

Smoking Cessation Program for Homeless Adults

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DATE: April 25, 2019

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Abstract

Introduction: The health effects of smoking include multiple forms of cancer, heart and lung disease, macular degeneration, diabetes, and impaired immune function. Among the homeless the prevalence of smoking has been estimated to be as high as 70%. An educational program for adult homeless smokers educated them on the dangers of smoking, the benefits of quitting, and the resources available to help them quit. In implementing this program, three areas that can lead to successful quitting were explored; perception of cessation programs, motivation to quit, and counseling and pharmacological approaches to smoking cessation.

Methods: The project used a one group, pre-and post-survey design. Participants were homeless adult cigarette smokers, 21 and older, seeking services at a local community center. The survey collected demographic data, along with smoking habits, any prior quit attempts, and their desire to quit. Smoking habits and desire to quit were re-assessed two weeks after the presentation to evaluate whether there had been any change.

Results: The percentage of participants that wanted to quit smoking was not changed from the pre-test and post-test. The results indicated that after the educational program, participants reported being more motivated to quit smoking. Many of the participants moved from the precontemplation stage of the transtheoretical model of change to the Contemplation stage.

Conclusions: On average the United States spends about \$300 billion/year on medical care related to smoking. Primary care providers are encouraged to assess their patients smoking status at every visit and counsel them on quitting, this should also extend to the homeless population.

Implications: The results of this DNP project can be used to design programs at local community centers that serve the underprivileged. Although this project was focused on

smoking cessation, its design and success can be implemented in other areas. Local community organizations can implement educational programs that focus on diabetes, high blood pressure, and preventative medicine.

Keywords: education, smoking, health, quitting, motivation

A Smoking Cessation Program for Homeless Adults

According to the Centers for Disease Control and Prevention (CDC; 2015), 15.1% of all adults were smokers. Cigarette smoking affects all organ systems in the body and is the leading cause of preventable deaths in the United States (US) (CDC, 2015). The health hazards associated with smoking have been well documented; they include multiple cancers, cardiovascular disease, pulmonary disorders, and others (CDC, 2015). Homelessness is a national issue. There are multiple federal agencies that address different aspects related to homelessness, and each agency, depending on their purpose and the type of services they provide, have different definition of homelessness. Some definitions are broader than others. The Department of Housing and Urban Development (HUD) considers a person to be homeless if the person is sleeping outside or in an area not meant for living such as a car or an abandoned building, emergency shelter, or transitional housing (HUD, 2009). However, the Health Resources and Services Administration (HRSA; 2014) use a broader definition of homelessness that includes individuals they consider “sheltered” homeless. The sheltered homeless, according to HRSA are individuals or families that are living with either friends or relatives (HRSA, 2104). The annual homelessness assessment report by HUD, notes that on a single night in 2017 about 553,742 people experienced homelessness. Homelessness has an overwhelming impact on disease and mortality; one health risk that increases mortality among the homeless is tobacco use (Bigelow & Stepka, 2012). The prevalence of smoking among the homeless was estimated to be as high as 70% (Okuyemi et al., 2013).

Background and Significance

There are additional health consequences associated with smoking; including age-related macular degeneration, diabetes, colorectal and liver cancer, and impaired immune function (CDC, 2015). Tobacco smoke contains more than 7,000 chemicals and 250 are harmful; and of the 250 that are harmful at least 70 of them can cause cancer (<http://www.cdc.gov>). Each year in the US cigarette smoking and exposure to tobacco smoke causes approximately 480,000 premature deaths (CDC, 2015). Smoking cessation efforts have intensified over the past few years; data from the CDC shows that the smoking rates among adults declined from 42% in 1965 to 18% in 2012 (CDC, 2015). Although smoking cessation efforts have intensified for the general population, and specific groups such as young adults, there is a lack of program targeting the homeless.

There is minimal data available on tobacco usage and the barriers to smoking cessation among the homeless population (Chen, Nguyen, Malesker, & Morrow, 2016). Research on smoking cessation tends to exclude persons who do not have a regular place of residence and therefore much of the research on smoking cessation does not include homeless persons (Okuyemi et al., 2013). Understanding tobacco use among homeless individuals can contribute to the development of effective interventions to address the problem of tobacco use among the homeless (Baggett & Rigotti, 2010).

Addressing smoking cessation among the homeless adult population requires a multi-faceted approach. The United States Preventive Services Task Force (USPSTF) recommends that healthcare providers should address tobacco use at each encounter with someone who smokes. Many homeless persons receive services from different entities and personnel; they may not necessarily visit a healthcare provider on a regular basis, so it limits the opportunities

for a healthcare professional to address smoking cessation with this population. Homeless persons more often interact with personnel at homeless services organizations, shelters and transitional housing units where they seek shelter; and addressing smoking cessation among the homeless will require approaches that include social workers, Nurse Practitioners, and all the staff working at those organizations.

Needs Assessment

The needs assessment at the local homeless service organization was carried out by conducting interviews with both the staff of the organization and the homeless persons that receive services there. Interview questions for the staff are included in Appendix A; these questions were used to gather information about any smoking cessation services available at the organization. According to the staff, no smoking cessation services were available at the facility. One staff member noted that the facility focuses and provide other services and does not have the funding available to establish a smoking cessation program. If any participants expressed a desire for smoking cessation services, they would be referred to counselors and social workers for assistance.

The interview questions for the homeless are listed in Appendix B, and these questions were used to gather information from the homeless about their knowledge about services that may be available to help them quit smoking and to assess whether they would be interested in quitting if assistance was provided. All the participants interviewed, noted that if they decided that they wanted to quit smoking, they would speak with someone at the facility. The participants noted that they were not aware of any services available to help them if they wanted to quit smoking, but also noted that it was not something they were considering.

Purpose Statement

The purpose of this DNP project was to educate a population of homeless adults who seek services from a local homeless services organization about the health effects of smoking, evaluate their willingness to quit, and provide appropriate referral to the clinic associated with the community center for appropriate management.

Clinical Question

In homeless adults 21 years of age and older who visit the local community center, how did a smoking cessation program affect their willingness to quit?

Aims and Objectives

The overall aim of this DNP project was to encourage smoking cessation among a homeless adult population at a local community organization. The objectives of this DNP project were to: (1) establish a smoking cessation program that specifically focuses on homeless adult persons who access services at a local community center, (2) educate this population about the negative health effects of smoking and the benefits of quitting, (3) provide information on the resources available for those who decide to quit smoking and (4) establish a referral resource for those who wish to stop smoking.

Review of Literature

A literature review was conducted to explore aspects of smoking cessation for the homeless, including best practices for smoking cessation programs, their effectiveness and perception of homeless smokers. The databases searched included Academic Search Premier, CINHALL, and PUBMED, which generated a total of 104 potential sources. These sources were narrowed to include peer reviewed articles that addressed approaches to smoking cessation

among the homeless. The search terms used were smoking cessation, adults, and homeless. The articles that addressed smokeless tobacco and electronic cigarettes were excluded. Articles included in the review were written in English, between the years 2005 through 2018, and reported research was conducted in homeless populations; this reduced the number of articles to 84. The remaining articles were evaluated according to the Johns Hopkins Nursing Evidence-Based Practice Research Evidence Appraisal Tool and Non-Research Practice Appraisal Tool, which resulted in a final total of 14 articles.

