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Effect of Cultural Background and Training on Stigmatized Attitudes among Healthcare Professionals: A Randomized Study of Medical Students' Attitude and Behaviors toward Alcohol Dependent Individuals in the Middle East

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Effect of Cultural Background and Training on Stigmatized Attitudes among Healthcare Professionals: A Randomized Study of Medical Students' Attitude and Behaviors toward Alcohol Dependent Individuals in the Middle East

Salman Alzayani, PhD

University of Connecticut, 2015

Background

The consumption of alcohol or drugs, as well as substance dependence do exist in the Middle East despite the religious, social and cultural constraints in the region. Stigma seems to exist in every area of life for individuals with mental illness and represents a major barrier to effective rehabilitation and reintegration of these patients. In the Middle Eastern cultures, negative attitudes toward patients with mental illnesses are common

Aim

The purpose of this study is to better understand the reasons behind stigmatizing attitudes toward persons with alcohol dependence and to evaluate the role of stigma in medical diagnosis and care. Moreover, this study was designed to evaluate the effectiveness of education and targeted training for primary health care physicians on alcohol screening and brief intervention on the reduction of stigmatizing attitudes and behaviors among medical students.

Methods

The study consisted of two phases; Phase 1 examined whether medical students demonstrate stigmatized attitudes according to the cultural background of alcohol dependent patients. Phase 2 examined whether training (intervention) on alcohol screening programs would affect and change these attitudes. Standard alcohol and tobacco screening tests (AUDIT and FTND, respectively) were used in Phase 2 as part of the training program. Both phases used randomized design with vignettes. The study was conducted in the Arabian Gulf University in the Kingdom of Bahrain and included medical students from Bahrain, Saudi Arabia, Kuwait and other countries in the Middle East.

Findings

The results showed that there were significant differences ($p < 0.001$) between medical students attitudes towards alcohol-dependent and nicotine-dependent individuals, which indicates that medical students stigmatize alcohol-dependent individuals by having a larger social distance between them compared to a smaller social distance with nicotine-dependent individuals. Medical students believe that alcohol dependence is a disease compared to nicotine-dependence ($p = 0.049$) and that nicotine-dependent individuals are more capable of controlling their smoking behavior compared to drinking behavior among alcohol-dependent individuals ($p = 0.027$). Moreover, medical students

believe that alcohol-dependent individuals come from the lower socio-economic strata of society compared to nicotine-dependent individuals ($p < 0.001$).

There were significant differences ($p = 0.013$) between participants' pre and post training attitudes toward alcohol-dependent and nicotine-dependent individuals on the stigma/social distance scale. Their pre and post training attitudes were significantly different ($p = 0.043$) when they looked at the prognosis for recovery of alcohol-dependent compared to their pre and post attitudes toward nicotine-dependent individuals. Even though there were no significant differences between participants' pre/post primary and secondary diagnoses of alcohol dependent individuals and those who are nicotine dependent according to the training they received, there were significant differences between their pre and post treatment recommendations for alcohol-dependent individuals and pre and post recommendations for nicotine-dependent individuals. Those significant differences were observed in starting detoxification therapy ($p = 0.004$) and in referring the patients to a social worker ($p = 0.048$).

Medical students have stigmatized attitude towards alcohol-dependent individuals regardless of their cultural background. Training programs were able to improve the knowledge and behaviors of medical students towards addiction and substance use, but were not able to change their stigmatizing attitudes.

Implications and Recommendations

This is one of the first studies of alcohol stigma in the Arabian Gulf region. The study has several strengths including the use of vignettes to study stigma, its randomized design and the inclusion of advanced medical students. Training programs on prevention, screening and brief intervention of substance use, specifically nicotine and alcohol dependence should be introduced and conducted with physicians, medical students and healthcare providers in the Middle East earlier in their careers. Moreover, training programs need to be integrated in medical school curricula, and in particular for the programs at the AGU.

Effect of Cultural Background and Training on Stigmatized Attitudes among Healthcare
Professionals: A Randomized Study of Medical Students' Attitude and Behaviors toward
Alcohol Dependent Individuals in the Middle East

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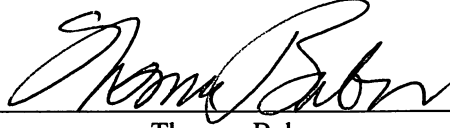
Doctor of Philosophy Dissertation

Effect of Cultural Background and Training on Stigmatized Attitudes among Healthcare Professionals: A
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in the Middle East

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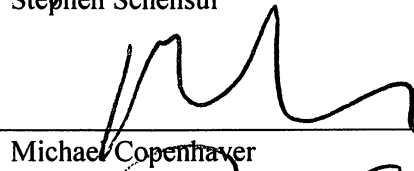
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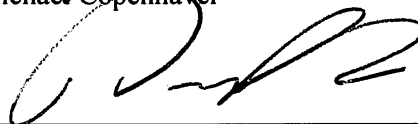
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Dedication

To those who suffer in silence

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Chapter 1: Introduction

1.1 Background

In many parts of the world, drinking alcoholic beverages is a common feature of social gatherings. Nevertheless, the consumption of alcohol carries a risk of adverse health and social consequences related to its intoxicating, toxic and dependence-producing properties^(1,2). Harmful alcohol use is a form of psychoactive substance use that can negatively affect health. The effect might be physical such as hepatitis, or mental such as episodes of depression following heavy alcohol intake⁽³⁾. The harmful use of alcohol is a worldwide issue, which affects both individual and social development. Alcohol is considered the third largest risk factor for premature mortality, loss of health and disability in the world. It is the leading risk factor in North America and the second largest in Europe. The harmful use of alcohol results in 2.5 million deaths every year. Alcohol attributable mortality rates for men were found to be 5.2 times higher than those for women⁽⁴⁾. Among older adults and elderly, 11% of adults aged 50–64 years and 6.7% of those older than 65 years reported abuse or dependence symptoms⁽⁵⁾.

