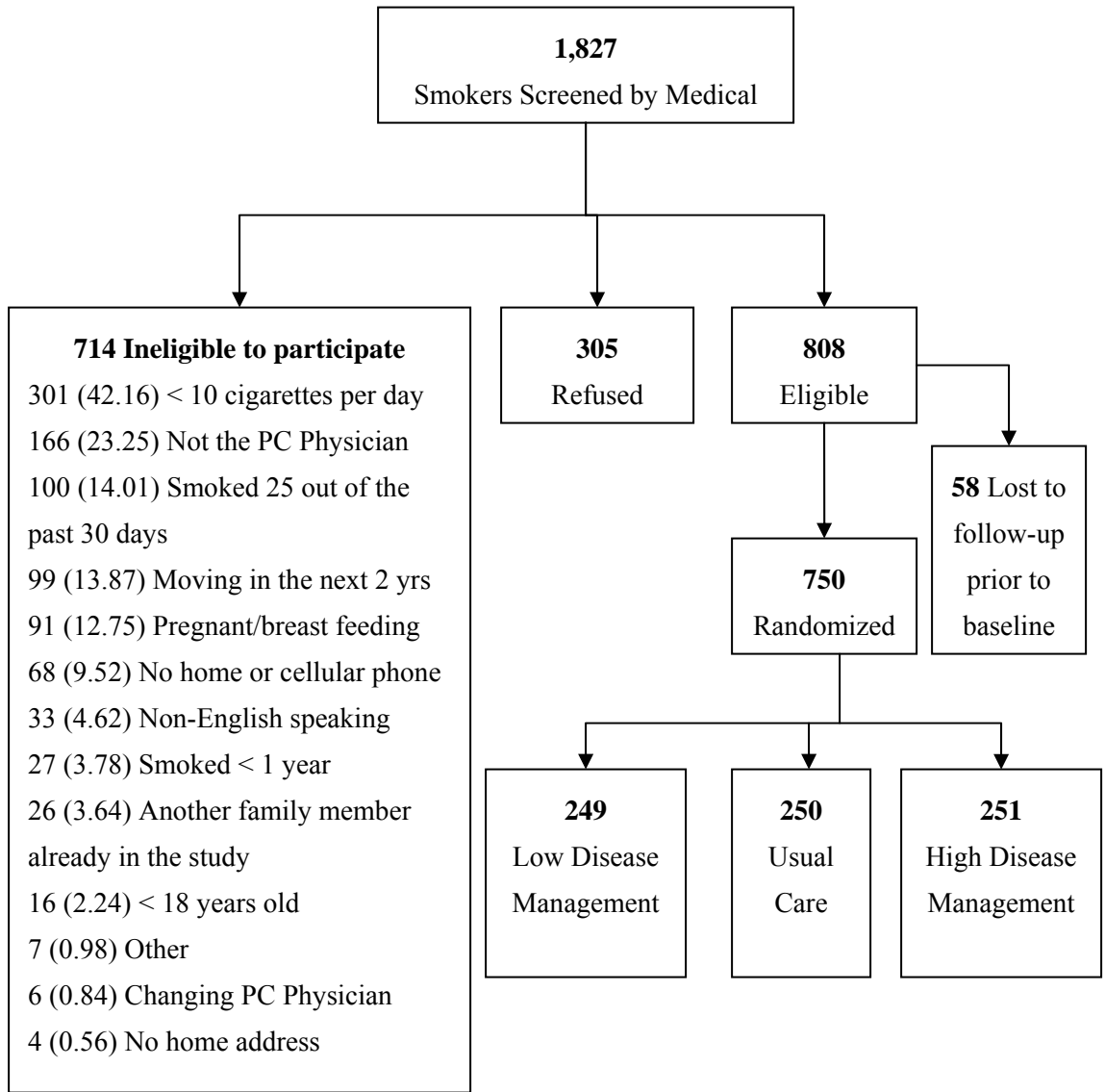


Figure 1. Recruitment and enrollment of participants

Table 1: Baseline characteristics of study participants (n = 750)

