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Process and Impact Evaluation of a Theory-Based Training Program of Lay Health Volunteers to Facilitate Smoking Cessation Among African Americans in a Midwest city

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PROCESS AND IMPACT EVALUATION OF A THEORY-BASED TRAINING PROGRAM OF LAY HEALTH VOLUNTEERS TO FACILITATE SMOKING CESSATION AMONG AFRICAN AMERICANS IN A MIDWEST CITY

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PROCESS AND IMPACT EVALUATION OF A THEORY-BASED TRAINING PROGRAM OF LAY HEALTH VOLUNTEERS TO FACILITATE SMOKING CESSATION AMONG AFRICAN AMERICANS IN A MIDWEST CITY

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University of Nebraska at Omaha, 2001

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Abstract

Although cigarette smoking is the leading cause of disease and death for all racial groups in the United States, African Americans bear the greatest burden for health risks. Lung cancer is the leading incidence for all cancer deaths for this subgroup. Many of the past formal smoking cessation interventions had been initiated in the white middle class population. This study aimed to evaluate a pilot project developed around a modified version of the American Cancer Society's Fresh Start Program to train the trainers in facilitating smoking cessation programs for a low-income predominately African American community in Omaha, NE.

A group of 26 volunteers were recruited to participate in the modified *Fresh Start* "Train the Trainers" program for smoking cessation with 14 completing the training session. The four-hour training session incorporated the constructs of the Social Cognitive Theory (SCT) on self-efficacy and outcome expectations, and the perceived knowledge relating to the processes of behavioral change. The instrument utilized was a 29-item questionnaire designed to measure the study variables on the participants' perceived knowledge, outcome expectations, and their self-efficacy on conducting

smoking cessation classes. The behavior change of the trainees to organize and conduct smoking cessation programs was also measured.

Results highlighted statistically significant changes in knowledge, outcome expectations, and self-efficacy ($p < 0.05$) between pre-test and post-test indicating a successful training program. No significance was noted for a change in behavior. Implementation and environmental issues need to be encouraged in future programs in order to effect the behavioral change and continue the success of the program.

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CHAPTER 1

INTRODUCTION

Tobacco use varies among racial and ethnic groups. According to the 1998 report of the Surgeon General on Tobacco Use, among U.S. racial and ethnic minority groups, the cigarette consumption among adult African American's declined from 37.3 percent to 26.5 percent between 1978-1995 but has showed an increase for the adolescents (Department of Health and Human Services, 1998). Although this decrease in adults is a favorable move, cigarette smoking is still the leading cause of disease and death for all the racial groups in the United States. In a recent study on substance abuse, the data indicated that the age groups of 26-35 and 35 and over for African Americans reported the highest prevalence of cigarette, smokeless tobacco, marijuana, and cocaine use (Ma & Shive, 2000). The African American population is presently bearing the greatest burden with lung cancer leading the cause for cancer deaths for this subgroup. One possible reason for the high incidence of lung cancer may be attributed to African American smokers showing higher levels of serum cotinine, (a biomarker for tobacco exposure) than white smokers with similar levels of daily cigarette consumption (DHHS, 1998).

Socioeconomic status is another important determinant of tobacco use. The United States Department of Health and Human Services (DHHS) states in the Healthy People 2010 report that low-income adults are almost twice as likely to smoke as high-income adults. African Americans who have a higher income or educational level have lower rates of smoking than do others of their race. People in the age group of 25 years and older with less than a high school education are three times as likely to be current

smokers than individuals with sixteen or more years of education (DHHS, 2000). Smoking rates are also higher for African Americans in central city locations than in non city areas which could be attributed to the lifestyle factors of stressful conditions or just the daily hassles of urban living (King, Polednac, & Bendel, 1996). Smoking rates for the Midwest according to King and colleagues (1996) were estimated among the highest in the country at 25%.

Much of the research on possible interventions for smoking cessation has been conducted within the white, middle class population. African Americans differ from whites in that they smoke fewer cigarettes per day, are less likely to be heavy smokers but are more likely to smoke brands that are mentholated and are higher in tar and nicotine (Ahluwalia, Resnicow, & Clark, 1998). African Americans have also reported a higher desire to quit smoking and a higher number of quit attempts than whites (Shorling, et al., 1997) Unfortunately, this increase in quit attempts does not correlate with success rates. According to Schorling and colleagues (1997), African Americans have experienced more of a relapse in their effort to stop smoking.

African Americans and other minorities are less likely to receive advice from their physicians to quit smoking at regular visits to clinics. African Americans may distrust the advice and instructions presented to them by medical professionals because of the past atrocities dealt to them by the medical community and public health authorities (Gamble, 1997). According to Gamble, these beliefs date not only from the infamous Tuskegee study in which black men who participated in a syphilis study were left unknowingly untreated but also to the antebellum period. During this time, physicians

used slaves as subjects for medical experiments and dissections. Fewer African Americans attend smoking cessation programs than their white counterpart smokers (Hill & Braithwaite, 1997). This could just reflect a lack of interest or distrust in group programs or it may be possible that African Americans have poor access to these types of formalized programs (Ahluwalia, et al., 1998). Most of the smoking cessation programs developed have benefited the predominately white, middle-class population (Lacey, Tukes, Manfredi, & Warenke, 1991). African Americans, because of their race, may be treated differently by medical professionals. Physicians do not inquire about their health status, the seriousness of certain habits such as smoking, or give advice on methods to achieve cessation (Gamble, 1997). Therefore, there is a need to utilize trusted community members in the African American community to assist in smoking cessation interventions.

Lay health educators have been used for years in the African American community to help address health disparities among the minority population and to promote health (Jackson & Parks, 1997). Individuals in any community trained as lay health educators could become involved with a vast range of health issues in various settings throughout their community. Many African Americans have a close relationship with their community often centered around their church, neighborhoods and the extended family. Lay advisors could be another important source of support. By diffusing a health behavior change through the community with lay advisors that are trained to facilitate a short-term smoking cessation program, possibly more African Americans could be reached. Some of the existing programs build only on the

knowledge about the addiction of smoking and the ways to enable the smoker to quit. Several theories and models have evolved to address behavioral change. There is a need for these programs to be based on a sound behavioral theory that can effectively use the limited time available to conduct smoking cessation sessions. As of now, there has yet to be a smoking intervention program that works for all smokers. However, work with some behavioral theories and models have shown promise in facilitating behavioral change. One such model is the Transtheoritical Model.

The Transtheoritical Model incorporates five stages of change an individual moves through in order to change a behavior and ten processes of change that are actively used by someone to move through the different stages (Prochaska, Redding, & Evers, 1997). The stages of change start with the precontemplation stage in which the person lacks a desire to change a behavior and has no intention of quitting in the near future. The second stage is contemplation in which the person is aware of the problem and has decided to take some action within the next six months. In the third stage, preparation, the individual has set a quit date usually within one month and is making active steps to comply with that action. The action stage is the fourth stage, where the individual has made an observable modification in their health behavior, and the last stage will be maintenance in which the person works to prevent relapse and maintain the healthy behavior. The last stage may last anywhere from six months to five years. The processes include applications such as consciousness raising, dramatic relief, self-reevaluation, stimulus control, and self-liberation. In consciousness raising, the smoker is discovering and learning new facts that will support the behavioral change. During dramatic relief,

the individual is experiencing negative emotions such as fear and anxiety that relate to their unhealthy behavior. For the process of self-reevaluation, the smoker will realize that this behavioral change is an important part of their identity. For stimulus control, the smoker removes or divorces themselves from any reminders or cues of their unhealthy behavior and at the same time adds cues for the healthy behavior. During the process of self-liberation, most individuals are realizing that the social norms are supporting the healthy behavior. Smokers will also contemplate a decisional balance on the pros and cons of the behavior and the availability of self-efficacy (Prochaska, Redding, & Evers, 1997). It is very important for the facilitator in a smoking cessation intervention to realize at which stage the individual is at so as to help engage the correct processes at the right time.

Many studies have examined the success rate of the smoker in the different interventions for smoking cessation. However, not many studies have examined the intervention designed to train trainers or lay volunteers to facilitate a quit smoking behavior change. Therefore, the purpose of this study was to develop, pilot test and evaluate a lay volunteers training program to study the changes in knowledge, attitudes, and the intent to facilitate smoking cessation programs among minorities.

Statement of the Problem

Most African Americans do have the desire to quit smoking but have a lower success rate than Caucasians (DHHS, 1998). A theory-based programmatic approach could potentially address this problem. However, the question remains as to whether a

formal program modified to include behavioral theories could be initiated by lay health volunteers in the community to help address disparity on this health issue.

In a 1989 report from a general community hospital in Chicago, two-thirds of the African American patients stated that they would like a formal program to help them quit. In a more recent survey in 1993 taken by Dr. Ahluwalia at a Georgia health facility, 86 percent of African Americans wanted to quit. Ninety-nine percent of those who did indicate a desire to quit, stated they would attend a formal program even if it entailed visits to the hospital (DHHS, 1998).

The Healthy People 2010 objective is to reduce the prevalence of smoking in the nation to 13% within the next decade (DHHS, 2000). This goal, according to Mendel and Warner is virtually unattainable and would only be achieved if smoking cessation rates were drastically increased. The Healthy People 2000 objective had been set as low as 15%. Only two states, California and Massachusetts with their aggressive tobacco control efforts and smoking cessation programs have lowered their residents rates below the average rate of 24% for the United States (Mendel & Warner, 2000). The authors feel realistic objectives could challenge public health efforts in smoking cessation for all races and ages.

The Nebraska divisions of the American Cancer Society (ACS) have basically pronounced the formal Fresh Start agenda with smoking cessation sessions a failed program (D. Cramritter, personal communication, May 9, 2000). All the Nebraska chapters are dropping the program and will no longer be printing the brochures. The four hours of training was considered too long of duration for most volunteers. There were

too few trainers and even fewer smokers participating in the sessions (D. Cramritter, personal communication, May 9, 2000). Therefore, there is a need to improve this program to meet the goals for smoking cessation.

Purpose of the Study

The purpose of this study was to explore the efficacy of preparing lay volunteers with direct involvement in the community to facilitate smoking cessation programs in North Omaha, a predominately black community. The intent is to evaluate a theoretically based smoking cessation program developed around the original program of the American Cancer Society's *Fresh Start*. The volunteers from the community were trained in a modified version of the *Fresh Start* Program. The participants in the training program were evaluated on their perceived knowledge about cigarette smoking and the smoking cessation processes, their knowledge about Social Cognitive Theory (SCT) and the Stages of Change Model, their attitudes about expected outcomes of the smoking cessation program, the value of those outcomes and their confidence in their ability to facilitate smoking cessation classes.

Research Questions

The participants (lay volunteers) were evaluated on the confidence in their own ability to be effective as a facilitator in a smoking cessation program and on their skills in applying behavioral theories in a smoking cessation intervention. It was hypothesized that the program, which incorporates sound behavioral models into the training programs for the participants, will increase their perceived knowledge about the stages of change, SCT and attitudes about the expected outcomes in a smoking cessation program. This in

turn will increase their confidence (self-efficacy) and behavioral skill in facilitating a smoking cessation program. The research questions proposed are:

1. Is there a statistically and practically significant difference in the change in the mean scores for perceived knowledge about smoking issues in the lay volunteer trainees before and after the modified Fresh Start Training of Trainers Program?
2. Is there a statistically and practically significant difference in the change in the mean scores for attitudes in outcome expectations and expectancies concerning smoking issues in the lay volunteer trainees before and after the modified Fresh Start Training of Trainers Program?
3. Is there a statistically and practically significant difference in the change in the mean scores for their self-efficacy about organizing and conducting smoking cessation programs in the lay volunteer trainees before and after the modified Fresh Start Training of Trainers Program?
4. Is there a statistically and practically significant difference in the change in the mean scores for the behavior change for smoking cessation facilitation in the lay volunteer trainees before and after the modified Fresh Start Training of Trainers Program?

Delimitations

For this intervention, the trainees followed a modified version of American Cancer Society's Fresh Start program. The training for this intervention group imposed the constructs of the stages of change, self-efficacy, and a few constructs of SCT. The training program was facilitated by a professor who has worked in many evaluation fields

and by a professor who's past work for fifteen years has been in the smoking cessation field.

The participants consisted of lay members of the community recruited by the directors of the Charles Drew Health Center in North Omaha. The 16 volunteers for the training program came from various community organizations, ministers from churches, and the community at large. This group participated in a brief intervention consisting of a four-hour training program at the Charles Drew Health Center, a local health center in North Omaha serving a predominately minority community. Upon completion of the training the volunteers were encouraged to organize and facilitate a small group smoking cessation programs for smokers to attend on a once a week basis for a month in length. The smokers were referred by physicians from the health center, who were simultaneously being trained in a brief smoking cessation intervention. Some of the smokers were to be referred by churches or by word of mouth. At six months, a post-test was administered to evaluate the facilitators' perceived knowledge, attitudes on outcomes, their self-efficacy to facilitate smoking cessation programs, and their specific behaviors in facilitating smoking cessation programs.