Mental, neurological and substance use disorders are universal. These disorders affect about one in every 10 people worldwide at any given time. About 25% of families have a family member with a mental disorder. Use of and dependence on alcohol and drugs do exist in the Arabian gulf countries, even though there are significant cultural, social, religious, and legal constraints on Muslim nationals living in the this region regarding the consumption of alcohol or drugs⁽⁶⁾.

1.2 Alcohol Consumption in the Arabian Gulf countries

Middle Eastern countries have both a religious prohibition on alcohol consumption and social discouragement of drinking, since it can bring shame to the entire family ⁽⁷⁾. Due to different historical, cultural and religious values between countries, there are variations in the experiences, understanding and meaning of mental illnesses between them ⁽⁸⁾. The Shariah law is largely based on the teachings of the Quran (The holy book of Islam). According to this law the possession, sale, or consumption of alcohol by Muslims is illegal. In Saudi Arabia and Kuwait, the possession, sale, or consumption of alcohol by a person (regardless of their faith) is strictly forbidden. In the United Arab Emirates (UAE), the possession, sale, or consumption of alcohol by Muslims is illegal (imprisonment and fines can apply), however these acts are officially permissible for non-Muslims. In the UAE alcohol is readily available within the majority of restaurants, bars, and nightclubs attached to hotels and can be bought in designated shops with a license issued by the authorities. Similar regulations apply in Bahrain and Qatar. In all these countries, intoxicated behavior in public or driving after having consumed any alcohol is punishable by imprisonment and/or fines. Likewise, in Oman alcohol is served in hotels and restaurants (the government applies time restrictions on serving) and non-Omanis can buy alcohol from designated shops with a permit. The use of narcotics is strictly prohibited in all these countries and penalties for use are severe. To avert a prison sentence, dependent individuals can present themselves for treatment. Although the etiology of alcohol and drug use in addition to factors related to seeking treatment

for addiction is complex in all societies, internal and external pressures to conform in these Gulf Arab societies may uniquely add to its complexity ⁽⁶⁾ .

Although the type and quantity of alcohol consumed in this region has not been widely documented, reference was made to the consumption of conventional alcoholic beverages, namely whisky, beer, and arak (grape spirit with aniseed), and of less regular types of alcohol such as medicinal alcohol and eau de cologne ⁽⁹⁾ . A study with in-patients at a voluntary detoxification unit in Saudi Arabia reported that, of the alcohol-dependent patients, 50.76% abused arak alone (traditional alcoholic beverage in the Middle East), 26.15% abused eau de cologne, and 23.07% abused both ⁽¹⁰⁾ .

In terms of quantity and frequency of alcohol consumption, no data are available depicting the pattern of drinking in the general community. A study conducted in Kuwait reported that the mean daily drinking in a sample of 100 alcohol dependent patients was 300 grams of ethanol a day ⁽¹¹⁾ . In another study conducted in Oman ⁽¹²⁾ , 66% of the 56 patients interviewed consumed alcoholic beverages on more than four occasions a week. For these participants, typical drinking sessions consisted of more than six drinks, with almost 50% consuming this amount on a daily basis.

1.3 Role of religion and culture

Religion has been the basis of major changes in the lives of individuals and communities. Religiosity or level of religious involvement is thought of increasingly by many as being the key to wellbeing. In that respect many cultures, in different ways,

have called upon religious teachings and practices to ward off not only major calamities but also various misfortunes, including becoming ill ⁽¹³⁾ .

Alcohol and substance abuse are forbidden in Islam, while addictive behaviors are socially stigmatized. Therefore, this may affect the accuracy of the population screening methods, and the reported incidence rates of substance abuse. However, there is enough evidence in the literature to alert Arab/Muslim communities to the magnitude of the drug problem ⁽¹⁴⁾ . A study conducted in Lebanon explored the differences between Muslim and Christian students. It found that Christian students were more likely to try alcohol, to start drinking at an earlier age and to become an alcohol abuser or dependent compared to their Muslim peers, whose faith prohibits the use of alcohol. Nonetheless, the odds of lifetime alcohol use disorders were comparable in ever drinkers of both religious groups. Thus, a proscriptive religion such as Islam may minimize alcohol availability or access to it, but once this barrier is crossed or alcohol has been tried, belonging to that faith group does not necessarily shield against alcohol use disorders. In the same study, religiosity was linked significantly to lower alcohol use and alcohol use disorders for Christian and Muslim students ⁽¹³⁾ . Another study was conducted on Muslim students in the United States and showed that “relatively high prevalence of drinking for a proscriptive faith indicated that there are other reference groups besides the religious community influencing Muslim college student's alcohol use behaviors, including parents and other students” ⁽¹⁵⁾ . The influences appeared similar to those experienced by all students. Compared to other faiths, the Muslim students had a lower rate of alcohol consumption. This low rate of drinking and episodic

heavy drinking does not mean that alcohol use among Muslim students can be ignored⁽¹⁵⁾ .

The above studies confirm that religious denomination and religiosity can operate as independent protective factors⁽¹⁶⁾ . While it is acknowledged that being a Muslim does not absolutely guarantee a relentless adherence to all the guidelines in Islam, an awareness of the condemnation of alcohol and drug use by Islam, the law, and the culture within these societies elucidates the type of backdrop against which drinking or drug use occurs⁽⁶⁾ . Family is still considered to have the most significant influence on substance use as well as on non-use, positively and negatively, regardless of other reasons, such as price and restricted availability⁽¹⁷⁾ . Indeed, parental control can be the most powerful protective factor against the onset as well as the continuation of adolescent problem behavior, including substance use⁽¹⁶⁾ .

1.4 Aim and purpose of the study

The aim of this study is to better understand the reasons behind stigmatizing attitudes toward persons with alcohol dependence and to evaluate the role of stigma in medical diagnosis and care. Moreover, the study evaluated the effectiveness of education and targeted training for primary health care physicians on the reduction of stigmatizing attitudes and behaviors among medical students. The involvement of medical students in anti-stigma research has been established in the Middle East, as researchers in Egypt have relied upon the involvement of medical students in anti-stigma research and intervention⁽¹⁸⁾ . Since stigma is a cross-cultural phenomenon⁽⁸⁾ , attitudes towards

alcohol-dependent individuals in a specific culture may be developed through different channels in a society or a country, leading to stereotypes that are communicated to the general public through media and other communications channels to the extent that individuals like those in healthcare would share the same concepts and attitudes towards alcohol-dependence ⁽¹⁹⁾. It is important to study medical students' attitudes and practices toward patients with different health conditions and cultural backgrounds.