Characteristics	<i>N</i> (%)
Age > 50 years	310 (41.3)
Gender (% Female)	439 (58.5)
Ethnicity (% White)	671 (89.5)
Annual household income ≤ 40K ¹	453 (60.4)
High school or lower education	385 (51.3)
Employed (Full time or Part time)	503 (67.1)
Married or living with significant other	504 (67.2)
Cigarettes per day ≥ 20	576 (76.8)
FTND ² ≥ 6	343 (45.7)
Smoker's stage of change	
Pre-contemplation	65 (8.7)
Contemplation	457 (60.9)
Preparation	228 (30.4)
Depression (PHQ-9 ³)	
None (0-4)	298 (39.7)
Mild (5-9)	218 (29.1)
Moderate (10-14)	146 (19.5)
Moderately severe (15-19)	62 (8.3)
Severe (20-27)	26 (3.5)
Current depression ⁴	234 (31.2)

¹ N = 738

²Fagerström Test for Nicotine Dependence

³9-item Patient Health Questionnaire

⁴PHQ-9 score ≥10

Table 2: Select characteristics of study population and demographic variables associated with depression

Characteristics	Total sample Mean (SD) or N (%) N = 750	Currently depressed ¹ Mean (SD) or N (%) N = 234 (31.2)	Non- depressed Mean (SD) or N (%) N = 516 (68.8)	<i>p</i>	OR (95% CI)
Age (years)	47.2 (13.1)	45.7 (12.4)	47.9 (13.4)	.04	---
FTND ²	5.2 (2.2)	5.6 (2.2)	5.0 (2.1)	.01	---
≤40K	453 (61.4)	169 (37.3)	284 (62.7)	---	---
>40K	285 (38.6)	62 (21.8)	223 (78.2)	---	0.47 (0.33-0.66)
Female	439 (58.5)	161 (36.7)	278 (63.3)	---	---
Male	311 (41.5)	73 (23.5)	238 (46.1)	---	0.53 (0.38-0.73)