Limitations

Limitations to this study included selection bias of the participants in the study in that they were a convenience sample. Many were from an intact group who also participate in an outreach program in the minority community. Those who did volunteer would be more interested in changing their perceptions and skills in relation to smoking cessation. Twenty-six individuals had signed up to attend the smoking cessation training

program. Some individuals did not show for the session and a few needed to leave early. The pre-planning had suggested a group of 50 volunteers for adequate sample size but lack of space to conduct the session and limited resources for incentives kept the number lower.

Once through the training program, a volunteer may not have wanted to become involved in the four-week program for smokers. The follow up will be of short duration at six months, which may limit the evaluation of the facilitators. More time may be needed to evaluate the participants' behavioral change. The volunteers were dependent on the timeline of the Charles Drew Health Center (CDHC) in setting up the smoking cessation sessions at the facility. A years study may have been needed for this pilot project. A simultaneous training program was initiated to the physicians and medical residents. The logistics of two new programs and correlating the two at CDHC was taking more time than anticipated. The follow-up was mailed out to the participants which, relies heavily on their self-motivation to complete the survey. The impact of organizing the smoking cessation by the trained volunteers will be assessed by self-report.

The limitations to testing with the survey is the conditioning of the subjects with the pre-test that was given at the start of the session. By utilizing the pre-test, we may have enhanced their markings on the post-test. In responding to the survey, particularly the questions on the process of the training session, the participants' responses may have been swayed by social desirability in wanting to mark high for the professors. The process of test-retest was not done on this survey with another population. Complete

anonymity and confidentiality to the researcher was not possible because the names needed to be left tagged to the surveys until the follow-up was completed. Once all the data was entered into the computer, the volunteers were completely coded.

Significance of the Study

The significance of this study will be to evaluate the process and impact level of a training program for lay facilitators in order to provide a sound smoking cessation program to an African American community. Many programs for smoking cessation have been underutilized in the African American community especially in a lower income area. A well-trained facilitator for smoking cessation programs would be beneficial to the realm of health care for a low socioeconomic area. This program could be molded to fit other proven smoking cessation interventions for a minority community rather than continually inventing new programs. A mix of health professionals and trained community members in health-related programs could have a cascading effect in addressing health disparities for African Americans.

Definition of Terms

Attitudes are judgmental opinions that individuals have about particular issues. These attitudes may predict behavior and are determined by what an individual believes or evaluates about certain outcomes whether positive or negative (Green & Kreuter, 2000). This study examined the participants' attitudes within the realm of outcome expectations, outcome expectancies and self-efficacy in conducting smoking cessation sessions.

Facilitator, in regards to a smoking cessation program, is the individual whose responsibility is to guide the participants in the process of the program.

Health education is defined as any planned combination of learning experiences designed to predispose, enable, and reinforce voluntary behavior conducive to health in individuals, groups, or communities (Green & Kreuter, 2000).

Lay health advisors are those individuals in a community whom others naturally turn to for advise, emotional support, and aid. These lay helpers provide informal, spontaneous assistance to others (Eng & Young, 1992). For this study, this term was interchangeably used with facilitator or lay health educator.

Lay health educators are individuals from a targeted community who participate in the implementation of community-based programs or interventions (Lacey, Tukes, Manfredi, & Warnecke, 1991). For this study, this term was interchangeably used with lay health advisor.

Outcome expectancies are the values an individual will place on a particular outcome. One will engage in a behavior change if they perceive a positive outcome (Baranowski, Perry, & Parcel, 1997). For this study, outcome expectancies are defined as the value the trainee places on facilitating smoking cessation sessions. If they perceive a positive outcome in influencing a smoker to change their behavior by the trainee's facilitation of a smoking cessation program, they would choose to engage in this behavior.

Outcome expectations are the beliefs an individual has on whether engaging in a particular behavior will lead to certain outcomes (Baranowski, Perry, & Parcel, 1997).

For this study, outcome expectations are defined as the beliefs the volunteers (trainees) have that by organizing a smoking cessation program certain outcomes are expected to occur. They anticipate aspects of conducting a smoking cessation program before their behavior of conducting these sessions has been performed.

Self-efficacy is the conviction an individual has that they can successfully accomplish a change in a behavior to produce a desired outcome. One will sustain a health behavior to the extent they believe they are able to carry out this behavior (Strecher & Rosenstock, 1997). For this study, self-efficacy about facilitating smoking cessation sessions is defined as the conviction the trainee has that they could successfully organize and implement smoking cessation programs. This self-efficacy for the trainee would also entail their belief that they could recognize the stages of change and adapt this to the smoker's stage and processes.

CHAPTER 2

REVIEW OF LITERATURE

Introduction

Smoking has been a health concern for many years in all populations but it is particularly devastating to African Americans, other minorities, and people in low socioeconomic status. This literature review will address the utilization of lay health advisors and health educators and the promising support for their interventions within the African American community. The various smoking cessation interventions that have been implemented and researched within the African American population will be reviewed. Much of the emphasis on these different smoking cessation programs had involved the use of the Transtheoritical Model, which evolves around the stages of change. A review on several of these studies and how they have been implemented in smoking cessation is covered in this chapter. A discussion will follow in regard to this literature analysis.

Lay Health Advisors and Educators

Lay health advisors have been utilized for years as crucial support for addressing and instituting change in the African American community. African Americans use this network to a much greater degree than whites (Jackson & Parks, 1997). According to the two authors the actual recruitment and training process has not been fully explored in the literature. In a literature review, few studies evaluated the effectiveness of the trainers themselves but of the quit rate of the smokers. Lay health educators or advisors could be incorporated into various entities in the community. They may serve in a health

education role and a support role. Lay health educators have had positive effects in certain health behaviors. The support for their use can be seen with successful community interventions in smoking cessation and cardiovascular disease reduction (Lacey, et al., 1991). These individuals need to be seen as influential members of their community for the intervention to succeed (Lacey, et al., 1991). In this study lay health educators were women who were selected from the community to promote a smoking cessation intervention that would be diffused in a hard to reach area. The main intervention was promoted via television programming that coincided with the American Lung Associations brochure, "Freedom from Smoking in 20 Days". The main responsibility of the lay educator was to promote awareness of the intervention and to actively recruit participants. These volunteer educators were to conduct a classroom component to coincide with the brochure. Nearly 1300 people had been contacted by the outreach of the lay health educators. A 16% response rate occurred with 235 people pre-registering for the program, with 56 out of the 235 attended the classroom component. The quit rate of this group was 11% (n=3). The low quit rate could have been a factor of the population. In the low socioeconomic area, smoking may not be considered a threat to health but rather a pleasurable outlet and a reducer of stress. The limitations to the study were the lack of training in the health educators to the readiness to quit factor of the smokers and the necessity for them to seek out those smokers willing to attempt a smoking cessation intervention. The large number that they were willing to recruit and motivate to register for the television programming may be promising when considering other community intervention programs (Lacey, et al. 1991).

Eng and Young (1992) stated that lay health educators could be an important support system in health interventions and in collaborating with formal professional services. Integrating these individuals into neighborhood, community organizations, and clubs can be helpful to mediate a desired health outcome. They may serve in an educator mode and trained as extenders of the health care system. Recruitment may come from seeking out credible individuals in the community who display leadership skills. The lay health educator or advisor can be trained in assisting individuals through the decision making process that leads to a behavior change. This intervention can be shaped to fit the need of a community through some type of formal program or through a community project of interested and supportive volunteers (Eng & Young, 1992).

Jackson and Parks (1997) documented in their paper the important utilization of lay health advisors in the African Americans community for the past twenty years. The need for these individuals to help address the health disparities among African Americans should not be overlooked. The authors theorize that the lay health educators need to be carefully recruited and trained to "legitimize their role in the health care system." In the past decades these individuals have been utilized to address several health issues in many settings and have become an important resource for health promotion efforts (Jackson & Parks, 1997).

Smoking Cessation Interventions for African Americans

The volunteer agencies such as the American Cancer Society, the American Lung Association, and the American Heart Association have not reached the minority population to the extent that they have in the white population. Poor access to these

resources and the reduced access to primary care may be a drawback to successful smoking cessation in African Americans (Ahluwalia, 1996). Other barriers to quitting that exist particularly in low income African Americans may be a) stress with their environment, b) isolation, c) smoking viewed as the one pleasure in their life, d) a low belief in their health risk, and e) minimal assistance available to them for smoking cessation (Ahluwalia, 1996). Ahluwalia suggests that although minority populations rarely use formal smoking cessation programs, this should not deter efforts by community organizations such as churches and other networks to develop intervention strategies that would reach the African American population. Ahluwalia conducted a double blind, placebo-controlled randomized trial with the transdermal nicotine patch with 410 African American participants. The patients received either the patch or placebo for ten weeks. At the six month assessment of self-reported quit rates, 18% in the nicotine patch group and 10% in the placebo group had not smoked in the past 3.5 months ($p \leq 0.05$). The patch significantly supported its use as an aid to smoking cessation. A multichannel approach using telephone calls, brief counseling, and behavior modification interventions tailored to the culture of the target population could enhance smoking cessation outcomes (Ahluwalia, 1996).

Due to African Americans desire to quit on their own, culturally sensitive interventions have been incorporated into church based community modules (Voorhees, et al., 1996; Schoring, et al., 1997). Voorhees and colleagues (1996) researched the Heart, Body, and Soul randomized trial that was based in the urban community of Baltimore involving 22 churches. Where other traditional smoking cessation programs had ignored

the cultural norms of a community, the Heart, Body, and Soul was designed around the often-spiritual energy of an African American community. Many programs are set up for those wanting to quit and ignore those not in the readiness stage. This intervention was dispersed through sermons in churches by the pastors, by testimonies during church services from others going through the cessation process, through volunteers serving as trained smoking cessation counselors, self-help manuals, and spiritual based audiocassettes. A total of 11 churches received this intensive culturally sensitive intervention with the control group of 11 churches receiving basic self-help instruction. The outcome was measured not just by the quit rate but also any shift in the stages of change. The stages of change measurement base was valuable because an individual may take months or several years to make a behavioral change such as smoking cessation. Analysis was made at one year comparing the two groups of churches. The church group with the intensive intervention showed a statistically significant ($p \leq 0.04$) measure in making a positive move through the stages of change. This was a unique research study in that it measured the outcome in a community-based intervention as the process through a health behavior change rather than the ultimate end goal of having quit smoking.

The second study by Schorling and colleagues (1997) was a smoking cessation intervention set up to address health concerns in rural African American communities. This was also incorporated into a church-based community wide program. A coalition was formed of lay volunteers and clergy in each county. Thirty-five churches worked together to develop the programs centered on their health concern. The stipulation for the study was one county could not chose smoking as its health objective but had to be the

focus for the intervention county. The program was designed to involve one-on-one counseling in conjunction with self-help materials. At least two smoking cessation counselors were to be trained from each church. A total of 26 lay volunteers were given eight hours of training which emphasized guiding the smokers through stages of change. The quit rate measured at one month was higher for the intervention group, 9.6% than in the control group at 5.4% but not a significant difference ($p \leq 0.18$). The study did result in a significantly higher move through the stages of change in the intervention group and a higher awareness of smoking cessation programs. One of the primary goals of the intervention was to implement a program that could continue in the community once the research was completed. Over a year after the completion of the study a health education board and a local alliance are still active in addressing health promotions in the African Americans community (Schorling, et al, 1997).

To reach beyond a church centered smoking cessation intervention into other institutional settings the Harlem Health Connection Project was developed to address health disparities in low socioeconomic African Americans in the Harlem section of New York City. Central Harlem has the highest mortality rates from malignant neoplasms, cardiovascular disease, and chronic obstructive pulmonary disease (Resnicow, et al, 1997).

The sites chosen within this community for this study were based on a cluster, randomized design. Before recruitment of the actual individuals, sites from health care facilities, public housing, and churches were assigned either to a treatment group or a control group. Focus groups were formed to help draft and develop a new program called

Kick It!, a 24 page self-help guide and video. The individual smokers from the intervention sites also received booster calls from lay volunteers tailored to the stages of change. A total of 1224 out of 3000 African American smokers were included in the study. The outcome measure at six months was on quit attempts and abstinence. Following univariate analysis, the quit rate was higher for the intervention group but did not have statistical significance ($X^2 = 3.5$, df = 1, $p \leq 0.06$). In isolating the telephone booster call from the other interventions, there was a 16.4% quit rate compared to a 7.9% quit rate in the comparison group. Those individuals receiving the booster call did reach statistical significance with abstinence (chi-square, $p \leq 0.05$) in comparison with the comparison group and the treatment group just the self-help materials. In measuring quit attempts there was no significant difference between the intervention group and the control group ($X^2 = 2.2$, df = 1, $p \leq 0.14$).

The goal for the authors in this study was to develop a program that would be culturally sensitive and would become widely available to low socioeconomic African Americans. Some of the limitations in the study were the feasibility of reaching the smokers by phone or just obtaining phone numbers in a low-income area such as the housing development sites. The quit rate was also self-reported and not by biochemical verification. The study did employ valuable strategies in recruiting and retaining African Americans for health promotion interventions that can be supported in a community (Resnicow, et. al., 1997).

A process evaluation was conducted on the Harlem Health Connection Project to study the actual utilization of the Kick It! Brochure, the stages of change video, the quit

contracts by the individual smokers, the two Quit & Win contests, and the telephone booster calls (Rensicow, Royce, Vaughan, Orlandi, & Smith, 1997). The authors wanted to analysis what worked and why in the full intervention delivery in order to avoid Type III error. An intervention may not prove statistically significant in the data analysis and may thus be deemed ineffective when in fact it was the way the material was utilized or presented to the participants.