1.5 Stigma Theories from Public Health Perspective:

Stigma has been defined differently across the literature according to the perspectives of different researchers. Each researcher looks at stigma in a somewhat distinctive way. Research on stigma includes contributions from sociologists, psychologists, anthropologists and political scientists ⁽²⁰⁾. We apply the term stigma when all the elements of labeling, stereotyping, separation, status loss, and discrimination co-occur in a power situation that allows the components of stigma to unfold ^(20,21). In Goffman's writings, stigma is understood as the "relationship between an attribute and a stereotype" ⁽²¹⁾. To conceptualize it, five components must occur consequently for stigma to happen ⁽²⁰⁾: In the first component, individuals distinguish and label human differences. Then, dominant cultural beliefs link labeled individuals to unfavorable characteristics and to negative stereotypes. In the third component, labeled individuals are placed in separate categories. In the fourth, labeled individuals experience status loss and discrimination that will lead to unequal outcomes. Power is the fifth and most important component of stigma. According to Goffman, it takes "Power" to convert all these components into stigma.

Stigma can be visualized through a three-dimensional axis that includes perspective, identity and reactions. Perspectives concern the way stigma is perceived. Stigma is different, whether it is perceived by the individual who does the stigmatization or by the individual who is being stigmatized. Identities “relate to group belongingness, and they range from being entirely personal to group-based identifications” ⁽²²⁾ . Reactions are the ways “the stigmatizer and the stigmatized react to the stigma and its consequences: reactions could be measured at the cognitive (knowledge), affective (feelings, tones and attitudes), and behavioral levels” ⁽²²⁾ .

The following stigma theories look at the mechanisms that will link stigma components (e.g. labeling, stereotype and discrimination) to health problems and how they generate stigma or stigmatized attitudes.

1.5.1 Modified labeling theory in mental illness:

Modified labeling theory holds that mental illness stigma is problematic because it damages mental patients' sense of self-esteem and self-efficacy ⁽²³⁾ . Labeling provides personal relevance to an individual's beliefs in regards to how others respond to mental patients. Therefore, individuals would have conceptions of what others think of mental patients even before they become patients. These conceptions include the belief that others devalue and discriminate against mental patients. When people enter psychiatric treatment and are labeled, these beliefs become personally applicable and lead to self-devaluation and/or fear of rejection by others. Such reactions may have negative effects on both psychological and social functioning ⁽²³⁾ . In contrast, other views claim that there are actually positive effects of stigma as patients will start receiving health care

and treatment ⁽²⁴⁾ .

1.5.2 People living with HIV

The stigma framework of HIV emphasizes the importance of differentiating between mechanisms to enhance our understanding of how HIV stigma is associated with HIV-related behavior such as HIV testing. Stereotypes are group-based beliefs about PLWH that are often applied to individuals (e.g., PLWH are gay men, prostitutes, drug users). Prejudice represents negative emotions felt toward PLWH (e.g., disgust). Discrimination reflects behavioral expressions of prejudice directed toward PLWH (e.g., social rejection). “Stereotypes, prejudice, and discrimination represent cognitive, affective, and behavioral manifestations of HIV stigma” ⁽²⁵⁾ . “People living with HIV feel shameful about their HIV status and may struggle to develop or even to maintain positive cognitions about their HIV. Therefore, they might feel helplessness, lower acceptance and would perceive fewer benefits of living with HIV” ⁽²⁶⁾ .

1.5.3 Stigma and structural discrimination in alcohol-dependence and how this applies to medical care

People suffering from alcohol dependence (and from other addictions) are particularly stigmatized. Unlike the stigma involved in mental illness where positive and negative effects are related to the illness effect itself, the discrimination of alcohol dependent individual effects is more toward the stereotype of alcoholics. Structural discrimination theory states that “individuals with stigmatized condition, will be discriminated whether or not anyone happens to treat them in a discriminatory way. Stigma has affected the structure around those individuals, leading them to be exposed to untoward

circumstances”⁽²⁰⁾ .

1.6 The focus of the present study

This study will focus on the reactions dimension of stigma, by studying the reactions of the stigmatizer (health professional) to a hypothetical stigmatized patient with alcohol or nicotine dependence. Individuals suffering from alcohol dependence (and from other addictions) are expected to be particularly stigmatized because they are less likely to be regarded as mentally ill, but instead they are held responsible for their condition.

According to the WHO, the dependence syndrome is defined as “a cluster of physiological, behavioral, and cognitive phenomena in which the use of a substance or a class of substances takes on a much higher priority for a given individual than other behaviors that once had greater value. A central descriptive characteristic of the dependence syndrome is the desire to take the psychoactive drugs, alcohol, or tobacco. The concept of physical dependence is also used in the psychopharmacological context in a still narrower sense, referring solely to the development of withdrawal symptoms on cessation of drug use”⁽²⁷⁾ .

This study will investigate how the structure of the medical establishment may affect stigmatized persons through discriminatory care, as conditions that conflict with cultural and religious views would invite stigmatizing attitudes to the treatment given to patients with those stigmatized conditions.

1.7 Stigmatizing attitudes toward patients

Several studies have investigated stigma in relation to alcohol dependence. To study the theory of stigma involved in alcohol dependence, eighty four men with both

diagnoses of mental disorder and substance abuse were interviewed at entry into treatment, when they were addicted to drugs and had many psychiatric symptoms and then again after a year of treatment when they were less symptomatic and drug and alcohol free. The study found a relatively strong and enduring effect of stigma on wellbeing. This finding indicates that stigma continues to complicate the lives of the stigmatized individuals even as treatment improves their symptoms and functioning ⁽²⁸⁾ . Unlike the stigma involved in mental illness where positive and negative effects were related to the illness effect itself, the discrimination effects of alcohol dependent individual are more toward their stereotype (structural) as alcohol dependent persons, not toward the health problem itself. According to structural discrimination theory, the structure surrounding individuals with stigmatized attitude has been affected by stigma to the extent that they will be discriminated ⁽²⁰⁾ .