¹Currently depressed = PHQ-9 score ≥10

²Fagerström Test for Nicotine Dependence

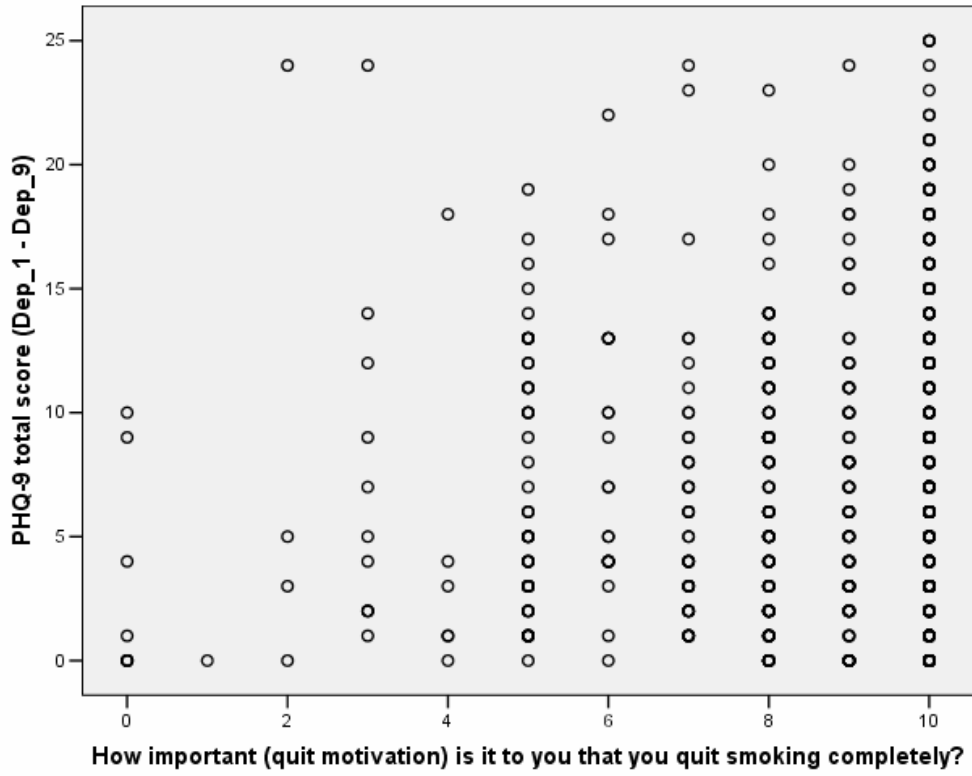


Figure 2. Correlation between PHQ-9 and Importance in quitting smoking

Table 3: Key motivation variables associated with depression

Characteristics	Total sample Mean (SD)	Currently depressed ¹ Mean (SD)	Non-depressed Mean (SD)	<i>p</i>
Importance for quitting smoking	8.65 (2.05)	8.79 (1.88)	8.59 (2.12)	.21
Autonomous motivation	36.75 (6.84)	36.42 (6.96)	36.90 (6.79)	.37
Controlled motivation	21.73 (10.00)	22.33 (9.30)	21.45 (10.30)	.27
RAI ²	2.50 (1.63)	2.35 (1.58)	2.57 (1.65)	.08

¹Currently depressed = PHQ-9 score ≥ 10

²RAI = Relative autonomous index

Table 4: Backward elimination linear regression with autonomous motivation

Variables	Parameter Estimate	Standard Error	<i>p</i>
Intercept	37.11	1.17	0.00
Age	-0.01	0.02	0.75
Female	0.07	0.53	0.08
Income \leq 40K	0.01	0.53	0.71
Nicotine dependence	-0.04	0.12	0.35
Currently depressed	-0.03	0.56	0.45
Intercept	36.83	0.77	0.00
Female	0.07	0.52	0.08
Income \leq 40K	0.01	0.53	0.72
Nicotine dependence	-0.04	0.12	0.34
Currently depressed	-0.03	0.56	0.46
Intercept	36.99	0.75	0.00
Female	0.07	0.52	0.07
Nicotine dependence	-0.04	0.12	0.35
Currently depressed	-0.03	0.55	0.49
Intercept	36.88	0.75	0.00
Female	0.07	0.51	0.08
Nicotine dependence	-0.04	0.12	0.29
Intercept	36.21	0.39	0.00
Female	-0.03	0.56	0.06

Backward elimination criteria $p < 0.05$, thus none of the variables remained in the model.

Note: Currently depressed = PHQ-9 score ≥ 10 . Autonomous motivation assessed using the TSRQ.

Nicotine dependence assessed using the FTND.

Table 5: Backward elimination linear regression with the relative autonomous index

Variables	Parameter Estimate	Standard Error	<i>p</i>
Intercept	2.94	0.28	0.00
Age	-0.06	0.01	0.13
Female	-0.04	0.13	0.27
Income \leq 40K	-0.03	0.13	0.44
Nicotine dependence	0.03	0.03	0.48
Currently depressed	-0.06	0.13	0.11
Intercept	3.03	0.25	0.00
Age	-0.05	0.01	0.15
Female	-0.05	0.12	0.21
Income \leq 40K	-0.03	0.13	0.49
Currently depressed	-0.06	0.13	0.13
Intercept	2.99	0.24	0.00
Age	-0.06	0.01	0.14
Female	-0.05	0.12	0.18
Currently depressed	-0.06	0.13	0.10
Intercept	2.88	0.23	0.00
Age	-0.05	0.01	0.17
Currently depressed	-0.07	0.13	0.07
Intercept	2.58	0.39	0.00
Currently depressed	-0.06	0.13	0.08

Backward elimination criteria $p < 0.05$, thus none of the variables remained in the model.

Note: Currently depressed = PHQ-9 score ≥ 10 . Relative autonomous index assessed using the TSRQ. Nicotine dependence assessed using the FTND.

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APPENDIX I

Date: ___ ___ / ___ ___ / **20** ___ ___
M M D D Y Y

SECTION 1: YOUR SMOKING AND OTHER TOBACCO USE

1. How old were you when you first started smoking regularly?

→Enter Age: [][]

2. What brand of cigarettes do you *usually* smoke?

→ DO NOT READ LIST OF BRANDS

→**CHECK ONE BRAND ONLY:** IF INDIVIDUAL GIVES MORE THAN ONE BRAND SAY, "Please choose your main brand, which is the brand that you usually smoke the most."