Motivation

Although homeless adults are faced with many barriers, they are motivated to quit smoking (Stewart, Stevenson, Bruce, Greenberg & Chamberlain, 2015). An analysis of data collected from the 2009 Health Center Patient Survey determined that homeless smokers, despite the many barriers, are interested in quitting and are not significantly different from non-homeless smokers in their desire to quit smoking (Baggett, Lebrun-Harris, & Rigotti, 2013). In the homeless population, smoking serves as a coping mechanism and as a way to socialize in shelters (Stewart et al., 2015). Results of an analysis of data from the 2009 Health Center Patient Survey found a high desire to quit smoking among homeless adults (Baggett et al., 2013). Findings also suggest that a smoking cessation intervention for homeless adults should target not only the individual smoker, but also the circumstances of homelessness that promotes smoking behaviors among this population such as the structural barriers to accessing health care services (Baggett et al., 2013). Smoking policies have been explored as a possible way of reducing smoking among the homeless. Vijayaraghavan & Pierrce (2015) conducted interviews with 170 current and former smokers in emergency or transitional housing and found that among current smokers 42.9% had an intention to quit within the next six months; 17.2% expressed an intention to quit

within two and six months and 25% had intention to quit within the next month. Of the smokers in this study, only 14.8% never expected to quit smoking. Three quarters of smokers noted that the policies of the facility were associated with a reduction in the number of cigarettes that they smoked and about 50% of them noted that the policies were associated with them either making an attempt to quit or contemplating quitting (Vijayaraghavan & Pierce, 2015). In exploring the attitudes of smokers and non-smokers on the implementation of a ban on smoking at a large urban shelter, Businelle et al. (2015) found that 34.8% of smokers indicated that as a result of the ban they would try to quit smoking and 25.8% would attempt to decrease the amount they smoke.

Counseling and Pharmacological Approaches

Different approaches are used to encourage smokers to quit smoking. Results from study of homeless adults residing in a shelter in Southeast, Michigan (Bigelow & Stepka, 2012) concluded that support programs that focus on smoking cessation may be more effective at helping homeless smokers quit than pharmacological interventions.

In a community based clinical trial to assess the effectiveness of motivational interviewing for smoking cessation, Okuyemi et al. (2013) randomized participants to the intervention arm which included the nicotine patch and motivational interviewing and the control arm which consisted of the nicotine patch and standard care. Results showed that although quit rates for those that received motivational interviewing were not significantly better than those receiving standard care, the quit rates for the participants that received motivational interviewing were higher at all time point measurements in the study. Similarly, according to Shelley, Cantrell, Wong, and Warn (2010), participants who received motivational interviewing plus cognitive behavioral therapy and pharmacotherapy had a confirmed abstinence rate of 13.6% at

24 weeks. These results provide evidence that smoking cessation among the homeless may require a combination of approaches.

An educational intervention was used as part of standard or usual care in many of the studies reviewed as part of this literature review that tested other therapies for smoking cessation such as motivational interviewing, cognitive behavioral therapy and pharmacologic therapies. One study from Denmark evaluated the Gold Standard Programme (GSP) for disadvantaged smokers who had limited education and were receiving unemployment benefits (Neumann, Rasmussen, Ghith, Heitmann & Tonnesen, 2013). The GSP consisted of five sessions of structured educational program that included the cost of continued smoking and benefits of cessation, date of cessation, avoiding risky situations, management of withdrawal symptoms and strategies to prevent relapse and planning. Nicotine replacement therapy (NRT) was also provided based on the participants smoking severity. Overall, the percentage of patients who reported continuous abstinence at six months was 34% (Neumann et al., 2013).

Perception

There are many different approaches to smoking cessation; Okuyemi et al. (2006) conducted focus groups to elicit the perspectives of homeless smokers about different approaches. Behavioral intervention was believed to be a valuable component of smoking cessation. Participants believed individual counseling session would allow them to receive personalized attention but were concerned that counselors may not be able to relate to their circumstances (Okuyemi et al., 2006). They also believed that group counseling would offer the opportunity to benefit from the experiences of others but noted privacy as a major concern (Okuyemi et al., 2006). Likewise, Stewart et al. (2015) also found that homeless smokers had mixed feeling regarding individual and group counseling for smoking cessation. Participants

noted that being able to obtain inspiration from other group members would be beneficial (Okuyemi et al., 2006).

Focus group participants were also interested in using pharmacological approaches to quit smoking; they expressed concerns about the potential side effects related to pharmacological aids (Okuyemi et al., 2006). Participants also expressed concerns about the mechanism of action of treatments such as NRT and the possibility of becoming addicted to this treatment, similarly, according to (Stewart et al., 2015); participants expressed concerns about the medication associated side effects of medications commonly used for smoking cessation. Collins et al. (2018), conducted one-on-one semi structured interviews with homeless participants and found that many participants expressed conflicting perceptions of the available smoking cessation interventions. Participants expressed a preference for individualized treatment that is client centered and non-judgmental; however, they also expressed negative views of pharmacological approaches and were concerned about the unpleasant side effects and costs (Collins et al., 2018).

Using an anonymous questionnaire, Chen et al. (2016) collected data from 100 homeless individuals to assess their perceptions of the efficacy of smoking cessation methods offered as monotherapy. In order of preference, NRT was the most preferred method, followed by non-nicotine medications such as Varenicline or Bupropion, no therapy, friends and family support (Chen et al., 2016). Formal smoking cessation counseling was the least preferred method for smoking cessation (Chen et al., 2016).

Barriers

Some of the barriers faced by this population include the lack of an organized counseling program, the financial cost of NRT and the perception that smoking cessation may not be considered a priority (Connor, Cook, Herbert, Neal & Williams, 2002). Okuyemi et al. (2006)

also discussed barriers to smoking cessation and noted the high cost of NRT as a barrier to smoking cessation among the homeless. Other barriers included the social acceptability of smoking among this population; homeless services organizations rarely address smoking cessation (Okuyemi et al., 2006). Participants also described smoking as one area in their lives where they had control. Some participants noted that they had completed drug and alcohol treatment and felt that quitting might trigger a relapse, while other felt that continuing to smoke may cause a relapse (Okuyemi et al., 2006). Chen et al. (2016) found that stress was the biggest barrier to smoking cessation, followed by nicotine cravings. A systematic review identified perceived barriers to smoking cessation among vulnerable groups including the homeless, and found that there three barriers: stress management, lack of support for quitting from health professionals and other service providers, and the high acceptability of smoking within these communities (Twyman, Bonevski, Paul & Bryant, 2014).

Theoretical Framework

The Transtheoretical Model of change (TTM; Prochaska, DiClemente, & Norcross, 1992) includes influences from both social and biological theories in its development and approach to changing behavior. TTM acknowledges that behavior change is a process that develops over time; it is not a single event in time (Prochaska & Velicer, 1997). According to TTM (Appendix C), when attempting a change in behavior individuals move through five different stages: Precontemplation, Contemplation, Preparation, Action and Maintenance. While moving through the stages, individuals may relapse to earlier stages even after they have already passed through those stages. The TTM also contains another dimension, the process of change, which centers on events and activities that facilitate successful behavior change (DiClemente et al., 1991). Individuals typically start in the Precontemplation stage; in this stage the person has no intention

of making a change soon. There can be different reasons an individual is in this stage. They may not be aware of the consequences of their behavior. This DNP project intervened in the Precontemplation stage and provided the participants with the knowledge and information about the consequences of smoking.

The Contemplation stage is the stage in which individuals intend to act, usually within a six-month time frame to change their behavior, they are conscious of the consequences of their behavior. Individuals in this stage are aware of the pros and cons of their behavior, however, balancing the pros and cons of change produces uncertainty in the individual, who may remain in this stage for a long period (Prochaska & Velicer, 1997). The implementation of the intervention of this DNP project sought to move participants from the Precontemplation stage into the Contemplation stage.

Individuals in the Preparation stage intend to make a change in the immediate future which is characterized as the next month (Prochaska & Velicer, 1997). Individuals in this stage have a plan of action; they may seek advice from their physician about the proposed behavior change. The intervention for this DNP project assisted those in the preparation with strategies for quitting smoking. It also provided those in the action stage with information on where they can get additional help if they need it.

In the Action stage, individuals make specific lifestyle modifications to effect behavior change. Only behavior that is observed, counts as action; all behavior modifications do not necessarily count as action (Prochaska & Velicer, 1997). This DNP project provided participants with strategies they can use to initiate action.