The literature has two orientations towards stigma. One is oriented toward illness, mental illness and disability of stigmatized individuals. The studies often consider the negative effects of stigma on the stigmatized individual or on the patient–professional interaction, from the perspective of how to neutralize stigma and these effects. The other is oriented toward crime and views stigmatization as a form of social control, as a less harsh alternative to punishment by the state ⁽²⁹⁾ . Moreover, stigma has been recognized as a barrier to delivery of health care and to the quality of life in illness management ⁽³⁰⁾ . Stigma is a primary issue that concerns mental health care providers throughout the world. According to WHO, people with mental illness and their families suffer from discrimination in social interactions, disturbed family relations, and

dissatisfaction in managing daily activities related to the burden of helping ill relatives to perform their daily activities ^(31,32) . Alcohol-dependence or alcoholism is a stigmatized condition, which is heavily associated with a notion of blame. Stigma is likely to worsen the medical and social consequences of alcohol dependence ⁽³³⁾ .

As noted above, the consumption of alcohol or drugs and dependence on those substances do exist in the Middle East despite the religious, social and cultural constraints ⁽⁶⁾ . Stigma seems to exist in every area of life for individuals with mental illness and represents a major barrier to effective rehabilitation and reintegration of these patients ⁽³⁴⁾ . In the Middle Eastern cultures, negative attitudes toward patients with mental illnesses are common. However, there is a lack of research on the attitudes of health professionals towards mental health patients ⁽³⁵⁾ . Schomerus et al ⁽³³⁾ found only a small number of studies concern the negative emotional reactions towards alcohol dependent persons and suggested that further studies are needed to complete our knowledge of public attitudes towards alcohol-dependence in this respect.

Goffman ⁽²¹⁾ referred to the stigma that affects everything and everyone surrounding the person with mental illness as “courtesy stigma” or “stigma-by- association.” Culture plays a vital role in shaping public and professional attitudes towards mental illness ^(32,35) . With regard to unpredictability and being dangerous, alcohol dependent persons ranked similarly or worse than people suffering from schizophrenia, and much worse than people suffering from depression ⁽³³⁾ .

Schomerus et al. ⁽³³⁾ stated that people suffering from alcohol dependence are particularly stigmatized. They are less frequently regarded as mentally ill and held much

more responsible for their condition, they provoke more social rejection and more negative emotions and they are at a particular risk of being structurally discriminated against. The stigma of alcohol-dependence is likely to aggravate these effects: it may hinder the seeking of professional and lay help, because people fear being labeled alcohol dependent and subsequently experiencing loss of status and discrimination. Alcohol-dependent individuals, together with individuals suffering from other addictions, are rejected more strongly than those suffering from substance-unrelated mental disorders or medical disorders, or members of other minority groups. This seems to be, however, a culture-dependent phenomenon. ⁽³⁶⁾

1.8 Impact of training on stigmatized attitude as anti-stigma intervention:

Effective interventions in changing stigmatized attitudes have been suggested as an interesting area for further research ⁽³⁴⁾ . Stigma shapes the way that individuals who are not drug users feel toward, think about, and treat people with a known or assumed history of substance dependence ⁽³⁶⁾ . Staff trained specifically to treat mental illnesses may contribute to the stigma that service users feel ⁽³⁷⁾ . Although healthcare staff might be expected to have a more open-minded view of people with mental health problems, the results indicate that negative, stigmatized views of people with mental illness are prevalence even among healthcare workers ⁽³⁴⁾ . Stigmatized attitudes towards people with mental illness among health professionals are widely prevalent. There appears to be a greater degree of stigma towards an enduring mental illness such as schizophrenia as compared with a short lived psychotic episode. Most staff base their attitudes on their personal experience of treating people with mental disorders ⁽³⁷⁾ . Dealing with these

patients on a daily basis for long periods may affect the attitude of mental health workers ⁽³⁵⁾ . Service users report that some general practitioners are even more often stigmatizing than psychiatrists in responding unsympathetically to people with mental illnesses ⁽³⁷⁾ . Education and training play an important role in anti-stigma interventions among healthcare professionals ⁽¹⁸⁾ Rao et al. ⁽³⁴⁾ concluded that among those with problems of drug and alcohol dependence, those who are in treatment and currently abstinent are seen more favorably than those who are actively dependent. In a study testing the effectiveness of education as intervention, medical students in Edmonton, Canada were exposed to an educational intervention that featured an anti-stigma video, and there was an increase of 10% in knowledge and attitudes as measured by pre- and post- tests results ⁽¹⁸⁾ .

1.9 Statement of the problem and its significance

Stigmatized attitudes towards people with mental illness are widespread ⁽³⁸⁾ and discrimination seems to exist in every area of life for patients suffering with drug dependence and represents a major barrier to effective rehabilitation and reintegration of these patients ⁽³⁹⁾ . These attitudes even exist among healthcare professionals towards individuals with mental health and drug-dependence problems ⁽³⁴⁾ .

Despite the limited amount of research on the patterns of alcohol use in the Gulf States, there is virtually no research on stigma, stigmatizing attitudes, and their effect on medical care. This randomized study assess whether medical students demonstrate stigmatized attitudes based on cultural background of alcohol dependent patients; and

also examines the impact and effectiveness of training on changing their attitudes. The study was conducted in the Kingdom of Bahrain and involved medical students attending the College of Medicine and Medical Sciences at the Arabian Gulf University (AGU).