- 01 American Spirit
- 02 Barclay
- 03 Basic
- 04 Benson & Hedges
- 05 Camel
- 06 Capri
- 07 Cambridge
- 08 Doral

- 09 Dunhill
- 10 Eve
- 11 GPC
- 12 Kent
- 13 Kool
- 14 Lucky Strike
- 15 Marlboro
- 16 Merit
- 17 Misty
- 18 More
- 19 Nat Sherman
- 20 Newport
- 21 Now
- 22 Pall Mall
- 23 Parliament
- 24 Salem
- 25 Vantage
- 26 Virginia Slims
- 27 Winston
- 28 Other, specify: _____

3. Are these cigarettes menthol?

Yes

No

4. On average, how many cigarettes do you smoke per day?

→ Enter #: [][]

5. How soon after you wake do you smoke your first cigarette?

→ ONLY READ ANSWER CATEGORIES IF NEEDED.

Within 5 minutes

6-30 minutes

31-60 minutes

After 60 minutes

6. Do you find it difficult to refrain from smoking in places where it is forbidden, for example at the library, at the hospital, at the movies, etc.?

Yes

No

7. Thinking about all the cigarettes you smoke in the course of an average day, which cigarette would you hate most to give up?

₁ The first one in the morning

₂ All others

8. Do you smoke more frequently during the first hours after waking than during the rest of the day?

₁ Yes

₂ No

9. Do you smoke if you are so ill that you are in bed most of the day?

₁ Yes

₂ No

10. In the past 30 days, have you used any of the following products: cigars, pipe tobacco, snuff, chewing tobacco or smokeless tobacco?

₁ Yes

₂ No, not at all

SECTION 2: QUITTING HISTORY

11. IN THE LAST SIX MONTHS, how many times have you tried to quit smoking and were able to stay off cigarettes for at least 24 hours?

Enter #: [][]

12. Thinking about your entire lifetime, when you tried to quit smoking, what was the longest time you were able to stay off cigarettes, not having even a single puff?

→ONLY READ ANSWER CATEGORIES IF NEEDED.

- 0 Never tried to quit smoking
- 1 Less than 24 hours
- 2 1 - 7 days
- 3 8 - 30 days
- 4 1 month - less than 6 months
- 5 6 months – less than one year
- 6 One year or more

13. TO HELP YOU QUIT SMOKING, have you ever used any of the following products: the nicotine patch, nicotine gum, nicotine inhaler, nicotine lozenges, or nicotine nasal spray?

₁ Yes

₂ No

14. TO HELP YOU QUIT SMOKING, have you ever taken Zyban, which is a drug also known as bupropion or Wellbutrin?

₁ Yes

₂ No

SECTION 3: INTEREST IN QUITTING

15. Are you seriously considering quitting smoking within the next 30 days?

₁ Yes →

IF YES, MARK "YES" ON #16
& **DO NOT ASK**

₂ No

₈ Don't know

16. Are you seriously considering quitting smoking within the next 6 months?

₁ Yes

₂ No

₈ Don't know

SECTION 4: YOUR MOOD

Over the PAST 2 WEEKS, how often have you been bothered by any of the following problems?

19. Feeling down, depressed, or hopeless...

→READ **ALL** ANSWER CATEGORIES

- ₀ Not at all
- ₁ Several days
- ₂ More than half the days
- ₃ Nearly every day

20. Trouble falling or staying asleep, or sleeping too much...

→READ **ALL** ANSWER CATEGORIES

- ₀ Not at all
- ₁ Several days
- ₂ More than half the days
- ₃ Nearly every day

21. Little interest or pleasure in doing things...

→ONLY READ ANSWER CATEGORIES IF NEEDED.

- ₀ Not at all
- ₁ Several days
- ₂ More than half the days
- ₃ Nearly every day

22. Feeling tired or having little energy...

→ONLY READ ANSWER CATEGORIES IF NEEDED.

- ₀ Not at all
- ₁ Several days
- ₂ More than half the days
- ₃ Nearly every day

23. Poor appetite or overeating...

→ONLY READ ANSWER CATEGORIES IF NEEDED.