In the evaluation of the Harlem Project, the Kick It! Lay and expert personnel reviewed materials on numerous occasions. Of the 650 participants, 60% read most of the guide, some was read by 32%, and 8% read none of the material. The video portion contained two sections, with the first part involving around an ancestral story about "breaking away from the modern bonds of slavery," in reference to nicotine addiction. The second part dealt with guiding the smoker through the quit process and staying abstinent. Feedback from the individuals in the intervention who had watched the video, 97% found it appropriate for African Americans and 96% found it moderately to very interesting.

An increase use of the video marked an increase rate of abstinence. In contrast, the use of the printed guide did not have a significant impact. Possible factors for this result may have been due to the populations' lower literacy skills, although the efforts were made to keep the printed material at the fifth grade level. The response from outside reviewers suggested that the guide might have included too much text. The guide had been chaptered by stage match but this did not ensure that the smoker would concentrate on the corresponding text for their situation.

The Quit & Win contests produced higher quit rates which may be attributed to the person actually signing a contract and setting a quit date. Another possible reason is the increase use of the printed material since the contract was embedded in the guide.

The low rate of booster calls completed was due to the lack of numbers on the initial recruitment cards. This process was done in a rushed manner that cards were not checked for completion. Also only three attempts were made to contact the smokers. Those that were finally contacted by mail or home visits did provide a phone number leading the authors to believe that the phone intervention is a feasible adjunct to a health behavior intervention.

Although quitting was not significantly greater in the intervention group it may not be prudent to state that the intervention just did not work and develop a new program. During this intervention involving 650 individuals, only 8% used the quit contracts, only 13% entered the contests, only 31% were contacted for the booster call, and just 36% reported viewing the video. Inventive ways to increase use and changing the timing of the delivery may prove more promising for use of present programs than grasping for new and better interventions (Resnicow, et al, 1997).

Ahluwalia (1998) researched the relationship between the knowledge about smoking, the reasons for smoking and the reasons for wishing to quit and quit rates at ten weeks and six months. A total of 410 African American smokers expressing interest in giving up smoking were randomly assigned to a double blind, placebo-controlled trial of the transdermal nicotine patch. In addition to the patch use, the participants received a culturally sensitive guide, an audiocassette on instruction for the patch use, and tips in

coping with the behavior change such as relaxation techniques. Several survey instruments were used to assess the descriptive information on the smokers and the possible relationship between quit rates and the smokers' knowledge and reasons for smoking or quitting. In comparing the use of the patch at ten weeks, 21.5% in the patch group and 13.7% in the placebo were abstinent, measured at not having smoked cigarettes in the prior 30 days ($p \leq 0.03$). For the three scales measured in relation to quit rates, there was no significant difference ($p \leq 0.10$). In the knowledge about smoking questions, 84% answered the questions correctly and 99% wanted to quit for health related reasons. A limitation in the survey instruments used in the study was the smokers could not put in rank order their preference on the reasons for smoking and reasons for quitting scales. The scales also did not attempt to measure the smoker's self-efficacy in feeling they would be able to successfully quit. The scales may not have measured valid constructs in assessing cognitive aspects to abstinence (Ahluwalia, 1998).

The Transtheoritical Model

Several of the studies involving smoking cessation for African Americans incorporated the stage of readiness in the individual or the stages of change (Resnicow, et al., 1997; Schorling et al, 1997; & Voorhees, et al, 1996). Due to the high rate of relapse for African Americans (Ahluwalia, 1996), the problem may not be honing in on the interaction between the person and the intervention (Perz, DiClemente, & Carbonari, 1996). An individual uses cognitive processes to make a behavioral change such as smoking. Progress through the stages of change is theorized in the Transtheoritcal Model (Dijkstra, DeVries, Roijackers, & van Breukelen, 1998 & Perz, et al., 1996). Substantial

research as been completed on the stages of change and the processes of change for smoking cessation interventions (Dijkstra et al., 1998; Perz, et al.,1996; & Velicer, Prochaska, Fava, LaForge, & Rossi, 1999). The stages of change outlined in the introduction chapter consist of precontemplation, contemplation, preparation, action, and maintenance. At times, the stage of termination is used when there is little chance of relapse and the behavior is totally ingrained in the individual. The processes of change consist of the experiential components and the behavioral components. The experiential include consciousness-raising, dramatic relief, self-reevaluation, social reevaluation, and social liberation. The behavioral consist of self-liberation, counterconditioning, stimulus control, contingency management, and helping relationships (Perz, et al.,1996).

Perz and colleagues (1996) studied whether an individual moving from contemplation to preparation to action actively practiced use of the processes to reach successful abstinence from smoking. Volunteer smokers received self-help materials matching their stage determined by a pretest. The post-test at one and six months was analyzed on 272 smokers for processes of change, smoking history, and smoking outcome. The researchers hypothesized that high use of experiential processes at contemplation and preparation would lead to better success in the quit attempt. At the same time, using behavioral processes during the action stage would lead to successful abstinence from cigarettes. The comparison was made by dividing those individuals into the following four groups: 1) those doing the wrong thing at both times, 2) the experiential compensators: those doing the right thing at contemplation and preparation, 3) behavioral compensators; those doing the right thing at the action stage only, and 4)

those doing the right thing at both times. A multivariate analysis of covariance was used to perform analysis on the four groups. There was a significant effect at one month for this group comparison, ($F(6, 381) = 7.11$, $p \leq .001$, effect size 0.151). Another significant effect was measured at six months, ($F(6, 381) = 3.19$, $p \leq .0009$, effect size 0.102). A post hoc Tukey was also used to show significant difference between the two groups. The correct pattern use of the processes established stronger point-prevalence abstinence. The correct timing and the amount of processes utilized produced longer periods of abstinence from smoking.

A limitation to this study in comparing the process use was the smaller number (n=23) that were behavioral compensators to the larger number of experiential compensators (n=167). The smokers were also volunteers and their quit rate and process use was given by self-report. Although, the implications for the behavioral compensators may not fully answered in addressing those smokers prepared to quit, it would be beneficial to focus on an attitude change before taking action (Perz, et al., 1996).

Many interventions concentrate on the smokers in the contemplation stage and preparation stage and ignore those in the low readiness to quit stage (precontemplators). The aim in an intervention should not only examine the quit rate but the stage transition for all the stages of change. Earlier studies have stated that information and awareness is needed for the precontemplators and self-efficacy enhancing information is needed for those with a high readiness to quit, the contemplators and preparers (Dijkstra, et al., 1998). In this research study, the purpose was to assess what smokers needed to be

offered in each stage and whether this difference in stage-matched information could be demonstrated.

A group of 1540 smokers recruited from advertisements placed in newspapers throughout The Netherlands were randomly assigned to one of four conditions. The design for the four conditions was information on outcomes of quitting, only self-efficacy information, both types of information, or no information at all. The participants received computer tailored intervention letters specific for their intervention group.

An analysis for two of the outcomes, stage transition and seven days of cessation was measured by logistic regression. Intention to quit was measure by linear regression. The sex, age, and level of education were included as covariates in the analysis to reduce the factor of unexplained variance. In the contrast analysis of all three experimental groups for stage matched, only the preparers receiving the self-efficacy information had quit smoking for seven days significantly more than the preparers without information ($p < .05$). The contemplators who received both types of information revealed a stronger intention to quit. For the precontemplators, it made little difference if they received matched or mismatched information for their stage. A limitation for this study was the short follow up of seven days. To progress through the stages of change, a smoker probably needs a much longer time frame (Dijkstra, et al., 1998).

In order to reach a large population base for smoking interventions, research on interactive versus noninteractive programs and dose-response relationships during the stages of change were studied by Velicer, Prochaska, Fava, LaForge, and Rossi (1999). Most smoking cessation programs are assessed on their effectiveness with volunteer

smokers who have the desire to quit. To impact a population, the researchers proposed that a proactive recruitment approach is needed combined with an effective interactive, individualized intervention.

The participants (n=2882) were randomly assigned to one of eight groups. The smokers received manuals at one, two, three, or six contacts (the noninteractive intervention) or received the expert tailored system with manuals at one, two, three, and six contacts (the interactive intervention). The comparison between the interactive and noninteractive was significant at 6 months, 12 months, and 18 months ($p \leq .05$). The difference was larger between the two interventions at 18 months, ($X^2 = 7.97$ than at 6 months, $X^2 = 6.10$). Interactive interventions can produce much higher long- term abstinence than the noninteractive. However, the dose response relationship were not statistically significantly for any length of interaction ($p > .05$).

The study confirmed the assumption that smokers could be proactively recruited. From a managed care program, the researchers were able to recruit 85% of the 4,653 smokers identified. The results demonstrated that through proactive, interactive, and expert designed stage matched materials larger numbers of smokers can be guided to abstinence (Velicer, et al., 1999).

A question may arise to whether gender may make a difference with the utilization of the processes of change during the progression through the stages of change. A number of studies suggest that men and women may seek out different coping activities and that women may use such processes as helping relationships to a greater extent than men (O'Connor, Carboni, & DiClemente, 1996). In their study, a

comparison of the use of processes of change at different rates in different stages during a quit attempt revealed no significant main effect for gender, $F(2, 507) = 2.76$, $p \leq .0639$). There were slight differences in the use of the experiential processes social awareness or liberation during the contemplation stage for women. Overall the range of tests utilized supported the similarity between the genders in the process of change.

Social Cognitive Theory

Behavioral interventions for most smoking cessation have approached from the concept of the environment, the individual's stimuli, and the positive or negative reinforcements to the behavior. These techniques may include aversion or self-management steps to control the smoking behavior. In the 1980's and 1990's, the Social Cognitive Theory (SCT) approach to smoking cessation aimed at the attitudes and beliefs of the smoker concerning the affects of their smoking behavior and their ability to control such behavior (Tiffany & Cepeda-Benito, 1994). The authors propose that multicomponent behavioral treatments produce better long-term results. The critical components that are essential in these treatments have not been fully executed. Much of the success also relies on the site where the treatment is initiated, the difference that needs to be realized in the different populations, and the competency of the clinical facilitators.

Shadel, Mermelstein, and Borrelli (1996) propose the concept of two individual difference variables that will predict smoking cessation success, a smoker self-concept and an abstainer self-concept. Both these variables were derived from the Social Cognitive Theory. A smoker's self concept represents the smoker's knowledge of their

own past behavioral history and smoking habits, which in turn creates an increase in response to smoking urges and smoking cues. An abstainer's self concept is the ideal of the nonsmoking person that the smokers are striving to become.

This study was designed to explore the difference in questionnaire measures of the smoker self-concept and the abstainer self-concept in relation to the effects of a cognitive behavioral-based smoking cessation program. The subjects included 54 smokers, 61% were female, 79% were Caucasian, and 19% African American. The smokers participated in a 7-week clinic based smoking cessation intervention. Shadel and Mermelstein developed the questionnaire utilized in the study.

The Smoker Self-concept survey consisted of five items on a scale of (1) strongly disagree to (10) strongly agree. The Abstainer Self-concept survey consisted of four items with the same scale. All smokers completed both questionnaires at baseline, after the treatment at 7 weeks, and at week 19. No non-treatment group was included in the study.

Two separate 2 x 3 ANOVA's measured the results: the first one for the Smoker self-concept scores and the second for the Abstainer self-concept scores. A significant smoking status by time was observed with the Smoker Self-concept scale ($F = 10.48$, $df = 2, 49$, $p < 0.01$). The abstainer's Smoker's self-concept scores dropped more abruptly over time than did the smokers. In the analysis for the Abstainer's Self- concept scores, there was an effect for time, ($F = 13.5$, $df = 2, 49$, $p \leq 0.001$) and main effect for the smoking status ($F = 10.48$, $df = 1, 50$, $p \leq 0.01$). The scores for abstainers did significantly increase over time ($p \leq 0.01$).

A smoker's continued failure in quit attempts may just reinforce their smoker's self-concept. The abstainers were the only individuals who showed a significant increase in their abstainer scores through the time period. Interventions that target these self-concept constructs and deal directly with them in behavioral treatments could predict cessation success (Shadel, Mermelstein, & Borrelli, 1996).

Smoking cessation interventions have been designed to change the cognitive determinants of smoking in relation to the social cognitive theory of expected outcomes and self-efficacy expectations (Dijkstra, DeVries, & Roijackers, 1998). In this study in order to enhance minimal interventions for smoking cessation, computer-tailored letters were developed around SCT. The cognitive changes in the smokers were assessed on expected outcomes and self-efficacy expectations.

The 246 participants were randomly assigned to three groups: 1) those who received personal letters on outcome, 2) those who received a letter for self-efficacy information, and 3) the control group who received no information. The two experimental groups completed a pre-test questionnaire at baseline and a questionnaire two weeks after the letters were mailed out. All three groups received the posttest.

Factor analysis was completed on the questionnaire, which revealed two important constructs: expected positive outcomes with 17 items and expected negative outcomes with 9 items. Questioning the participants whether they could refrain from smoking in various situations assessed the self-efficacy construct.