Maintenance is the stage in which individuals actively work to maintain the change they have made and work to prevent from relapse. Individuals were provided with information that

can help those in the maintenance stage. In the TTM relapse causes return to earlier stages in the model; relapse is not one of the stages in the model; it is considered an occurrence that terminates the action or maintenance phase and causes a return back to the initial stages (DiClemente et al., 1991). The DNP project addressed the possibility of relapse and provided individuals with information and resources where they can find assistance to move out of this phase. Some people may be able to get through all the different stages without regressing or falling back to prior stages, but others may move through the different stages, relapse, and must return to stages that they have already passed through. The time spent in any step varies from person to person. According to the CDC, multiple attempts may be made before a smoker finally succeeds at quitting (CDC, 2015). This DNP sought to change the behavior of homeless smokers based on the TTM and using motivational interviewing techniques as a method to assist the participants move through the stages of change.

Methodology

This DNP project used a pre- and post-survey (see Appendices D and E, respectively) one group design. The pre-intervention survey asked participants to assess their smoking habits and quit attempts and their desire to quit prior to the intervention. Once the intervention was delivered, participants were asked to return in 2 weeks to complete a post survey that assessed whether there had been any change in their smoking habits post intervention and any change in their desire to quit. Participants were also asked to complete an evaluation of the intervention itself (see Appendix F) immediately following the presentation.

Setting

This DNP project took place at a local community center that provides services to the homeless. The organization has been in the community for approximately 30 years, and provides

a range of services for homeless adults, such as laundry, chronic illness management services, substance abuse treatment and LGBTQ services. They are also a comprehensive HIV/AIDS community organization, and provide assistance to other local community organizations.

Study Population

The study population comprised of adults 21 years of age and above who were homeless and seeking services from the local community center. The targeted sample size was 75 participants.

Study Intervention

The intervention for this DNP project consisted of an educational program that taught the participants about the negative effects of smoking and the benefits of quitting; motivational interviewing techniques was used to engage the participants in the program. The intervention was delivered in the form of a PowerPoint presentation and a discussion with the participants led by the principal investigator (PI). The presentation included the financial cost of smoking, the health consequences of smoking and the benefits of smoking cessation. The PI provided participants with strategies to help smokers quit, ways to manage cravings, and information about where to find assistance in quitting smoking.

Outcome Measures

Dependent and Independent Variables

The dependent variables that were measured were: Increase knowledge of the dangers of smoking, benefits of quitting, and intention to quit. The independent variables included age, gender, ethnicity and highest education completed.

Data Collection Instruments

The data collection instruments included pre and post-intervention questionnaires, which collected information from the participants about their motivation to quit and prior quit attempts.

Risks and Benefits

This DNP project presented minimal risks to the participants. Some homeless smokers smoke as a way to cope with stress and therefore may experience increase stress if they quit smoking. If any participant had reported or were observed exhibiting increase stress or anxiety they would have been referred to the adjacent community health center for further evaluation by a Nurse Practitioner or social worker. None of the participants reported any increase stress or were observed exhibiting any symptoms of anxiety. The benefits to the participants included increase knowledge of the dangers and risks associated with smoking and the benefits of smoking cessation however, it was possible that participants derived no benefits from study participation.

Subject Recruitment

After obtaining IRB approval on March 1st, 2019, the program manager at the facility set a date of March 15, 2019 for the presentation. Recruitment took place over the intervening two-week period and consisted of posting recruitment flyers in designated areas in the community center. Potential participants were provided with a telephone number to call during times the PI was not present at the center. Prior to the March 15th date, the program manager advised the PI to anticipate a total of 35 potential participants. On March 15, 2019, the PI met with potential participants who were present at the facility and reviewed the recruitment flyer and project consent form. All of the subjects present decided to participate in the program; those who had not signed a consent form previously did so at that time. The PI then gave participants the pre-

intervention questionnaire to complete. In order to keep track and ensure all participants who signed a consent form received a pre-intervention questionnaire, the questionnaires and consent forms were marked with a three-digit number starting from 000 to 035.

Inclusion Criteria

This DNP project included homeless adults 21 years old and older who were seeking services from the local community center and were current smokers. In order to be included in the study, participants had to be able to speak, read, write and understand English.

Exclusion Criteria

The project excluded homeless individuals who were unable to read, write, speak and understand English. Homeless adults who showed any sign of confusion or were unable to explain the consent process in their own words, were not included in the project. Non-smokers, adults who currently smoke electronic cigarettes, marijuana and other substances were also excluded.

Consent Procedures

The PI obtained informed consent (see Appendix G) from all participants after describing the study procedures and answering all questions from participants. During the consent process, the PI explained that participation was completely voluntary and that participants could withdraw their consent and discontinue their participation at any time. Participants were also made aware that their participation in this project would not affect their ability to receive services at the center.

Subject Costs and Compensation

The participants did not incur any costs during their participation in this DNP project. Snacks and beverages were provided for the participants after the presentation of the educational

program. Participants also received a bus ticket after two weeks, after they completed the post-survey.

Timeline

The study timeline appears in a Gantt chart (Appendix H). The PI completed the concept map, evidence table, PICO question, Theoretical model, and review of relevant literature in the spring of 2018. The draft proposal was completed by the end of the summer. The presentation of the project to the DNP committee and subsequent submission of the project to the eIRB took place during the beginning of the 2018 fall semester. Subject recruitment and project implementation took place during March 2019, after the IRB granted study approval. Data analysis took place in the beginning of April 2019. The project was presented to the DNP committee on April 2019, with subsequent dissemination activities taking place that same month.

Economic Consideration

The PI spent a total of \$502.95 on lunch and beverages for the participants. The costs for photocopying of the pre-and-post surveys and evaluation form totaled \$29.56. Fifteen one-zone New Jersey transit bus tickets incurred an additional \$24.00 in expenses.

Evaluation Plan

Data Maintenance/Security

All data collected was de-identified and reported in the aggregate. All data was stored in a locked cabinet in the office of the DNP chairperson and only the principal investigator and the DNP chairperson had a key to the locked cabinet. Data analysis was done using *SPSS version 25* (IBM).

Results

The findings of the project are presented and discussed below: A total of 15 participants agreed to participate and signed consent forms and completed the pre-intervention questionnaire. Upon further examination of the completed pre-intervention questionnaires, 3 incomplete questionnaires were not included in the final analysis. A total of 12 participants returned and completed the post intervention questionnaire. Qualitative statistics was used to analyze the ages, gender and ethnic identity of the participants.

Participant Demographics

A total of 12 participants completed the survey. The Mean age of the participants was 37 and the median was 36. The minimum age of the participants was 25, while the maximum age was 58 (Table 1). Men made up 66.7% and women made up 33.3% of the participants (see figure 1). The ethnic Identity of the participants were as follows: 83.3% Black/African American and 16.7% White (see figure 2). Results indicated that 33.3% of the participants had some High School education, 50% completed and high school and 16.7% had some college education (see figure 3). Consistent with nationwide trends, the results demonstrated that most participants started smoking at an early age and had not been successful at quitting. The results (see figure 4), showed that 25% of the participants had smoked that first cigarette at less than 13 years old, 50% had their first cigarette between the ages 14-20 years, and 25% smoked their first cigarette when they were 21 and older. Only two out of the 12 participants did not report any prior attempts at quitting while half had made three or more prior attempts; and four had only one prior attempt. Participants were asked to indicate the longest time they had gone without a cigarette, and the longest time reported by one of the participants was three years. Participants were also asked if they had tried to quit smoking in the past, to list what method/methods they

had tried (see figure 5). The most commonly reported method of quitting was cold turkey, reported by 33% of the participants, followed by exercise which was reported by 25% of participants. Other methods included: nicotine gum, spray, patch, and individual counseling.

The percentage of participants that wanted to quit smoking was not changed from the pre-test and post-test (see figure 6). The results of the pre-test showed that 66.7% of participants answered yes when asked if they wanted to quit smoking, 25% answered no and 8.3% were not sure. In the post-test results while the 66.7% who answered yes to wanting to quit smoking did not change, the percentage of participants who answered no changed from 25% to 8.3% and the percentage who were not sure went from 8.3% to 25%.

Analysis of the raw data from a Chi-square analysis (see figure 7) showed that the intervention had a positive effect on participants' willingness and motivation to quit. Based on comparison of the responses from the Pretest1/Posttest1 data shows that one person changed their response from "not sure" to "yes", and two people from "no" to "not sure". This suggest that these individuals may have moved from the pre-contemplation stage to contemplation stage.

