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Primary Care Nurse Attitudes, Beliefs and Confidence Levels Regarding Alcohol Abuse and its  
Treatment: Impact of Educational Intervention

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A thesis  
presented to  
the faculty of the Department of Public Health  
East Tennessee State University

In partial fulfillment  
of the requirements for the degree  
Master of Public Health in Health Administration

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by  
Raja Sekhar Vadlamudi  
December 2005

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Keywords: Primary Care Nurse, Alcohol Abuse, Attitudes, Beliefs, Confidence Levels, Brief  
Negotiated Intervention

## ABSTRACT

Primary Care Nurse Attitudes, Beliefs and Confidence Levels Regarding Alcohol Abuse and its

Treatment: Impact of Educational Intervention

by

Raja Sekhar Vadlamudi

Alcohol abuse has been a major burden on the society. In the fight against it, a key issue of the education of the primary care nurses has been ignored. This study evaluates the effect of an education program on the attitudes, beliefs, and confidence levels of primary care nurses regarding alcohol abuse and its treatment. Data from the *Project Mainstream* educational intervention were used with permission from the investigators. Two hundred one students and faculty of nursing at Vanderbilt University participated in the intervention, which was designed to train primary care providers in the Brief Negotiated Intervention technique for early detection and treatment of alcohol problems. Participants completed questionnaires before and after the educational intervention. Analysis of the data using paired samples t-test and one way analysis of variance showed statistically significant positive change in the nurses' attitudes, beliefs, and confidence levels regarding alcohol abuse and its treatment after the educational intervention. This study has shown the importance of educational intervention in dealing with alcohol abuse.

## DEDICATION

To my beloved and wonderful parents, Ramathulasamma and Eswaraiah Vadlamudi, for their everlasting love, constant support in all my endeavors, and motivation they gave me in completing this thesis.

To a very wonderful and unforgettable person in my life, Balakrishna Kunduru, my brother-in-law along with my beloved sister, Rajyalakshmi Kunduru, without whom, I would not have crossed the seas to enter the United States of America for my studies and also for their constant love and inspiring words that comforted me at difficult times in my life.

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*“I am everywhere in the world, abiding in the hands, feet, eyes, heads, mouths, ears; I am all pervading” – Bhagavad Gita*

For giving me an opportunity to have a life of human being, which is one of the finest and prestigious lives one can have, I sincerely thank the Supreme Being controlling the entire universe in its diversity and integrity.

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## CHAPTER 1

### INTRODUCTION

Alcohol abuse occupies the number one position in the list of problems threatening the United States population in the present era, followed by a host of new problems – bioterrorism (Haack & Adger, 2002), emerging and re-emerging diseases, and antimicrobial resistance. Alcohol abuse with its related problems has long been considered as a deterrent to the well-being of the community and to the health of the U.S. population as a whole. In this pursuit, the U.S. government has included alcohol abuse, under the broad category of Substance Abuse, as 1 of 10 leading health indicators for assessing the overall health status of the U.S. population (U. S. Department of Health and Human Services, 2000). Many programs have been developed and implemented by the U.S. government to address the alcohol problem, with marginal success to date. Unfortunately, a key area has been given little attention – the education of primary health care providers and other gate keepers of health care (including primary care nurses) regarding effective and timely recognition and treatment of individuals with alcohol problems.

#### Statement of the Problem

The goals of Healthy People 2000 in regards to the alcohol abuse (substance abuse) and its related problems were not attained in spite of some progress in this direction by the year 1998. Looking closely at the situation to determine where more extensive effort and resources should be mobilized, the education of the primary health care providers regarding identification, treatment, and referral of alcohol abuse patients could have a very positive effect on the problem at its grass-root level, thereby impacting positively the achievement of the goals of Healthy People 2010 (U. S. Department of Health and Human Services, 2000).

One's behavior towards a particular situation depends on one's attitudes and beliefs towards that situation. This statement stands right even in relation to the practice behavior of primary health care providers regarding alcohol abuse and its treatment. So, it is important that we target these attitudes and beliefs in a positive manner with an educational intervention that holds the potential to positively affect practice behavior. An important issue not to be forgotten in an effort to affect one's behavior is one's confidence in dealing with that particular situation. So, encouraging one's confidence is as important as one's attitudes and beliefs in effectively modeling one's behavior. This can be achieved with an educational intervention program.

Primary health care providers are strategically very well-positioned in the health care arena to screen and identify patients with alcohol abuse and related problems and to provide effective intervention. The negative attitudes and beliefs of primary care nurses about alcohol-problemated patients and their treatment, along with their lack of confidence in dealing with the patients with alcohol abuse have been shown to have a negative impact on actual practice behavior when dealing with such patients. So, there is a need for intervention that will impact attitudes and beliefs of primary care nurses, as well as build confidence in intervention techniques. This can be achieved by education of the primary care nurses about the alcohol abuse and its related problems which is the main focus of this study.

The overall purpose of this study is to determine the effect of education of primary care nurses on their attitudes, beliefs, and confidence levels in preventing, identifying, and appropriately referring and treating individuals with alcohol abuse. This study primarily investigates change in the attitudes and beliefs of primary care nurses towards the treatment of the individuals with alcohol abuse along with change in their confidence levels in treating these patients after an educational training program that focused on the use of Brief Negotiated



Intervention (BNI) as a tool from screening to referral of alcohol-problem individuals. This study also explores whether or not there is a change in the beliefs of primary care nurses regarding the impact of their efforts in achieving the goals of Healthy People 2010 related to alcohol abuse.

### Significance of the Study

This study provides the data regarding the beliefs and attitudes along with the confidence levels of the primary care nurses in regards to the screening, treatment, and referring of the patients with alcohol abuse as well as their beliefs and attitudes about achieving the goals of the Healthy People 2010. The results of the study indicate whether there is an impact of the educational intervention on the attitudes and beliefs of the primary care nurses about alcohol abuse and its related problems. If there is an impact of the intervention on the attitudes, beliefs, and confidence levels of primary care nurses, then this study would underscore the importance of the curriculum changes in the education of the primary care nurses about alcohol abuse and its related problems. These curriculum changes, if implemented, will eventually affect their practice behavior in dealing with alcohol abuse patients and there by affect the way in which the goals of the Healthy People 2010 are met especially in terms of the substance abuse.

### Research Questions

#### Primary Research Questions

1. What is the effect, if any, of the educational intervention on the attitudes and beliefs of the participants towards alcohol abuse and its treatment?
2. What is the effect, if any, of the educational intervention on the confidence level of the participants in dealing with patients with alcohol abuse?

3. What is the effect, if any, of the educational intervention on the beliefs of the participants regarding the impact of their efforts in reaching the goals of Healthy People 2010 with regards to alcohol abuse?

### Secondary Research Questions

The following research questions are also tested in this study along with the above:

1. Does the age of the participants modify the effect of the educational intervention on the attitudes, beliefs, and confidence level of the participants in relation to alcohol abuse and its treatment?
2. Does the educational degree of the participants modify the effect of the educational intervention on the attitudes, beliefs, and confidence level of the participants in relation to alcohol abuse and its treatment?
3. Does the past experience of the participants with alcohol abuse patients modify the effect of the educational intervention on the attitudes, beliefs, and confidence level of the participants in relation to alcohol abuse and its treatment?
4. Does participant's acquaintance of someone other than patients with alcohol problem modify the effect of the educational intervention on the attitudes, beliefs, and confidence level of the participants in relation to alcohol abuse and its treatment?

### Definition of Terms

The following are the definitions of the terms used in this study:

1. Primary Care Nurse – An individual with appropriate education in field of nursing or pursuing a nursing degree and who have or can have direct contact with the patient population as a first point of consultation for all health needs.

2. Attitude – A learned tendency or predisposition to respond in a consistently negative or positive manner to some concept, situation, or object (Bassette, 2004). In this study the attitudes are of the primary care nurses regarding treatment of patients with alcohol abuse and its related problems.
3. Confidence Level – The level of confidence that one can engage in a particular behavior across different challenging situations (Glanz, Rimer, & Lewis, 2002). In this study, this refers to the level of confidence the primary care nurses have in dealing with the screening, treatment and referral of patients with alcohol abuse.

The Abbreviations used in the questionnaire include:

1. Nursing Categories:

LPN – Licensed Practical Nursing

ASN – Associate Science Nursing/Associate Degree Nursing

BSN – Bachelor of Science in Nursing

MSN – Master of Science in Nursing

Doctorate in Nursing

2. Nursing Specialties:

ACNP – Acute Care Nurse Practitioner

ANP – Advanced Nurse Practitioner

A/GNP – Advanced Geriatric Nurse Practitioner

FNP – Family Nurse Practitioner

HSM – Health Systems Management

NMW – Nurse-Midwifery

NNP - Neonatal Nurse Practitioner

PMHNP – Psychiatric Mental Health Nurse Practitioner

WHNP – Women’s Health Nurse Practitioner

N. Inf – Nursing in Infectious Disease

## CHAPTER 2

### REVIEW OF THE LITERATURE

#### Magnitude of the Problem

According to *National Survey on Drug Use and Health (NSDUH)* for the year 2002, an estimated 120 million Americans aged 12 or older (51%) reported being current drinkers, having used alcohol in the month prior to the survey, compared to 48% in 2001 and 46.6% in 2000 (D'Onofrio, 2003; Substance Abuse and Mental Health Services, 2001). Of these, an estimated 54 million people engaged in binge drinking, and 15.9 million people reportedly engaged in heavy drinking in the past 30 days (Substance Abuse and Mental Health Services, 2003). This indicates an increase in alcohol abuse in U.S. population in the recent years along with an increase in the problems related to alcohol abuse.

Substance abuse disorders, including alcohol abuse, accounts for more deaths, illnesses, and disabilities than any other preventable health condition. One in four of total deaths that occur every year in U.S. can be attributed to alcohol, tobacco, and illicit drug use. More than 100,000 deaths are attributed to alcohol abuse (Haack & Adger, 2002). In 1995, the U.S. government incurred about \$167 billion in annual economic costs from alcohol abuse and its related problems, with estimated increases by a couple of billion dollars expected for every coming year (U. S. Department of Health and Human Services, 2000).

Alcohol abuse along with other substance use is related to motor vehicle accidents, homicides, suicides, sexually transmitted diseases, child and spousal abuse, low worker productivity, homelessness as well as disruptions in family, work, and personal life. Heart, liver, pancreatic, and gastric problems are associated with heavy long-term alcohol consumption as are fetal disorders resulting from use of alcohol by pregnant women (U. S. Department of Health and

Human Services, 2000). These problems in turn increase the burden on the U.S. economy and also disrupt the social harmony in the community and society leading to a further increase in the economic burden on the government.

### Inefficient Delivery of Services

In 2002, of the 18.1 million people aged 12 or older (7.7% of total population aged 12 or older) who were classified as dependent on or abused alcohol, only 3.5 million of these received some sort of treatment regarding the problems related to alcohol abuse (Substance Abuse and Mental Health Services, 2003). This clearly demonstrates the gap between the need and the treatment of alcohol abuse patients. Primary health care providers including primary care nurses are the most important weapon to close this gap as about 191 million Americans visit 255,173 primary health care providers at least once every two years with almost 200 million visits each year (The National Center on Addiction and Substance Abuse, 2000). This provides an ample opportunity for primary health care providers to both address the situation and impact the alcohol abuse reduction goals specified by Healthy People 2010. Unfortunately, this opportunity is not being fully operationalized according to the results of a survey by the *National Center on Addiction and Substance Abuse at Columbia University (CASA)*.

According to the *CASA National Survey of Primary Care Physicians and Patients on Substance Abuse of 1999*, nearly 94% of physicians failed to recognize early alcohol abuse symptoms in adult patients. It also reported that 32.1% of primary care physicians carefully screened their patients for substance abuse. Also, 19.9% of primary care physicians were very prepared to identify alcohol abuse in their patients. Even when the physicians screened patients regularly for alcohol abuse, less than 50% asked their patients regarding the frequency and quantity of alcohol use, and only 6.2% of the physicians included alcohol or substance abuse in

their differential diagnosis. Two thirds of the physicians discussed alcohol treatment with their patients. The survey also found that 53.7% of patients were not satisfied with their primary care physicians because doctors did nothing about their substance abuse problem (The National Center on Addiction and Substance Abuse, 2000). Even though the above survey is regarding primary care physicians, the results could be extrapolated to primary care nurses as they form a part of primary health care providers as a whole.

Analyzing the studies done on primary health care providers and primary care physicians regarding inefficient delivery of services indicates a possible role played by the primary care nurses as they form a part of the system as a whole. In two studies, screening of the patients for alcohol abuse by physicians varied from 34% to 60% based on specialty with 33% to 36% of physicians referring patients for counseling and treatment for their alcohol abuse (Marcell *et al.*, 2002). In another study, less than 50% of the patients with positive scores on CAGE questionnaire were correctly diagnosed by resident physicians (Klamen, 1999). Many primary health care providers that included primary care nurses (95% of the participants) indicated they have responsibility in preventing alcohol related problems, but 30% of those who felt responsible had actually done some prevention though incomplete (Bradley, Curry, Koepsell, & Larson, 1995).

Many barriers were identified or reported that led the primary health care providers and primary care nurses in particular to miss the available opportunity of diagnosing and treating patients with alcohol abuse. These were lack of adequate training, fixed and inappropriate attitudes and beliefs about alcohol abuse patients and their treatment, time constraints, fear of losing patients, discomfort discussing alcohol abuse with patients, and lack of insurance

coverage (The National Center on Addiction and Substance Abuse, 2000). Attitudes and beliefs were considered as one of the most important of these barriers.

### Attitudes, Beliefs, and Confidence Levels about Alcohol Abuse

According to Aiken (as cited in Bassette, 2004), attitude is a relatively stable organization of the beliefs, feelings, and tendencies toward the attitude object. In more descriptive terms, attitude is a learned internal state from long lasting patterns of beliefs and feelings about objects, ideas, or people that may result in a response or behavior in the presence of certain specific events (Lefton, 2000; Alcock, Carment, & Sadava, 1998, as cited in Saskatchewan, 2002).

Attitudes have 3 dimensions which are:

1. Cognitive dimension consists of thoughts and beliefs
2. Emotional dimension consists of feelings mainly evaluative
3. Behavioral dimension consists of expression of the above two dimensions

(Lefton, 2000 as cited in Saskatchewan, 2002)

As said above, the review of the studies done on the primary health care providers that include the primary care nurses provides a general view about the attitudes and beliefs of the primary health care providers as a whole. The attitude of the primary care physicians, nurses, and other primary health care providers to be “more safe than sorry in dealing with any illness”, is reversed in case of alcoholism (Chappel & Schnoll, 1977). Physicians consider alcoholics as uninteresting, untreatable, and seldom accept alcoholics for treatment (Mayfield & Fowler, 1970). As physicians’ attitudes impact the medical treatment being offered to patients, negative attitudes have often led to missed diagnosis of alcohol abuse in patients. Additionally, pessimistic attitudes of physicians towards the outcome and efficacy of alcohol abuse treatment



have been shown to have a substantial effect on the actual patient outcomes as observed by Goldstein (as cited in Chappel & Schnoll, 1977).

Studies on the attitudes and beliefs of primary health care providers toward alcohol abuse patients and their treatment can be dated back to 1960s. According to study conducted by Mendelson, Wexler, Kubzansky, Harrison, Leiderman, and Solomon in the year 1964, the personality characteristics of a physician affect his/her attitudes towards alcoholic patients and thus the therapy offered to the patients. It is also suggested that educational programs targeting alcoholism should also include activities for physicians to change and evaluate their attitudes towards alcohol abuse patients and their treatment.

Staff attitudes regarding alcohol abuse patients were further explored by Mogar, Helm, Snedeker, Snedeker, and Wilson in the year 1969. In their study, it is found that the professional staff who did not work with alcoholic patients has more pessimistic views about alcoholic patients and their treatment compared to professional staff who worked with alcoholic patients. The professional staff who worked with alcoholic patients considered alcoholism more as an illness and are less pessimistic regarding the success of the alcohol abuse treatment. It was also noted that staff's failure to view an alcoholic as a patient with an illness that displays both psychological and social dimensions prevents them from detecting and treating these patients effectively. This study concluded that the experience with patients with alcohol abuse changes the staff's attitudes and perceptions about alcoholism and its treatment.