Analysis was completed on 137 participants. Significant levels were calculated for a one-sided test. In the experimental group with outcome conditions, a significant

increase was noted in the prospect of the environmental and social consequences of quitting smoking ($p \leq 0.01$) when compared to no information. A significant decrease in the affective loss in quitting was seen ($p \leq 0.05$). There was no increase in self-efficacy.

For the self-efficacy group, significance for self-efficacy expectations in correlation with handling social situations was noted ($p \leq 0.05$) when compared to the control group. In comparing the two experimental groups, a strong significance was observed in the outcome condition group in expectations of environmental and social consequences, monetary consequences, and partner involvement ($p \leq 0.05$). The self-efficacy condition did not lead to a significant increase in self-efficacy. There was also no significant decrease in expected negative outcomes in quitting.

The authors concluded that minimal interventions might communicate behavioral skills more so than a cognitive change in the behavior. The intervention would need to include outcome expectations as well as self-efficacy skills to follow Bandura's SCT of determinants in behavioral change.

Summary

As noted in the literature review, smoking cessation programs utilized by the majority of the population has been unavailable or underutilized by the African American population. This may be due to a lack of access for the African American community or that few culturally sensitive programs have been developed to help them quit. Cultural considerations for programs for African Americans should include: religion and spiritualism, expressiveness, connection to ancestors and history, and the commitment to family (Rensicow, Baranowski, Ahluwalia, & Braithwaite, 1999). Some of these

cultural interventions have been mainly set up in the large urban areas such as the Heart, Body, and Soul in Baltimore, Maryland and the Harlem Project in New York City. More of these programs for all areas of the United States could decrease the prevalence of smoking in the African American population.

More African Americans are in the contemplation stage in the process of quitting compared to non-Hispanic whites (Gibson, Ahluwalia, Hedberg, Harris, & Mayo, 1998). A smoking cessation program that concentrates on moving the African American smoker through the stages of change may have more of a significant impact on successful abstinence from tobacco use. Incorporating lay health educators into an African American community whose population highly uses social networking could become a valuable asset for positive behavioral changes. Successful abstinence from smoking is not always a one shot attempt. Multichanneled programs that are cascaded throughout a community could become an effective answer to the health disparity in an African American community especially for those in low socioeconomic areas. With proper training, lay health educators could develop the knowledge and skills needed to facilitate a smoking cessation program in their targeted community.

Table 1 - Review of Literature

Study	Purpose	Participants/ Sample Size	Instruments	Intervention	Outcome/ Results	Limitations
Shadel, Mermelstein, & Borrelli (1996)	To examine if self-concept constructs changed with participation in smoking cessation programs	54 smokers, 19% African Americans 79% Caucasian	Two surveys developed by authors: Smoker's self-concept and Abstainer's self-concept Pre-test and posttest.	7-week clinic based smoking cessation program. Assessed at 7-weeks & 19 weeks	Abstainer's Smoker's self-concept score dropped more abruptly. Abstainer's self-concept score: effect for time and main effect for smoking status.	No control group. Not known if "slip" by abstainer's between weeks 7 & 19.
Voorhees, et al. (1996)	To evaluate mutilmodal, cultural interventions compared to self-help among African Americans	African American church-goers from 21 neighborhood churches	144 item questionnaire. Stages of change questions at baseline & at 1-year follow up.	Pastoral sermons, lay volunteer counselors, spiritual audiocassettes, & day-by-day quide.	Church groups with multi interventions had significance with a positive move through stages of change, $P = 0.04$	Strong social norms within churches may not effective with all denominations.
Perez, DiClemente, & Carbonari (1996)	To address stage-specific activity of smokers from contemplation to preparation to action.	388 volunteer participants. Mean age at 40. 2/3 were women.	Smoking history questionnaire. Pre-test, Post- test at one month, & 6 months posttest. PCQ scale used	Minimal intervention using self-help materials	Higher success rate when smokers used proper processes at the right stage for one month analysis, $p < .0005$	Quit rates and processes Self-report. Volunteers used for study.
Resincow, et al., (1997)	To develop & design a culturally sensitive smoking cessation intervention for low socioeconomic African Americans.	1244 adult African American smokers.	initial smoking questionnaire, home interview assessing personal demographics, smoking history, and health status. Posttest at six months. Baseline stages of change assessed and posttest at six months.	Sites were assigned to treatment group or comparison group. Treatment group received multi-component self-help cessation kit and one booster call. Comparison group received generic health information.	Chi-square analysis and multivariate logistic regression utilized. Quit rate was higher in intervention but not statistically significant, $p = .06$. Adding booster call to analysis did show significance at $p < .05$.	Quit rates given by self-report. No booster call violated the "intention to treat" principle. Short term follow up of six months.

Study	Purpose	Participants/ Sample size	Instrument	Intervention	Outcome/Results	Limitations
Ahluwalia, Resnicow, & Clark (1998)	To determine knowledge about smoking, reasons for smoking, and reasons to quit in correlation with abstinence at 10 weeks and 6 months,	410 African American smokers recruited from hospital clinics.	Survey at baseline.. Descriptive study. Numerous surveys for instruments: Fagerstrom nicotine dependence, National Health Interview Survey, three scales on knowledge, reasons for smoking, and reasons to quit.	Participants placed in a double-blind placebo controlled trial with the nicotine patch. Smokers received Pathways to Freedom guide, audiocassette on nicotine patch use, coping skills, relaxation techniques, and behavioral change strategies.	Chi-square and t-tests were used for measurement. No significance between quit rate and knowledge, $p > 0.10$, reasons for smoking and quitting, $p > 0.10$, or for wishing to quit, $p > 0.10$. Higher quit rate with those receiving the nicotine patch.	Cohort was motivated to ability to generalize is limited. Questionnaires were a yes/no category. Individuals could not rank preferences.
Dijkstra, DeVries & Roijackers (1998)	To assess if information on positive and negative outcomes on quitting increased positive outcome expectations and self- efficacy.	246 smokers	Pre-test questionnaire, computer-tailored letters on either outcome expectations or self-efficacy.	Experimental group 1: received information on positive and negative expectations. Experimental group 2: received self-efficacy information. Experimental group 3 : received no information	Outcome information led to more of an affective change than self-efficacy information.	Only 60% response at posttest. An explorative study – no multiple testing.
Velicer, Prochaska, Fava, LaForte, & Rossi (1999)	To compare interactive & non-interactive smoking cessation interventions. Goal was assess a proactive approach.	2882 smokers from four managed care offices using a proactive recruitment with phone calls.	Questionnaire assessment on stages of change. Feedback reports to the interactive group.	Interactive stage-matched computer manuals as smoker progressed. Non-interactive received self-help manuals with stages but relied on trial & error. 4 contacts with each group.	Significance comparing overall test of interactive vs. non-interactive at 6, 12, & 18 months, ($p < 0.05$). No dose response significance seen.	Participant self-selection.

CHAPTER 3

METHODS

This chapter will outline the process by which subjects were recruited for the research study, the characteristics of the volunteers needed for the training course in smoking cessation, and the environment from which draw the subjects were drawn. The intervention that was planned for the facilitators and the method by which it was conducted is included. The data collection procedure and type of statistical analyses to be used will be explained in this chapter.

Population and Sample

The sample for the study was targeted from the northeastern corner of Douglas County in Omaha, Nebraska consisting of nineteen census tracts with a population of approximately 50, 000. The total population of Douglas County is 441,006 with 11.7% African Americans (Nebraska Health & Human Services [On-line, 2000]). The subjects were recruited with the assistance of the director of the Charles Drew Health Clinic in Omaha, Nebraska. The African American patient population for this health clinic is at 71%. The director had the knowledge and "feel" for natural helpers and leaders from the North Omaha community. She recruited men and women from local community organizations, churches, the staff at Charles Drew Health Clinic, the Sudanese community, and others in the community at large. A convenience sample of 26 volunteers were invited to participate in a training program to learn the skills to facilitate smoking cessation programs designed around a modified *Fresh Start* Program. Since the purpose of this study was to pilot test an intervention for testing efficacy, efforts were not

undertaken to aim for random selection of subjects. Former smokers were encouraged to attend the training session. *Fresh Start* is a smoking cessation program developed by the American Cancer Society. The smokers were referred by the physicians at Charles Drew Health Clinic or attended by "word of mouth" from the community. The participants received a stipend for participation in the training and for delivering smoking cessation programs.

Measures and Instrumentation

The measures that were used for this study were a survey questionnaire developed by two professors of Health Education at the University of Nebraska at Omaha (UNO). The questionnaire covered the perceived knowledge, attitudes including expectations and expectancies, and self-efficacy for facilitating smoking cessation by the trainees as well as their behavior of conducting smoking cessation sessions. The participants were asked to complete the questionnaire at baseline prior to the training session, immediately following the four-hour training and at follow-up after six months.

Instrument (Questionnaire): The survey instrument was divided into five sections with the first four groups of questions based on sound behavioral theories. The questionnaire was designed to assess perceived knowledge, attitudes including expectations and expectancies for conducting a smoking cessation program and self-efficacy for facilitating smoking cessation by the trainees. The participants were also asked to rate the frequency in which they have engaged in the behavior of conducting smoking cessation sessions. At baseline the survey covered the demographics of the trainees. The survey questionnaire consisted of 29 items on a 5-point Likert scale (See

Appendix A). The post-test immediately following the training contained two additional questions for the trainees to assess the process of the training program.

The perceived knowledge on the questionnaire consisted of 7 items ranging from not at all (0) to enough to teach (4). The construct of their perceived knowledge about smoking and cessation were operationally defined by what the trainee felt they knew about such factors as reasons people smoked, smoking cessation strategies, the benefits of quitting and ways to build a smoker's self confidence. The outcome expectations consisted of 6 items with the range of never (0) to always (4). The construct for these beliefs were operationally measured by such factors as supplementing their income, pleasing their supervisor, enhancing their skills and deriving personal satisfaction. For the outcome expectancies the range for the 6 items were from not at all (0) important to extremely important (4). This construct of the value the trainee placed on the perceived outcome was operationally defined by items such as significantly benefiting others, helping people quit smoking, enhancing their skills, and deriving personal satisfaction. The range for the 6 items on self-efficacy was from not at all (0) sure to completely sure (4). The construct for their self-efficacy was operationally measured by factors such as believing they could organize a smoking cessation program, conduct the modified *Fresh Start* program, tailor the program to the stages of change and to record a smoker's progress. The behavioral items consisted of three questions from never (0) to always (4). The training rating consisted of two questions on a range from needs a lot of improvement (0) to excellent (4). Specific tests for establishing test-retest reliability,

stability, and construct validity were not conducted for this instrument. Post-test and follow-up questionnaires are seen in Appendixes B and D.

Study Design

The area for the study consists of the nineteen consensus tracts in the northeastern corner of Douglas County in Omaha, Nebraska. The 26 volunteers were invited to participate in the smoking cessation training conducted at Charles Drew Health Center. Thus, random selection was of a convenience sample of members in the community or has had involvement in outreach programs. The recruitment procedure was initiated in late 1999 and continued into the early months of 2000. Those interested individuals of any race who had involvement in the North Omaha community or were representative of that community had been asked to participate.

This study is a quasi-experimental design with one group of participants. The design consisted of pre-test, post-test, and follow-up surveys to measure the dependent variable of changes in the perceived knowledge, attitudes, self-efficacy, and behavior of the trainees before and after the four-hour smoking cessation program (the independent variable). At the post-test, the process impact of the training program was assessed with the two questions presented for the participants to rate the four-hour session.

No comparison or control group was used to compare the program's impact or to compare the original ACS *Fresh Start* program, as this was a pilot project to initiate smoking cessation programs in the minority community.

Intervention

The modified *Fresh Start* training program was held in the conference center at the Charles Drew Health Clinic on a weekday for up to four hours in length. Two Health Education professors from the University of Nebraska at Omaha (UNO) facilitated the training program for this modified version. The training included presentations by the professors, group discussions, interactive learning activities, and role-playing or simulations.

The modified *Fresh Start* Program included Social Cognitive Theory and the Stages of Change Model as an adjunct to the original version. This group of trainees learned more about the pros of quitting smoking and the benefits associated with that behavior change than what had been included in the original *Fresh Start*. They were taught the skills to apply sound behavioral theories into the smoking cessation process. The training began with a group discussion on the characteristics they need to be a good facilitator in a smoking cessation program. The trainees will be mainly working with those smokers in the contemplation stage and preparation stage of the stages of change. Many smokers in these two stages will progress to the next stage or manage to quit. The trainees will be able to build their self-confidence in assisting the smokers in these stages.

The training took the participants through the four sessions developed in the original version of the *Fresh Start* Program but with modifications included. The modified Session 1 concentrated on the reasons for smoking, the benefits of quitting instead of the cons of smoking as in the original version, and the possible strategies for the individual to quit. The trainees learned to influence the outcome expectations and

expectancies of making this behavior change as postulated in Bandura's Social Cognitive Theory. The modified Session 2 dealt with managing the first few days off cigarettes and building the self-efficacy of the smoker. They learned how to help the smoker realize past successes in other behavioral changes and work on small steps for goal building. They also learned how to help the smoker develop coping strategies and practice relaxation techniques. The modified session 3 dealt with the use of social support for the smoker and the methods to establishing this support in their environment. Additional discussion on the building of self-efficacy for overcoming barriers was included. They discussed with the trainees, the processes the smokers are moving through with their quit attempts and how to help guide them with the proper steps. The modified session 4 involved discussing what smokers will go through for the next six months until their behavior is in the maintenance stage. Strategies for coping and preventing relapse were reviewed. The trainees discussed their view on the value of leaning on spiritual guidance in order to cope with this complex behavioral change. All four sessions followed the format of the original *Fresh Start* Program of an introduction, individual attention, strategies and information, review and discussion, and assignments to the smokers.