The reason for wanting to quit smoking did not change between the pre and post test data. Health and money were the primary reason given by participants as the reason for quitting. The percentage of the participants that reported health as a reason to want to quit was 91.7% while 8.3% reported money as their reason for wanting to quit.

The results demonstrated that prior to the intervention 25% of the participants were not motivated at all to quit smoking, 58.3% were somewhat motivated and 16.7% were very motivated. The post-intervention results, however showed that 8.3% of the participants reported not being motivated at all to quit smoking, 33.3% reported being somewhat motivated, and 58.3% reported being very motivated to quit smoking.

Although the results were not statistically significant, analysis of the raw data from the Chi-Square test showed that a total of six of the respondents moved from a lower level of motivation to a higher level. Four of the participants moved from “somewhat” to “very” motivated, one person moved from “not at all” to “very” motivated, and another person moved from “not at all” to “very” motivated.

Results of the Intervention Evaluation

The Intervention Evaluation assessed the participants impression of the educational presentation. The overall response rate of the evaluation was 75%, (n=9). Participants (n=5, 41.7%) reported that their motivation had change somewhat as a result of the presentation; a smaller percentage (n=3, 33.3%) of participants also reported that their motivation had only changed a little as a result of the presentation. Participants were asked to name one useful thing they learned; most participants cited learning about the health consequences of smoking. Using a Likert scale, participants were asked to rate the material presented whether it was easy to understand, provided them with useful ideas and whether the presentation overall was helpful. Most respondents noted either agree or strongly agree that the material was presented in a manner that was easily understood, and had information that was beneficial, and that they planned on using information obtained from the class to change their smoking habits.

Discussion

The rate of smoking among the homeless adults has been estimated to be substantially higher than that of the general adult population (Okuyemi et al., 2013). The finding of this DNP project demonstrates that by educating the homeless adult population about the harms of smoking and the benefits of quitting, their motivation to quit increases. According to Connor et al. (2002); homeless persons need smoking cessation programs that focuses on their needs and

delivered in the settings that homeless persons attend. Homeless persons are willing to quit (Connor et al., 2002), addressing the potential barriers they face in their efforts may help facilitate successful quitting.

Based on the results, there was an increase in the participants motivation to quit smoking, and based the TTM of change part of the process of changing one's behavior is a transition from the Precontemplation stage, where the person may not even be aware that the behavior is harmful, to subsequent stages where the person understands the consequences of their behavior and start actively thinking about change. This DNP project, through the educational presentation delivered was able to give participants information on the consequences of smoking and how they can start to change their habits.

Implications

The theoretical framework for this project was the TTM. In the context of the model, the findings can be incorporated when designing project for individuals at different stages in the model.

Practice

Healthcare practitioners that deliver care to homeless adults, can ask this population about their smoking habits, provide them with education, and initiate smoking cessation assistance when desire to quit is expressed. Initiating a conversation about smoking where the provider gives the individual smoker information about not only the harms that smoking causes, but also the benefits of quitting, and offering assistance may help facilitate quitting. There are many settings that provide services to homeless persons, such as shelters, soup kitchens, and drop-in centers these places need resources that can be allocated toward a smoking cessation initiative.

Policy

The results of this DNP project demonstrate that understanding where individuals are on the Stages of Change will help to inform educational program. Currently, the data on the homeless population is based on estimates. Although research has been conducted on the smoking habits of the homeless population, the percentage of homeless smokers is all based on estimates. Policy can be implemented that would incorporate the assessment of a person's smoking habits when they are receiving services at local community centers, and other places that provide homeless services.

Education

Homeless persons receive services from different organizations, although many of these organizations have non-smoking policies for when someone is in the facility, individuals are free to go outside when they want to smoke. Having non-smoking policies is a good practice, these organizations may be able to also offer assistance to this population to help them quit smoking.

Conclusion

According to the CDC, on average the United States spends about \$300 billion/year on medical care related to smoking. Approximately \$170 billion on healthcare, more than \$156 billion in lost productivity (\$5.6 lost productivity related to secondhand smoke). Primary care providers are encouraged to assess their patients smoking status at every visit and counsel them on quitting, this should also extend to the homeless population.

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Appendix A

Question for Staff at Homeless Services Organization

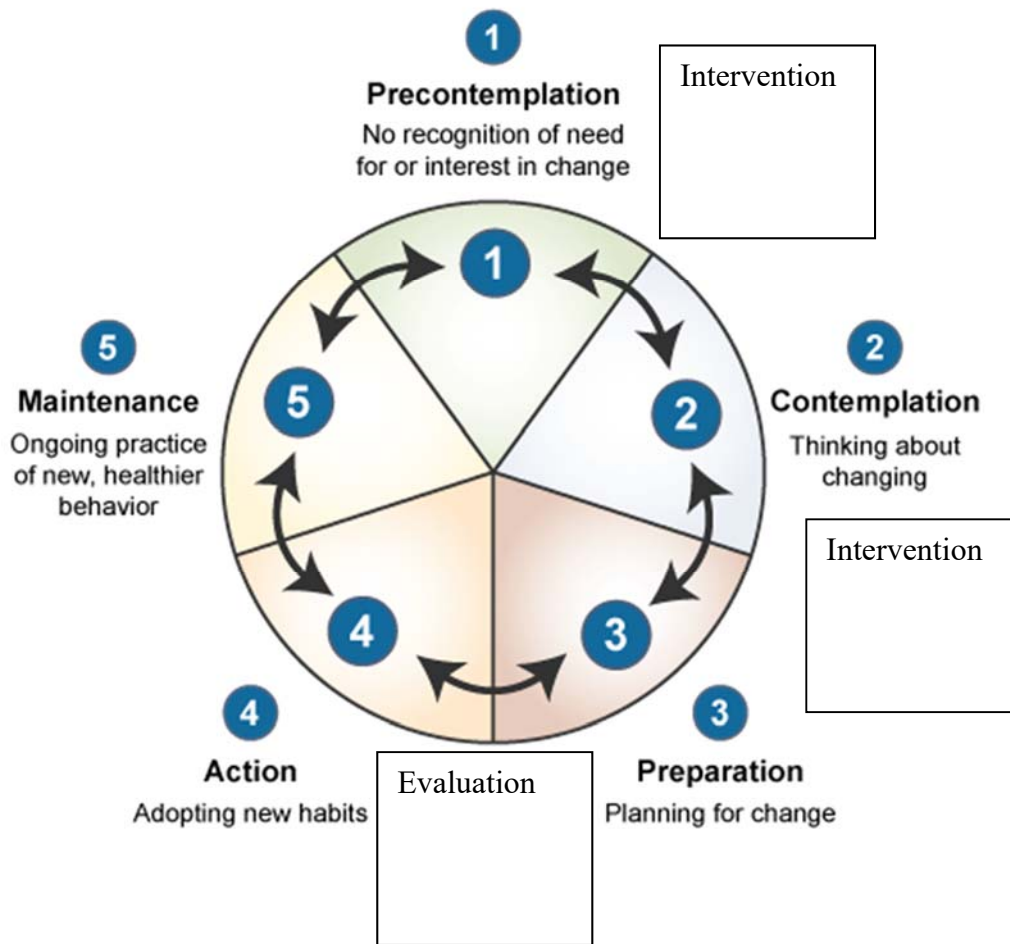
1. Is there any information collected from the people that come for services such as smoking status?
2. Are there any smoking cessation services offered for the homeless persons who come for services?

Appendix B

Question for attendees at the local community center

1. Are you aware of any smoking cessation services available to help you quit smoking if you were interested?
2. If smoking cessation services are available, would you be interested in quitting smoking?