1.10 Study Hypothesis

Medical students in the Middle East were expected to have a stigmatized attitude and be even more biased against Arab-Muslim patients with alcohol use disorders compared to similar patients from western cultures (e.g. Europeans) ⁽⁴⁰⁾ . In contrast, their stigmatized attitude was expected to be negligible towards Arab-Muslim patients with nicotine dependence as tobacco smoking is acceptable among Arab-Muslim ethnicity. It was also expected that the stigmatized attitude would be concerned with the health condition (alcohol vs. tobacco dependence) itself on top of the cultural background of the patients. This was hypothesized to be reflected in the social distance they expressed toward persons with different conditions and ethnicity, and treatment recommendations that they provide according to the cultural background and condition of the patient, as more stigmatizing attitudes would be expected towards alcohol-dependent individuals compared to nicotine-addicted individuals and according to cultural background of the patient (Arab-Muslim vs. European individuals). Moreover, this attitude is expected to change after proper training on alcohol screening, as education and training have been considered effective anti-stigma interventions ⁽¹⁸⁾ . Table 1.1 summarizes the hypotheses.

Table 1.1: Expected effect of cultural background on physicians' attitude towards alcohol and nicotine dependence patients

	Patients' cultural backgrounds	
	European (Control)	Arab-Muslim (Experimental)
Nicotine dependence	Less/no stigma	Less/no stigma
Alcohol dependence	Less/moderate stigma	Highly stigmatized attitude

Chapter 2: Methods

2.1 Formative research – Preliminary qualitative study:

To make intervention programs culturally appropriate, formative research is used to gather data useful for the development of such programs ⁽⁴¹⁾. The researcher spent two weeks in the Kingdom of Bahrain and conducted two preliminary qualitative studies on Arabian Gulf University (AGU) medical students to test the feasibility of doing research with medical students from the Arabian Gulf region.

Studies were conducted before the randomized controlled trial (RCT) to provide information about the feasibility and appropriateness of the outcome measures and to properly plan and design the RCT. The researcher also piloted the instruments and triggers that were designed for the RCT. Two types of studies were conducted, focus group and cognitive interviewing:

2.1.1 Focus group:

Focus group is a method used by researchers to collect qualitative data on a particular topic. In this study the researcher selected a representative group of individuals to generate discussion about the research topic (alcohol abuse), and to collect their views towards it ⁽⁴²⁾. A focus group discussion was conducted in Bahrain at the AGU with 15 medical students of similar inclusion criteria of the RCT. Students were in year 6 and were attending their family medicine rotation. They were a mixture of males and females from Bahrain, Saudi Arabia and Kuwait.

The discussion aimed to first test and pilot the stimulus cases that would generate the discussion. The researcher wanted to determine whether medical students have different attitudes towards patients according to their ethnicities, as there was doubt before conducting the study whether medical education was necessary to address stigma among students in relation to nicotine and alcohol dependent patients. Another aim of the focus group discussion was to determine whether medical students discriminate between patients according to their ethnicity. This was explored by asking them about the diagnoses of patients described in the vignettes, their management plans and expected prognoses of portrayed patients. The preliminary studies were conducted by the researcher and notes were taken throughout the discussion.

At the beginning of the discussion, students were asked about the definitions of dependence and addiction. They showed a very good ability to define and differentiate between both conditions and to diagnose them effectively in both cases of nicotine and alcohol. Their views toward patients who are Arab Muslim and European were explored in terms of the most appropriate treatment and their views on prognosis. Students were presented with two short vignettes of middle age men with history of problematic alcohol drinking habits affecting their jobs and families. The only difference between both cases was the patient's ethnicity as patient 1 was shown to be from European origin, while patient 2 was from Arab origin. Patients were presented to the students using the photos shown in Figure 2.1.

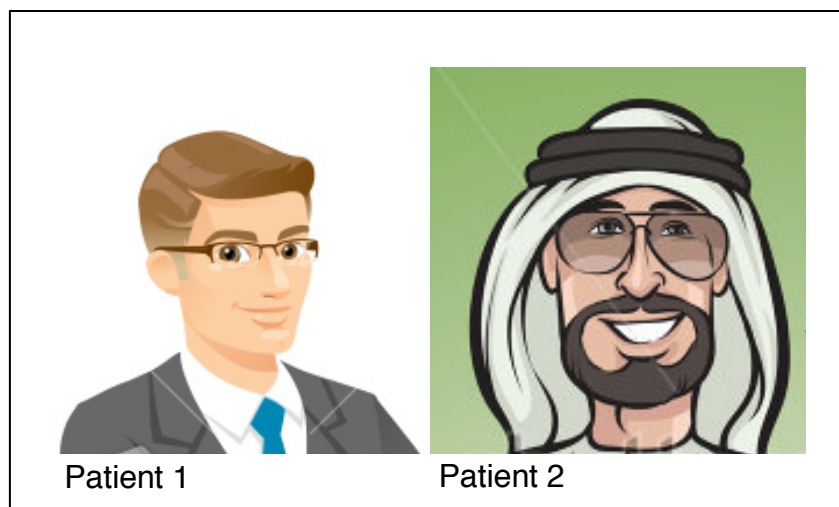


Figure 2.1: images of patients presented to students in the preliminary qualitative study

When presented with the European patient, students were very understanding and provided a good management plan, ranging from counseling to rehab referral. On the other hand, when presented with the Arab patient, their responses were totally different and very emotional. They did not deal with him in a similar professional way like the first case. Instead there was anger and most of students said they would refer him immediately to the psychiatrist. They did not mention any management plan. On further discussion, two female students (one from Bahrain and one from Kuwait) mentioned that they would counsel him before referring him to the psychiatrist. One student from Kuwait, said that she would tell him that alcohol is forbidden in Islam, even though she knows it is not the place to mention this. Interestingly, the religious backgrounds of both patients were not specified, however, students assumed patient 1 is non-Muslim while patient 2 is Muslim. Regarding prognosis, they said it is going to be good for the

European patient and poor for the Arab patient due to expected poor compliance from the Arab patient.