According to Marcell, Halpern-Felsher, Coriell, and Millstein (2002), screening and educational services offered by primary care physicians to their adolescent patients regarding alcohol abuse varied based on their attitudes and beliefs about these services. Thus understanding these attitudes and beliefs would help in effective and efficient delivery of the primary health

care provider's services to the alcohol abuse patients. It is also mentioned that these attitudes and beliefs can be effectively targeted through efficient teaching methods rather than by just formulating some recommendations for the delivery of required services.

Frank, Boswell, Dickstein, and Chapman in their study in 2001 of female psychiatrists have noticed that they lack confidence in practices that deal with patients who have alcohol problems. This seems to be influenced by the education and the experience they gained during their training period. Brown, Pirmohamed, and Park in 1997 noted that nurses lack confidence in taking care of and treating alcohol abuse patients and recommended basic training enhancement for the nurses to increase their confidence in dealing with these patients. In a study by Lock, Kaner, Lamont, and Bond in 2002, they noticed that nurses and other health care professionals lack the required preparation and thus appropriate confidence levels in dealing with alcohol abuse patients.

#### Effect of Education on Attitudes, Beliefs, and Confidence Levels

Changing attitudes is very difficult but not impossible. As attitudes depend on beliefs, thoughts, and feelings, changing one or more of them could have an impact on the attitude which will in turn has its own independent effect on the behavior. This change in beliefs and thoughts can be accomplished via educational intervention.

As positive attitudes and beliefs are required for effective diagnosis and treatment of alcoholic patients, many studies have been conducted to identify ways to change attitudes and beliefs held by primary health care providers to diagnose and treat alcohol abuse patients.

Medical education has been shown to have a profound effect on the attitudinal development of medical students (Fisher, Mason, Keeley, & Fisher, 1975) giving ample room for intervention through education to change the attitudes and beliefs and thus help in treating patients with

alcohol abuse effectively (Aalto, Pekuri, & Seppa, 2003; Bendtsen & Akerlind, 1999; Chappel & Schnoll, 1977; Chappel, Veach, & Krug, 1985; Matthews, Kadish, Barrett, Mazor, Field, & Jonassen, 2002; Ockene, Wheeler, Adams, Hurley, & Hebert, 1997).

Of the many available educational intervention methods, brief intervention, was extensively studied by Aalto, Pekuri, and Seppa. The results of this study indicate that it is a difficult process to influence the attitudes of primary health care providers about alcohol abuse and its treatment through education, yet it is possible. Even though it is difficult to influence attitudes, educational interventions have been shown to have a positive effect on the attitudes and beliefs of primary health care providers about alcoholism and its treatment. In their study, this change in the attitudes and beliefs led to more involvement of primary health care providers in the counseling and treatment of alcohol abuse patients.

Mathews, Kadish, Barrett, Mazor, Field, and Jonassen in 2002 examined the impact of brief interclerkship (brief intensive training experience) about substance abuse on medical students' skills and attitudes. It is observed that this brief experience not only increased the skills of medical students in dealing with alcohol abuse patients but also positively impacted the attitudes and beliefs of the students towards alcohol abuse patients and their treatment, thus increasing the perceived confidence among the students in dealing with alcoholic patients.

Many of the previous studies regarding the confidence levels of health care professionals including nurses has showed the lack of confidence levels in dealing with alcohol abuse patients could be from the lack of proper education and training in dealing with these patients (Brown, Pirmohamed, & Park, 1997; Frank, Boswell, Dickstein, & Chapman, 2001; Lock, Kaner, Lamont, & Bond, 2002). Gossop and Birkin in 1994 have shown in their study that an educational and training course could increase the confidence levels of participants in dealing

with alcohol abuse patients along with increase in the willingness of the participants in dealing with these patients. Primary care nurses seem to be no exception to the effect of the education on their attitudes, beliefs, and confidence levels regarding alcohol abuse and its treatment.

### Summary of the Literature Review

Alcohol abuse and its related problems in the United States have been a major burden on the government and the society for many years. In spite of the inclusion of alcohol abuse, under a broad category of substance abuse, in the goals of Healthy People 2000, not much improvement has been achieved. Primary health care providers hold a pivotal place in this aspect. But there has been a huge gap between the need and the treatment of the patients with alcohol abuse that has not been filled. Of multiple factors that extend this gap, the pessimistic attitudes and beliefs of primary care nurses, along with their lack of confidence in dealing with patients with alcohol abuse plays a key role. Intervention, mainly educational, has been shown to have a positive effect on the attitudes and beliefs and in building confidence in dealing with this particular situation.

## CHAPTER 3

### METHODOLOGY

#### Source of the Data

*Project Mainstream*, a shortened name for Multi-Agency Initiative on Substance Abuse Training & Education for America, is a cooperative agreement (U78HP00001-02) from Health Resources and Services Administration (HRSA) in partnership with Substance Abuse and Mental Health Services Administration (SAMHSA)/Center for Substance Abuse Treatment (CSAT) administered by Association for Medical Education and Research in Substance Abuse (AMERSA), as a part of HRSA-AMERSA-SAMHSA/CSAT interdisciplinary project to improve health professional education on substance abuse (Association for Medical Education and Research in Substance Abuse, 2002). Various Interdisciplinary Faculty Learning Groups (IFLGs) were established in various regions of the country to reach the above overall goal.

The Interdisciplinary Faculty Learning Group (IFLG) – 7 of the South-East region, in its effort to integrate sustained curriculum changes in the health care profession regarding substance abuse screening and early intervention, conducted a project using Brief Negotiated Intervention (BNI) as a tool to improve care of those with alcohol problems. In relation to the above project, self reported data from primary care nurses at Vanderbilt University, Nashville, TN regarding their attitudes, beliefs, confidence levels, and knowledge about alcohol abuse and its treatment in relation to the Healthy People 2010 was collected during the year 2002-2003. Out of 322 primary health care providers with varying levels of education in the field of health care who were eligible to participate, 201 participated in this study by filling in the questionnaires provided along with the participation in the educational intervention training.

Surveys were conducted on primary care nurses that included nurse practitioner faculty and students at Vanderbilt University before and after the educational intervention. The educational intervention training session included 2 parts – didactic part with power point presentation of the Brief Negotiated Intervention (BNI) technique developed by the *Project Mainstream* fellows and practice part involving sessions of role-play demonstration of BNI, practice of BNI using standardized patient cases, along with wrap-up discussion (Appendix A). Pre and post intervention data were obtained with a survey instrument designed by the fellows specifically for the project. The instrument used consisted of 100 questions in relation to multitude aspects regarding alcohol abuse using Likert scale format in most instances along with the basic demographic questions (Appendix B). Permission to use the database in this study was obtained from Dr. Mary Beth Hogan, one of the fellow scholars of the IFGL-7 (Appendix C). The data obtained were analyzed using the latest version of Statistical Package for the Social Sciences (SPSS<sup>®</sup>).

### Study Sample

The sample used in this study is restricted to the professionals in health care field who have direct contact with the patient population such as physicians, residents, nursing staff, and nursing students. Three hundred and twenty two primary health care providers were eligible to participate based on their education. Of these, 25 were residents in preventive medicine, occupational medicine and psychiatry, 35 were new PGY-1 (Post Graduate Year-1) residents from Meharry College of Medicine, 42 were nursing faculty, and 220 were nurse practitioner students from School of Nursing in Vanderbilt University. Two hundred and one providers participated in this study. However, the sample size could be smaller for missing values in variables of interest in the data collected.

In general, the study sample has the following characteristics:

1. Included nursing faculty and students
2. Both males and females but predominantly females
3. From 22 to 57 years old
4. Various levels of education in nursing
5. From different nursing specialties
6. Various levels of experience as a whole as well as with alcohol abuse patients

### Educational Intervention

The educational intervention training session was developed by the fellow scholars of the Interdisciplinary Faculty Learning Group (IFLG) – 7 of the South-East region using Brief Negotiated Intervention (BNI) technique. The BNI technique was developed by the *Project Mainstream* Fellows from various other instruments and approaches for the health care professionals in effectively screening, treating, and referring patients with alcohol abuse. The BNI technique included the following steps as shown in Appendix A:

1. Raise Subject:

This step dealt with raising the subject of alcohol abuse with the patient without making him/her uncomfortable.

2. Provide Feedback:

This step included the ways to screen the patient for alcohol abuse with questions like how much the patient drinks, calculating the patient's risk based on the amount of alcohol use, screening the patients with CAGE questions for adults and CRAFFT questions for children and adolescents, and assessing the readiness of the patient to change along with the feedback about his/her alcohol use.

3. Enhance Motivation:

This step included the ways to know how ready the patient is to change his/ her behavior with regards to alcohol use and enhancing motivation for positive behavior change.

4. Negotiate and Advise:

This step included negotiating a goal along with the ways to achieve it with referrals if required.

The Educational Intervention training included 2 parts.

1. Didactic Part:

This part included didactic interactive lecture with supporting PowerPoint presentation regarding the BNI, the steps involved, and the ways to follow the steps to attain the goal.

2. Practice Part:

This part included role-play demonstration of BNI, practice of BNI using standardized patient cases with rating of student performance along with wrap up discussion at the end.

The educational intervention with BNI has been proposed to be included in the course work of the nurse practitioner students at Vanderbilt University and residents at Meharry College of Medicine. But, because of unforeseen circumstances, this has been included only in the nursing students' core course at Vanderbilt University in fall 2003 but not in the residents' course work at Meharry College of Medicine and has been given by the fellow scholars of the IFLG-7 of South-East region. The faculty in nursing also attended voluntarily the lectures and participated in the didactic and practice sessions.



## Study Variables

The variables of the study are as follows:

### Modifying/Mediating Variables

Age. The age of each participant is taken from the instrument as reported and grouped into groups with a range of 10 years.

Educational Category. The educational category is the degree of education obtained or pursuing. The data is assigned numerical values as 1 – Licensed Practical Nurse (LPN), 2 – Associate Science/Degree in Nursing (AS/DN), 3 – Bachelor of Science in Nursing (BSN), 4 – Master of Science in Nursing (MSN), 5 – Doctorate in Nursing, and 6 – Other.

Past Experience with Patients with Alcohol Problems. The past experience of the participants with the patients with alcohol problems is self reported by the participants. The data obtained is assigned numerical values as 1 – None, 2 – Little, 3 – Moderate, 4 – Large, and 5 – Vast.

Know Someone Other than Patients with Alcohol Problem. Participant's response to whether they know someone other than patients with alcohol problem is assessed by “no” or “yes” responses that are assigned numbers 1 and 2 respectively for analysis.

## Outcome Variables

Attitudes and Beliefs about Alcohol Abuse and its Treatment. The attitudes and beliefs of primary care nurses about alcohol use and its treatment are assessed by the following questions of the instrument (Appendix B):

- a. “It takes too much time to deal with patient’s drinking behavior.”
- b. “Advising a patient about their drinking behavior may lead to early, successful intervention.”
- c. “Treatment does not work.”

All the above questions were in Likert scale format with five response options of never, rarely, sometimes, usually, and always which were assigned values of 1 through 5 respectively. But in case of questions “a” and “c”, the numerical values assigned to the options were reversed for the use of reversal words as 5 – never, 4 – rarely, 3 – sometimes, 2 – usually, and 1 – always. A composite index score is calculated by adding all the numerical values assigned to the responses.

Self Reported Confidence or Ability Level of the Primary Care Nurses. The confidence or ability level of the primary care nurses in dealing with patients with alcohol abuse is assessed by the following questions of the instrument (Appendix B):

- a. “I am confident in my ability to ask patients about their alcohol use.”
- b. “I am confident in my ability to ask patients about quantity and frequency of their alcohol use.”
- c. “I am confident in my ability to screen patients for alcohol problems using CAGE questions.”

- d. "I am confident in my ability to assess patients' readiness to change their behavior."
- e. "I am confident in my ability to discuss/advise patients to change their drinking behavior."
- f. "I am confident in my ability to refer patients with alcohol problems."
- g. "I am confident in my ability to document my assessment, intervention and referral."

All the above questions were in Likert scale format with five response options of never, rarely, sometimes, usually, and always. The responses were given numerical values as follows: 1 – never, 2 – rarely, 3 – sometimes, 4 – usually, and 5 – always. A composite index score for the confidence level is calculated by adding all the numerical values assigned to the responses.

Beliefs about the Impact of Their Efforts in Reaching the Goals of Healthy People 2010.

The self reported beliefs of primary care nurses about the impact of their efforts in reaching the goals of Healthy People 2010 regarding alcohol abuse are assessed by the following questions of the instrument (Appendix B):

- a. "I feel that I can positively impact Healthy People 2010 goals regarding alcohol abuse."
- b. "I do not feel that my efforts will positively impact Healthy People 2010 goals regarding alcohol abuse."

The above questions were in Likert scale format with five response options of never, rarely, sometimes, usually and always which were assigned numerical values of 1 through 5 respectively. These numbers were reversed in the question "b" for the use of reversal words in the question to 5 – never, 4 – rarely, 3 – sometimes, 2 – usually, and 1 – always. A composite index score is calculated by taking the average of the numerical values assigned to the responses

to these questions from the participants. The average values were rounded to the nearest higher whole number.

### Statistical Analysis

The analysis of the data was done using the latest version of the Statistical Package for the Social Sciences (SPSS®) software and the level of significance is set at 0.05 for testing the research questions. An analytic framework is made to determine the type of tests to be used for the analysis of the data as shown in Figure 1.

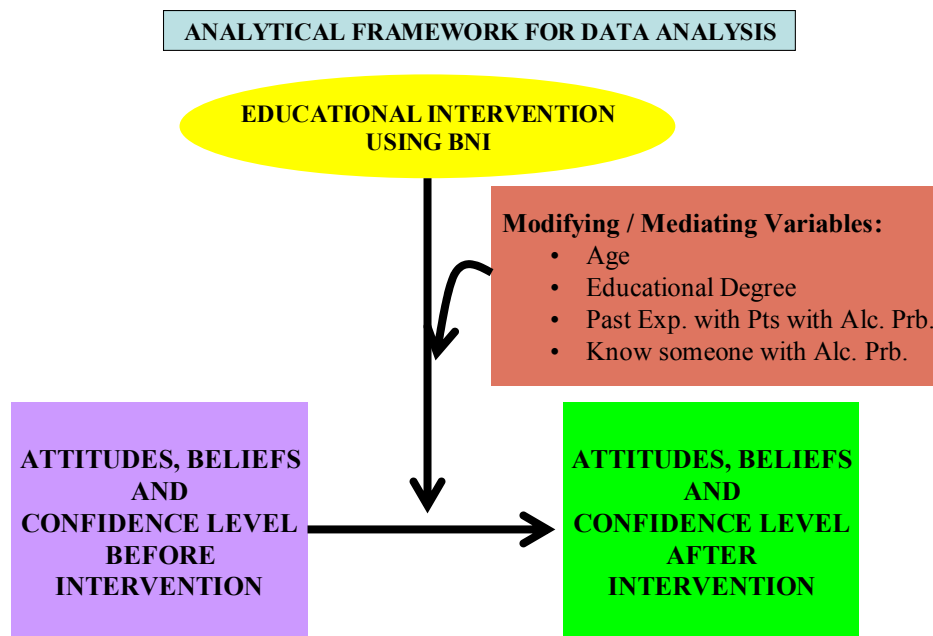


Figure 1. Analytical Framework for Analysis of the Data

#### 1. Descriptive Analysis:

Descriptive statistics of the data with means, standard deviations, percentages, maximums and minimums along with frequency tables, histograms, and graphs were

done on the study variables to describe the characteristics of the study sample and the skewness of the data. The graphs were drawn using Microsoft® Excel® 2003.

2. Analysis of Research Questions:

a. Reliability analysis of the composite indices of outcome variables

Before the composite indices for the outcome variables were calculated, reliability analysis of the questions used in the assessment of outcome variables was done using Cronbach's alpha.

b. Analysis of Primary Research Questions:

For the analysis of the primary research questions, a composite index score was calculated as described in the study variables and the pre-and posttest index scores were compared using paired t-test analysis to determine any effect of the educational intervention.

c. Analysis of Secondary Research Questions:

The data were stratified based on age, educational degree, past experience with patients with alcohol problem, own problem with alcohol, and knowing someone with alcohol abuse. The modifying effect of the above variables on the effect of the educational intervention on the attitudes, beliefs, and confidence level of the participants was analyzed using One-Way Analysis of Variance (ANOVA®) to test if there are differences across the categories of a modifying variable in the mean differences of the composite index score before and after intervention.

d. Analysis of all the questions used in this study:

In addition to the composite index scores of the outcome variables analyzed, each of the questions/items was analyzed both descriptively and statistically using

Wilcoxon test analysis to see any change in the responses before and after the educational intervention.