Appendix C



(Google images, 2018)

Appendix D

Pre-Intervention questionnaire

1. What is your current age?

2. What is your gender?
 - Male
 - Female

3. Please choose the race/ethnic identity which best describes you (check all that apply)?
 - Asian: Chinese/Japanese
 - Black/African American
 - East Indian
 - Hispanic/Latino
 - Native American
 - Pacific Islander: Filipino, Vietnamese
 - White

4. What is the highest grade you completed in school?
 - Eight grade or less
 - Some high school
 - Finished high school or GED
 - Some college
 - Associate Degree
 - Bachelor's Degree
 - Advanced College Degree (master's, Doctorate)

5. How old were you when you first started smoking?

- a. Less than 13 years old
- b. 14 to 20 years old
- c. 21 and older

6. How many times have you tried to quit smoking?

7. What is the longest time you have gone without smoking?

_____year(s) _____month(s) _____day(s) _____hour(s)

8. If you have tried to quit smoking before, what helped you? Check all you have tried

- Acupuncture
- Cessation program
- Cold Turkey
- Exercise
- Hypnosis
- Individual counseling
- Group counseling
- Nicotine Gum
- Nicotine nasal spray
- Nicotine patch
- Nothing
- Wellbutrin or Zyban

9. Do you want to quit smoking?

- Yes
- No

- Not sure

10. What is the most important reason you want to quit smoking?

- Health
- Money
- Family
- Smells bad
- Other (please describe)_____

11. How would you rate your motivation to stop smoking?

- Not motivated at all
- Somewhat motivated
- Very motivated

Appendix E

Post Intervention questionnaire

1. Do you want to quit smoking?
 - Yes
 - No
 - Not sure

2. What is the most important reason you want to quit smoking?
 - Health
 - Money
 - Family
 - Smells bad
 - Other (please describe) _____

3. How would you rate your motivation to stop smoking?
 - Not motivated at all
 - Somewhat motivated
 - Very motivated

Appendix F

Intervention Evaluation

1. How much has your motivation to stop smoking changed as a result of this class?
 - Not at all
 - A little
 - Somewhat
 - A great deal
2. What is one thing you learned in the class that will help you quit smoking?
3. What was the most useful part of this class?
4. How could this class be better?
5. Please place a check mark in the box that most closely represent your opinion for each of the items listed

	Strongly disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
The material was easy to understand					

I increased my knowledge about quitting smoking					
I am more motivated to quit smoking					
I will use new ideas to quit smoking					
I will use information from the class to make a quit plan					
Overall, the class was helpful					

6. What do you plan to do with the information to stop or reduce smoking?

Appendix G

Project Consent

TITLE OF PROJECT: A Smoking Cessation Program for Homeless Adults.

Principal Investigator: Marie M. Sanon, RN, BSN

Welcome! My name is Marie M. Sanon, I am doctoral nursing student at Rutgers University School of Nursing. You are being asked to participate in an educational intervention program that I am conducting as part of my DNP project

Purpose of the Project: The purpose of this study is to educate a population of homeless adults about the dangers of smoking, evaluate their willingness to quit, and provide appropriate referral for those interested in quitting.

What will be done?

After completing an informed consent, you will complete a questionnaire that will collect some demographic data. You will also be asked to complete a questionnaire about your smoking habits, any prior attempts at quitting and whether you are ready to quit smoking. After completing the questionnaire, a 20-minute educational program will be presented followed by a discussion.

You will also be asked to return in 2-weeks to complete a post-test questionnaire that will assess whether you have made any changes regarding your smoking habits.

Your participation in this study is voluntary. Your participation in this project, will not affect your ability to obtain services at the center.

Benefits of this project:

The benefits of this project are an increase in knowledge of the health effects of smoking, the benefits of quitting and services available that can help you quit.

Confidentiality:

Your responses will be kept confidential.

Compensation:

There is no monetary compensation for your participation. You will receive a toiletry package.

Snacks and beverages will be provided during the educational presentation and during the posttest completion.

How the findings will be used: The findings will be used to help evaluate use of different strategies that may be helpful for addressing smoking cessation in the homeless population.

Contact Information:

If you have concerns or questions about this study, please contact the principal investigator,

Marie Sanon at: 201-253-9337 or via email at: mms398@sn.rutgers.edu

If you have questions about your rights as a participant in this project, please contact the Rutgers IRB Director at 973-972-3608.

Prior to beginning the survey, you acknowledge that you have read this information and agree to participate in this project, with the understanding that you can withdraw your participation at any time.

Participant Signature: _____ **Date** _____

Appendix H

Project Timeline

Completion Dates	Pre-Design	Design	Implementation	Evaluation
Spring 2018	<ol style="list-style-type: none"> 1. Developed project idea 2. PICO question developed (Dr. Reyes) 3. Concept map and evidence table developed. 4. Theoretical model 5. Review of relevant literature developed table of evidence 			
Spring 2018		Began draft proposal writing		
Summer 2018		Completed proposal writing		
Fall 2018		1. Presentation of project to DNP committee and acceptance	Recruitment and Implementation	

Spring 2019		eIRB submission/Approval	Recruitment and Implementation	Data analysis
April 2019				1. Data analysis 2. Project Presentation
April 2019				Project dissemination

Table 1		
Age of Study Participants		
Ages	Frequency	Percent
25	1	8.3
27	2	16.7
31	3	25
41	2	16.7
42	1	8.3
45	2	16.7
58	1	8.3

Figure 1: Gender of participants

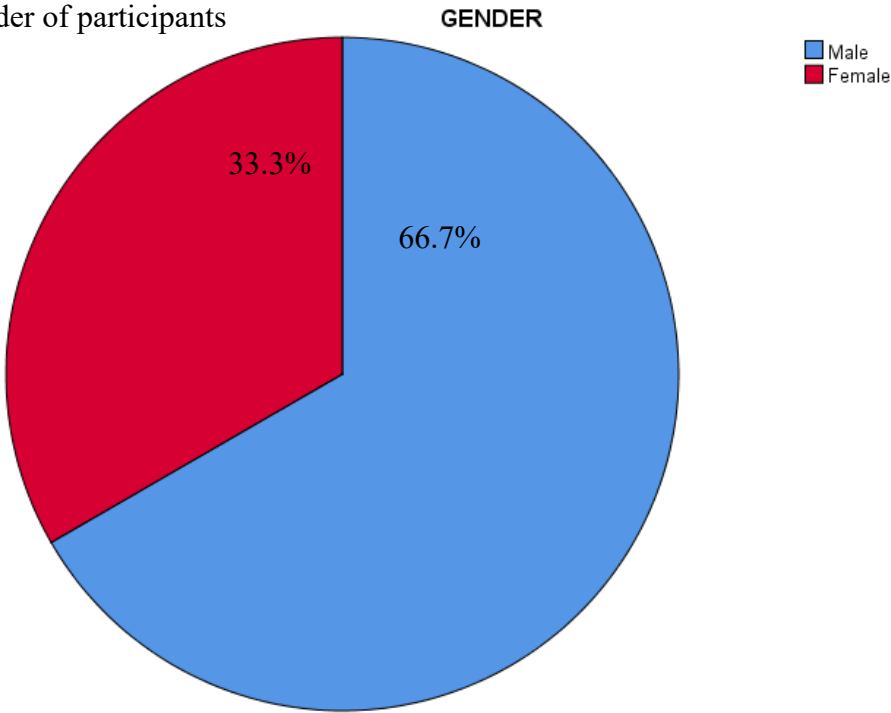


Figure 2(Ethnic Identity)