The participants were not be given a formal informed consent to sign for the study. At the beginning of the training program they were given a written format for the four-hour program and instruction on what it will entail. As following standard procedures approved by the Institutional Review Board (IRS), the survey questionnaire was explained to them and their agreed participation in completing the form before and after the program was their consent to being a part of the research project.

Data Collection

As the volunteers arrived at CDHC for the training program, they were asked to sign in and give their address along with the phone number they may be contacted at. They were then handed a pre-test survey to complete as they took their seats. They were informed that this "Train the Trainers" smoking cessation program will be part of a research project for a graduate thesis. The volunteers were informed that by completing the survey, they were agreeing to participate in the study. Each survey was tagged with their name by a "post-it" note that was later removed and coded with a number. Near the completion of the four-hour training program, the participants were served lunch and received their incentive stipend for participating in the session. A short review and question and answer period followed in which they were then asked to complete a post-test survey before taking their leave.

At six months after the training, a follow-up survey with a letter explaining the questionnaire was mailed to all the participants. Those who did not return the survey within a three-week time span were contacted by phone and asked to take time to complete the survey.

Data Analyses

The independent variable in the study was the training program. The dependent variables were the scores in the trainees' attitudes, knowledge, self-efficacy about facilitating smoking cessation, and behaviors. A repeated measures analysis of variance (ANOVA) was used to compare the change in mean scores in attitudes, perceived knowledge, self-efficacy, and skills between the three time elements. The level of

significance was set at .05. A dependent t-test analysis was used as a post hoc test to determine the significant mean differences and confidence intervals between the three time elements within each of the study variables.

Statistical Hypotheses

H_O: There will be no significant change in the mean perceived knowledge scores concerning smoking cessation before, after, and at follow-up in the smoking cessation training of trainers participants.

H_A: There will be a significant change in the mean perceived knowledge scores concerning smoking cessation before, after, and at follow-up in the smoking cessation training of trainers participants.

H_O: There will be no significant change in the mean attitude scores on outcome expectations and expectancies about smoking issues before, after, and at follow-up in the smoking cessation training of trainers participants.

H_A: There will be a significant change in the mean attitude scores on outcome expectations and expectancies about smoking issues before, after, and at follow-up in the smoking cessation training of trainers participants

H_O: There will be no significant change in the mean self-efficacy scores before, after, and at follow-up in the smoking cessation training of trainers participants.

H_A: There will be a significant change in the mean self-efficacy scores before, after, and at follow-up in the smoking cessation training of trainers participants

H_O: There will be no significant change in the mean scores for the behavior of the trainees in organizing and conducting smoking cessation programs before, after, and at follow-up in the smoking cessation training of trainers participants.

H_A: There will be a significant change in the mean scores for the behavior of the trainees in organizing and conducting smoking cessation programs before, after, and at follow-up in the smoking cessation training of trainers participants.

CHAPTER 4

RESULTS

The purpose for this study was to evaluate the efficacy of a modified "Train the Trainers" program for smoking cessation. In this chapter, the demographic data of the participants will be described first with a descriptive table to follow. Then the statistical data for repeated measures analysis of variance (ANOVA) for the study variables will be highlighted. Finally, results from the process evaluation by the participants will be summarized.

Respondents

Out of the nineteen individuals who attended the modified *Fresh Start* "Train the Trainers" program, sixteen completed the pre-test and post-test immediately following the training. Fourteen of those participants returned the follow-up survey at six months. The demographic data is presented in the descriptive tables in regard to age, gender, race and educational level (See Table1, page 44). The age range of the sixteen participants was between 25-54 years with a mean of 34.6 years and a standard deviation of 8.07 years.

The majority of the participants were females (62.5 %). The level of education was almost split between completing high school at 43.8 % to a college degree or more at 50 percent. Only one participant represented an educational level of less than high school. Most of the participants were African Americans (81.3 %) with one white and two classified as other that included all other racial groups.

Table 1: Demographic characteristics of the sample population at pre-test and post-test (n = 16)

Variable	Range Mean (std. dev.)	Frequency	Percent
Age	25 – 54	-	-
	34.63 (8.07)	-	-
Gender			
Male	-	6	37.5
Female	-	10	62.5
Race			
White		1	6.25
Black		13	81.25
Other	-	2	12.50
Educational level			
Less than high school	-	1	6.25
Completed high school	-	7	43.75
College education or more	-	8	50.00

Statistical Analyses

For data analyses, repeated measures analysis of variance (ANOVA) were conducted using SPSS for Windows, Version 8.0 under the general linear model (GLM) procedure for all study variables. The descriptive statistics were obtained to compare the means between pre-test, post-test, and the follow-up surveys for perceived knowledge, expectations for facilitating smoking cessation interventions (outcome expectations multiplied by outcome expectancies), self-efficacy in conducting smoking cessation programs, and the change in training related behaviors. Dependent t-tests utilized as post-hoc tests were analyzed to compare significant mean differences for the three times. The

process of the modified *Fresh Start* "Train the Trainers" program was also evaluated by collecting data regarding satisfaction. The frequency tables for the process analyses on the training program have been summarized in Table 11, page 51.

Results of Analytical Statistics

The following results will summarize the data utilizing the repeated measures analysis of variance (ANOVA) for the four dependent variables. Table 2 illustrates the comparison of means for perceived knowledge between pre-test, post-test, and follow-up. As seen, the mean was significantly higher between pre-test and the post-test, 12.071 units to 25.07 units, more than twice the difference in mean scores. At follow-up, the mean score was statistically similar to the mean at pre-test.

Table 2: Comparison of the means and standard deviations on perceived knowledge about smoking cessation before, after the training and at six-months follow up among lay health volunteers (n=14)

Variable	Valid n	Possible Range (Observed Range)	Pre-test Mean (std.dev.)	Post-test Mean (std.dev.)	Follow up Mean (std.dev.)
Perceived Knowledge	14	0-28 (10-28)	12.07 (5.64)	25.07 (4.10)	19.79 (5.03)

Figure 1: Line graph depicting the comparison of means between pre-test, post-test, and follow-up for perceived knowledge about smoking cessation among lay health volunteers.

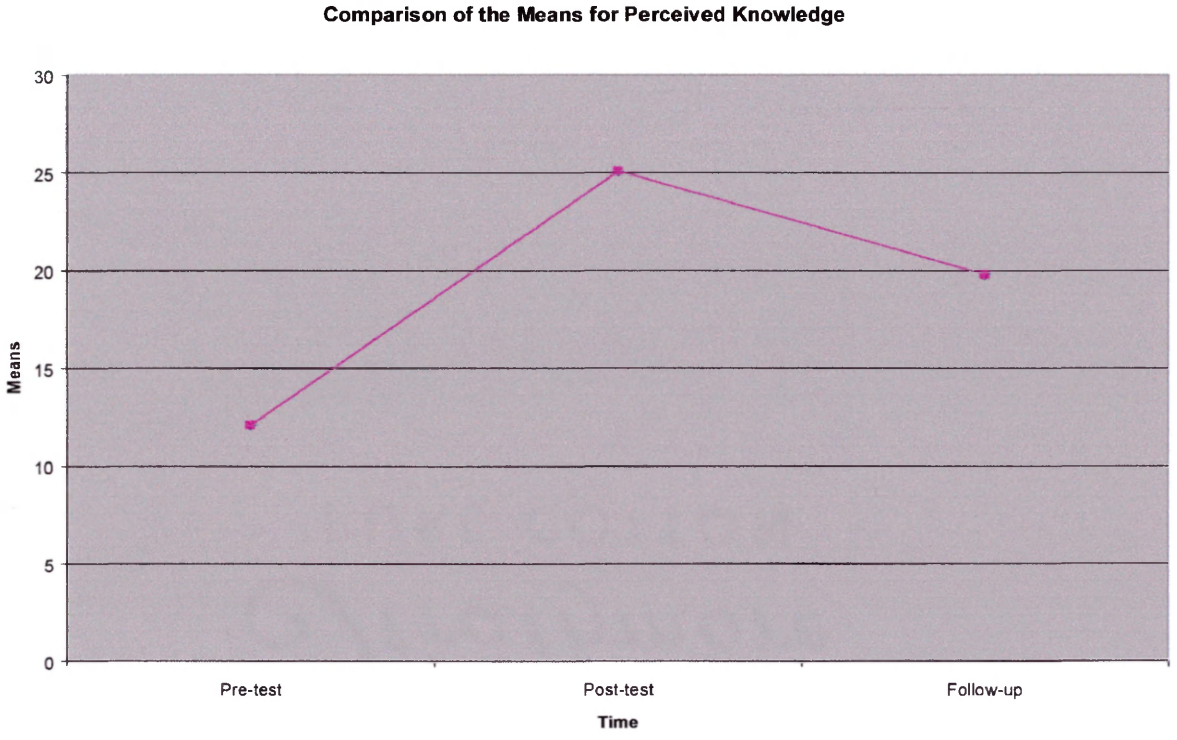

Table 3: Summary of the univariate repeated measures analysis of variance (ANOVA) between pre-test, post-test and follow up for perceived knowledge about smoking cessation among lay health volunteers (n=14)

Source	SS	df	MS	F	p value
Time	1196.762	2	598.38	34.13	0.0001
Error	455.91	26	17.54		

Note. Sphericity assumed Type III Sums of Squares (SS) have been reported.

A one-way repeated measures analysis of variance was computed comparing the perceived knowledge scores of the participants at three times: pre-test, post-test, and follow-up after six months (See table 3). A significant main effect was found ($F(2, 26) = 34.13$, $p \leq 0.0001$). Since SPSS cannot perform classical post-hoc analyses for within-subject factors, protected dependent t-tests were performed (Cronk, 1999). Conducting these tests has the potential to inflate Type I errors, therefore a stringent significance level of 0.017 (0.05/3) was chosen (Kennedy & Bush, 1985; Cronk, 1999). The results are summarized in Table 4. Follow-up tests revealed that scores increased significantly from pre-test ($0 = 12.07$) to post-test ($0 = 25.07$, $p \leq 0.0001$) to follow-up ($0 = 19.79$, $p \leq 0.0001$). However, the decline from post-test ($0 = 25.07$) to follow-up ($0 = 19.79$, $p \leq 0.005$) has also been significant.

Table 4: Paired t-tests done as post hoc tests to make pairwise comparisons among pre-test, post-test, and follow-up scores for perceived knowledge about smoking cessation among lay health volunteers (n=14)

Pairwise comparison	Mean difference	S.E	p-value	95% C.I
Pretest--Post-test	13.000	1.869	0.0001	(8.961,17.039)
Pretest--Follow-up	7.714	1.247	0.0001	(5.021,10.408)
Post-test--Follow-up	-5.286	1.570	0.005	(-1.893, -8.678)

As indicated in Table 5, the mean difference for the expectation variable (outcome expectations multiplied by outcome expectancies) increased from pre-test, 36.79 units to post-test, 52.64 units. However, the mean for the follow-up scores, 28.50 units had dropped below the pre-test mean.