## CHAPTER 4

### FINDINGS

#### Characteristics of the Study Sample

Two hundred and one primary care nurses participated in the study from an eligible 322 participants from medicine and nursing fields. All the participants were from the nursing field, mainly nursing students along with nursing faculty, and none of the participants were from the medical background.

The following are the characteristics of the participants in this study (Table 1):

1. One hundred and seventy eight participants (88.6% of 201 participants) responded to the question regarding age.
  - a. The age of the participants ranged from 22 to 57 years.
  - b. The participants of the study were of younger age group with about 70% of the participants between 21 and 30 years and 87.1% of the participants below or equal to the age of 40 years (Figure 2).
2. One hundred and seventy nine participants (89.1% of total participants) of the study answered the question regarding gender.
  - a. Most of the participants were females comprising 96.1% of the participants of the study (Figure 3).
3. One hundred and seventy nine participants (89.1% of total participants) responded to the question regarding educational degree.
  - a. Around 62% of the responded participants have at least a bachelor's degree in nursing
  - b. There was no doctorate degree holder in the study sample.

- c. There were about 35% of the responded participants who come under “other” category – which might have included mostly nursing students (Figure 4).

### Distribution of the Participants by Age

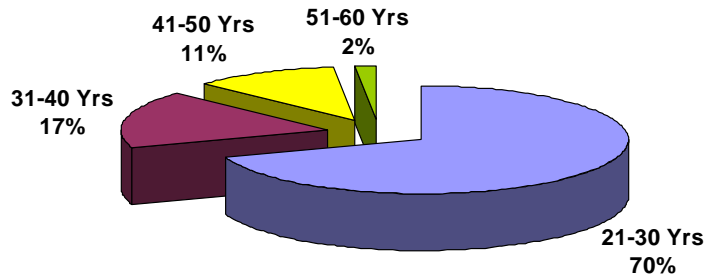


Figure 2. Distribution of the Participants by Age

### Distribution of the Participants by Gender

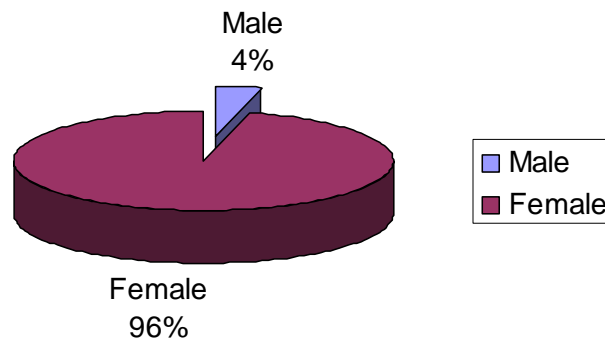


Figure 3. Distribution of the Participants by Gender



Table 1

*Characteristics of the Participants of the Study (Total Participants = 201)*

Characteristic	Dividing Factor	No. (Percentage)
Age (178)(87.1%)	21-30 yrs	124(69.7)
	31-40 yrs	31(17.4)
	41-50 yrs	20(11.2)
	51-60 yrs	3(1.7)
Gender (179)(89.1%)	Male	7(3.9)
	Female	172(96.1)
Educational Category (179)(89.1%)	LPN	1(0.6)
	ASN/ADN	4(2.2)
	BSN	81(45.3)
	MSN	30(16.8)
	Doctorate in Nursing	-----
Specialty (181)(90%)	Other	63(35.2)
	ACNP	34(18.8)
	ANP	1(0.6)
	A/GNP	-----
	FNP	55(30.4)
	HSM	-----
	N. Inf	-----
	NMW	13(7.2)
	NNP	13(7.2)
	PMHNP	30(16.6)
	PNP	19(10.5)
	WHNP	14(7.7)
N. A.	2(1.1)	
Years in Practice (177)(88.1%)	0-1 yr	71(40.1)
	2-5 yrs	52(29.4)
	6-10 yrs	25(14.1)
	11-15 yrs	10(5.6)
	16-20 yrs	10(5.6)
	21 + yrs	9(5.1)
Past Experience with Alcohol Abuse patients (181)(90%)	None	28(15.5)
	Little	101(55.8)
	Moderate	44(24.3)
	Large	7(3.9)
	Vast	1(0.6)
Had Problem with Alcohol (180)(89.6%)	No	167(92.8)
	Yes	13(7.2)
Know Someone Other than Patients with Alcohol Problem (181)(90%)	No	32(17.7)
	Yes	149(82.3)

No. – Number of participants

### Distribution of the Participants by Educational Degree

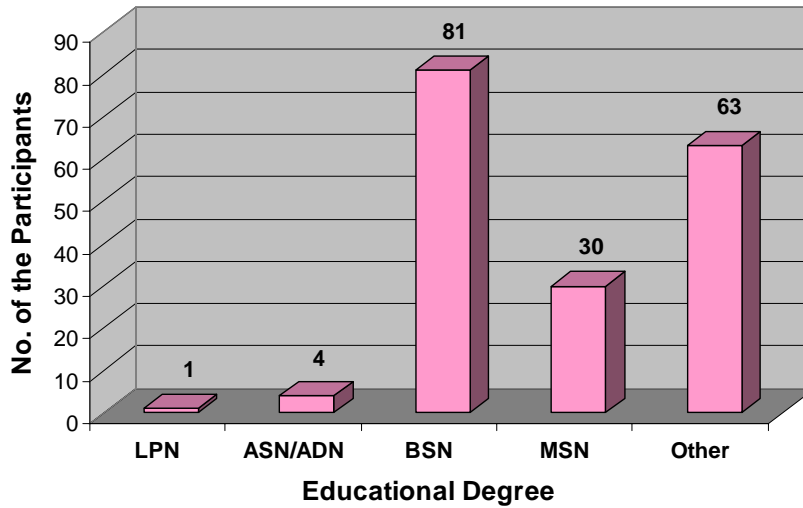
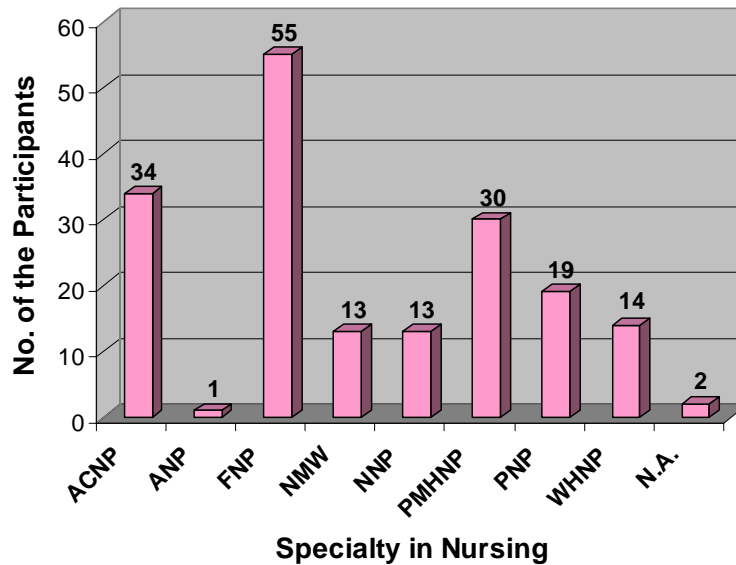


Figure 4. Distribution of the Participants by Educational Degree

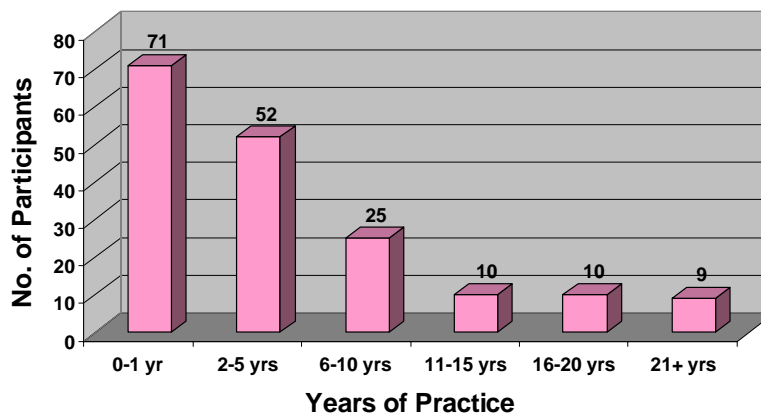
4. One hundred and eighty one participants (90% of the total participants) answered the question regarding the specialty of nursing.
  - a. About 30% of the participants who responded were family nurse practitioners.
  - b. Acute care and psychiatric mental health nurse practitioners included about 35% of the participants (Figure 5).
5. One hundred and seventy seven participants (88.1% of the total participants) responded to the question regarding years of experience in the field.
  - a. Most of the participants (around 70%) have less than 5 yrs of experience with about 40% of the participants having less than 1 yr of experience (Figure 6).

**Distribution of the Participants by the Specialty**



*Figure 5.* Distribution of the Participants by the Specialty in Nursing

**Distribution of the Participants by Years of Practice**

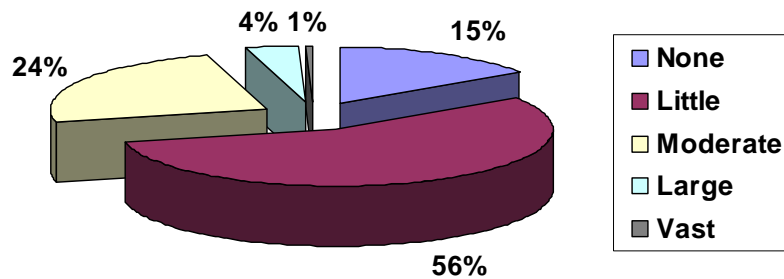


*Figure 6.* Distribution of the Participants by Years of Practice

6. One hundred and eighty one participants (90% of the total participants) responded to the question concerning the past experience with the patients with alcohol problem.
  - a. Around 55% of the participants have little past experience in dealing with alcohol abuse patients.

- b. About 24% of the participants have moderate experience in dealing with the alcohol abuse patients (Figure 7).

**Distribution of the Participants by the Self Reported Experience with Alcohol Abuse Patients**



*Figure 7.* Distribution of the Participants by the Self Reported Experience With Alcohol Abuse Patients

7. One hundred and eighty participants (89.6% of total participants) answered the question regarding their own problem with alcohol.
- a. Most of the participants (92.8% of the participants) do not have her/his own problem with alcohol (Figure 8).

### Distribution of the Participants by their Own Problem with Alcohol

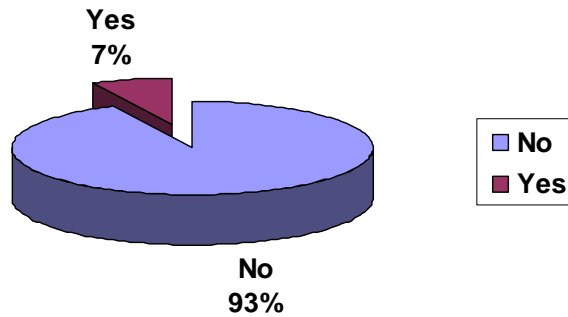


Figure 8. Distribution of the Participants by Their Own Problem With Alcohol

8. One hundred and eighty one participants (90% of the total participants) responded to the question concerning acquaintance with someone other than patients with alcohol problem.
  - a. The majority of the participants (82.3%) know someone other than patients with an alcohol problem (Figure 9).

### Distribution of the Participants by Knowing Someone other than Patients with Alcohol Problem

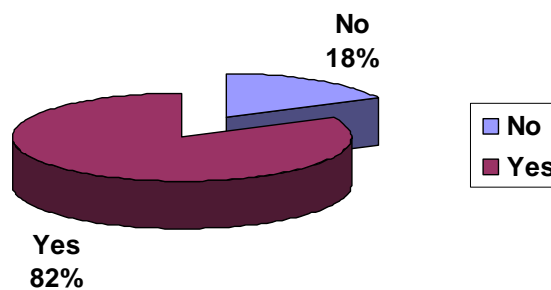


Figure 9. Distribution of the Participants by Knowing Someone Other Than Patients With Alcohol Problem

## Reliability Analysis of the Questions Used to Assess the Outcome Variables

### Attitudes and Beliefs about Alcohol Abuse and its Treatment

Reliability analysis of the questions used for assessing the attitudes and beliefs of primary care nurses regarding alcohol abuse and its treatment has Cronbach's alpha of 0.550 from a total participants of 182 (90.5% of the total sample) with 3 questions in the scale (Table 2) indicating the questions used to be less reliable in assessing the outcome variable,. The Cronbach's alpha is determined by both the correlations among the items and number of items used to compose the index. Considering the use of three questions in the scale, the Cronbach's alpha of 0.550 is not high but acceptable in this study.

### Confidence Levels in Dealing with Alcohol Abuse Patients

The questions used in the scale to assess the confidence levels of primary care nurses in dealing with alcohol abuse patients are shown to be reliable as shown in the Table 2 with Cronbach's alpha of 0.876 from 180 participants (89.6% of the total sample) and 7 questions in the scale. A composite index score is computed from the addition of the responses to all the questions used in the scale.

### Beliefs about the Impact of their Efforts in Reaching the Goals of Healthy People 2010

The Cronbach's alpha for the questions used in the assessment of the beliefs of the primary care nurses on the impact of their efforts in reaching the goals of Healthy People 2010, of 0.771 from 181 participants (90% of the total sample) with 2 questions indicates a good reliability in the questions used to assess the outcome variable (Table 2). So, an average of the responses to the questions was computed as a composite index score for further data analysis.

Table 2

*Summary of Reliability Analysis*

<b>Scale Analyzed</b>	<b>n (%)</b>	<b>N</b>	<b><math>\alpha</math></b>	<b><math>\alpha</math> - Standardized</b>
Attitudes and Beliefs	182 (90.5)	3	0.550	0.560
Confidence Levels	180 (89.6)	7	0.876	0.879
Beliefs about Impact	181 (90.0)	2	0.771	0.771

“Scale Analyzed” – Outcome variables for which the reliability of the questions used is analyzed

“n (%)” – Number of the participants (Percentage compared to the total sample)

“N” – Total number of the items or questions in the scale

“ $\alpha$ ” – Cronbach’s alpha

“ $\alpha$  – Standardized” – Cronbach’s alpha based on standardized items

Analysis of the Outcome Variables

Attitudes and Beliefs about Alcohol Abuse and its Treatment

Before the Educational Intervention. The composite index score calculated for the attitudes and beliefs of the primary care nurses about alcohol abuse before the educational intervention has a minimum of 6 to maximum of 15 with a range of 9 based on 182 participants (90% of 201 participants). The mean index score is 11.2 with SD of 1.908. The distribution of the values was shown by the histogram with normal curve in Figure 10 and Table 3.

Table 3

*Descriptive Statistics of the Attitudes and Beliefs of the Primary Care Nurses*

		<b>Statistics</b>		
		Attitudes and Beliefs Index - Pretest	Attitudes and Beliefs Index - Posttest	Diff. in Attitudes and Beliefs Index - Posttest and Pretest
N	Valid	182	169	151
	Missing	19	32	50
Mean		11.20	11.90	.77
Median		11.00	12.00	1.00
Mode		11	12	1
Std. Deviation		1.908	2.008	1.954
Range		9	9	14
Minimum		6	6	-8
Maximum		15	15	6

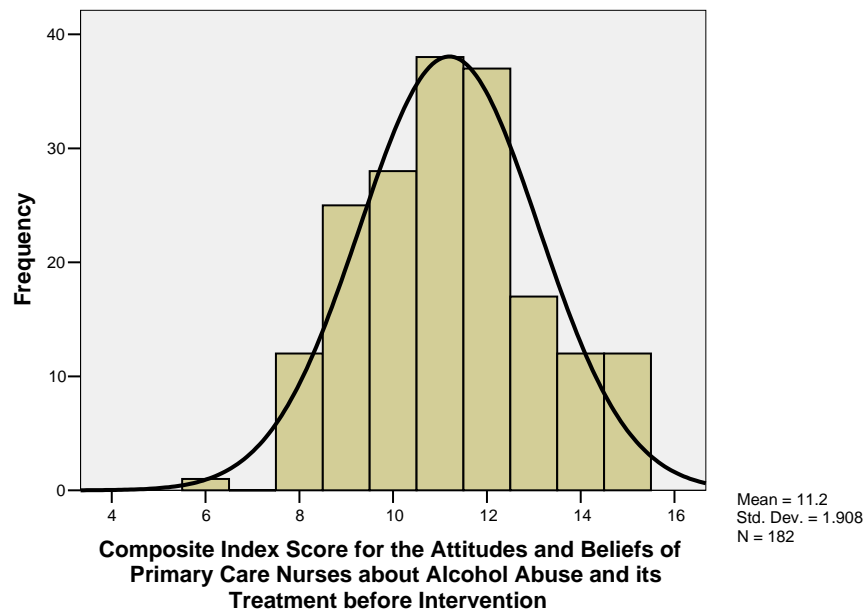
“Attitudes and Beliefs Index – Pretest” is the composite index score for the attitudes and beliefs of primary care nurses about alcohol abuse and its treatment before intervention

“Attitudes and Beliefs Index – Posttest” is the composite index score for the attitudes and beliefs of primary care nurses about alcohol abuse and its treatment after intervention

“Diff. in Attitudes and Beliefs Index – Posttest and Pretest” is the difference in the composite index scores of attitudes and beliefs of primary care nurses about alcohol abuse and its treatment before and after intervention



**Composite Index Score for the Attitudes and Beliefs of Primary Care Nurses about Alcohol Abuse and its Treatment before Intervention**



*Figure 10.* Histogram of Composite Index Score for the Attitudes and Beliefs Before Intervention

After the Educational Intervention. The composite index score calculated for the attitudes and beliefs of the primary care nurses about alcohol abuse after the educational intervention has a mean of 11.9 with SD of 2.008. The values had a range of 9 from a minimum of 6 to a maximum of 15 based on 169 participants (84.1% of the population) as shown in the Table 3. The histogram was used to present the distribution of the data (Figure 11).