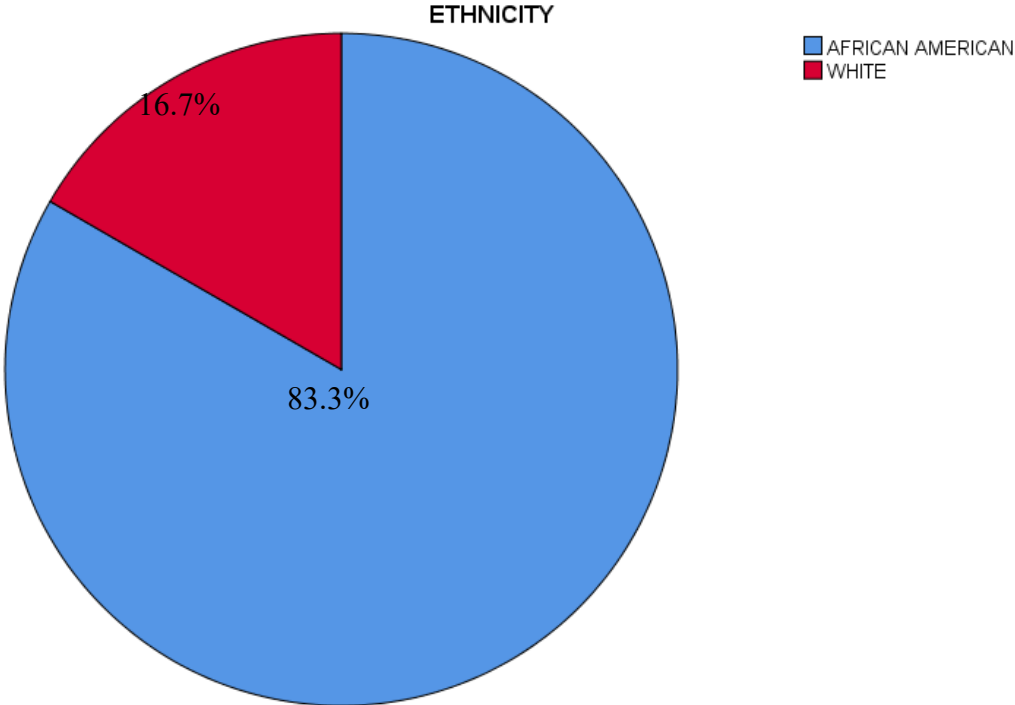


Figure 3 (Educational level)

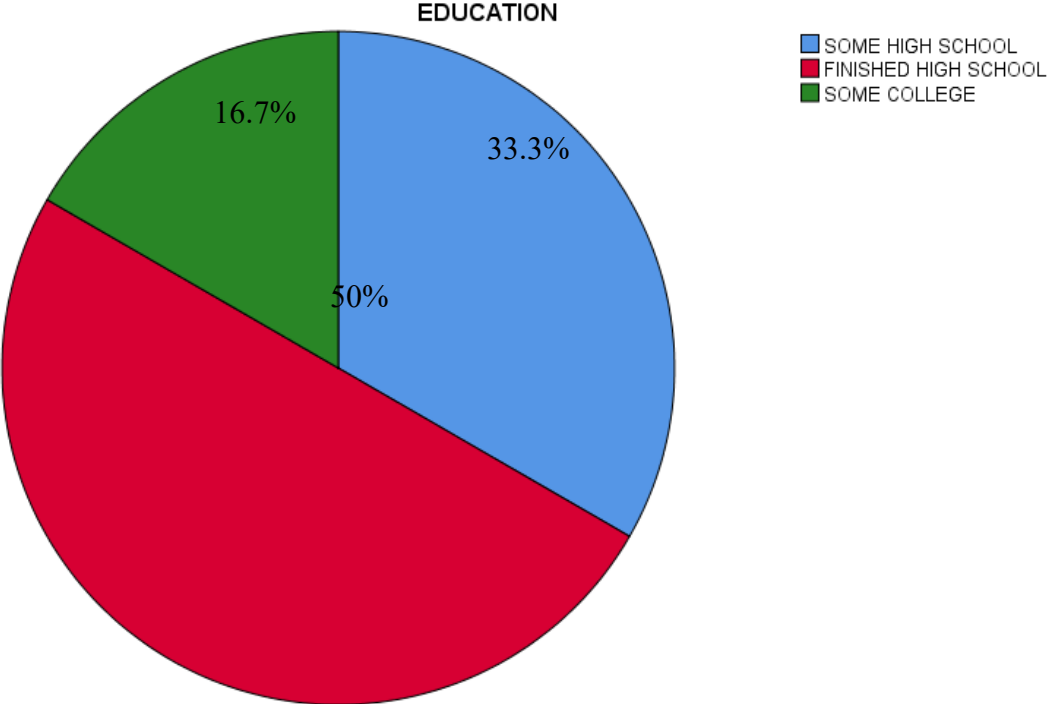
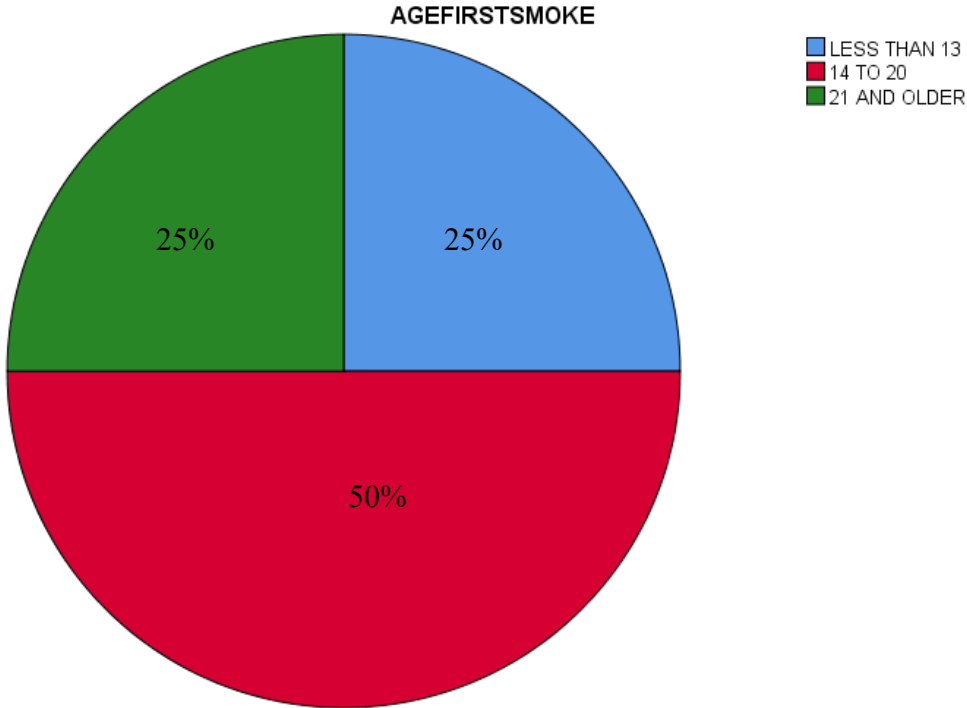


Figure 4 (Age at first smoke)