Table 5: Comparison of the means and standard deviations on outcome expectations (outcome expectations * outcome expectancies) before, after the training and at six-months follow-up among lay health volunteers (n=14)

Variable	Valid n	Possible Range (Observed Range)	Pre-test Mean (std.dev.)	Post-test Mean (std.dev.)	Follow up Mean (std.dev.)
Outcome Expectations	14	0-96 (6-96)	36.79 (16.21)	52.64 (20.00)	28.50 (20.50)

Figure 2: Line graph depicting the comparison of means between pre-test, post-test, and follow-up for outcome expectations about smoking cessation among lay health volunteers

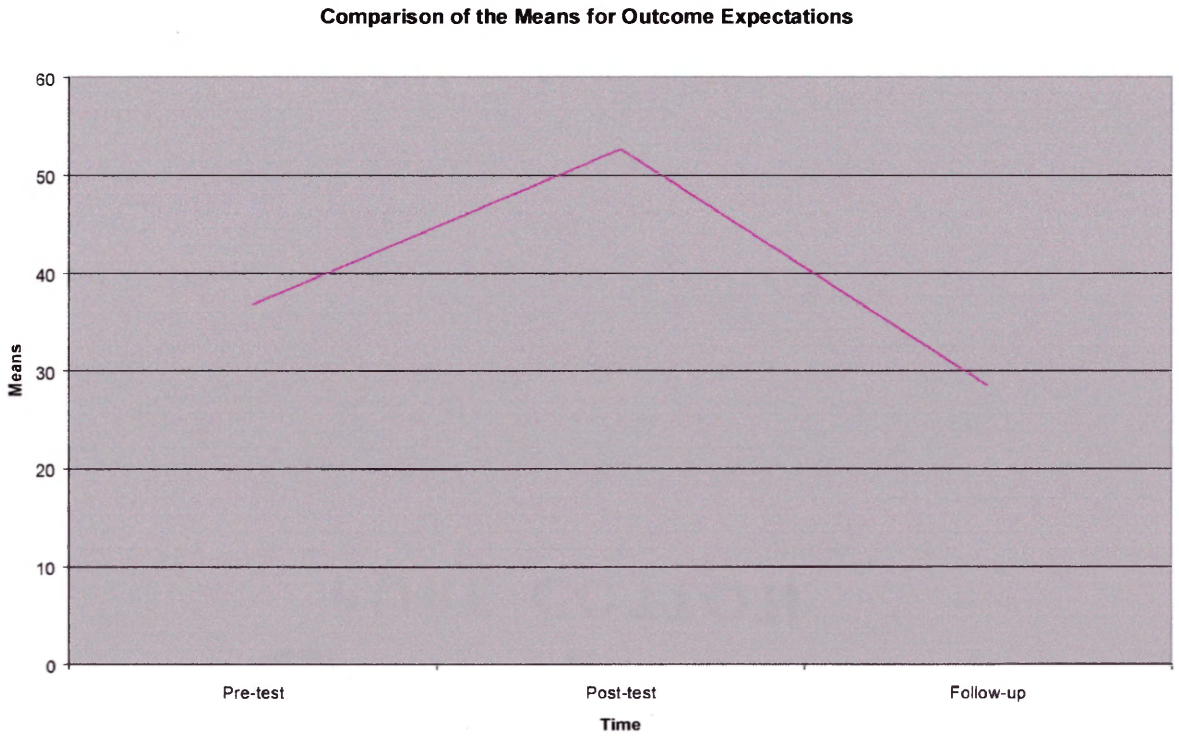

Table 6: Summary of the univariate repeated measures analysis of variance (ANOVA) between pre-test, post-test, and follow-up scores for outcome expectations (expectations * expectancies) about smoking cessation among lay health volunteers (n=14)

Source	SS	df	MS	F	p-value
Time	4213.905	2	2106.952	12.726	0.0001
Error	4304.762	26	165.568		

Note. Sphericity assumed Type III Sums of Squares (SS) have been reported.

A one-way repeated measures analysis of variance was computed comparing the outcome expectations scores of participants at three times: pretest, post-test, and follow-up after six months (See Table 6). A significant main effect was found ($F(2, 26) = 12.726$ $p \leq 0.0001$). Since SPSS cannot perform classical post-hoc analyses for within-subject factors, protected dependent t-tests were performed (Cronk, 1999). Conducting these tests has the potential to inflate Type I error rates, therefore a stringent significance level of 0.017 (0.05/3) was chosen (Kennedy & Bush, 1985; Cronk, 1999). The results are summarized in Table 7. Follow-up tests reveal that scores increased significantly from pre-test ($\mathbf{0} = 36.79$) to post-test ($0 = 52.64$, $p \leq 0.003$), and decreased significantly from post-test ($0 = 52.64$) to follow-up ($0 = 28.50$, $p \leq 0.0001$). The decrease from pre-test ($0 = 36.79$) to follow-up ($0 = 28.50$, $p \leq 0.149$) is not significant implying no change in expectations from before the training to six months after the training program.

Table 7: Paired t-tests done as post hoc tests to make pairwise comparisons among pre-test, post-test, and follow-up scores for outcome expectations (expectations * expectancies) about smoking cessation among lay health volunteers (n=14)

Pairwise comparison	Mean difference	S.E	p-value	95% C.I
Pretest--Post-test	15.857	4.280	0.003	(6.611,25.103)
Pretest--Follow-up	8.286	5.404	0.149	(-3.389, 19.960)
Post-test--Follow-up	-24.143	4.841	0.0001	(-13.684,-34.602)

In the comparisons of the means and standard deviations for self-efficacy in facilitating smoking cessation sessions, the results revealed a doubling in the mean difference scores between the pre-test and the post-test surveys from 11.78 units to 21.36 units. The mean scores for self-efficacy however, dropped after the six-month follow-up as seen in Table 8.

Table 8: Comparison of the means and standard deviations on self-efficacy before, after the training and at six-months follow-up among lay health volunteers (n=14)

Variable	Valid n	Possible Range (Observed Range)	Pre-test Mean (std.dev.)	Post-test Mean (std.dev.)	Follow up Mean (std.dev.)
Self-Efficacy	14	0-28 (1-28)	11.78 (6.84)	21.36 (4.97)	17.93 (5.80)

Figure 3: Line graph depicting the comparison of means between pre-test, post-test, and follow-up for self-efficacy in facilitating smoking cessation sessions among lay health volunteers.

Table 9: Summary of the univariate repeated measures analysis of variance (ANOVA) between pre-test, post-test, and follow-up scores for self-efficacy about facilitating smoking cessation among smokers by lay health volunteers (n=14)

Source	SS	df	MS	F	p-value
Time	658.476	2	329.238	20.308	0.0001
Error	421.524	26	16.212		

Note. Sphericity assumed Type III Sums of Squares (SS) have been reported.

A one-way repeated measures analysis of variance was computed comparing the self-efficacy scores of the participants at three times: pretest, post-test, and follow-up after six months (See Table 8). A significant main effect was found ($F(2, 26) = 20.308$ $p \leq 0.0001$). Since SPSS cannot perform classical post-hoc analyses for within-subject factors, protected dependent t-tests were performed (Cronk, 1999). Conducting these tests has the potential to inflate Type I error rates, therefore a stringent significance level of 0.017 (0.05/3) was chosen (Kennedy & Bush, 1985; Cronk, 1999). The results are summarized in Table 10. Follow-up tests reveal that scores increased significantly from pre-test ($0 = 11.78$) to post-test ($0 = 21.36$, $p \leq 0.0001$), and decreased significantly from post-test ($0 = 21.36$) to follow-up (($0 = 17.93$, $p \leq 0.004$). The increase from pre-test ($0 = 11.78$) to follow-up ($0=17.93$, $p \leq 0.004$) is significant implying that the change in self-efficacy from before the training to after six months of training was persistent.

Table 10: Paired t-tests done as post hoc tests to make pairwise comparisons among pre-test, post-test, and follow-up scores for self-efficacy about facilitating smoking cessation among smokers by lay health volunteers (n=14)

Pairwise comparison	Mean difference	S.E	p-value	95% C.I
Pretest--Post-test	9.571	1.718	0.0001	(5.859,13.284)
Pretest--Follow-up	6.143	1.744	0.004	(2.375, 9.911)
Post-test--Follow-up	-3.429	0.976	0.004	(-1.320, -5.537)

In conducting the mean differences and standard deviations for the behavioral variable, little difference in the mean scores was noted between the three times. As seen in Table 11, the mean is similar from pre-test, to post-test, to follow-up.

Table 11: Comparison of the means and standard deviations on self-reported behavioral change before, after the training and at six-month follow-up among lay health volunteers (n=14)

Variable	Valid n	Possible Range (Observed Range)	Pre-test Mean (std.dev.)	Post-test Mean (std.dev.)	Follow up Mean (std.dev.)
Behavioral Change	14	0-12 (0-12)	3.14 (4.75)	5.57 (5.12)	4.14 (3.94)

Figure 4: Line graph depicting the comparison of means between pre-test, post-test, and follow-up for self-reported behaviors in facilitating smoking cessation sessions among lay health volunteers.

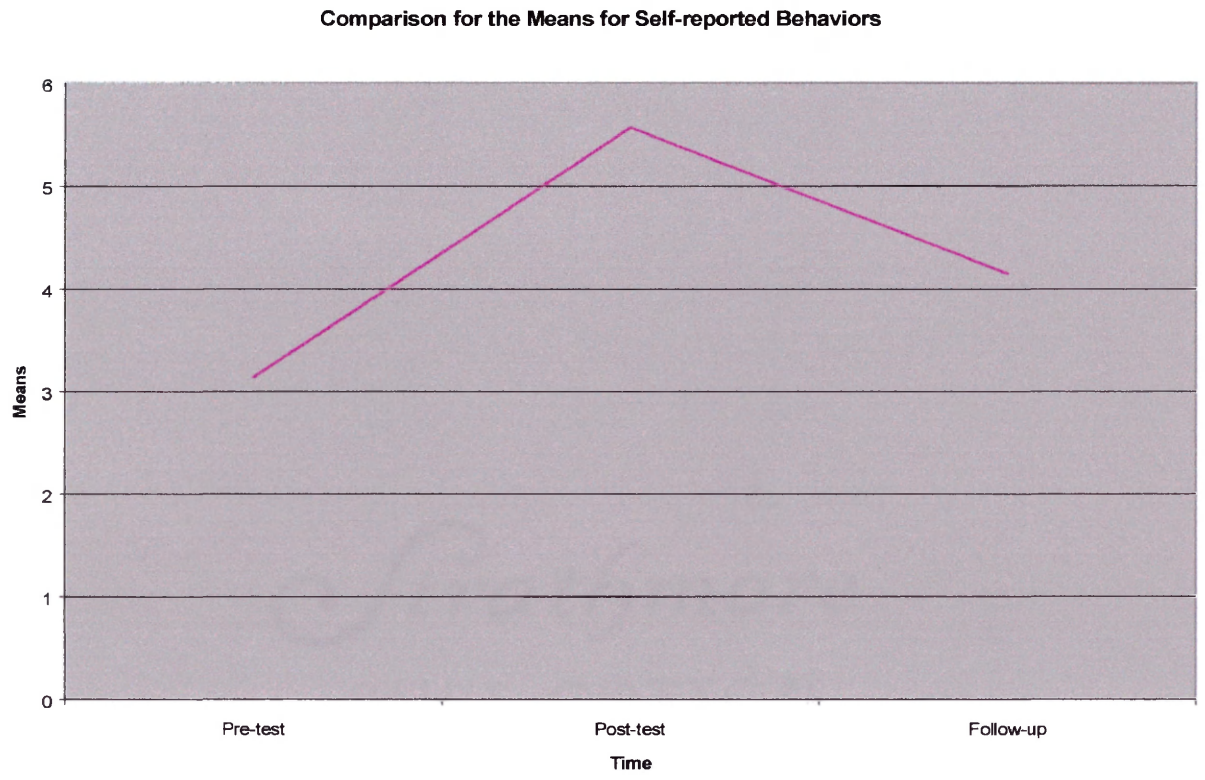

Table 12: Summary of the univariate repeated measures analysis of variance (ANOVA) between pre-test, post-test, and follow-up scores for behaviors about facilitating smoking cessation among smokers by lay health volunteers (n=14)

Source	SS	df	MS	F	p-value
Time	41.714	2	20.857	4.038	0.03
Error	134.286	26	5.165		

Note. Sphericity assumed Type III Sums of Squares (SS) have been reported.

A one-way repeated measures analysis of variance was computed comparing the behavior scores of the participants at three times: pretest, post-test, and follow-up after six months. A significant main effect was found ($F(2, 26) = 4.038$ $p \leq 0.03$). Since SPSS cannot perform classical post-hoc analyses for within-subject factors, protected dependent t-tests were performed (Cronk, 1999). Conducting these tests has the potential to inflate Type I error rates, therefore a stringent significance level of 0.017 (0.05/3) was chosen (Kennedy & Bush, 1985; Cronk, 1999). The results are summarized in Table13. Follow-up tests reveal that scores increased from pre-test (0=3.14) to post-test (0=5.57, $p \leq 0.03$) but not at the stringent level set for significance. There was no significant change from post-test (0=5.57) to follow-up (0=4.14, $p = 0.144$) or pre-test (0=3.14) to follow-up (0=4.14, $p = 0.116$).

Table 13: Paired t-tests done as post hoc tests to make pairwise comparisons among pre-test, post-test, and follow-up scores for behaviors about facilitating smoking cessation among smokers by lay health volunteers (n=14)

Pairwise comparison	Mean difference	S.E	p-value	95% C.I
Pretest--Post-test	2.429	1.009	0.032	(0.248,4.609)
Pretest--Follow-up	1.000	0.593	0.116	(-2.281, 0.281)
Post-test--Follow-up	-1.429	0.918	0.144	(-3.412, 0.555)

Table 14: Frequency of the self-reported behaviors in facilitating smoking cessation sessions for the lay health volunteers (n = 16).

Variable	Frequency	Percent
Made efforts to organize smoking cessation program		
Never	3	18.80
Hardly ever	3	18.80
Sometimes	4	25.00
Almost always	2	12.50
Always	2	12.50
Total	14	87.50
Missing value	2	12.50
Total	16	100.00
Conducted cessation programs		
Never	6	37.50
Hardly ever	3	18.80
Sometimes	2	12.50
Almost always	1	6.30
Always	2	12.50
Total	14	12.50
Missing value	2	12.50
Total	16	100.00
Recorded smokers progress		
Never	6	37.50
Hardly ever	4	25.00
Sometimes	2	12.50
Almost always	1	6.30
Always	1	6.30
Total	14	87.50
Missing value	2	12.50
Total	16	100.00

Process Evaluation

A minimal process evaluation was done on the actual training conducted by the professors from the University of Nebraska at Omaha (UNO). This is established in Table 15 on the two questions concerning the organization and satisfaction of the training program. The modified *Fresh Start* "Train the Trainers" session was rated as very good to excellent by the participants.