**Composite Index Score of the Attitudes and Beliefs of Primary Care Nurses about Alcohol Abuse and its Treatment after Intervention**

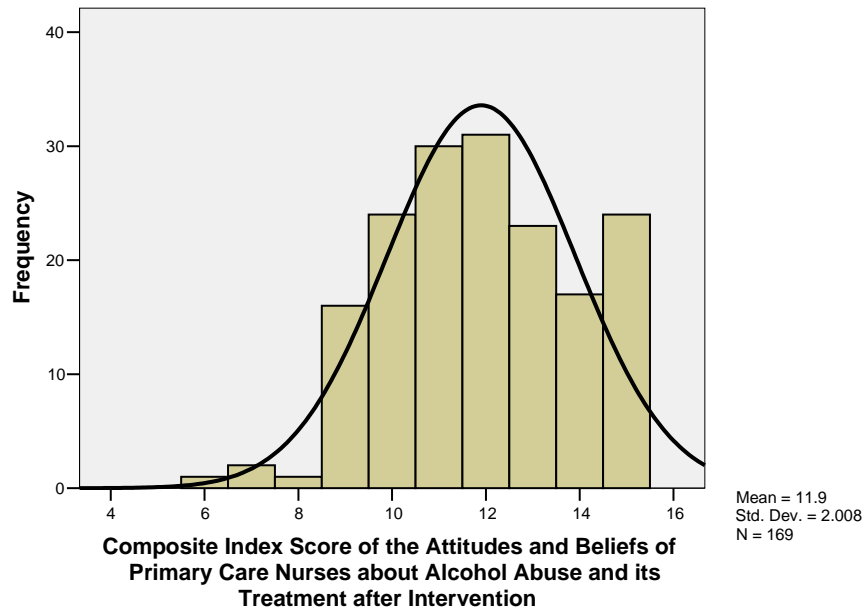


Figure 11. Histogram of Composite Index Score for the Attitudes and Beliefs After Intervention

Confidence Levels in Dealing with Alcohol Abuse Patients

Before the Educational Intervention. The composite index score of the confidence levels of the primary care nurses in dealing with the alcohol abuse patients before the educational intervention has a mean of 24.16 with SD of 5.726 with a range of 24 from a minimum of 11 to a maximum of 35 from 180 participants (89.6% of the participants) as shown in the Table 4. The histogram with normal curve showed the distribution of the values as shown in the Figure 12.

Table 4

*Descriptive Statistics of the Confidence Levels of the Primary Care Nurses*

<b>Statistics</b>				
		Confidence Index - Pretest	Confidence Index - Posttest	Diff. Confidence Index - Pretest & Posttest
N	Valid	180	169	149
	Missing	21	32	52
Mean		24.16	27.85	3.79
Median		24.00	28.00	3.00
Mode		28	28	0
Std. Deviation		5.726	5.170	5.143
Range		24	24	25
Minimum		11	11	-8
Maximum		35	35	17

“Confidence Index – Pretest” is the composite index score of the confidence level of primary care nurses in dealing with alcohol abuse patients before intervention

“Confidence Index – Posttest” is the composite index score of the confidence level of primary care nurses in dealing with alcohol abuse patients after intervention

“Diff. Confidence Index – Pretest & Posttest” is the difference in the composite index scores of the confidence level of primary care nurses in dealing with alcohol abuse patients before and after intervention

**Composite Index Score of the Confidence Level of the Primary Care Nurses in Dealing with Alcohol Abuse Patients Before the Intervention**

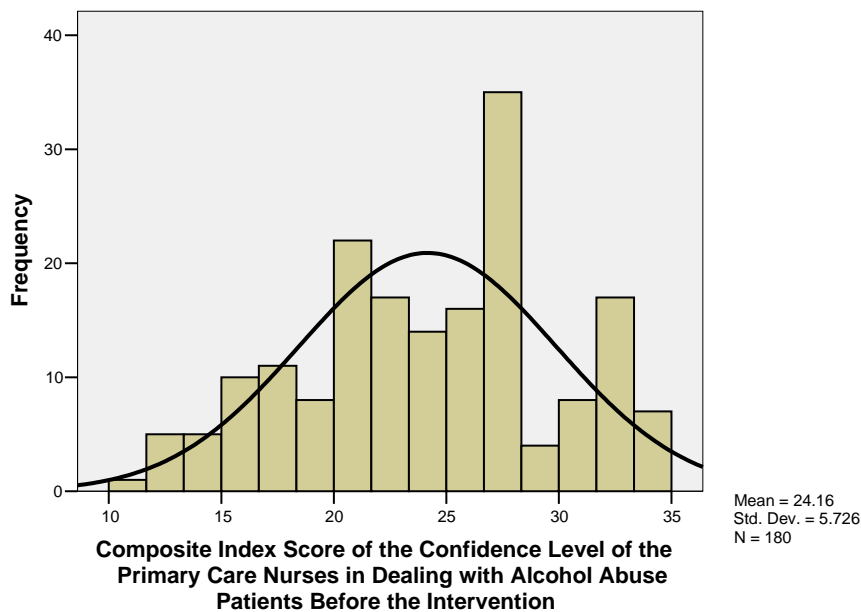


Figure 12. Histogram of Composite Index Score of the Confidence Levels Before Intervention.

After the Educational Intervention. The composite index score of the confidence levels of the primary care nurses in dealing with the alcohol abuse patients after the educational intervention has a range of 24 from a minimum of 11 to a maximum of 35 based 169 participants (84.1% of the participants) with a mean of 27.85 with SD of 5.17 as shown in the Table 4. The histogram of the data with normal curve is showed in Figure 13.

**Composite Index Score of the Confidence Level of the Primary Care Nurses in Dealing with Alcohol Abuse Patients After the Intervention**

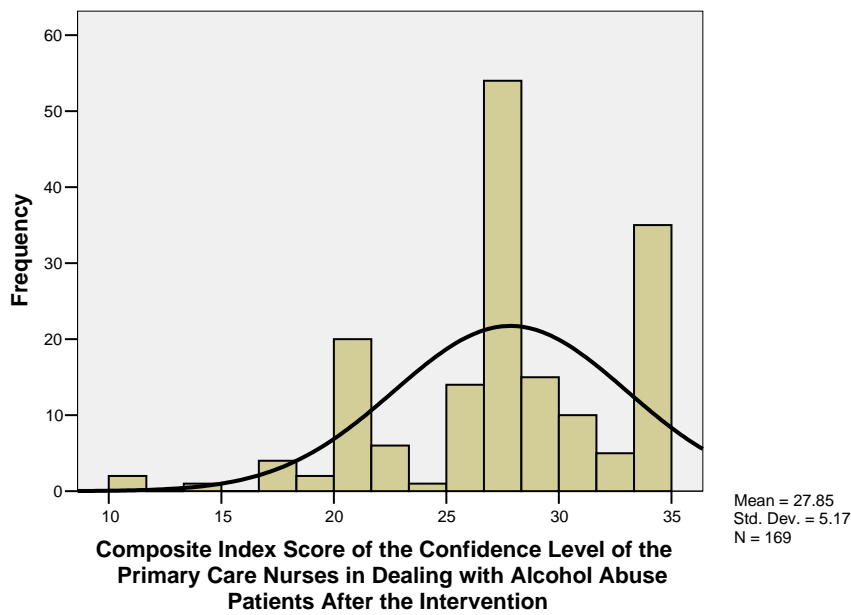


Figure 13. Histogram of Composite Index Score of the Confidence Levels After Intervention.

Beliefs about the Impact of their Efforts in Reaching the Goals of Healthy People 2010

Before the Educational Intervention. The composite index score of the beliefs of the primary care nurses on the impact of their efforts in reaching the goals of Healthy People 2010 regarding alcohol abuse before the educational intervention has a mean of 3.72 with SD of 0.871 with the distribution of the values as shown in the Table 5 and Figure 14.

Table 5

*Descriptive Statistics of the Beliefs of the Primary Care Nurses About the Impact of Their Efforts in Reaching the Goals of Healthy People 2010*

		<b>Statistics</b>	
		Impact Index - Pretest	Impact Index - Posttest
N	Valid	181	169
	Missing	20	32
Mean		3.72	4.05
Median		4.00	4.00
Mode		4	4
Std. Deviation		.871	.808
Range		4	4
Minimum		1	1
Maximum		5	5

“Impact Index – Pretest” is the composite index score of the beliefs of primary care nurses about the impact of their efforts in reaching the goals of Healthy People 2010 before intervention

“Impact Index – Posttest” is the composite index score of the beliefs of primary care nurses about the impact of their efforts in reaching the goals of Healthy People 2010 after intervention

**Composite Index Score of the Beliefs of Primary Care Nurses about the Impact of their Efforts in Reaching the Goals of Healthy People 2010 Before Intervention**

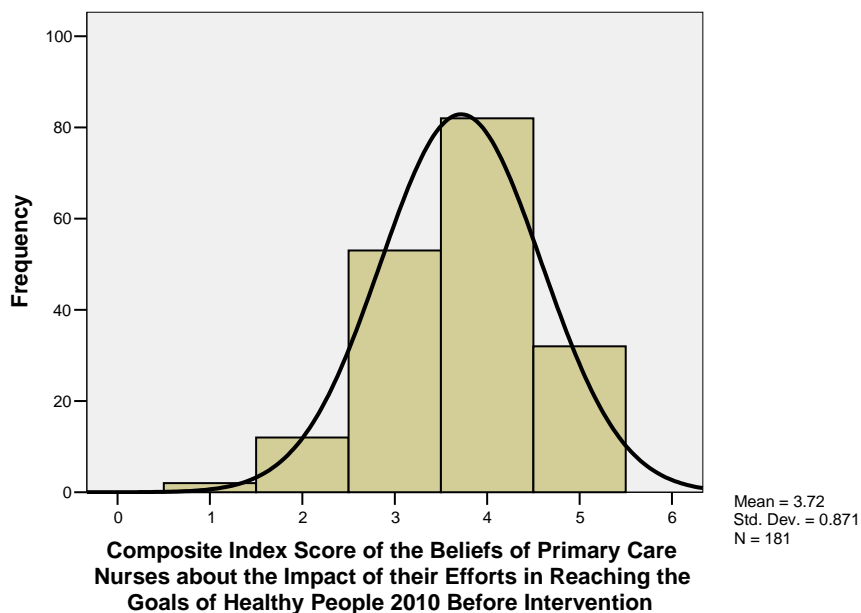


Figure 14. Histogram of Composite Index Score of the Beliefs on the Impact of Their Efforts Before Intervention

After the Educational Intervention. The composite index score of the beliefs of the primary care nurses on the impact of their efforts in reaching the goals of Healthy People 2010 regarding alcohol abuse after the educational intervention has mean of 4.05 with SD of 0.808. The distribution of the values was shown in the Table 5 and Figure 15.

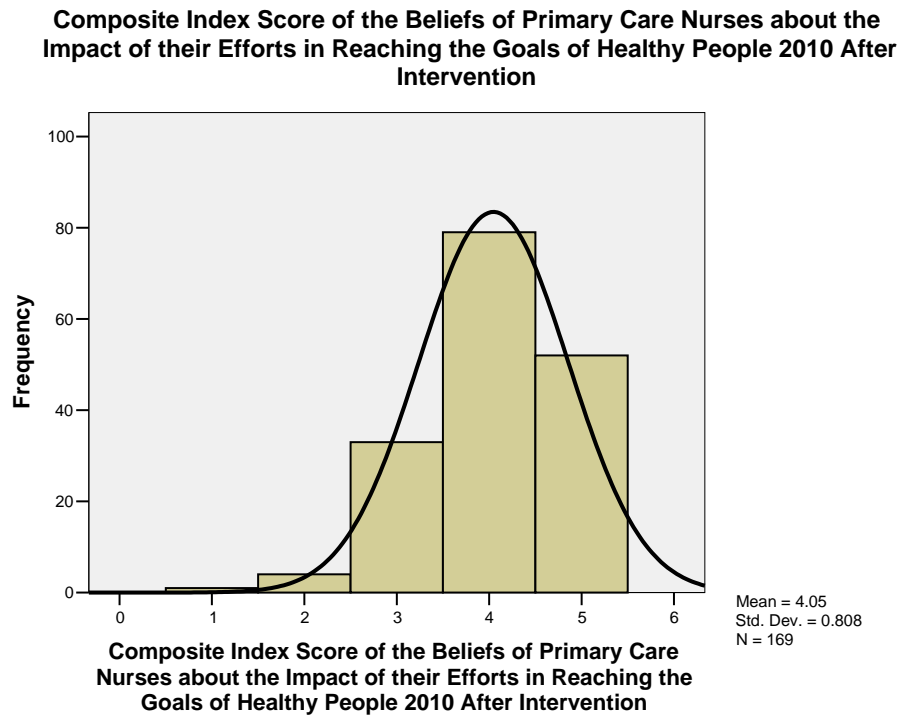


Figure 15. Histogram of Composite Index Score of the Beliefs on the Impact of Their Efforts After Intervention

## Primary Research Questions

### Primary Research Question 1

Question:

What is the effect, if any, of the educational intervention on the attitudes and beliefs of the participants towards alcohol abuse and its treatment?

Findings:

Analysis of the descriptive statistics (Table 3) and the histograms of the composite index scores for the attitudes and beliefs of the primary care nurses towards alcohol abuse and its treatment (Figures 10 and 11) indicate a positive effect of the educational intervention with increase in the mean of the index scores after the intervention when compared to that before the intervention.

To statistically evaluate the effect of the educational intervention on the attitudes and beliefs of primary care nurses towards alcohol abuse and its treatment, the composite index scores before and after intervention were analyzed with paired samples t-test with 2 tailed significance level of 0.05 as shown in the Table 6. A good correlation between the before and after intervention index scores is noted with a p-value of 0.00 among 151 participants.

The paired samples t-test analysis has a p-value of 0.00 indicating a potentially significant effect of educational intervention on the attitudes and beliefs of the primary care nurses towards alcohol abuse and its treatment. The 95% confidence intervals of the difference in the composite index scores has a lower interval of 0.454 and upper interval of 1.082 indicating a positive effect of the educational intervention on the attitudes and beliefs of the primary care nurses towards alcohol abuse and its treatment.

Table 6

*Paired Samples Test – Effect of the Intervention on the Attitudes and Beliefs of Primary Care Nurses About Alcohol Abuse and Its Treatment*

**Paired Samples Statistics**

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Composite Index Score of the Attitudes and Beliefs of Primary Care Nurses about Alcohol Abuse and its Treatment after Intervention	11.90	151	1.989	.162
	Composite Index Score for the Attitudes and Beliefs of Primary Care Nurses about Alcohol Abuse and its Treatment before Intervention	11.13	151	1.791	.146

**Paired Samples Correlations**

		N	Correlation	Sig.
Pair 1	Composite Index Score of the Attitudes and Beliefs of Primary Care Nurses about Alcohol Abuse and its Treatment after & before Intervention	151	.470	.000

**Paired Samples Test**

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Composite Index Score of the Attitudes and Beliefs of Primary Care Nurses about Alcohol Abuse and its Treatment after & before Intervention	.768	1.954	.159	.454	1.082	4.830	150	.000



## Primary Research Question 2

### Question:

What is the effect, if any, of the educational intervention on the confidence level of the participants in dealing with patients with alcohol abuse?