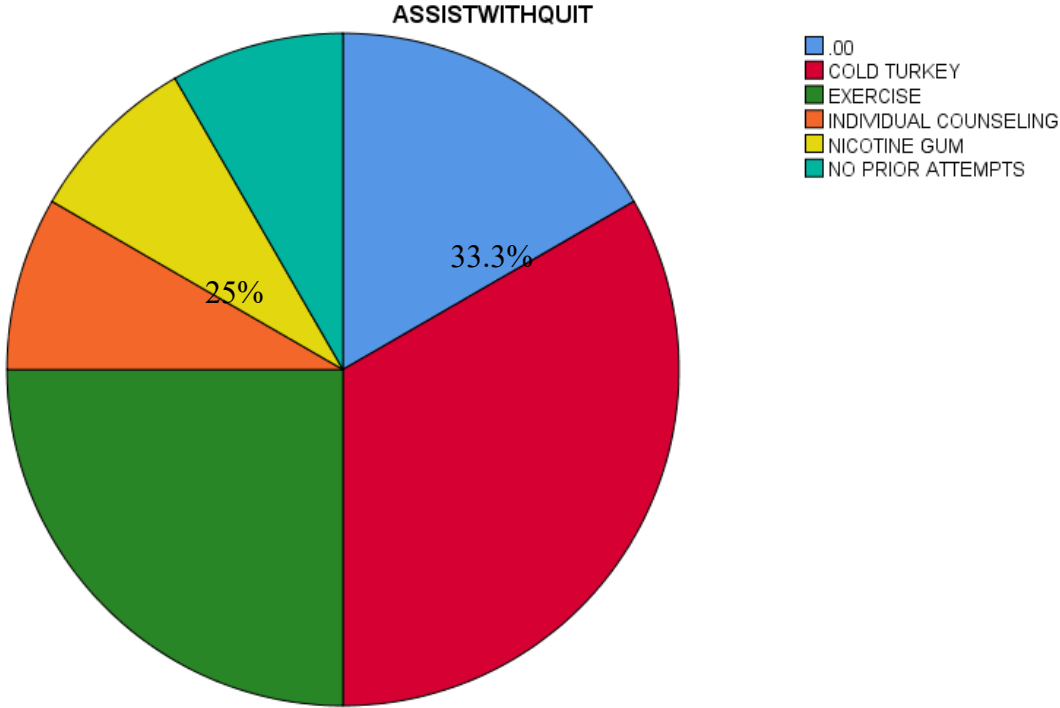
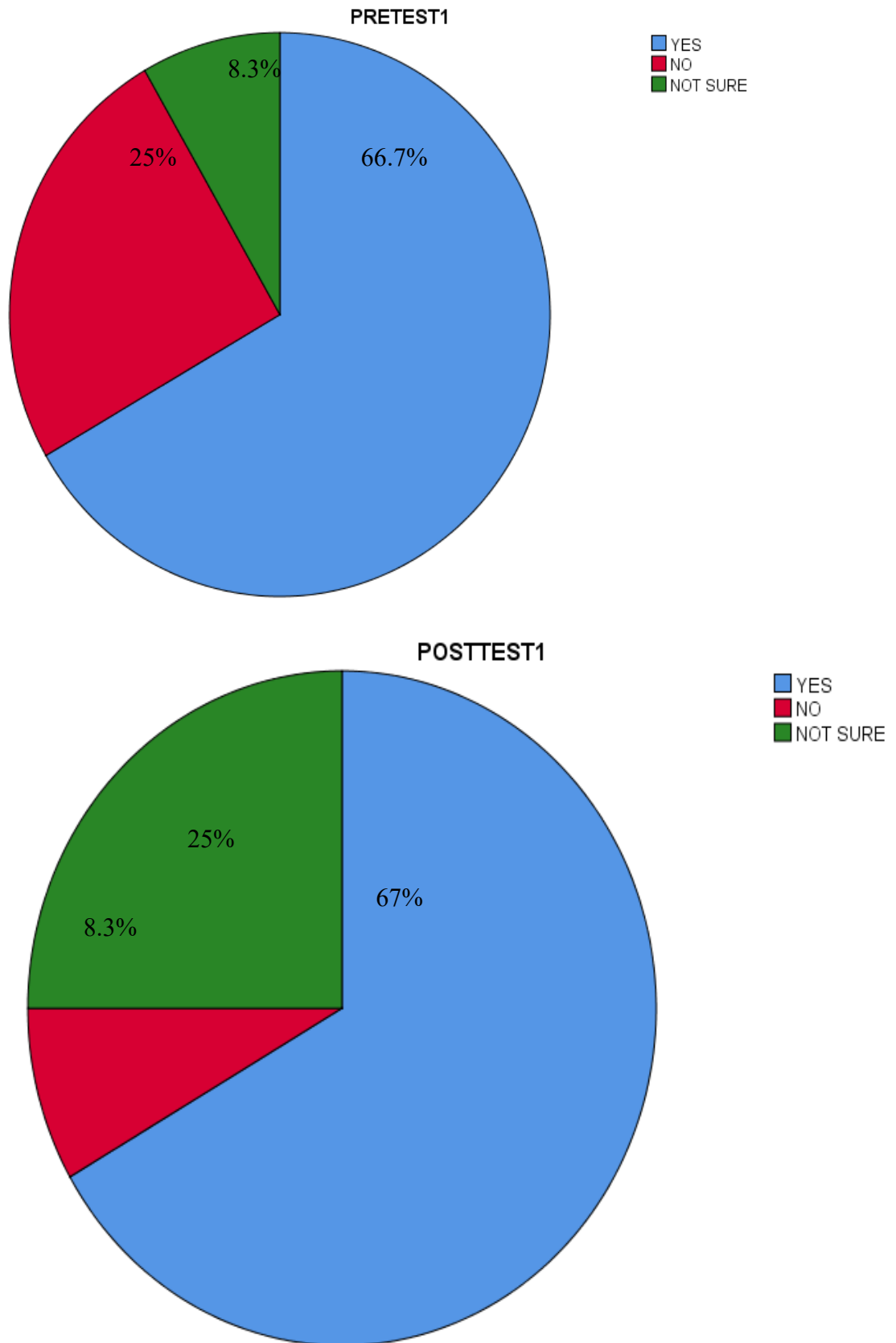
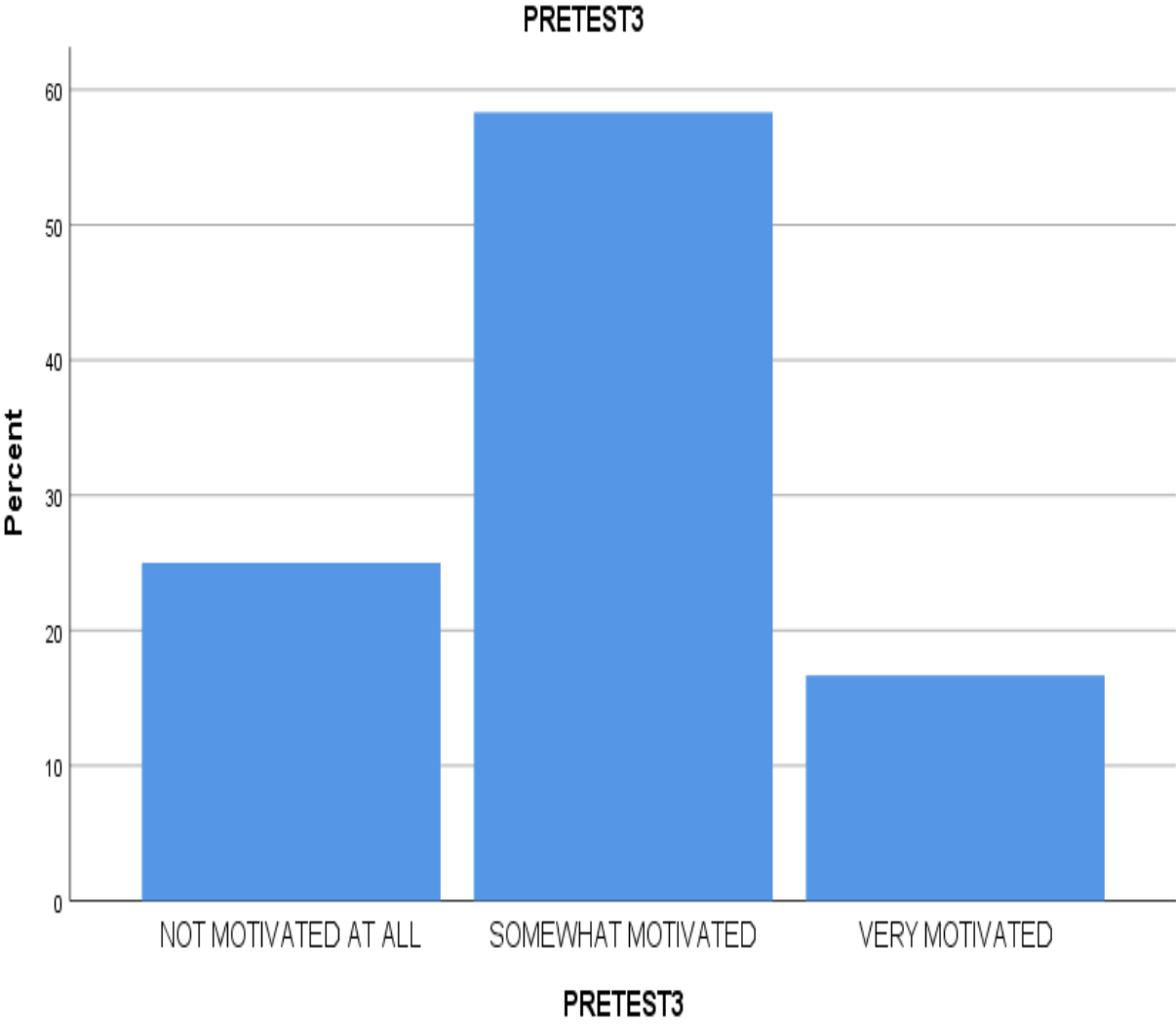
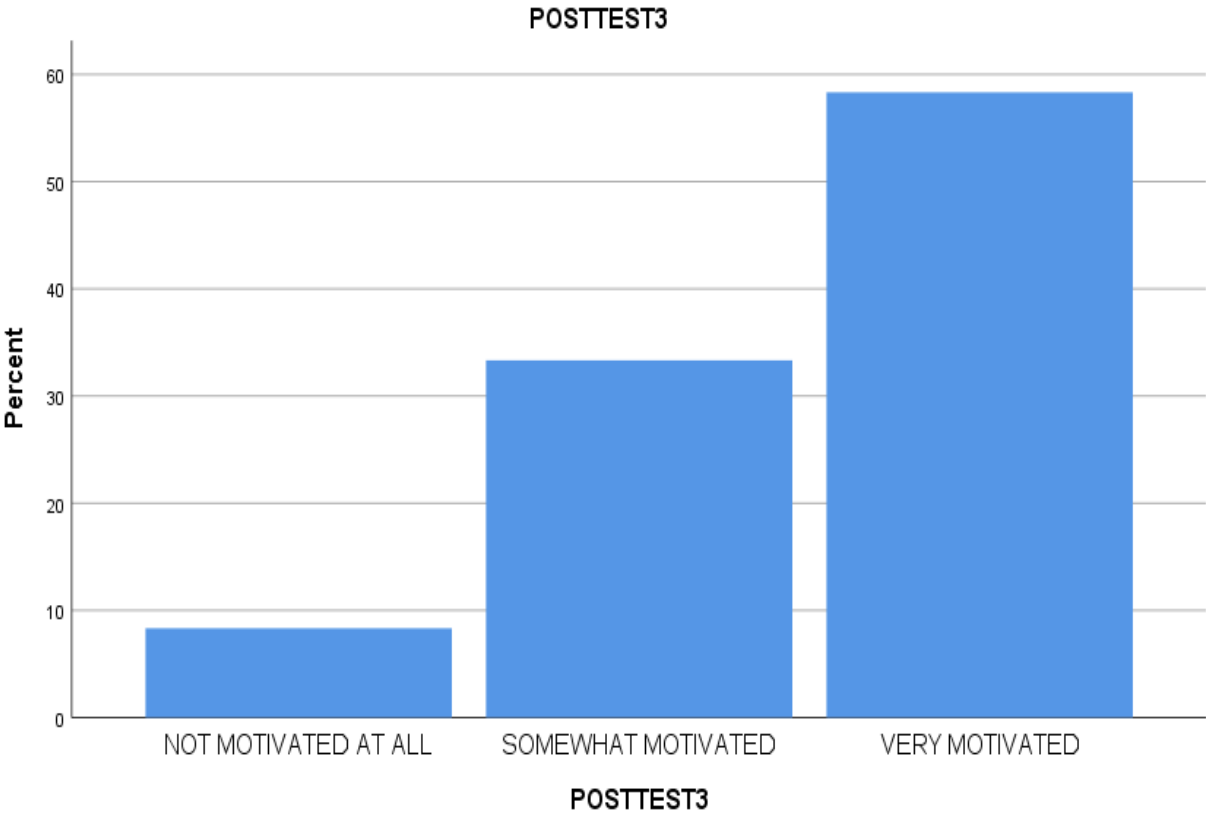