- ₀ Not at all
- ₁ Several days
- ₂ More than half the days
- ₃ Nearly every day

24. Feeling bad about yourself, or that you are a failure or have let yourself or your family down...

→ONLY READ ANSWER CATEGORIES IF NEEDED.

- ₀ Not at all
- ₁ Several days
- ₂ More than half the days
- ₃ Nearly every day

25. Trouble concentrating on things, such as reading the newspaper or watching television...

→READ ALL ANSWER CATEGORIES

- ₀ Not at all
- ₁ Several days
- ₂ More than half the days
- ₃ Nearly every day

26. Moving or speaking so slowly that other people could have noticed? Or the opposite—being so fidgety or restless that you have been moving around a lot more than usual...

→ONLY READ ANSWER CATEGORIES IF NEEDED.

- ₀ Not at all
- ₁ Several days
- ₂ More than half the days
- ₃ Nearly every day

27. Thoughts that you would be better off dead or thoughts of hurting yourself in some way...

→ONLY READ ANSWER CATEGORIES IF NEEDED.

- ₀ Not at all
- ₁ Several days
- ₂ More than half the days
- ₃ Nearly every day

→IF PARTICIPANT SAYS “NOT AT ALL” ON #19-27, **DO NOT ASK & MARK “N/A” ON #28.**

28. If you indicated that you have had any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

- 0 Not difficult at all
- 1 Somewhat difficult
- 2 Very difficult
- 3 Extremely difficult
- 4 N/A

SECTION 5: YOUR FAMILY, FRIENDS & HOME

29. How much encouragement do you get from your family to stop smoking?

- 0 None
- 1 A little
- 2 Some
- 3 A lot

30. How much encouragement do you get from your friends or work colleagues to stop smoking?

- 0 None
- 1 A little
- 2 Some
- 3 A lot

31. How many of your **five** best friends smoke? It is okay to count family members or people you work with if you consider them your best friends.

Enter #:

32. Which of the following best describes the smoking status of your spouse or significant other?

- 1 I don't have a spouse or significant other.
- 2 My spouse or significant other has never smoked.
- 3 My spouse or significant other is a former smoker.
- 4 My spouse or significant other currently smokes.

33. Not including yourself, how many people who live in your home smoke?

Enter #: [][]

34. Which of these statements best describes the rules about smoking in your home?

- 0 No one is allowed to smoke anywhere.
- 1 Smoking is allowed in some places or at some times.
- 2 Smoking is permitted anywhere; there are no rules.

SECTION 6: YOUR DOCTOR

The following questions refer to the doctor that you consider to be your *regular* doctor.

35. Over the last 12 months, how many times have you been to see your regular doctor?

Enter #: [][]

36. At your last doctor visit, did your doctor discuss your smoking?

Yes

No

Don't know

37. Has your doctor ever advised you to stop smoking?

Yes

No

Don't know

For the next few items, I'd like to know if your doctor has ever discussed any of the following things with you...

38. ...such as the reasons you might have to want to stop smoking?

Yes

No

Don't know

39. Has your doctor ever discussed your past experiences with attempts to stop smoking?

Yes

No

Don't know

40. ...any difficult situations you might encounter or problems you might have in trying to stop smoking?

Yes

No

Don't know

41. ...specific things you could do to deal with these possible problems in stopping smoking?

Yes

No

Don't know

42. Has your doctor ever discussed the use of nicotine gum, the nicotine patch, or other nicotine replacement products to help you stop smoking?

Yes

No

Don't know

43. ...the use of Zyban, bupropion, or Wellbutrin to help you stop smoking?

Yes

No

Don't know

44. Has your doctor ever asked you to set a specific time or date to stop smoking or begin to cut down?

Yes

No

Don't know

45. Have you and your doctor ever put a plan regarding your smoking in writing?

Yes

No

Don't know

46. Has your doctor ever given you written materials about stopping smoking?

Yes

No

Don't know

47. Has your doctor ever set up or asked you to arrange a future clinic visit or phone call to further discuss your smoking?

Yes

No

Don't know

SECTION 7: YOUR HEALTH

Has any doctor or other health care provider ever told you that you have any of the following?