### Findings:

Analysis of the descriptive statistics (Table 4) and the histograms of the composite index scores of the confidence levels of the primary care nurses in dealing with patients with alcohol abuse (Figures 12 and 13) indicate a positive effect of the educational intervention on the confidence levels with increase in the mean of the index scores after the intervention when compared to that before the intervention.

A paired samples t-test analysis with 2 tailed significance level of 0.05 was done on the composite index scores of the confidence levels of the primary care nurses in dealing with the patients with alcohol abuse to evaluate the effect of the educational intervention on the confidence levels as shown in the Table 7. A significant correlation is noted between the pretest and posttest composite index scores of the confidence levels of primary care nurses with a p-value of 0.00 for 149 participants.

The results of the paired samples t-test as shown in the Table 7 indicates a very significant effect of the educational intervention on the composite index scores of the confidence levels of the primary care nurses in dealing with the patients with alcohol abuse. The 95% confidence intervals of the difference in the composite index scores of the confidence levels of the primary care providers ranged from a lower interval of 2.953 to an upper interval of 4.618 indicating a positive effect of the educational intervention on the confidence levels of the primary care nurses in dealing with the patients with alcohol abuse.

Table 7

*Paired Samples t-Test – Effect of the Intervention on the Confidence Levels of Primary Care Nurses in Dealing With Patients With Alcohol Abuse*

**Paired Samples Statistics**

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Composite Index Score of the Confidence Level of the Primary Care Nurses in Dealing with Alcohol Abuse Patients After the Intervention	27.69	149	5.170	.424
	Composite Index Score of the Confidence Level of the Primary Care Nurses in Dealing with Alcohol Abuse Patients Before the Intervention	23.91	149	5.655	.463

**Paired Samples Correlations**

		N	Correlation	Sig.
Pair 1	Composite Index Score of the Confidence Level of the Primary Care Nurses in Dealing with Alcohol Abuse Patients After & Before the Intervention	149	.552	.000

**Paired Samples Test**

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Composite Index Score of the Confidence Level of the Primary Care Nurses in Dealing with Alcohol Abuse Patients After & Before the Intervention	3.785	5.143	.421	2.953	4.618	8.983	148	.000

### Primary Research Question 3

#### Question:

What is the effect, if any, of the educational intervention on the beliefs of the participants regarding the impact of their efforts in reaching the goals of Healthy People 2010 with regards to alcohol abuse?

#### Findings:

Analysis of the descriptive statistics (Table 5) and the histograms of the composite index scores of the beliefs of the primary care nurses regarding the impact of their efforts in reaching the goals of Healthy People 2010 (Figures 14 and 15) indicate a positive effect of the educational intervention on the beliefs of the primary care nurses with increase in the mean of the index scores after the intervention when compared to that before the intervention.

This has been proved statistically with paired samples t-test with 2 tailed significance level of 0.05 done with the composite index scores of the beliefs of the primary care nurses regarding the impact of their efforts in reaching the goals of Healthy People 2010 as shown in the Table 8. A significant correlation is noted between the composite index scores of the beliefs before and after intervention is noted with a p-value of 0.00 with 151 participants.

A statistically significant effect of the educational intervention on the beliefs of the primary care nurses about the impact of their efforts in reaching the goals of the Healthy People 2010 is noted as shown in the Table 8. The 95% confidence intervals of the difference of the composite index scores of the beliefs of the primary care nurses ranged from a lower interval of 0.195 to an upper interval of 0.467 indicating positive effect of the educational intervention on the beliefs of the primary care nurses about the impact of their efforts in reaching the goals of the Healthy People 2010 especially regarding alcohol abuse.

Table 8

*Paired Samples t-Test – Effect of Intervention on the Beliefs of Primary Care Nurse Regarding the Impact of Their Efforts in Reaching the Goals of Healthy People 2010*

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Composite Index Score of the Beliefs of Primary Care Nurses about the Impact of their Efforts in Reaching the Goals of Healthy People 2010 After Intervention	4.07	151	.780	.064
	Composite Index Score of the Beliefs of Primary Care Nurses about the Impact of their Efforts in Reaching the Goals of Healthy People 2010 Before Intervention	3.74	151	.869	.071

		N	Correlation	Sig.
Pair 1	Composite Index Score of the Beliefs of Primary Care Nurses about the Impact of their Efforts in Reaching the Goals of Healthy People 2010 After & Before Intervention	151	.478	.000

		Paired Differences		95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)	
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper			
Pair 1	Composite Index Score of the Beliefs of Primary Care Nurses about the Impact of their Efforts in Reaching the Goals of Healthy People 2010 After & Before Intervention	.331	.846	.069	.195	.467	4.808	150	.000

### Secondary Research Questions

The secondary research questions of this study looked at the modifying effect of the variables including age, educational degree, past experience of the primary care nurses with alcohol abuse patients, and knowing someone other than patients with alcohol problem on the effect of educational intervention on the attitudes, beliefs, and confidence levels of the primary care nurses about alcohol abuse and its treatment. For the analysis of the effect of the modifying variables, the difference in the composite index scores of the attitudes and beliefs of the primary care nurses regarding alcohol abuse and its treatment before and after the educational intervention is calculated along with that of the confidence levels of the primary care nurses in dealing with alcohol abuse patients and this difference is analyzed against the modifying variables using one-way analysis of variance (ANOVA). The distribution of the difference in the composite index scores of the attitudes, beliefs, and confidence levels of primary care nurses seems following the normal distribution as shown in the Figures 16 and 17.

**Difference in the Composite Index Scores of Attitudes and Beliefs of Primary Care Nurses about Alcohol Abuse and its Treatment Before and After Intervention**

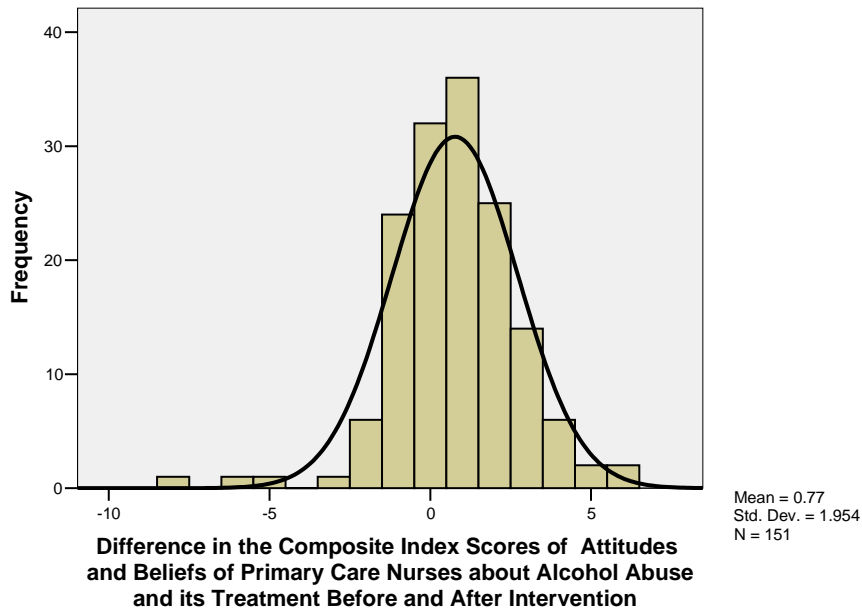


Figure 16. Histogram of the Difference in the Composite Index Scores of Attitudes and Beliefs Before and After Intervention

**Difference in the Composite Index Scores of the Confidence Levels of the Primary Care Nurses in Dealing with Alcohol Abuse Patients Before and After Intervention**

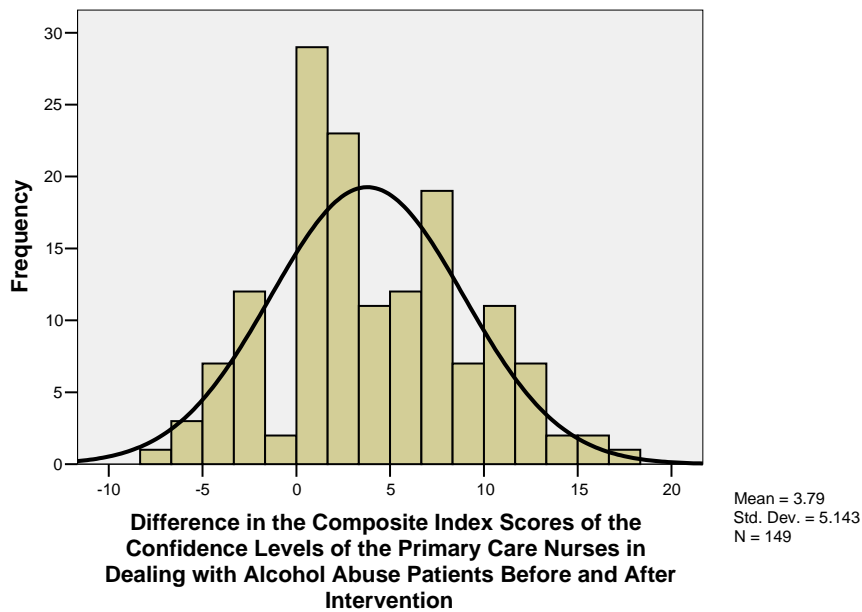


Figure 17. Histogram of the Difference in the Composite Index Scores of the Confidence Levels Before and After Intervention

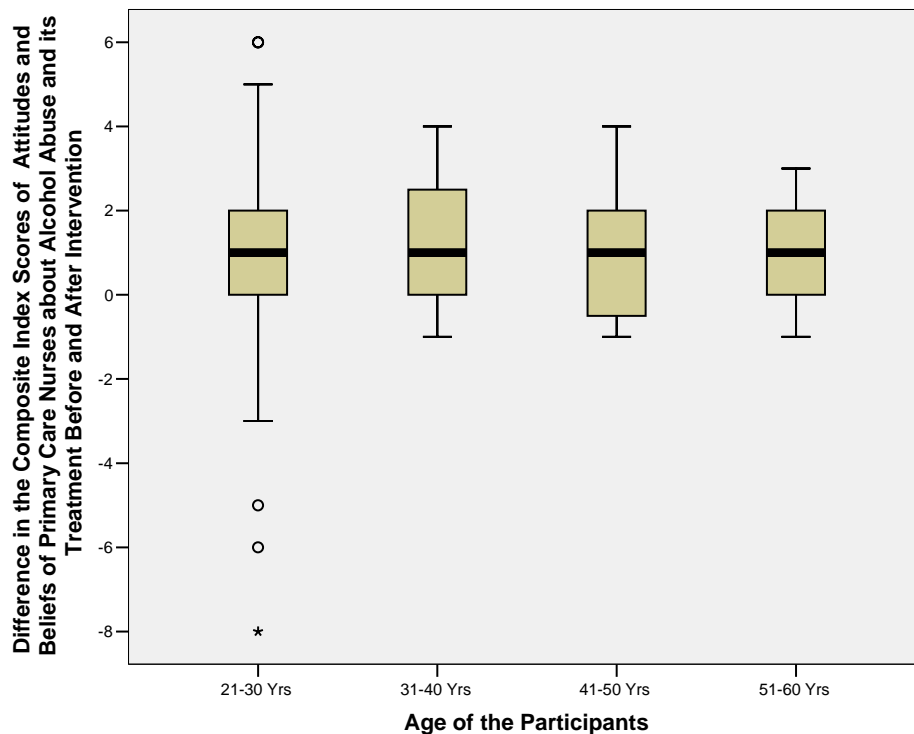
## Secondary Research Question 1

Question:

Does the age of the participants modify the effect of the educational intervention on the attitudes, beliefs, and confidence level of the participants in relation to alcohol abuse and its treatment?

Findings:

Stratified descriptive analysis by age group showed no change in the different groups with regards to change in the attitudes and beliefs of primary care nurses regarding alcohol abuse and its treatment as shown in the Figure 18. Higher average value in age groups of 21-30 yrs and 51-60 yrs in regards to change in the confidence levels of the primary care nurses as shown in the Figure 19.



*Figure 18.* Box-Plot – Effect of Age on the Change in the Attitudes and Beliefs Regarding Alcohol Abuse and Its Treatment

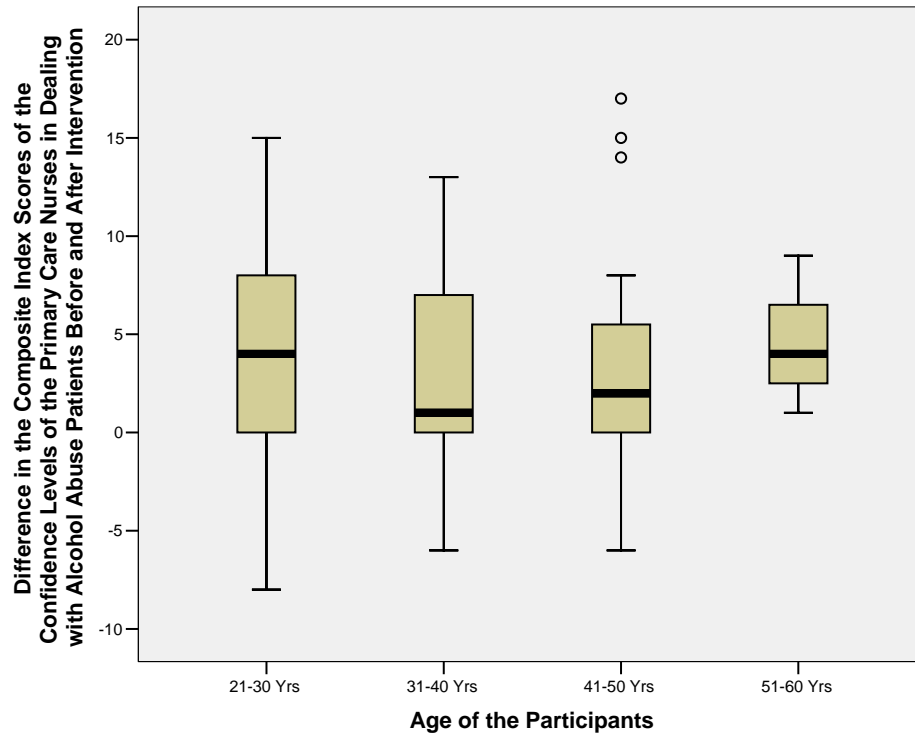


Figure 19. Box-Plot – Effect of Age on the Change in the Confidence Levels in Dealing With the Alcohol Abuse Patients

However, one-way analysis of variance for the modifying effect of the age of the participants on the effect of the educational intervention has p-values of 0.397 and 0.538 for the attitudes and beliefs of the primary care nurses about alcohol abuse and its treatment and their confidence levels in dealing with the patients with alcohol abuse respectively as shown in the Tables 9 and 10 indicated no statistically significant effect of the age of the participants on the attitudes, beliefs, and confidence levels about alcohol abuse and its treatment before and after intervention.



Table 9

*Descriptive and ANOVA Analyses– Effect of Age on the Change in the Attitudes and Beliefs About Alcohol Abuse and Its Treatment With Intervention*

<b>Age</b>	<b>Mean of the Diff. in Attitudes and Beliefs Index</b>	<b>SD</b>	<b>F value</b>	<b>p value</b>
21-30 yrs	0.58	2.115		
31-40 yrs	1.16	1.405		
41-50 yrs	1.11	1.792	0.996	0.397
51-60 yrs	1.00	2.000		
Total	0.77	1.954		

“Mean of the Diff. in Attitudes and Beliefs Index” is the mean of the difference of the composite index scores of the attitudes and beliefs of the primary care nurses regarding alcohol abuse and its treatment before and after intervention

\*\*\*\* mean and standard deviation could not be calculated

SD – standard deviation from the mean

Table 10

*Descriptive and ANOVA Analyses– Effect of Age on the Change in the Confidence Levels in Dealing With Alcohol Abuse Patients With Intervention*

<b>Age</b>	<b>Mean of the Diff. in Confidence Index</b>	<b>SD</b>	<b>F value</b>	<b>p value</b>
21-30 yrs	4.18	5.051		
31-40 yrs	2.52	5.149		
41-50 yrs	3.47	6.213	0.726	0.538
51-60 yrs	4.67	4.041		
Total	3.79	5.143		

“Mean of the Diff. in Confidence Index” is the mean of the difference of the composite index scores of the confidence levels of the primary care nurses in dealing with alcohol abuse patients before and after intervention

\*\*\*\* mean and standard deviation could not be calculated

SD – standard deviation from the mean

## Secondary Research Question 2

### Question:

Does the educational degree of the participants modify the effect of the educational intervention on the attitudes, beliefs, and confidence level of the participants in relation to alcohol abuse and its treatment?