Table 15: Response of participants to a process evaluation on the training program (n = 16)

Variable	Frequency	Percent
Organization of training		
Needs lots of improvement	0	0.00
Needs some improvement	0	
Satisfactory	2	12.50
Very good	4	25.00
Excellent	10	62.50
Total	16	100.00
Overall Satisfaction		
Needs lots of improvement	0	0.00
Needs some improvement	0	0.00
Satisfactory	0	0.00
Very good	6	37.50
Excellent	10	62.50
Total	16	100.00

Summary

The results in this chapter compiled the demographics of the participants in the "Train the Trainers" program. The tables illustrating the data collection on the mean differences for the study variables of perceived knowledge, outcome expectations, and self-efficacy between the pre-test, post-test, and follow up showed significantly higher mean differences between pre-test and post-test. At follow-up, the mean scores were similar to the pre-test scores. For the behavioral variable, only small differences were noted in the mean scores. In the ANOVA data, findings of statistical significance for all the dependent variables were demonstrated. However, the post-hoc tests revealed no statistical significance between pre-test and post-test for outcome expectations and no significance between all the pairs for the self-reported behavioral variable. The process evaluation by the participants was demonstrated in the frequency table on the organization and overall satisfaction of the training program. A positive result was observed with most of the markings being in the very good to excellent categories.

CHAPTER 5

DISCUSSION

Introduction

The goal of this study was to develop and pilot test a "Train the Trainer's program for smoking cessation in a predominately African American community in Omaha, Nebraska. The aim was to evaluate the participants/volunteers on their perceived knowledge, Social Cognitive Theory constructs for outcome expectations and for self-efficacy in facilitating smoking cessation sessions, and their behavioral change. The results of the study found statistical significance for differences between pre-test and post-test for the defined variables based on the behavioral theories that were integrated into the modified *Fresh Start* program. Yet, no significance was noted for the actual behavioral variable. Results were mixed for the statistical significance for the differences between pre-test, post-test, and follow up within all the dependent variables.

Conclusions

For perceived knowledge, the mean at the post-test doubled from a score of 12.07 units at pre-test to 25.07 units, signifying a successful training program for smoking cessation that is based on sound behavioral theories. However, the results for the six-month follow up expressed a loss with the mean dropping to 19.78 units. The follow up survey is a better criterion for what has been retained in the long run. A similar finding was seen in the results for the attitude variable of outcome expectations and outcome expectancies with the mean score for pre-test at 36.78 units increasing to

56.64 units at post-test. Again demonstrating a favorable training program for the participants. When looking at the follow up results for attitudes, the mean score actually dropped below the pre-test mean to 28.50 units. The self-efficacy mean score in facilitating smoking cessation sessions for the participants also nearly doubled from a pre-test score of 11.76 units to a post-test mean of 21.36 units. This exhibits another two-fold increase as in perceived knowledge, illustrating a statistical and practical significance. The mean score of the follow up survey at 17.93 units had slid back toward the pre-test mean. The degree to which the volunteers had confidence that the action of organizing and conducting smoking cessation classes would lead to positive changes in a smoker determined the strength of their outcome expectations. How confident these trainees were in regard to performing this behavior of facilitating smoking cessation classes determined the strength of their reported self-efficacy (Devins, 1992).

For the results on the behavioral variable, a statistical significance was noted for the comparison of means between the three surveys through the repeated measures analysis of variance, $p \leq 0.03$. However, it was known that at six months, smoking cessation classes were just being planned at CDHC. The dependent t-test utilized for post-hoc thus revealed that no statistical significance actually existed between the three pairs of time for mean scores. This finding is not surprising due to the fact that no implementation of the participants training had been put into practice during the time period. To increase self-efficacy, small steps to success will build an individual's self-efficacy and lead to a positive behavioral change (Baranowski, et al., 1997)). Unfortunately, due to circumstances beyond the control of the participants, they could not

build upon their knowledge and experience from the training session to exhibit any statistical or practical significance for the behavioral change. The timeline for the modified *Fresh Start* smoking cessation classes for smokers was solely dependent on Charles Drew Health Center for the initial set-up. There was a delay between management and the physicians in referring patients who were smokers to the new smoking cessation classes. As the saying goes, "practice makes perfect", and after six months of no implementation, the participants perceived a loss in knowledge, outcome expectations/expectancies, and self-efficacy in organizing and conducting the smoking cessation classes.

In the existing *Fresh Start* program of the American Cancer Society, we did not know which components worked or did not work and why. The American Cancer Society Nebraska Division had no data on the evaluation of the training and abilities of the volunteer facilitators (D. Cramritter, personal communication, May 9, 2000). In this study, the modified *Fresh Start* "Train the Trainers" program was evaluated for the efficacy of basing a smoking cessation intervention on the behavioral theories of Social Cognitive Theory and the stages of change from the Transtheoritical Model. Our prediction was that from pre-test to posttest, a statistical and practical significance would be seen in the mean score differences. This was concluded as such in the results.

Few studies are performed on the evaluation of the facilitators or lay health educators involved in a smoking cessation program. No experimental studies were found for the literature review for this study. Some of the data for these lay health educators had resulted from studies involving other health disparities such as heart disease (Jackson

& Parks, 1997). It is more difficult to study the effect of a training program on a group of volunteers than on one particular outcome such as the quit rate of the smokers. The dependent variables to be studied can be affected by many other confounding independent variables than just the training program. Figa-Talamangia (1974) believed a very large number of individuals would have to be randomly assigned to a training and non-training group in order to extract out the relevant outcomes. A control group for evaluating a training program is a methodological problem in a research design with this system. This type of experimental design may not be feasible in many community populations. In this study, an initial goal was stated to include 50 individuals in the training sessions. With a great deal of effort on the part of Charles Drew Health Center (CDHC) directors, a total of 26 expressed the desire to participate. On the day of the training, only 19 of those 26 attended the session, with 16 staying the full four hours. In many communities, the same few are involved in many projects and have spread themselves too thin. The willingness is there but time is limited.

Limitations

The interpretations of the findings for this study are limited by the small sample size. Therefore, generalizing to the population would not be warranted. A larger study could corroborate the findings of this pilot project. As stated, there were barriers the directors of the smoking cessation programs at CDHC encountered in recruiting the volunteers. A large number desired for the training session was compromised by their ability to reach everyone and set up the course at a time that was conducive for all. Most of the volunteers were involved at that time with other community outreach projects and

had numerous meetings on their schedules. Thus, it turned out to be impractical in this community situation to create a large sample size.

In the research design, there was no control or comparison group and as such the participants were not randomly selected which could threatened internal validity. An effort needs to be made to eliminate bias. However, for this efficacy study, volunteers were wanted that were interested in smoking cessation. Random selection would have been undesirable because the participants needed to be willing to make a change. An optimal condition to study efficacy could not be set up to enhance internal validity. The "Train the Trainers" program had to be established in a typical setting.

No test-retest was performed on a different population than the one recruited to test for reliability of the instruments used. A pilot test on the instrument was also not enacted before it was utilized for the data collection on the training program. However, as discussed in the methods chapter, the two professors who designed the instruments were proficient in the particulars needed for the surveys. Their expertise in instrument development and evaluation, along with one professor's years of study on smoking cessation would lend credence to the probability of face and content validity.

In completing the surveys, the participants know they are being tested and may mark higher than appropriate (the Hawthorne effect), biasing the results to some extent. There is also the novelty effect of this being a new program and again marking other than what is justified. Both conditions could threaten external validity and the ability to generalize the results to other settings and individuals. A cross-over effect is at times a concern with subjects being repeatedly tested with the same instrument but in this

instance the individuals are being tested on their perceived knowledge and not on the actual knowledge. In using a repeated measures analysis for data interpretation, regression artifacts are a threat in regard to the natural regression to the mean when a test is used over and over, i.e. "repeated."

The limitation of attrition was apparent in this study because of the low number of participants. Nineteen had attended the beginning of the training program. Of those, sixteen fully completed the pre-test and post-test, with two of those dropping out at follow-up. It is not known why the questionnaires were not completed. Their reasons could be that they did not want to be part of a research study or the issue of the cultural aspect within the group was not fully understood by the trainers. This could have lead to these participants hesitation in completing the questionnaire. With the low sample size the results may have been somewhat different, if they had completed the pre-test, post-test and follow-up surveys.

The process evaluation was limited in the depth to which the participants could relate or expound upon their evaluation of the training program. It is not known exactly what changes the trainees would have wanted for their learning experience or what was of particular value to them.

Recommendations for further research

Another research study for the efficacy of trained facilitators should attempt to enhance the internal validity so implementers know to what degree the intervention produced the cognitive changes of knowledge and attitudes and increased the self-efficacy to lead to the behavioral change in the trainees. A comparison group trained

with the original *Fresh Start* may help lead to conclusions of what components are needed to teach volunteers for organizing and conducting smoking cessation classes in order to help smokers quit. This researcher finds it impractical to set up a true experimental study design utilizing a control group. Too many obstacles exist in comparing the trained with the untrained.

A continuation of this pilot project could be enacted in providing information on the usefulness of a lay health educators program for a minority community. A survey could be utilized to provide feedback results from the health facility, churches and the community at large. This process could help guide and improve the program instead of just deeming it a failure if classes are not progressing and discarding it for another new program. A more thorough process evaluation could be conducted to help draw out the strength and weaknesses of the training program. Open-ended questions could help evaluate the appropriateness of the training program, how well the program related to cultural sensitivity, the materials used, the teaching methods utilized, and the delivery and content of the program. A focus group with interested community members could shed some light on the best way to target the intervention.

Another realm of research could study the effectiveness of this minority community program on the smokers quit rate. A comparison study could be enacted on the success rate of smokers enrolled in the modified *Fresh Start* program with those smokers who relied solely on the physicians' intervention. Past studies have been contradictory on the assumption that most smokers of any race prefer to quit on their own (Dijkstra, et al. 1998 & Velicer, et al. 1999) to the statement that more than two-thirds of

a large population of African Americans polled would attend a formal program (DHHS, 1998). With the incidence of smoking still contributing to a major health disparity for African Americans, it is imperative that health researchers and educators know which direction to turn.

Implications for Practitioners

The statistical and practical significance between the pre-test and post-test for perceived knowledge, attitudes, and self-efficacy in this study provides an interpretation of a successful training program based on the constructs of SCT and the TTM (stages of change model). No statistical significance detected for the behavioral change does not necessarily point to a theory-based failure in the training program or a measure of the failure of the intervention. Rather, a more likely probability is the effort to change the behavior failed to be implemented as desired. Inadequate organization of all the entities to properly move the programs into place impeded the process. A breakdown occurred with the physicians referring smokers to these programs. A goal for practitioners would be to outline a plan and have a timeline set up after the initial organization of a similar project. A health educator would be invaluable in coordinating all aspects for a community smoking cessation endeavor.

A possible solution to increase the number of volunteers for a training program would be to add greater incentives. Although several answered on the survey that to supplement their income was a low expectation or expectancy, compensation for the time that is needed for the four one-hour classes to smokers could prove beneficial. A lack of confidence with limited training could be a barrier to successful implementation of the

program to the community. The dose may not have been adequate. An additional short training course for the volunteers after they have gone home to digest the information from the first four-hour session would help build on their self-efficacy in facilitating smoking cessation classes. Adding mock facilitation to the booster training session would amplify cognitive changes. An addition to the training program in regard to the SCT component, the concept of environment could be emphasized to a greater extent. The environmental influence deals with the personal and behavioral interactions of individuals (Baranowski, Perry, and Parcel, 1997). Important aspects of the environment for this minority community that would lead to a positive behavioral change would be to incorporate the churches in setting up the smoking cessation sessions. As stated in the literature review, cultural and spiritual aspects are very important to the African American community. In this training program the itinerary did not stress this component. The trainees themselves, especially the ex-smokers interjected into the discussion portion to a great degree the value of spiritual guidance when they were going through the quitting process. Another such training program should incorporate this important spiritual component into the discussion of support and building self-efficacy.

To help build on their organizational skills, a health educator needs to encourage these trainees to go out in the community and recruit smokers. Realistic goals need to be established for the volunteers in conducting the smoking cessation sessions. Self-efficacy could be enhanced by setting up the smoking cessation classes with two trainees for their initial facilitation. These small steps would lead to success and the continuation of such a program.

Summary

Although only a small sample size was available for this pilot study on a "Train the Trainers" program, this type of program could be a valuable cost-effective smoking cessation intervention for the minority community. Such community organization approaches help address the expression of isolation of low-income African Americans from professional and formal channels of health interventions. African Americans have indicated in other studies the importance of informal networks in addressing disease management and risk reduction (Fisher, et al., 1998). Smoking cessation interventions need to be a high priority for the African American population to help reduce numerous health risks. More information to the community at large about the lay health educators' smoking cessation sessions could help address the lack of access concern for minorities.

The value of conclusive research studies for this type of a training program would help procure grant dollars to cover administrative costs for the implementation of the learning sessions and classes for the smokers. The volunteers had donated their time and did not score high on the expectation to increase their income. They were willing to meet a societal goal of helping address a health disparity in the minority community.