50. Diabetes or high blood sugar

₁ Yes

₂ No

51. Hypertension or high blood pressure

₁ Yes

₂ No

52. High cholesterol

₁ Yes

₂ No

53. Stroke

₁ Yes

₂ No

54. Chronic lung disease such as asthma, emphysema or chronic bronchitis

₁ Yes

₂ No

55. Heart disease

₁ Yes

₂ No

56. Cancer (other than skin cancer)

₁ Yes

₂ No

57. Depression

₁ Yes

₂ No

SECTION 8: TEMPTING SITUATIONS

The following are some situations in which certain people might be tempted to smoke. Please indicate **how sure you are that you could resist or keep from smoking** in each situation.

58. How sure are you that you could keep from smoking when you feel nervous?

₁ Not at all sure

₂ Not very

₃ More or less

₄ Fairly

₅ Absolutely sure

→READ **ALL** ANSWER CATEGORIES

59. How sure are you that you could keep from smoking when you feel depressed?

- 1 Not at all sure
- 2 Not very
- 3 More or less
- 4 Fairly
- 5 Absolutely sure

→READ **ALL** ANSWER CATEGORIES

60. ...how about when you are angry?

- 1 Not at all sure
- 2 Not very
- 3 More or less
- 4 Fairly
- 5 Absolutely sure

→ONLY READ ANSWER CATEGORIES IF **NEEDED**.

61. ...when you feel very anxious?

- 1 Not at all sure
- 2 Not very
- 3 More or less
- 4 Fairly
- 5 Absolutely sure

62. How sure are you that you could keep from smoking when you want to think about a difficult problem?

- 1 Not at all sure
- 2 Not very
- 3 More or less
- 4 Fairly
- 5 Absolutely sure

→ONLY READ ANSWER CATEGORIES IF NEEDED.

63. ...how about when you feel the urge to smoke?

- 1 Not at all sure
- 2 Not very
- 3 More or less
- 4 Fairly
- 5 Absolutely sure

→ONLY READ ANSWER CATEGORIES IF NEEDED.

64. ...when having a drink with friends?

- 1 Not at all sure
- 2 Not very
- 3 More or less
- 4 Fairly
- 5 Absolutely sure

65. ...when celebrating something?

- 1 Not at all sure
- 2 Not very
- 3 More or less
- 4 Fairly
- 5 Absolutely sure

→ONLY READ ANSWER CATEGORIES IF NEEDED.

66. ...when drinking beer, wine, or other spirits?

- 1 Not at all sure
- 2 Not very
- 3 More or less
- 4 Fairly
- 5 Absolutely sure

→ONLY READ ANSWER CATEGORIES IF NEEDED.

67. How sure are you that you could keep from smoking when you are with smokers?

- 1 Not at all sure
- 2 Not very
- 3 More or less
- 4 Fairly
- 5 Absolutely sure

68. ...after a meal?

- 1 Not at all sure
- 2 Not very
- 3 More or less
- 4 Fairly
- 5 Absolutely sure

→ONLY READ ANSWER CATEGORIES IF NEEDED.

69. ...when having coffee or tea?

- 1 Not at all sure
- 2 Not very
- 3 More or less
- 4 Fairly
- 5 Absolutely sure

→ONLY READ ANSWER CATEGORIES IF NEEDED.

SECTION 9: REASONS YOU WOULD QUIT SMOKING

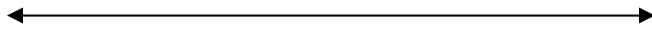
The following questions relate to the reasons why you would either quit smoking or stay quit. Different people have different reasons for doing that, and we want to know how true each of the following reasons are for you.

Let's use a scale from 1 to 7, where 1 is "not at all true" and 7 is "very true."

70. On that scale of 1-7, how true is the following for you?

The reason I would not smoke is because I feel that I want to take responsibility for my own health.

1 2 3 4 5 6 7



Not **Somewhat** **Very**
at all true **true** **true**

→CIRCLE **ONE** NUMBER & VERIFY THE RESPONSE.