### Findings:

Analysis of the difference in the effect with respect to the education degree of the primary care nurses is shown descriptively in box plots as shown in the Figures 20 and 21. The average values may show a tendency with more change of attitudes and beliefs of participants towards alcohol abuse and treatment in the groups with bachelor degree, master degree, and other degree compared with the group with an associate-level degree. A higher average value is noted in the group with master degrees with regards to the change in the confidence levels of the participants before and after intervention.

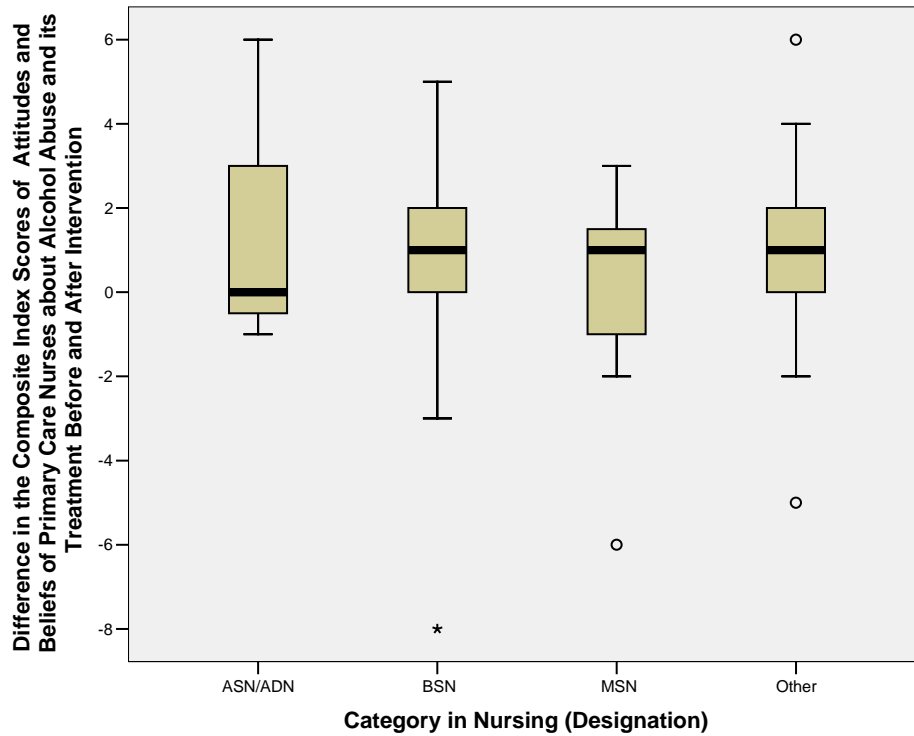


Figure 20. Box-Plot – Effect of Educational Degree on the Change in the Attitudes and Beliefs of the Primary Care Nurses Regarding Alcohol Abuse and Its Treatment

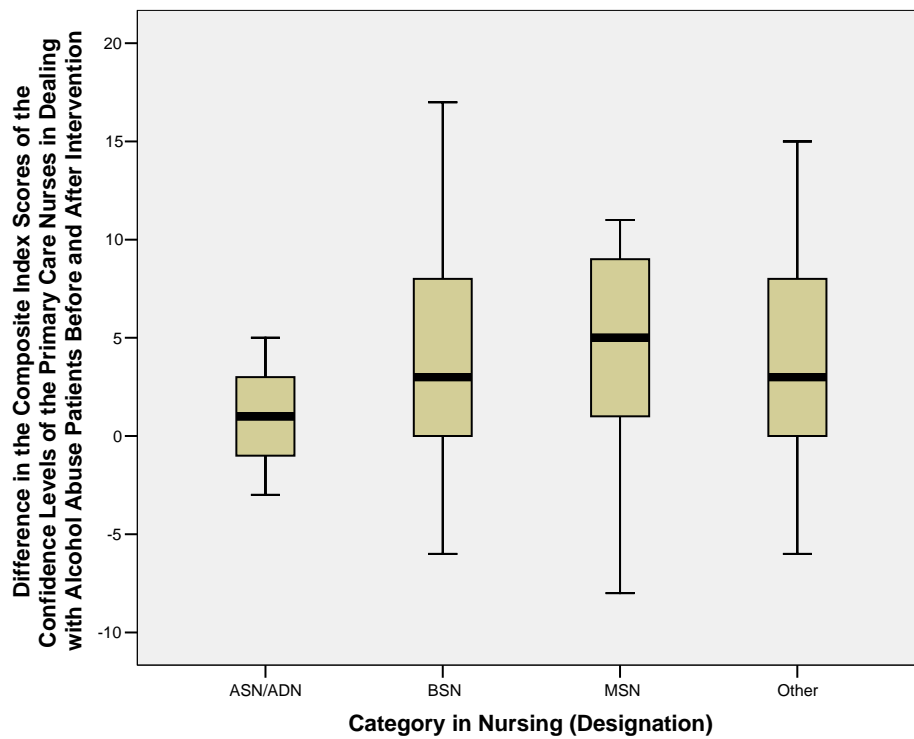


Figure 21. Box-Plot – Effect of Educational Degree on the Change in the Confidence Levels of the Primary Care Nurses in Dealing With Alcohol Abuse Patients

However, one-way analysis of variance as shown in the Tables 11 and 12 did not show any statistically significant effect of the educational degree of the participants on the attitudes, beliefs, and confidence levels of the participants in relation to alcohol abuse and its treatment with p-values of 0.680 and 0.665 respectively.

Table 11

*Descriptive and ANOVA Analyses– Effect of Educational Degree on the Change in the Attitudes and Beliefs About Alcohol Abuse and Its Treatment With Intervention*

<b>Ed. Deg.</b>	<b>Mean of the Diff. in Attitudes and Beliefs Index</b>	<b>SD</b>	<b>F value</b>	<b>p value</b>
LPN	****	****		
ASN/ADN	1.67	3.786		
BSN	0.84	2.041		
MSN	0.33	1.903	0.505	0.680
Doctorate	****	****		
Other	0.76	1.768		
Total	0.77	1.954		

“Ed. Deg.” is educational degree of the participant

“Mean of the Diff. in Attitudes and Beliefs Index” is the mean of the difference of the composite index scores of the attitudes and beliefs of the primary care nurses regarding alcohol abuse and its treatment before and after intervention

\*\*\*\* mean and standard deviation could not be calculated

SD is standard deviation from the mean

Table 12

*Descriptive and ANOVA Analyses– Effect of Educational Degree on the Change in the Confidence Levels in Dealing With Alcohol Abuse Patients With Intervention*

<b>Ed. Deg.</b>	<b>Mean of the Diff. in Confidence Index</b>	<b>SD</b>	<b>F value</b>	<b>p value</b>
LPN	****	****		
ASN/ADN	1.00	4.000		
BSN	3.76	5.623		
MSN	4.71	4.759	0.526	0.665
Doctorate	****	****		
Other	3.62	4.911		
Total	3.79	5.143		

“Ed. Deg.” is educational degree of the participant

“Mean of the Diff. in Confidence Index” is the mean of the difference of the composite index scores of the confidence levels of the primary care nurses in dealing with alcohol abuse patients before and after intervention

\*\*\*\* mean and standard deviation could not be calculated

SD is standard deviation from the mean

### Secondary Research Question 3

#### Question:

Does the past experience of the participants with alcohol abuse patients modify the effect of the educational intervention on the attitudes, beliefs, and confidence level of the participants in relation to alcohol abuse and its treatment?

#### Findings:

Analysis of the effect of past experience of the participants with alcohol abuse patients on the change noticed in the attitudes, beliefs, and confidence levels of the participants about alcohol abuse and its treatment before and after educational intervention is shown in the Figures 22 and 23. There appears no significant effect of past experience on the change in the attitudes and beliefs of the participants, but there appears to have significant effect on the change in the confidence levels of the participants with more change noticed in the group of participants with no or less experience compared with the group with large experience.

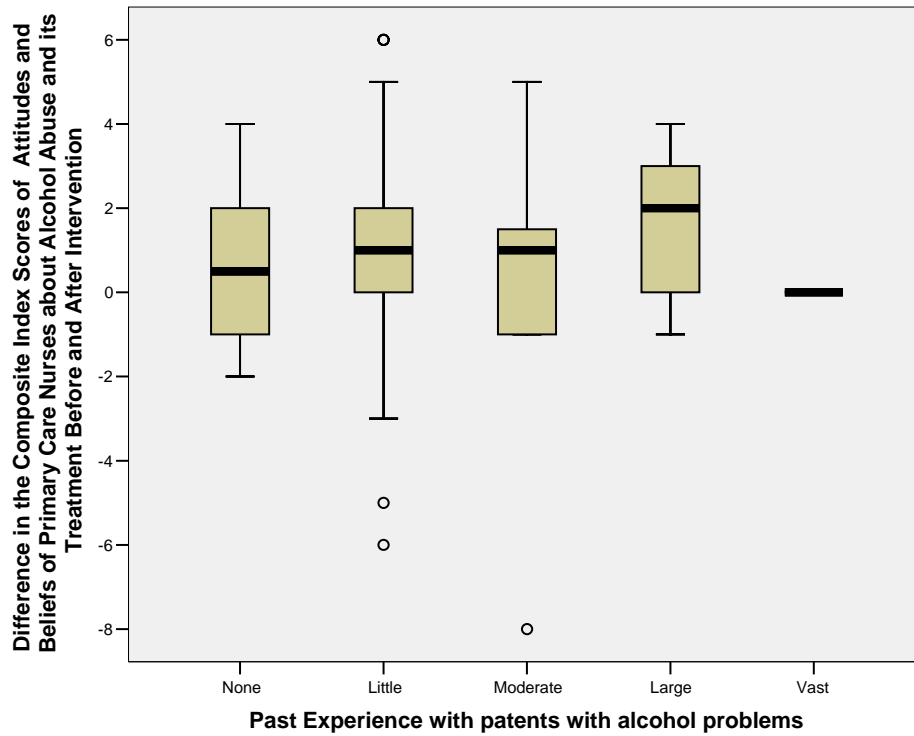


Figure 22. Box-Plot – Effect of Past Experience With Alcohol Abuse Patients on the Change in the Attitudes and Beliefs Regarding Alcohol Abuse and Its Treatment

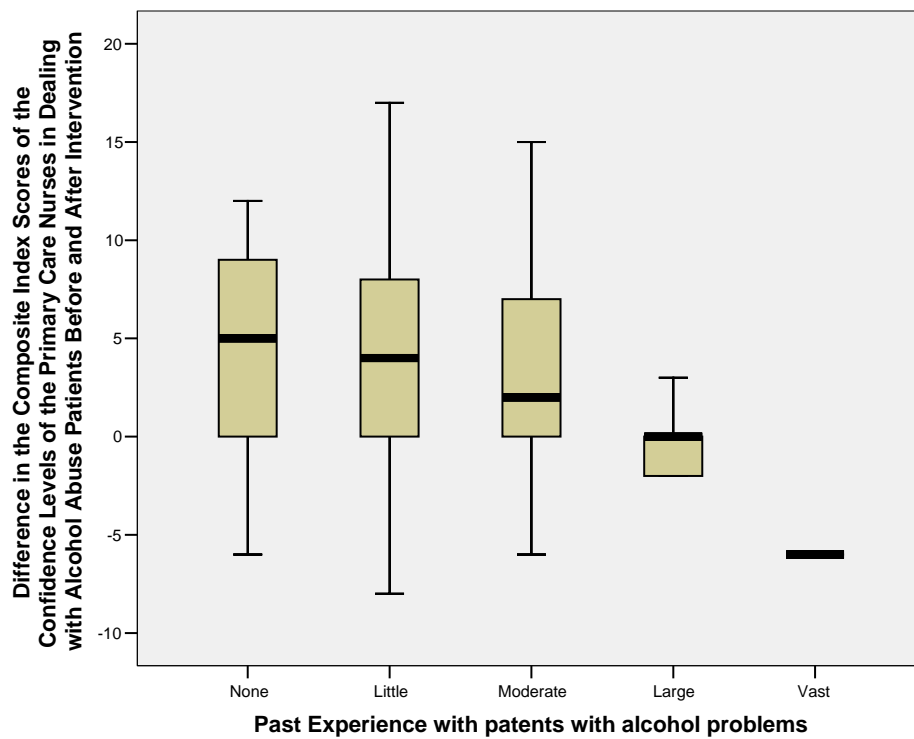


Figure 23. Box-Plot – Effect of Past Experience With Alcohol Abuse Patients on the Change in the Confidence Levels in Dealing With Alcohol Abuse Patients

The p-values from the one-way ANOVA to see the modifying effect of past experience with alcohol abuse patients on the effect of educational intervention on the attitudes, beliefs, and confidence levels of the participants are 0.676 and 0.032 respectively as shown in the Tables 13 and 14. This indicates that the effect of the education on the confidence levels of the primary care nurses is significantly affected by the past experience in dealing with alcohol abuse patients but does not have any effect with regards to the attitudes and beliefs of the primary care nurses about alcohol abuse and its treatment. Specifically, those who had moderate, little, or none former experience got great improvement in their confidence levels after the intervention, while providers who had extensive experience did not gain in confidence.

Table 13

*Descriptive and ANOVA Analyses– Effect of Past Experience With Alcohol Abuse Patients on the Change in the Attitudes and Beliefs About Alcohol Abuse and Its Treatment With Intervention*

<b>Past Exp.</b>	<b>Mean of the Diff. in Attitudes and Beliefs Index</b>	<b>SD</b>	<b>F value</b>	<b>p value</b>
None	0.48	1.780	0.582	0.676
Little	0.91	1.989		
Moderate	0.50	2.024		
Large	1.60	2.074		
Vast	****	****		
<b>Total</b>	<b>0.77</b>	<b>1.954</b>		

“Past Exp.” is the past experience of the participants with alcohol abuse patients

“Mean of the Diff. in Attitudes and Beliefs Index” is the mean of the difference of the composite index scores of the attitudes and beliefs of the primary care nurses regarding alcohol abuse and its treatment before and after intervention

\*\*\*\* mean and standard deviation could not be calculated

SD is standard deviation from the mean

Table 14

*Descriptive and ANOVA Analyses– Effect of Past Experience With Alcohol Abuse Patients on the Change in the Confidence Levels in Dealing With Alcohol Abuse Patients With Intervention*

<b>Past Exp.</b>	<b>Mean of the Diff. in Confidence Index</b>	<b>SD</b>	<b>F value</b>	<b>p value</b>
None	4.43	5.711	2.713	0.032
Little	4.51	4.999		
Moderate	2.84	4.978		
Large	-0.80	1.095		
Vast	****	****		
<b>Total</b>	<b>3.79</b>	<b>5.143</b>		

“Past Exp.” is the past experience of the participants with alcohol abuse patients

“Mean of the Diff. in Confidence Index” is the mean of the difference of the composite index scores of the confidence levels of the primary care nurses in dealing with alcohol abuse patients before and after intervention

\*\*\*\* mean and standard deviation could not be calculated

SD is standard deviation from the mean



#### Secondary Research Question 4

Question:

Does participant's acquaintance of someone other than patients with alcohol problem modify the effect of the educational intervention on the attitudes, beliefs, and confidence level of the participants in relation to alcohol abuse and its treatment?

Findings:

Descriptive analysis of the effect of knowing someone other than patients with alcohol problem on the change noticed in the attitudes, beliefs, and confidence levels of the participants with regards to alcohol abuse and its treatment is illustrated in the form of box plots in the Figures 24 and 25. There seems no significant effect of knowing someone other than patients with alcohol problem on the change noticed in the attitudes, beliefs, and confidence levels of the participants before and after intervention.