2.1.2 Cognitive interviewing

The design and evaluation of questionnaires and of other written and oral materials is a challenging effort ⁽⁴³⁾. Cognitive interviewing has emerged as one of the prominent methods for identifying and correcting problems with survey questions. This can be achieved by administering a draft of survey questions, and gathering verbal information about the survey responses to help determine whether the question is producing the information that the author is seeking ⁽⁴⁴⁾. When cognitive interviewing was applied before the RCT, medical students' feelings toward patients' alcohol consumption habits were assessed. Out of the above group, twelve students were interviewed after the focus group session, and were asked stigma questions and statements that were designed to be used later in the RCT, followed by questions to explore their feelings survey topics, and whether they felt defensive, negative, etc. The students completed the alcohol-dependence questionnaire (Appendix 2).

Most of the students felt neutral toward the questionnaire statements, some felt sorry toward the patients and some felt positive that they would help the patients. Students provided valuable information about some statements that needed to be clarified and suggested that a few difficult words should be replaced with easier ones. Students' responses to the questionnaire statements were analyzed by inspecting descriptive statistics and the mean factor scores ⁽⁴⁵⁾.

At the end of the sessions, there was a general agreement from the students that their attitude before starting this exercise had changed positively toward alcohol-dependent patients and they became more understanding of the need for patients with alcohol problems to be assisted and treated.

2.1.3 Lessons learned from the preliminary studies and how they helped with the RCT:

Medical students did seem to discriminate between patients according to their ethnicities and cultural backgrounds. This was obvious through the way they reacted to both patients and even their prognosis expectations, even though they had been presented with the same medical histories. Moreover, this reaction confirmed the appropriateness of the photos as a way to supplement the vignettes and their ability to generate the anticipated discussion. The nicotine and alcohol dependence questionnaire was piloted effectively and students gave good feedback towards the questions and statements included in the questionnaires. Students expressed clearly that their attitude towards the dependence problem and alcohol-dependent individuals were changed positively after the formative studies.

Another benefit of the pilot study was to explore the feasibility of conducting research on students at AGU. The experience gained during formative studies demonstrated that it was not only feasible to conduct this kind of research, but that the sample of students was diverse and representative of medical students in the entire region.

After completing the formative studies, the proposed RCT and hypotheses were developed. Training programs were added to the RCT to test for the effect of training on medical students' attitudes towards alcohol-dependent individuals.

2.1.4 Why AGU Medical Students?

The Arabian Gulf University (AGU) is a regional university that was established in 1980. It is based in the Kingdom of Bahrain and hosts students of both genders from Gulf Cooperation Council (GCC) countries (Bahrain, Saudi Arabia, Kuwait, Oman, United Arab Emirates and Qatar) where there is a different quota of students per year for each country. However, the student body now is mainly composed by students from Bahrain, Saudi Arabia and Kuwait. Moreover, the university accepts students from other Arab nationalities who reside in GCC countries. The AGU has two colleges: the College of Medicine and Medical Sciences (CMMS) and the College of Graduate Studies.

Due to the diverse nature of its students, AGU was considered an appropriate institution to investigate whether stigma plays a role in medical care and samples recruited from AGU were considered to be representative of medical students in the Gulf region as a whole. Moreover, a study of medical students was considered of potential utility to provide information relevant to future interventions and guidelines, and would assist in designing targeted training of the GCC medical students and physicians. The CMMS follows a problem-based, student-centered and community-oriented curriculum. The problem-based learning (PBL) integrates basic medical sciences with related professional skills training, and community health activities. The program is of six years duration divided into three phases as demonstrated in the curriculum map (Appendix 1):

Basic Sciences Phase (Phase I): Year 1, Pre-clerkship Phase (Phase II): Years 2-4, Clinical Clerkships Phase (Phase III): Years 5 and 6. At CMMS, English is the language of instruction ⁽⁴⁶⁾ .

2.2 Research Design

The main study consisted of two phases. Phase 1 examined whether medical students demonstrate stigmatized attitudes based on cultural background of alcohol dependent patients. Phase 2 examined whether training (intervention) on alcohol screening programs would affect and change this attitudes.

2.2.1 Study Phase 1:

A randomized controlled trial (RCT) was conducted to compare two groups of medical students in the Arabian Gulf region. A representative sample of Year 5 and 6 medical students was divided into the control and experimental groups shown in Figure 2.2. The minimum number of subjects needed for medium effect size was estimated as 64 subjects per group for the two experimental groups (Total = 128). After adding 4 degrees of freedom (df), the additional degrees of freedom would be one for gender (male versus female), one for medical year (Year 5 versus 6) and two for nationality (Bahrain, Kuwait and Saudi Arabia). The minimum number of subjects needed, therefore, was 132 subjects.