1 = Not at all true

2 = Not very true

3-5 = **Do not verify**

6 = Pretty/Mostly true

7 = Very true

71. On the same scale, how true is:

The reason I would not smoke is because I would feel guilty or ashamed of myself if I smoked.

1 2 3 4 5 6 7

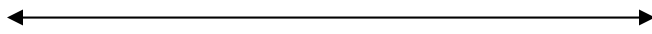


Not **Somewhat** **Very**
at all true **true** **true**

→CIRCLE **ONE** NUMBER & VERIFY THE RESPONSE.

72. ...because I personally believe it is the best thing for my health.

1 2 3 4 5 6 7



Not
at all true

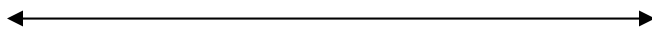
Somewhat
true

Very
true

→CIRCLE **ONE** NUMBER & VERIFY THE RESPONSE **ONLY** IF NEEDED ON ALL FOLLWING QUESTIONS.

73. ...because others would be upset with me if I smoked.

1 2 3 4 5 6 7



Not
at all true

Somewhat
true

Very
true

→CIRCLE **ONE** NUMBER.

74. ...because I have carefully thought about it and believe it is very important for many aspects of my life.

1 2 3 4 5 6 7



Not
at all true

Somewhat
true

Very
true

→CIRCLE **ONE** NUMBER.

75. ...because I would feel bad about myself if I smoked.

1 2 3 4 5 6 7



Not
at all true

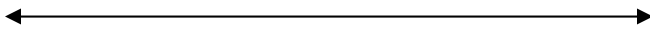
Somewhat
true

Very
true

→CIRCLE **ONE** NUMBER.

76. I really don't think about it.

1 2 3 4 5 6 7



Not
at all true

Somewhat
true

Very
true

→CIRCLE **ONE** NUMBER & VERIFY THE RESPONSE:

1 = Not at all true--you do think about it a lot.

2 = Not very true--you do think about it some.

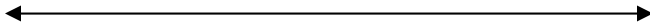
3-5 = **Do not verify**

6 = Pretty true--you only think about it a little.

7 = Very true--you really don't think about it.

77. ...because it is an important choice I really want to make.

1 2 3 4 5 6 7



Not Somewhat Very
at all true true true

→CIRCLE **ONE** NUMBER.

78. ...because I feel pressure from others not to smoke.

1 2 3 4 5 6 7

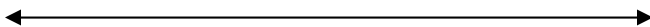


Not Somewhat Very
at all true true true

→CIRCLE **ONE** NUMBER.

79. The reason I would not smoke is because it is easier for me to do what I am told than to think about it.

1 2 3 4 5 6 7

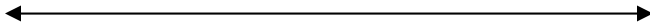


Not Somewhat Very
at all true true true

→CIRCLE **ONE** NUMBER.

80. ...because it is consistent with my life goals.

1 2 3 4 5 6 7



Not at all true Somewhat true Very true

→CIRCLE **ONE** NUMBER.

81. ...because I want others to approve of me.

1 2 3 4 5 6 7

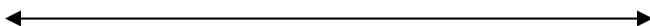


Not at all true Somewhat true Very true

→CIRCLE **ONE** NUMBER.

82. ...because it is very important for being as healthy as possible.

1 2 3 4 5 6 7

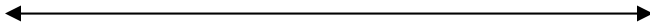


Not at all true Somewhat true Very true

→CIRCLE **ONE** NUMBER.

83. ...because I want others to see I can do it.

1 2 3 4 5 6 7

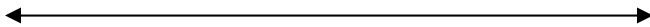


Not at all true Somewhat true Very true

→CIRCLE **ONE** NUMBER.

84. I don't really know why.

1 2 3 4 5 6 7



Not at all true Somewhat true Very true

→CIRCLE **ONE** NUMBER.

SECTION 10: ABOUT YOU

We've made it to the final section, and now I'd like to ask some questions about you.

85. What is your birth date?

___ / ___ / ___
M M / D D / Y Y Y Y

86. How tall are you?

Feet: []

Inches: [][]

→PLEASE ROUND INCHES UP ($\geq .5$) OR DOWN ($< .5$) AS NEEDED.