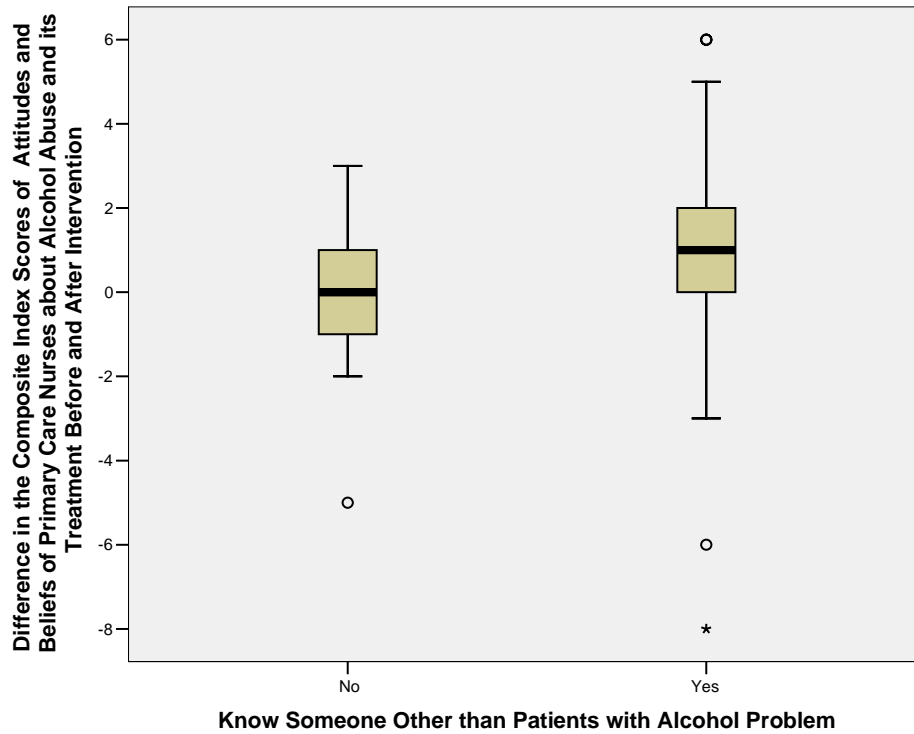


Figure 24. Box-Plot – Effect of Knowing Someone Other Than Patients With Alcohol Problem on the Change in the Attitudes and Beliefs Regarding Alcohol Abuse and Its Treatment

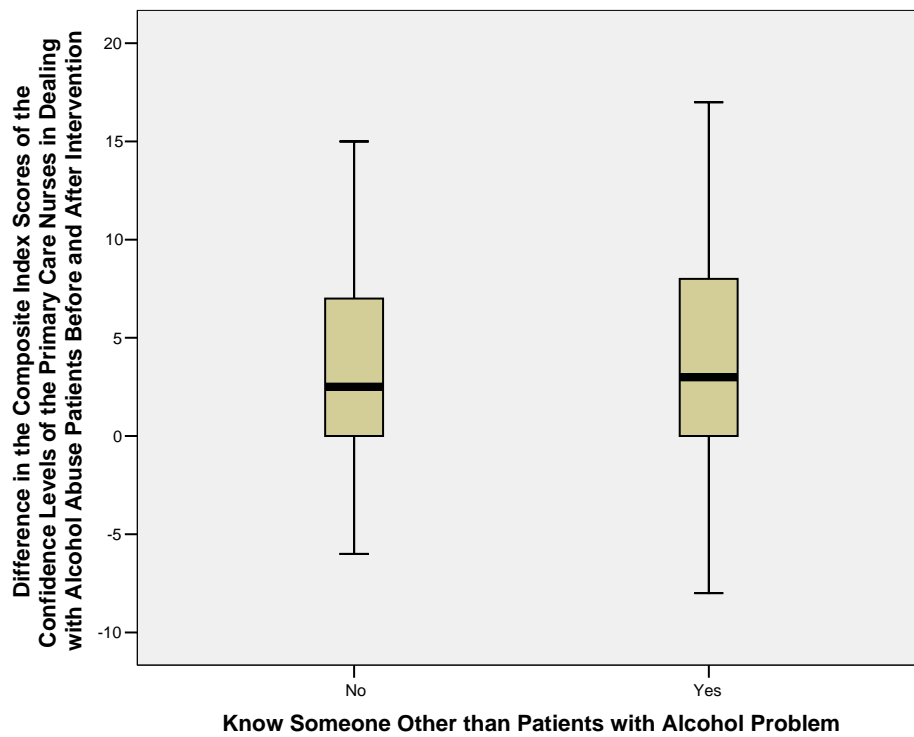


Figure 25. Box-Plot – Effect of Knowing Someone Other Than Patients With Alcohol Problem on the Change in the Confidence Levels in Dealing With Alcohol Abuse Patients

One-way analysis of variance showed the same with no statistically significant modifying effect of knowing someone other than patients with alcohol problem on the effect of the educational intervention on the attitudes, beliefs, and confidence levels of the primary care nurses with regards to alcohol abuse and its treatment with p-values of 0.097 and 0.369 respectively as shown in the Tables 15 and 16.

Table 15

*Descriptive and ANOVA Analyses– Effect of Knowing Someone Other Than Patients With Alcohol Problem on the Change in the Attitudes and Beliefs About Alcohol Abuse and Its Treatment With Intervention*

<b>Know Someone</b>	<b>Mean of the Diff. in Attitudes and Beliefs Index</b>	<b>SD</b>	<b>F value</b>	<b>p value</b>
No	0.23	1.704		
Yes	0.87	1.992	2.795	0.097
Total	0.77	1.954		

“Know Someone” is the participants knowing someone other than patients with alcohol abuse problem

“Mean of the Diff. in Attitudes and Beliefs Index” is the mean of the difference of the composite index scores of the attitudes and beliefs of the primary care nurses regarding alcohol abuse and its treatment before and after intervention

SD is standard deviation from the mean

Table 16

*Descriptive and ANOVA Analyses – Effect of Knowing Someone Other Than Patients With Alcohol Problem on the Change in the Confidence Levels in Dealing With Alcohol Abuse Patients With Intervention*

<b>Know Someone</b>	<b>Mean of the Diff. in Confidence Index</b>	<b>SD</b>	<b>F value</b>	<b>p value</b>
No	2.96	4.887		
Yes	3.97	5.219	0.813	0.369
Total	3.79	5.143		

“Know Someone” is the participants knowing someone other than patients with alcohol abuse problem

“Mean of the Diff. in Attitudes and Beliefs Index” is the mean of the difference of the composite index scores of the attitudes and beliefs of the primary care nurses regarding alcohol abuse and its treatment before and after intervention

SD is standard deviation from the mean

### Analysis of All Questions Used in the Study

In addition to the analysis of the composite index scores of the questions used in this study described above, analysis for each item/question was performed. The analysis of each question is done using Wilcoxon test in SPSS®.

The analysis of all questions used in this study as shown in the Table 17 showed significant effect of educational intervention on each question with statistically significant p-value of less than 0.005 except for one question used in the assessment of the confidence levels of the participants in dealing with the alcohol abuse patients – “I am confident in my ability to ask patients about quantity and frequency of their alcohol use”. In this question the p-value is 0.116 indicating no significant difference in the responses of the participants to this question before and after the educational intervention.

Table 17  
*Analysis of All Questions Used in This Study With Wilcoxon Test*

	Questions Used	Total N (%)	Never n (%)	Rarely n (%)	Sometimes n (%)	Usually n (%)	Always n (%)
A1	Pretest	182(90.5)	51(28)	58(31.9)	56(30.8)	16(8.8)	1(0.5)
	Posttest	170(84.6)	44(25.9)	72(42.4)	50(29.4)	4(2.4)	***
<b>p value – 0.019</b>							
A2	Pretest	182(90.5)	1(0.5)	7(3.8)	67(36.8)	66(36.3)	41(22.5)
	Posttest	169(84.1)	3(1.8)	4(2.4)	31(18.3)	76(45.0)	55(32.5)
<b>p value – 0.000</b>							
A3	Pretest	182(90.5)	31(17)	61(33.5)	86(47.3)	4(2.2)	***
	Posttest	170(84.6)	46(27.1)	76(44.7)	40(23.5)	7(4.1)	1(0.6)
<b>p value – 0.000</b>							
C1	Pretest	182(90.5)	2(1.1)	20(11)	41(22.5)	75(41.2)	44(24.2)
	Posttest	170(84.6)	***	7(4.1)	32(18.8)	84(49.4)	47(27.4)
<b>p value – 0.000</b>							
C2	Pretest	182(90.5)	1(0.5)	15(8.2)	30(16.5)	80(44.0)	56(30.8)
	Posttest	170(84.6)	1(0.6)	7(4.1)	28(16.5)	85(50.0)	49(28.8)
<b>p value – 0.116</b>							
C3	Pretest	182(90.5)	25(13.7)	36(19.8)	43(23.6)	50(27.5)	28(15.4)
	Posttest	170(84.6)	4(2.4)	3(1.8)	31(18.2)	87(51.2)	45(26.5)
<b>p value – 0.000</b>							
C4	Pretest	180(9.6)	5(2.8)	38(21.1)	65(36.1)	57(31.7)	15(8.3)
	Posttest	170(84.6)	3(1.8)	5(2.9)	31(18.2)	91(53.5)	40(23.5)
<b>p value – 0.000</b>							
C5	Pretest	182(90.5)	8(4.4)	45(24.7)	58(31.9)	54(29.7)	17(9.3)
	Posttest	170(84.6)	2(1.2)	9(5.3)	35(20.6)	87(51.2)	37(21.8)
<b>p value – 0.000</b>							
C6	Pretest	182(90.5)	14(7.7)	31(17)	43(23.6)	59(32.4)	35(19.2)
	Posttest	169(84.1)	***	10(5.9)	34(20.1)	82(48.5)	43(25.4)
<b>p value – 0.000</b>							
C7	Pretest	182(90.5)	8(4.4)	25(13.7)	43(23.6)	56(30.8)	50(27.5)
	Posttest	170(84.6)	1(0.6)	3(1.8)	32(18.8)	71(41.8)	63(37.1)
<b>p value – 0.000</b>							
B1	Pretest	182(90.5)	7(3.8)	27(14.8)	79(43.4)	54(29.7)	15(8.2)
	Posttest	170(84.6)	3(1.8)	11(6.5)	44(25.9)	77(45.3)	35(20.6)
<b>p value – 0.000</b>							
B2	Pretest	181(90.0)	36(19.9)	79(43.6)	51(28.2)	13(7.2)	2(1.1)
	Posttest	169(84.1)	45(26.6)	83(49.1)	32(18.9)	6(3.6)	3(1.8)
<b>p value – 0.001</b>							

\*\*\* - Could not be calculated

N (%) – Total number of participants who answered the questions with % of the total sample

A1 – Question “It takes too much time to deal with patient’s drinking behavior.”

A2 – Question “Advising a patient about their drinking behavior may lead to early, successful intervention.”

A3 – Question “Treatment does not work.”

C1 – Question “I am confident in my ability to ask patients about their alcohol use.”

C2 – Question “I am confident in my ability to ask patients about quantity and frequency of their alcohol use.”

C3 – Question “I am confident in my ability to screen patients for alcohol problems using CAGE questions.”

C4 – Question “I am confident in my ability to assess patients’ readiness to change their behavior.”

C5 – Question “I am confident in my ability to discuss/advise patients to change their drinking behavior.”

C6 – Question “I am confident in my ability to refer patients with alcohol problems.”

C7 – Question “I am confident in my ability to document my assessment, intervention and referral.”

B1 – Question “I feel that I can positively impact Healthy People 2010 goals regarding alcohol abuse.”

B2 – Question “I do not feel that my efforts will positively impact Healthy People 2010 goals regarding alcohol abuse.”

### Summary of the Findings

The analysis of the data in this study has indicated that there has been a statistically significant positive effect of the educational intervention on the attitude and beliefs of the primary care nurses about alcohol abuse and its treatment, their confidence levels in dealing with patients with alcohol abuse, and their beliefs about the impact of their efforts in reaching the goals of Healthy People 2010 regarding alcohol abuse. This has been consistent for the analyses of the index score and the items. It is also shown that the past experience of the primary care nurses with alcohol abuse patients has a modifying effect on the way the educational intervention affects the confidence levels of the primary care nurses in dealing with patients with alcohol abuse. Specifically, on average those who had moderate, little, or no former experience got great improvement in their confidence levels after the intervention, while providers who had extensive experience did not gain in their confidence. Age and degree of education of the primary care nurses along with their acquaintance with someone who has alcohol problem have been shown not to have a statistically significant modifying effect on the way the educational intervention

will affect the attitudes, beliefs, and confidence levels of the primary care nurses regarding alcohol abuse and its treatment.

## CHAPTER 5

### DISCUSSION

Alcohol abuse has been a major burden on society as well as the government for many years. In spite of the key role played by the primary care nurses along with the primary health care providers in monitoring and preserving the health of people as a whole, there has been a gap between the need and delivery of their services especially regarding alcohol abuse and its problems. It has been shown in the literature extensively that the attitudes, beliefs, and confidence levels of the primary care nurses modify their practice behavior towards the patients with alcohol abuse. There are many ways in which these attitudes, beliefs, and confidence levels can be targeted. Educational intervention has been mentioned in the literature to have a very significant effect. This study has evaluated the effect of educational intervention on the attitudes, beliefs, and confidence levels of the primary care nurses regarding alcohol abuse and its treatment.

This study has shown that educational intervention has a statistically significant positive effect on the attitudes and beliefs of primary care nurses regarding alcohol abuse and its treatment, the confidence levels of the primary care nurses in dealing with patients with alcohol abuse, and the beliefs of the primary care nurses regarding the impact of their efforts in reaching the goals of Healthy People 2010 concerning alcohol abuse.

The effect of other modifying variables like age, degree of education, past experience with alcohol abuse patients, and knowing someone other than patients with alcohol problem on the way educational intervention will affect the attitudes, beliefs, and confidence level of primary care nurses regarding alcohol abuse and its treatment was not statistically significant except for the effect of past experience with patients with alcohol abuse on the way educational intervention



affects the confidence level of the primary care nurses, which had a statistically significant effect. The lower number of participants in each group after stratifying the total sample by the modifying variables might have had an effect on the statistical analysis as descriptive analysis showed a tendency towards effect of the modifying variables.

With this study, Brief Negotiated Intervention has been shown beyond doubt to be a very effective tool in affecting the attitudes, beliefs, and confidence levels of the primary care nurses regarding alcohol abuse and its treatment. This study underscores the importance of an effective educational program to be incorporated into the course curriculum during the education of primary care nurses from the very beginning which can make a very lasting effect on their practice behavior with regards to the alcohol abuse.

This study has added more substantial evidence to the positive effect education can have on the attitudes, beliefs, and confidence levels of people in general. Looking at global perspective, this study has given more confidence in using education as an intervention in projects dealing with or intended to change the attitudes, beliefs, and confidence levels of the participants especially in dealing with substance abuse patients. In this way, the goals of the Healthy People 2010 regarding substance abuse could be reached without failure and may also, if possible, be reached before 2010.

#### Limitations of the Study

As with every study, this study also has some limitations that are to be taken into consideration during the interpretation of the results. The following are the limitations:

First, the sample used in this study is comparatively small, including mainly the nursing students and nursing faculty from one geographic area that may not represent primary care nurses as whole in the general population. The sample would have been more representative if it

had included primary care nurses from multiple centers. So, the extrapolation of the results of the study to the primary care nurses in general is to be reviewed with some skepticism. But the results could be used in reference to groups of primary care nurses who share similar characteristics as those included in this study.

Second, it is usually questionable when a composite index score is used as a measure of the attitudes, beliefs, and confidence levels of the participants about alcohol abuse and its treatment as it may not represent correctly the outcome variables of the study. But a reliability analysis of the questions used in different scales to assess the outcome variables showed a comparable reliability between the questions used and the outcome variables measured. Taking into consideration other influential factors like number of questions that might affect the reliability of the scale of questions used; we believe that the calculation of composite index scores for the outcome variables is an acceptable/useful option in measuring the outcomes. In addition, the analysis of each of all outcome questions provided consistent results.

Third, this study did not evaluate the way this educational intervention has changed the practice behavior of the primary care nurses in dealing with alcohol abuse patients in the long term which could be considered as a limitation to the study and at the same time could also be considered as a recommendation to the future researchers to evaluate further to look for a more complete effect of the educational intervention.

In spite of the above limitations in this study, the results suggest that educational intervention can change the attitudes, beliefs, and confidence levels of primary care nurses regarding alcohol abuse and its treatment in a positive way. Through this effect, nurses' practice behaviors regarding the screening, advice, treatment, and referral of the patients with alcohol abuse may be changed in a long run.

In summary, this study has shown that educational intervention can positively change the attitudes, beliefs, and confidence intervals of primary care nurses with regards to alcohol abuse and its treatment. This study also supports the previous studies done on the brief negotiated intervention by indicating it as one of the effective tools that can be used in changing the attitudes and beliefs of primary care nurses regarding alcohol abuse and its patients and as well as regarding other substance abuse problems with some relevant changes.