Figure 5







PRETEST3 * POSTTEST3 Crosstabulation

		POSTTEST3			
		NOT MOTIVATED AT ALL	SOMEWHAT MOTIVATED	VERY MOTIVATED	Total
PRETEST3	NOT MOTIVATED AT ALL	1	1	1	3
	SOMEWHAT MOTIVATED	0	3	4	7
	VERY MOTIVATED	0	0	2	2
Total		1	4	7	12

Table of Evidence

EBP Question: In adults ages 40 to 55years old who visit the local community center, how does a smoking cessation presentation/poster board affect their willingness to quit.

Article #	Author and Date	Evidence Type	Sample, Sample Size, & Setting	Study findings that help answer EBP question	Limitations	Evidence Level & Quality
1	Porter, M., Harvey, J., Gavin, J.K., Carpenter, M. J., Cummings, K. M., Pope, C., & Diaz, V.A. (2017)	Qualitative	Residents of a homeless shelter 18 and older and the staff of the shelter. 13 shelter residents and 9 staff members. Homeless shelter.	Shelter residents felt quitting smoking was just as important for the homeless population as it was for the general population. The shelter staff was not as concerned about smoking cessation among the homeless.	Study was conducted at only one homeless shelter and findings may therefore not be generalized to all homeless shelters. The selection process may have produced selection bias, whereas only homeless smokers who were interested in quitting responded.	Level III, Good quality
2	Bigelow, A.,&Stepka, D. (2012)	Cross-Sectional	Homeless smokers 18 and older, 43 total participants, from the shelter.	One third of those that participated had attempted quitting in the past, and 32.6% had succeeded in quitting for at least one month and 46.5% had utilized pharmacological therapies previously.	Small sample size, convenience sample was utilized and may not be generalizable.	Level III, Good quality

3	Wilson, A., Guillaumier, A., George, J., Denham, A., & Bonevski, B. (2017)	Non- Research, Systematic narrative review	N/A	Although smokers from disadvantaged groups make as many attempts to quit smoking as other more advantage groups, they are less successful.	Meta-analysis would have generated a higher level of evidence rather than a narrative review.	Level V, Good quality
4	Baggett, T. P., & Rigotti, N.A. (2010)	Non- Experimental	Homeless individuals 18 and older. 1017 homeless persons. 79 Health Care for the Homeless clinic sites	The prevalence of smoking among the homeless based on this survey was unchanged from a similar clinic based study in 1987, meanwhile the general population experienced a decrease of 25% in the prevalence of smoking.	The population surveyed had had at least one prior visit to the site, and may not be representative of the homeless population especially those that do not seek routine medical care. Outcome measure were self-reported and may contain bias.	Level II, good quality
5	Chen, J.S., Nguyen, A.H., Malesker, M.A., & Morrow, L.E. (2016)	Non- Experimental	Homeless individuals, 100, homeless shelter	The percentage of homeless smokers in this study who reported a prior attempt to quit was 40%, which was lower than the general population. Although the percentage of homeless	Single site study, convenience sampling, results may not be generalizable to the entire homeless population.	Level III, good quality

				smokers who expressed desire to quit (51%) was lower than the general population (59.1), it shows a high percentage of homeless smokers are interested in quitting.		
6	Vijayaraghavan, M., Tieu, L., Ponath, C, Guzman, D & Kushel, M. (2016)	350 homeless individuals from Oakland, California	Non-experimental	Homeless adults have as much an interest in quitting as the general population, but their success rates are lower than the general population.	Participants were predominantly African American, and therefore results may not be generalizable to other homeless populations. Data was collected from self-reports and may contain bias on the part of the participant.	Level III, good quality
7	Shelley, D., Cantrell, J., Wong, S & Warn, D. (2010)	Non-experimental	Current smokers 18 and older, 58 total participants, Homeless shelter with an outpatient substance abuse treatment program and a transitional	The participants who attended more counseling sessions experienced an increase in their attempt to quit. Although not statistically significant, among the participants who did not quit	Non-randomized study with no comparison, small sample size.	Level II, good quality

			residential treatment program for the homeless in NYC	smoking, the number of cigarettes smoked per day decreased from a baseline average of 13.1 to 11.4 at 12 weeks.		
8	Goldade,K., Whembolua, G., Thomas, J., Eischen, S., Guo, H., Connett, J., Des Jarlais, D., Resnicow, K.,Gelberg, L, Owen, G., Grant, J., Ahluwalia, J.S., &Okuyemi, K.S. (2011)	Randomized Control Trial	430 participants from 8 homeless shelters and transitional housing units	It's important to involve personnel from shelters in the process of conducting research with the homeless population. When conducting research with the homeless population, broadening the inclusion criteria will allow more participants to join and participate in the study and make it more representative of the population.		