87. How much do you weigh?

Enter # in pounds:

[][][]

88. Which of the following best describes your current marital situation?

- 1 Married
- 2 Divorced
- 3 Widowed
- 4 Separated
- 5 Never been married
- 6 Living with a significant other or partner

89. How many children under the age of 18 live in your household?

Enter #: [][]

90. How many children under the age of 6 live in your household?

Enter #: [][]

91. How long have you lived in this community?

→ONLY READ ANSWER CATEGORIES IF NEEDED.

- ₁ Less than one year
- ₂ 1 year to less than 2 years
- ₃ 2 years to less than 5 years
- ₄ 5 years to less than 10 years
- ₅ More than 10 years

92. What is the highest grade or year of school you completed?

→ONLY READ ANSWER CATEGORIES IF NEEDED.

- 0 Never attended school
- 1 Less than high school
- 2 High school graduate or GED
- 3 Some college or tech school
- 4 College graduate
- 5 Post college education

93. What best describes your current work situation?

→CHOOSE ONLY ONE RESPONSE.

- 1 Employed (self-employed) full-time→**SKIP #94**
- 2 Employed part-time→**SKIP #94**
- 3 Currently not employed→**ASK #94**

94. Which of these best describes you?

→ READ ALL POSSIBLE ANSWERS.

→ CHOOSE ONLY **ONE** RESPONSE.

- ₁ Out of work for more than 1 year
 - ₂ Out of work for less than 1 year
 - ₃ Homemaker
 - ₄ Student
 - ₅ Retired
 - ₆ Unable to work or disabled
 - ₉ Other; Please specify:
-

95. What is your usual occupation?

PLEASE **PROBE** AS NECESSARY.

→IF PERSON TELLS YOU THEIR PLACE OF EMPLOYMENT ONLY (E.G., WAL-MART) OR IF IT IS UNCLEAR WHAT THEY DO:

“What kind of work do you do?” or “What is it you do there?” or if currently not employed: “What is it you did there?”

→IF PERSON IS NOT WORKING: “What did you do at your last job?”

→IF PERSON HAS > ONE JOB:

“Please describe the one at which you work the most hours.”

96. Do you have health insurance that pays for most of your medical care?

→IF **YES**, ASK “Where do you get your insurance?”
→CHECK **ALL** THAT APPLY.
→IF THEY ONLY GIVE ONE SOURCE OF INSURANCE, ASK IF THEY GET HEALTH INSURANCE FROM MORE THAN ONE PLACE.
→READ ALL POSSIBLE ANSWERS **IF NEEDED**.

- ₀ No
 - ₁ Yes, insurance from your or someone else’s employer
 - ₂ Yes, insurance you or someone else buys on their own
 - ₃ Yes, Medicare
 - ₄ Yes, Medicaid or Medical Assistance
 - ₅ Yes, Military insurance (CHAMPUS, TriCare, or VA)
 - ₆ Yes, Indian Health Service coverage
 - ₇ Other; Please specify:
-

97. Are you of Hispanic or Latino/a origin or descent?

- 1 Yes
- 2 No
- 3 Don't know

98. What would you say best represents your race or ethnicity?

→CHECK **ALL** THAT APPLY.

→IF HE/SHE REFUSES TO ANSWER, CHOOSE OPTION #7.

- 1 White or Caucasian
 - 2 Black or African American
 - 3 American Indian/Native American
or Alaskan Native
 - 4 Asian
 - 5 Native Hawaiian or other
Pacific Islander
 - 6 Other; Please specify:
-

- 7 Unknown or not reported

99. What is the total annual income for all the people who live in your home? Please include food stamps, paychecks, SSI, disability, and other sources of income.

Is it ABOVE or BELOW \$40,000?

→If BELOW \$40,000:

Is it ABOVE or BELOW \$20,000

Below: \$20,000 or less

Above: \$20,001 - \$40,000

→If ABOVE \$40,000:

Is it ABOVE or BELOW \$60,000

Below: \$40,001-60,000

Above: \$60,001 or more

Refused

100. →INTERVIEWER: TAKE GENDER FROM SCREENER
(DO NOT ASK)

Female

Male