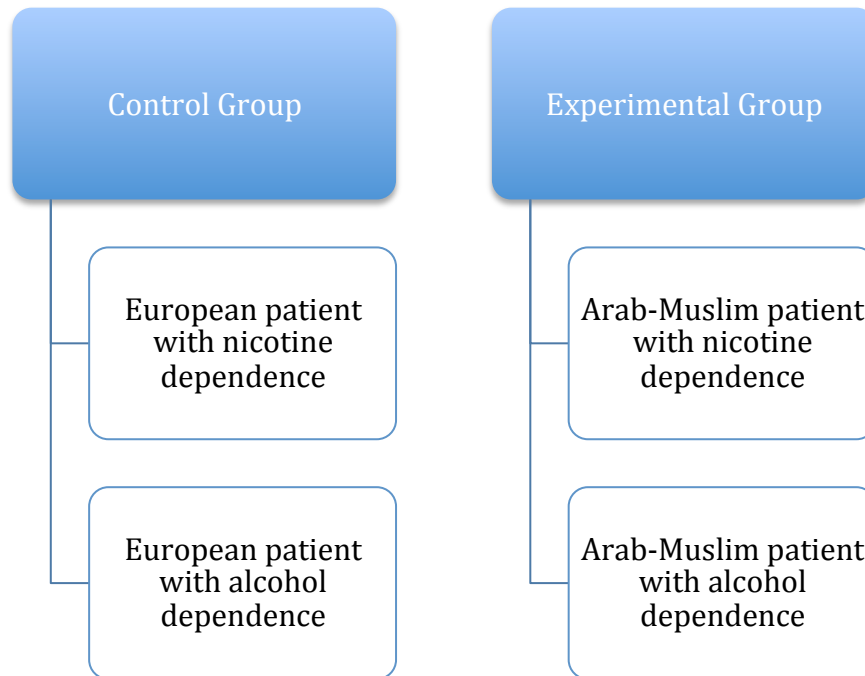


Figure 2.2: Control and Experimental Groups

- Control Group: The students in this group were presented with two vignettes of European male patients with two different medical histories. One vignette was related to tobacco (nicotine) dependence and the other one was related to alcohol dependence. Both cases were presented with clipart photos of the hypothetical patients, showing clearly their cultural backgrounds (Figure 2.3). The vignettes included patients with a clear history of tobacco (nicotine) and heavy alcohol consumption.
- Experimental Group: The students in this group were presented with two vignettes of Arab-Muslim male patients with two different medical histories. One vignette was related to tobacco (nicotine) dependence and the other one was related to alcohol dependence. Both cases were presented with clipart photos of

the patients, showing clearly their cultural backgrounds (Figure 2.3). The vignettes included clear history of tobacco (nicotine) and alcohol consumption.

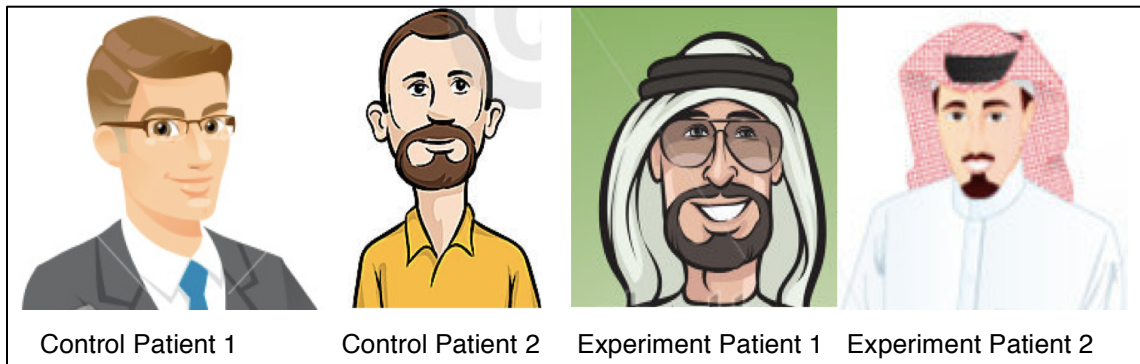


Figure 2.3: Patients images presented to students in the RCT

- The design of the study was a four-factor between (Cultural background [2] x Medical year [2] x Gender [2] x Nationality [4]) by three-factor within (Health condition [2] x Patient order [2] x Portrayed patient [2]) analysis of variance. i.e. between control and experimental groups, within each individual control and experimental group, and within subgroups of the control and experimental groups as described below (Table 2.1)
- The participants in the control group were presented with the European vignettes, while those in the experimental group were presented with the Arab Muslim vignettes (between subjects effect).
- Half of the participants in the control group were presented with the alcohol vignette first followed by the tobacco vignette and vice versa. The same was been done for the experimental group (within subjects effect).

Table 2.1: Experimental (2 between x 2 within x 2 within) design

2 between	Control Group				Experimental Group			
x 2 within	Alcohol ₁ /Tobacco ₂		Tobacco ₁ /Alcohol ₂		Alcohol ₁ /Tobacco ₂		Tobacco ₁ /Alcohol ₂	
x 2 within	John=A* Rob=T	John=T Rob=A	John=A Rob=T	John=T Rob=A	Ali=A Hus=T	Ali=T Hus=A	Ali=A Hus=T	Ali=T Hus=A

* A: Alcohol, T: Tobacco, 1&2: vignettes order

- Alternative designs were considered besides an RCT but the preferred option of randomizing the subjects into control and experimental groups was chosen to avoid the risk of desensitization of the subjects (between-subjects effect). Moreover, subjects were introduced to the vignettes in different order (within-subjects effect) to avoid order bias.

The following variables allowed us to investigate the effect of the patient's background on the treatment they receive and their diagnosis:

Predictor variables

- Independent variables (the perceived cultural/religious background of the patient):
 - 1) Cultural/religious background of the patients presented in the vignette (Arab-Muslim vs. European) and
 - 2) Type of health condition (nicotine/alcohol dependence)

Outcome Measures

- Dependent variables (the way the patient is perceived and treated by the physician):

- 1) Perception and attitude towards the patients conditions, measured by using the alcohol-dependence and tobacco questionnaires ⁽⁴⁵⁾ (Appendices 2 and 3). The scales used were composed of items that prior factor analysis indicated the following four attitude areas: alcohol-dependence is not a disease, alcoholics lack will power, have low social status and have poor prognosis. The same scales were used for nicotine-dependence. Those scales are described below in more detail.
- 2) Diagnosis and treatment recommendations (e.g. providing health advice, referral to specialized treatment or rehab). Subjects were given a list of different ICD-10 mental health conditions to select from in order to diagnose the portrayed patients ⁽⁴⁷⁾ . The participating students were asked to select the appropriate treatment approaches from a standardized list ⁽⁴⁸⁾ and to provide health management plans to the patients. This was done to measure whether students discriminate between the patients according to their cultural background and the health condition. (Appendix 5).
- 3) Stigma/social distance scale. Subjects were asked to describe their feelings towards dealing with individuals similar to the portrayed patients outside their profession and in different situations ⁽⁴⁵⁾ as described in Appendix 5.

- Covariates: As the samples may differ on a variety of personal and demographic characteristics that should be controlled during analysis and evaluation of cultural differences in attitude responses ⁽¹⁹⁾, several potential covariates were measured.