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APPENDIX A:
PRE-TEST QUESTIONNAIRE

UNOMAHA Date: _____ Code number: _____

Modified *Fresh Start* Facilitators course: Pre course rating survey

Below are a number of questions about your opinions and actions. Please answer each question by checking the box that indicates your opinion [☒]. Your answers will help us to improve the course.

About your perceived knowledge	Not at All	A little	Somewhat	Enough	Enough to teach
How much do you think you know about . . .					
1. ... smoking cessation strategies?	☐	☐	☐	☐	☐
2. ... facilitating group discussions?	☐	☐	☐	☐	☐
3. ... reasons people smoke?	☐	☐	☐	☐	☐
4. ... stages of behavior change?	☐	☐	☐	☐	☐
5. ... benefits of quitting smoking?	☐	☐	☐	☐	☐
6. ... ways to build confidence in people to quit smoking?	☐	☐	☐	☐	☐
7. ... strategies to help new quitters cope with craving?	☐	☐	☐	☐	☐

About your opinions	Never	Hardly Ever	Sometimes	Almost Always	Always
If I participate in this training, I will be able to . . .					
8. ... help people quit smoking.	☐	☐	☐	☐	☐
9. ... supplement my income.	☐	☐	☐	☐	☐
10. ... significantly benefit other individuals.	☐	☐	☐	☐	☐
11. ... please my supervisor(s).	☐	☐	☐	☐	☐
12. ... enhance my skills.	☐	☐	☐	☐	☐
13. .... derive personal satisfaction.	☐	☐	☐	☐	☐

More about your opinions	Not At All Important	Slightly Important	Moderately Important	Very Important	Extremely Important
How important is that you:					
14. ... help people quit smoking?	☐	☐	☐	☐	☐
15. ... supplement your income?	☐	☐	☐	☐	☐
16. ... significantly benefit other individuals?	☐	☐	☐	☐	☐

More about your opinions	Not At All Important	Slightly Important	Moderately Important	Very Important	Extremely Important
How important is that you have:					
17. ... please your supervisor(s)?	☐	☐	☐	☐	☐
18. ... enhance your skills?	☐	☐	☐	☐	☐
19. ... derive personal satisfaction?	☐	☐	☐	☐	☐

More about your opinions	Not At All Sure	Slightly Sure	Moderately Sure	Very Sure	Completely Sure
If you were asked <u>right now</u> to do the following how sure are you that you would be able to . . .					
20. ... organize a group of smokers to participate in cessation training.	☐	☐	☐	☐	☐
21. ... summarize the program content in ACS's *Fresh Start Program.*	☐	☐	☐	☐	☐
22. ... conduct *Fresh Start Program's* smoking cessation sessions.	☐	☐	☐	☐	☐
23. ... assist a smoker to fix a quit date.	☐	☐	☐	☐	☐
24. ... facilitate a smoker to master relaxation.	☐	☐	☐	☐	☐
25. ... help a smoker use practical ways to deal with cravings.	☐	☐	☐	☐	☐
26. ... tailor individual strategies to assist smokers quit based on their stage of change.	☐	☐	☐	☐	☐

About your actions	Never	Hardly Ever	Sometimes	Almost Always	Always
In the <u>past month</u> did you ever:					
27. ... make efforts toward organizing a cessation program.	☐	☐	☐	☐	☐
28. ... conduct smoking cessation session.	☐	☐	☐	☐	☐
29. ... record smokers quitting progress.	☐	☐	☐	☐	☐

General information

30. Your gender: ☐ Male ☐ Female

31. Your race: ☐ White ☐ Black ☐ Hispanic ☐ American Indian ☐ Asian ☐ Other

32. Education level: ☐ less than high school ☐ completed high school ☐ completed college education or more

33. Age as on the present day (please write):

THANK YOU FOR YOUR PARTICIPATION IN THE PROGRAM & HELPING US WITH YOUR RESPONSES!

APPENDIX B:
POST-TEST QUESTIONNAIRE

UNOMAHA Date: _____ Code number: _____

Modified *Fresh Start* Facilitators course: Post course rating survey

Below are a number of questions about your opinions and actions. Please answer each question by checking the box that indicates your opinion [☒]. Your answers will help us to improve the course.

About your perceived knowledge How much do you think you know about . . .	Not at All	A little	Somewhat	Enough	Enough to teach
1. ... smoking cessation strategies?	☐	☒	☐	☐	☐
2. ... facilitating group discussions?	☐	☐	☐	☐	☐
3. ... reasons people smoke?	☐	☐	☐	☐	☐
4. ... stages of behavior change?	☐	☐	☐	☐	☐
5. ... benefits of quitting smoking?	☐	☐	☐	☐	☐
6. ... ways to build confidence in people to quit smoking?	☐	☐	☐	☐	☐
7. ... strategies to help new quitters cope with craving?	☐	☐	☐	☐	☐

About your opinions If I participate in this training, I will be able to . . .	Never	Hardly Ever	Sometimes	Almost Always	Always
8. ... help people quit smoking.	☐	☐	☐	☐	☐
9. ... supplement my income.	☐	☐	☐	☐	☐
10. ... significantly benefit other individuals.	☐	☐	☐	☐	☐
11. ... please my supervisor(s).	☐	☐	☐	☐	☐
12. ... enhance my skills.	☐	☐	☐	☐	☐
13. .... derive personal satisfaction.	☐	☐	☐	☐	☐

More about your opinions How important is that you:	Not At All Important	Slightly Important	Moderately Important	Very Important	Extremely Important
14. ... help people quit smoking?	☐	☐	☐	☐	☐
15. ... supplement your income?	☐	☐	☐	☐	☐
16. ... significantly benefit other individuals?	☐	☐	☐	☐	☐

More about your opinions	Not At All Important	Slightly Important	Moderately Important	Very Important	Extremely Important
How important is that you have:					
17. ... please your supervisor(s)?	☐	☐	☐	☐	☐
18. ... enhance your skills?	☐	☐	☐	☐	☐
19. ... derive personal satisfaction?	☐	☐	☐	☐	☐

More about your opinions	Not At All Sure	Slightly Sure	Moderately Sure	Very Sure	Completely Sure
If you were asked <u>right now</u> to do the following how sure are you that you would be able to . . .					
20. ... organize a group of smokers to participate in cessation training.	☐	☐	☐	☐	☐
21. ... summarize the program content in ACS's *Fresh Start Program.*	☐	☐	☐	☐	☐
22. ... conduct *Fresh Start Program's* smoking cessation sessions.	☐	☐	☐	☐	☐
23. ... assist a smoker to fix a quit date.	☐	☐	☐	☐	☐
24. ... facilitate a smoker to master relaxation.	☐	☐	☐	☐	☐
25. ... help a smoker use practical ways to deal with cravings.	☐	☐	☐	☐	☐
26. ... tailor individual strategies to assist smokers quit based on their stage of change.	☐	☐	☐	☐	☐

About your actions	Never	Hardly Ever	Sometimes	Almost Always	Always
In the <u>past month</u> did you ever:					
27. ... make efforts toward organizing a cessation program.	☐	☐	☐	☐	☐
28. ... conduct smoking cessation session.	☐	☐	☐	☐	☐
29. ... record smokers quitting progress.	☐	☐	☐	☐	☐

Training rating	Needs a lot of Improvement	Needs some Improvement	Satisfactory	Very Good	Excellent
30. ... organization of the training.	☐	☐	☐	☐	☐
31. ... overall satisfaction with the training.	☐	☐	☐	☐	☐

THANK YOU FOR YOUR PARTICIPATION IN THE PROGRAM & HELPING US WITH YOUR RESPONSES!

APPENDIX C:
FOLLOW-UP QUESTIONNAIRE
COVER LETTER

Therese A. Sullivan R.D.H.
126 N. 5th STREET, BOX 815, O'NEILL, NE 68763

September 18, 2000

Dear Trainee:

Thank you for participating in the smoking facilitators training session at the Charles Drew Health Center earlier this year. Your completion of the pretest and post-test surveys at the training session has been valuable to my thesis.

Now, I need to ask one more favor of you. Would you please complete the enclosed follow-up survey even if you have not been able to set up a smoking cessation program. Any comments you would like to add about concerns or problems you encountered in setting up or facilitating these programs would be helpful. Please return as soon as you can in the self-addressed envelope. The surveys have been coded for confidentiality.

Thanks so much for your help!

Sincerely,

Therese Sullivan R.D.H.

APPENDIX D:
FOLLOW-UP QUESTIONNAIRE

UNOMAHA Date: _____ Code number: _____

Modified *Fresh Start* Facilitators course: Follow-up rating survey

Below are a number of questions about your opinions and actions. Please answer each question by checking the box that indicates your opinion [☒]. Your answers will help us to improve the course.

About your perceived knowledge	Not at All	A little	Somewhat	Enough	Enough to teach
How much do you think you know about . . .					
1. ...'smoking cessation strategies?	☐	☐	☐	☐	☐
2. ... facilitating group discussions?	☐	☐	☐	☐	☐
3. ... reasons people smoke?	☐	☐	☐	☐	☐
4. ... stages of behavior change?	☐	☐	☐	☐	☐
5. ... benefits of quitting smoking?	☐	☐	☐	☐	☐
6. ... ways to build confidence in people to quit smoking?	☐	☐	☐	☐	☐
7. ... strategies to help new quitters cope with craving?	☐	☐	☐	☐	☐

About your opinions	Never	Hardly Ever	Sometimes	Almost Always	Always
After participating in this training, I was able to . . .					
8. ... help people quit smoking.	☐	☐	☐	☐	☐
9. ... supplement my income.	☐	☐	☐	☐	☐
10. ... significantly benefit other individuals.	☐	☐	☐	☐	☐
11. ... please my supervisor(s).	☐	☐	☐	☐	☐
12. ... enhance my skills.	☐	☐	☐	☐	☐
13. .... derive personal satisfaction.	☐	☐	☐	☐	☐

More about your opinions	Not At All Important	Slightly Important	Moderately Important	Very Important	Extremely Important
How important was it for you to:					
14. ... help people quit smoking?	☐	☐	☐	☐	☐
15. ... supplement your income?	☐	☐	☐	☐	☐
16. ... significantly benefit other individuals?	☐	☐	☐	☐	☐

More about your opinions	Not At All Important	Slightly Important	Moderately Important	Very Important	Extremely Important
How important was it for you to:					
17. ... please your supervisor(s)?	☐	☐	☐	☐	☐
18. ... enhance your skills?	☐	☐	☐	☐	☐
19. ... derive personal satisfaction?	☐	☐	☐	☐	☐

More about your opinions	Not At All Sure	Slightly Sure	Moderately Sure	Very Sure	Completely Sure
If you were asked <u>right now</u> to do the following how sure are you that you would be able to . . .					
20. ... organize a group of smokers to participate in cessation training.	☐	☐	☐	☐	☐
21. ... summarize the program content in ACS's *Fresh Start Program.*	☐	☐	☐	☐	☐
22. ... conduct *Fresh Start Program's* smoking cessation sessions.	☐	☐	☐	☐	☐
23. ... assist a smoker to fix a quit date.	☐	☐	☐	☐	☐
24. ... facilitate a smoker to master relaxation.	☐	☐	☐	☐	☐
25. ... help a smoker use practical ways to deal with cravings.	☐	☐	☐	☐	☐
26. ... tailor individual strategies to assist smokers quit based on their stage of change.	☐	☐	☐	☐	☐

About your actions	Never	Hardly Ever	Sometimes	Almost Always	Always
In the <u>past six months</u> did you ever:					
27. ... make efforts toward organizing a cessation program.	☐	☐	☐	☐	☐
28. ... conduct smoking cessation session.	☐	☐	☐	☐	☐
29. ... record smokers quitting progress.	☐	☐	☐	☐	☐

About the outcomes

30. How many smokers were referred to you by the physicians? _____

31. How many smokers did you train using *Fresh Start* program? _____

32. How many smokers are in quit state as a result of your training? _____

THANK YOU

APPENDIX E:
INSTITUTIONAL REVIEW BOARD (IRB)
AUTHORIZATION LETTER

University of Nebraska

Institutional Review Board (IRB)
Office of Regulatory Affairs (ORA)
University of Nebraska Medical Center
Eppley Science Hall 3018
986810 Nebraska Medical Center
Omaha, NE 68198-6810
(402) 559-6463
Fax: (402) 559-7845
E-mail: irbora@unmc.edu
http://www.unmc.edu/irb

May 4, 2000

Therese Sullivan, R.D.A.
916 E. Tipperary
O'Neil, NE 68763

IRB#: 169-00-EX

TITLE OF PROTOCOL: Process and Impact Evaluation of the Training of Lay Health Volunteers to Facilitate Smoking Cessation Among African Americans in the Midwest

Dear Ms. Sullivan:

The IRB has reviewed your Exemption Form for the above-titled research project. According to the information provided, this project is exempt under 45 CFR 46:101b, categories 1 and 2. You are therefore authorized to begin the research.

It is understood this project will be conducted in full accordance with all applicable sections of the IRB Guidelines. It is also understood that the IRB will be immediately notified of any proposed changes that may affect the exempt status of your research project.

Please be advised that the IRB has a maximum protocol approval period of five years from the original date of approval and release. If this study continues beyond the five year approval period, the project must be resubmitted in order to maintain an active approval status.

Sincerely,

Ernest D. Prentice, Ph.D.
Co-Chair, IRB

lw