#### Recommendations for Future Research

Education, as an intervention, is shown to be an effective tool to change the attitudes, beliefs, and confidence levels of primary care nurses. However, it is important to have a more diverse sample from various regions in order to generalize the results of this investigation. As the attitudes, beliefs, and confidence levels change with the circumstances, it is important to institute a follow up analysis of the attitudes, beliefs, and confidence levels sometime after the intervention to determine the long term impact of the intervention. Because all primary care professionals (including physicians) have direct contact with patients and in turn, have the opportunity to influence them, future studies involving primary care physicians would be of great importance to determine the degree to which education can change the attitudes, beliefs, and confidence levels of primary care providers as a whole.

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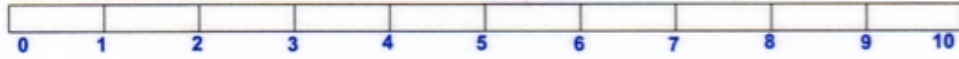
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APPENDICES

Appendix A

Steps in Brief Negotiated Intervention

# Readiness to Change



**Standard Drink=12g of pure alcohol**

Or ONE

1.5 oz of liquor

5 oz glass of wine

12 oz of beer



## At-Risk Drinking

	Per Week	Per Occasion
Men	> 14 drinks	> 4 drinks
Women	> 7 drinks	> 3 drinks
Seniors	> 7 drinks	> 1 drink

## Alcohol Use



*Project Mainstream Materials HRSA/AMERSA/SAMHSA/CSAT*

## ASK CURRENT DRINKERS

On average, how many days per week do you drink alcohol?

On a typical day when you drink, how many drinks do you have?

What's the maximum number of drinks you had on a given occasion in the last month?

### *C A G E screening*

**C:** Have you felt you ought to *CUT* down on your drinking or drug use?

**A:** Have people *ANNOYED* you by criticizing your drinking or drug use?

**G:** Have you ever felt *GUILTY* about your drinking or drug use?

**E:** Have you ever had a drink or used drugs first thing in the morning (*EYE OPENER*) to steady your nerves, rid hangover, or get your day started?

## CHILD / ADOLESCENT SCREENING

Have you ever been concerned about someone in your family who is drinking alcohol or using drugs?

### *CRAFFT adolescent*

**C:** Have you ever ridden in a *CAR* driven by someone (including yourself) who was high or had been using alcohol or drugs?

**R:** Do you ever use alcohol or drugs to *RELAX*, feel better about yourself or fit in?

**A:** Do you ever use alcohol or drugs while you are by yourself (*ALONE*)?

**F:** Do you *FORGET* things you did while using alcohol or drugs?

**F:** Dose your *FAMILY* or *FRIENDS* ever tell you that you should *CUT* down on your drinking or drug use?

**T:** Have you ever gotten into *TROUBLE* while you were using alcohol or drugs?



## BNI STEPS      DIALOG/PROCEDURES

**1. Raise subject**      Hello, I am \_\_\_\_\_. Would you mind taking a few minutes to talk with me about your alcohol use?

**2. Provide Feedback**

**Review screen**      From what I understand you are drinking [insert screening data]Ö We know that drinking above certain levels can cause problems, such as [insert facts]Ö I am concerned about your drinking.

**Make connection**      What connection (if any) do you see between your drinking and this PCP visit?  
    If pt sees connection: reiterate what pt has said  
    If pt does not see connection: make one using facts

**Show NIAAA guidelines & norms**      These are what we consider the upper limits of safe drinking for your age and sex. By safe we mean that you would be less likely to experience illness or injury if you stayed within these guidelines.

**3. Enhance motivation**

**Readiness to change**      [Show readiness ruler] On a scale from 1-10, how ready are you to change any aspect of your drinking?

**Develop discrepancy**      If pt says:      > 2, ask Why did you choose that number and not a lower one?  
    < 2 or unwilling, ask What would make this a problem for you?...  
    How important would it be for you to prevent that from happening?

**4. Negotiate & advise**

**Elicit response**      How does this sound to you?

**Negotiate goal**      Negotiate goal What would you like to do?

**Give advice**      If you can stay within these limits you will be less likely to experience [further] illness or injury related to alcohol use.

**Summarize**      This is what I've heard you sayÖ Here is a drinking agreement I would like you to fill out, reinforcing your new drinking goals. This is really an agreement between you and yourself.

**Provide handouts**      Provide: \* Drinking agreement [pt keeps 1 copy]  
    \* PCP Health Info Sheet

**Suggest PC f/u**      Suggest primary care f/u for drinking

**Thank patient**      Thank patient for his/her time

## Resources

### Al-Anon

*Helps families cope with the problems that result from another's drinking or drug use.*  
 Phone: 800-356-9996 Website: Virginia Beach, VA

### Alateen

*For young people whose lives have been affected by the alcoholism of a family member or friend.*  
 Phone: 800-356-9996 Helpline: 800-344-2666 Website: www.alateen.org VA

### Alcoholics Anonymous (AA)

*A voluntary fellowship open to anyone who wants to achieve and maintain sobriety.*  
 Phone: 212-686-1100 Website: www.alcoholics-anonymous.org NY

### Center for Substance Abuse Prevention (CSAP)

### Substance Abuse and Mental Health Services Administration (SAMHSA)

*Provides national leadership in the federal effort to prevent alcohol, tobacco, and illicit drug problems.*  
 Phone: 310-443-0365 Website: www.samhsa.gov/csap

### Marijuana Anonymous

*12 step recovery program for users.*  
 Phone: 800-766-6779 Website: www.marijuana-anonymous.org

### Narcotics Anonymous (NA)

*An international, community-based association of recovering drug addicts.*  
 Phone: 818-700-0700 Website: www.na.org Van Nuys, CA

### National Association of State and Drug Abuse Directors (NASADAD)

*Each state has an agency responsible for alcohol/drug related programs and resources.*  
 Phone: 800-662-4357 Website: www.nasadad.org Washington D.C.

### National Association of Student Assistance Professionals (NASAP)

*Professionals concerned with student substance abuse, violence, and academic underachievement.*  
 Phone: 800-527-6310 Website: www.nasap.org

### National Clearinghouse for Alcohol and Drug Information (NCADI)

*Supplier of materials on alcohol- and drug-related issues.*  
 Phone: 800-792-6686 Website: www.health.org Rockville, MD

### National Council on Alcoholism and Drug Dependence (NCADD)

*Nonprofit national voluntary health agency for problems of alcoholics and drug addicts.*  
 Phone: 212-206-6770 Website: www.ncadd.org New York, NY

### National Institute on Alcohol Abuse and Alcoholism (NIAAA)

*Researches cause, consequences, treatment, and prevention of alcoholism and related problems.*  
 Phone: 301-443-3860 Website: www.niaaa.nih.gov

### National Institute on Drug Abuse

*Supports and conducts research to improve drug abuse and addiction prevention.*  
 Phone: 301-433-6480 Website: www.nida.nih.gov

### Local Resources:

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Appendix B

Instrument Used for Data Collection



Draft

Health Care Provider Survey

Identification #

1. Date: 

m	m	d	d	y	y	y	y

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

2. Age: 

--	--

3. Gender:  
 Male  Female

4. Which race/ethnicity category best describes you?  
 White  Black  Hispanic  Asian  Other

5. How many years have you been in the medical or nursing practice?  
 0-1 yr.  2-5 yrs.  6-10 yrs.  11-15 yrs.  16-20 yrs.  21+ yrs.

**This section to be completed by medical students and physicians only.**

6. What year did you graduate from medical school? 

y	y	y	y

7. Current medical specialty:  
 Internal Medicine  
 Family Medicine  
 Occupational Medicine  
 Preventive Medicine  
 Psychiatry

8. Which category best describes you at this time?  
 1st Year Resident  
 2nd Year Resident  
 3rd Year Resident  
 4th Year Resident  
 Attending Physician  
 Other Please state \_\_\_\_\_

**This section to be completed by nursing students and nurse practitioners only.**

9. What year were you first licensed as an RN? 

y	y	y	y

10. Which category best describes you at this time?  
 LPN  ASN/ADN  BSN  MSN  Doctorate in Nsg.  Other \_\_\_\_\_

11. Current nursing specialty:  

<input type="radio"/> ACNP	<input type="radio"/> NMW
<input type="radio"/> ANP	<input type="radio"/> NNP
<input type="radio"/> A/GNP	<input type="radio"/> PMHNP
<input type="radio"/> FNP	<input type="radio"/> PNP
<input type="radio"/> HSM	<input type="radio"/> WHNP
<input type="radio"/> N.Inf.	<input type="radio"/> N.A.



Identification #

Grid for identification number

- 12. In the past year, about how many lecture/seminar hours have you attended on alcohol problems?
13. During your medical, nursing, healthcare education and/or post graduate training, about how many lectures/seminars were devoted to alcohol problems?
14. Have you ever had a problem with alcohol (i.e. related illness/injury/DWI)?
15. Does someone you know or have known (other than one of your patients) have/had an alcohol problem?
16. How close is/was this person to you?
17. What percent of patients that you care for in a typical day or shift have alcohol abuse or dependence problems?
18. Please rate your experience working with patients with alcohol problems:

Fill in the appropriate response regarding your clinical practice:

Table with 5 columns: Never, Rarely, Sometimes, Usually, Always. Rows 19-23 describe clinical practices like asking about alcohol problems, screening with CAGE questions, and discussing drinking behavior.



Identification #

Grid for identification number

Your clinical practice (continued):

- 24. How often do you refer patients with alcohol problems? Never, Rarely, Sometimes, Usually, Always

Rate the following statements according to your confidence/ability level.

- 25. I am confident in my ability to ask patients about their alcohol use.
26. I am confident in my ability to ask patients about quantity and frequency of their alcohol use.
27. I am confident in my ability to screen patients for alcohol problems using CAGE questions.
28. I am confident in my ability to assess patients' readiness to change their behavior.
29. I am confident in my ability to discuss/advise patients to change their drinking behavior.
30. I am confident in my ability to refer patients with alcohol problems.
31. I am confident in my ability to document my assessment, intervention and referral.

Rate according to what you think your responsibility as a health care provider is to the following:

- 32. To ask patients about their alcohol use.
33. To ask patients about quantity and frequency of their alcohol use.
34. To screen patients for alcohol problems using CAGE questions.
35. To assess patients' readiness to change their drinking behavior.
36. To discuss/advise patients to change their drinking behavior.





Identification #

Grid for identification number

Your current beliefs (continued):

Table with 5 columns: Never, Rarely, Sometimes, Usually, Always. Rows 52-58 regarding alcohol screening and intervention beliefs.

How ready are you to change your practice behavior. . .

Table with 5 columns: Never, Rarely, Sometimes, Usually, Always. Rows 59-65 regarding readiness to change practice behavior.



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Identification #

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The following questions are knowledge-based. Please answer to the best of your ability.

66. One 12-ounce can of beer is equal to?  1 and 3
1. 5-ounce glass of wine.  1 and 4
2. 8-ounce glass of wine.  2 and 3
3. 1-ounce of distilled spirits  2 and 4
4. 1.5-ounce of distilled spirits
67. The medical history for alcohol-related problems may include all of the following except?
- Abdominal Pains  Sleep impairment  Bradycardia  Hypertension
68. A male patient may be at risk for alcohol-related problems if he drinks. . .
1. >7 drinks per week  1 and 4
2. >14 drinks per week  2 and 5
3. >21 drinks per week  3 and 6
4. >3 drinks per occasion  3 and 6
5. >4 drinks per occasion  2 and 6
6. >6 drinks per occasion
69. A female patient may be at risk for alcohol-related problems if she drinks. . .
1. >7 drinks per week  1 and 4
2. >14 drinks per week  2 and 5
3. >21 drinks per week  3 and 6
4. >3 drinks per occasion  3 and 6
5. >4 drinks per occasion  1 and 5
6. >6 drinks per occasion
70. Indicators for possible alcohol dependence include all of the following except?
- Preoccupation with drinking
- Drinking a six-pack and driving
- Unable to stop drinking once started
- Needing more alcohol than before to get high
71. What do the four letters in the CAGE acronym stand for?
- Cut down, aggravated, guilt, eye opener
- Cut down, aggravated, guarded, every day
- Cut down, annoyed, guilt, eye opener
- Cut down, annoyed, guarded, every day
72. Approximately what percentage of patients admitted to the hospital have alcohol-related problems?
- 10%  20%  30%  50%





Identification #

Grid for identification number

73. The brief intervention model includes all of the following except?

- Establish rapport
Raise the subject
Assess readiness to change
Prescribe solutions

74. Which of the following is true about Healthy People 2010?

- It is prevention agenda for the United States.
It suggests that most of the alcohol-related goals are set by Healthy People 2000 have not been met.
It states that alcohol abuse continues to be a major public health problem.
It contains 25 objectives related to substance abuse.
All of the above.

75. In terms of the care provider's role in alcohol problems, research has shown all of the following except:

- Primary and secondary prevention is effective.
Health care professionals are not routinely engaged in screening; intervention and referral for alcohol problems.
Primary care providers can perform effective screening, intervention and referral in a limited amount of clinical time.
Most patients agree that physicians do nothing about substance abuse and that they do not know how to detect addictions.
Most problem drinkers cannot be identified within a brief clinical encounter.

This section includes a series of statements. Fill in the circle which best describes your opinion about each statement.

Table with 5 columns: Strongly Agree, Agree, Undecided, Disagree, Strongly Disagree. Rows 76-78 with statements about alcohol dependence, help for dependent persons, and heroin addiction.



Draft

Identification #

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Your opinion (continued):

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
79. Specialists in that field should only treat alcohol and drug abusers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
80. Smoking leads to marijuana use, which in turn leads to hard drugs.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
81. Physicians who diagnose alcoholism early improve the chance of treatment success.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
82. Daily use of one marijuana cigarette is not necessarily harmful.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
83. Urine drug screening can be an important part of drug abuse treatment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
84. A physician who has been addicted to narcotics should not be allowed to practice medicine again.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
85. Marijuana use among teenagers can be a healthy experiment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
86. An alcohol or drug dependent person who has relapsed several times probably cannot be treated.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
87. Long-term outpatient treatment is necessary for the treatment of drug addiction.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
88. Paraprofessional counselors can provide effective treatment for drug and alcohol abusers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
89. Lifelong abstinence is a necessary goal in the treatment of alcohol dependence.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
90. Once a person becomes drug-free through treatment, he/she can never become a social user.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
91. Drug addiction is a treatable illness.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
92. Group therapy is very important in the treatment of alcohol or drug addiction.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Draft

Identification #

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Your opinion (continued):

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
93. A hospital is the best place place to treat an alcohol or drug addict.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
94. Alcoholism is a treatable illness.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
95. Most alcohol and drug dependent persons are unpleasant to work with as patients.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
96. Pregnant women who use alcohol and/or other drugs should be punished.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
97. Coercive pressure such as a threat of punishment is useful in getting resistant patients to accept treatment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
98. A recovering person who is active in Alcoholics Anonymous does not repond well to psychotherapy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
99. A nurse who has been drug dependent should not be allowed to give medications to patients.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
100. Active participation in a program such as AA is essential for a patient to recover from alcohol or drug dependence.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Appendix C

### Letter of Permission to Use Data



**East Tennessee State University  
College of Public and Allied Health**

Department of Public Health • Box 70674 • Johnson City, Tennessee 37614-1709 • (423) 439-4332 • Fax: (423) 439-6491

May 5, 2005

Raja S. Vadlamudi  
MPH Candidate  
East Tennessee State University  
Johnson City, TN 37604

Dear Raj,

Please consider this letter as permission to use the data collected in the Project Mainstream Educational Project (IFLG 7), for the purpose of your thesis research: *Primary Health Care Provider Attitudes and Beliefs Regarding Screening and Referral for Alcohol Abuse and Related Problems: The Impact of an Educational Intervention*

Permission is given with the following conditions:

- You must acknowledge Project Mainstream within all documents related to this project, with the following information: Project Mainstream: Multi-agency Initiative on Substance Abuse Training & Education for America Cooperative Agreement: U78 HP 00001-02. Sponsored by HRSA, AMERSA, SAMHSA/CSAT.
- IFLG Members (Beth Hogan, Susie Adams, Zia Wahid) will co-author any publications that derive from this thesis project.
- You will adhere to the standards set forth in your IRB proposal for maintaining confidentiality for the data.

Thank you for your interest in this data set as a foundation for your research project.

With Regard,

A handwritten signature in black ink, appearing to read "Beth Hogan".

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