Instrument and Procedure

Medical students in both groups were asked to respond to a demographic data sheet, as well as alcohol-dependence and nicotine-dependence questionnaires ⁽⁴⁵⁾ and to provide treatment plans for both vignettes. They also answered a treatment options survey. The alcohol-dependence questionnaire is the outcome of a factor analytic study of opinions about alcohol-dependence. As a result of that study, nine areas of opinion were isolated and were considered to represent the major dimensions of popular opinion about alcohol-dependence. Four items were selected to define each of these dimensions and, with four additional items, these comprise the final 40-item revision of the alcohol-dependence questionnaire ⁽⁴⁵⁾. The nine factors are: alcohol-dependence is not a disease, emotional difficulties cause alcohol-dependence, alcohol-dependence is a harmless indulgence, alcohol dependent persons lack will power, alcohol dependent persons have impaired loss of control, alcohol dependent persons can be periodic drinkers, alcohol is highly addicting, alcohol dependent persons have low social status and alcohol dependent persons have poor prognosis. However, only four factors from the above list of factors are relevant to this study and were used to measure stigmatized attitude in terms of self-inflicted harm, weak willpower, low social status, and poor prognosis. The factors and their defining items that were used in the questionnaire are:

- Alcohol-dependence as an illness (Defining items: 3, 6, 11,16),
- Loss of control (Defining items: 2, 8, 10,14),
- Social status of the alcohol dependent person (Defining items: 1, 7, 9, 13) and
- Prognosis for recovery (Defining items: 4, 5, 12, 15) ⁽⁴⁵⁾ .

The alcohol-dependence questionnaire was abridged to test the four factors above (Appendix 2) and adapted to test for nicotine dependence (Appendix 3). The development of these factors have been described in detail in the original paper ⁽⁴⁵⁾ and on a similar study conducted in North America ⁽¹⁹⁾ . The rating and the scoring procedures are described in Appendix 4. Subjects also answered a diagnosis and treatment options survey (Appendix 5).

What is a vignette and how effective is it as a measure?

A vignette in psychological and sociological experiments presents a hypothetical situation, to which research participants respond and reveal their perceptions, values, attitudes or impressions of events. Vignette studies can measure to what extent the public views a variety of behavioral patterns and in this RCT, vignettes were used to measure health professionals' stigmatized attitude toward patients' alcohol consumption habits ⁽²²⁾ . The vignettes are usually short, and might describe such conditions as alcohol-dependence ⁽⁴⁹⁾ .

Vignette Descriptions

Two different medical histories (vignettes) were developed, piloted and portrayed by two

different ethnicities and cultural backgrounds of hypothetical patients (European and Arab-Muslims patients):

- The first vignette described, a 40-year-old male, who holds a college degree in engineering and works for an engineering consultation firm. He has presented to his primary health care physician with history of continuous cough for the last 4 weeks. No history of diabetes or hypertension or other chronic diseases. No history of depression or psychiatric disorder. The patient gives history of smoking; he smokes two packs of cigarettes/day for the last 20 years.
- The second vignette described, a 40-year-old male, who holds a college degree in engineering and works for an engineering consultation firm. He has presented to his primary health care physician with stress and insomnia due to recent divorce and continuous financial problems. No history of diabetes or hypertension or other chronic diseases. No history of depression or psychiatric disorder. The patient gives history of alcohol consumption, he drinks 4-5 glasses of wine everyday for the last 20 years.
- For the sake of convenience, we called the European patients John and Robert, while the Arab Muslim patients Ali and Hussain.
- The participants in the control group were presented with the European vignettes, while those in the experimental group were presented with the Arab Muslim vignettes (between subjects effect).
- Half of the participants in the control group were presented with the alcohol vignette first followed by the tobacco vignette and vice versa. The same was

done for the experimental group (within subjects effect).

- Each half of the samples described above were further divided into subgroups.

Each subgroup saw different patients' clipart portraying the two vignettes. For controls, two subgroups saw John in the alcohol dependent vignette while the other two subgroups saw Robert in the alcohol dependent vignette and vice versa. For the experimental condition, two subgroups saw Ali in the alcohol vignette while the other two subgroups saw Hussain in the alcohol vignette and vice versa (within subjects effect) (Table 2.1).

- To control for age, gender and socio-economic status, all cases in the vignettes were 40-year-old males, holding a college degree in engineering and working in an engineering firm. Moreover, qualitative questions were included in the survey. At the end of the study, subjects were asked questions to explore their perceptions of the patients.
- We are focusing on male alcoholics rather than females, and on Arab-Muslim patient rather than other cultures or ethnicities, as they are the usual and expected alcohol-dependence cases to be presented to physicians in the public healthcare settings.

2.2.2 Study Phase 2:

After completing Part 1 of the study, the subjects were divided into three new groups (A, B and C) to conduct another RCT, to examine the effect of the Alcohol Use Disorders Identification Test (AUDIT) training program⁽⁵⁰⁾ (intervention) on the attitudes of the medical students towards alcohol-dependent individuals. For a comparison group,

training with the Fagerström Test for Nicotine Dependence (FTND) was used ^(51,52). The design of this longitudinal (pre-post) study was similar with phase 1 except with the additional between subjects factors Training [2] and Time [2].

The Alcohol Use Disorders Identification Test (AUDIT)

The AUDIT, designed and recommended by WHO ⁽⁵³⁾ is a 10-item questionnaire developed as a transcultural screening tool to detect excessive alcohol consumption and dependence in primary health care settings ⁽⁵⁴⁾. However, an abridged version of AUDIT with three consumption questions is increasingly used as a screener for alcohol use disorders (AUDs) and risk drinking. The abridged version is called AUDIT-C ⁽⁵⁵⁾.

AUDIT was developed as a screening tool for measuring hazardous and harmful drinking. It can assist in identifying excessive alcohol drinking as the cause of the current illness and provides a framework for intervention to help risky drinkers reduce their consumption and to avoid the harmful consequences of their drinking. It also assists in identifying alcohol dependence and consequences of harmful drinking ⁽⁵³⁾.

The AUDIT has been studied extensively and was recommended as a reliable and valid screening instrument to identify at-risk alcohol drinkers and patients with an alcohol use disorder (AUD) in primary healthcare settings ⁽⁵⁶⁾. Moreover, the overall performance of the AUDIT-C was validated and recommended as well ⁽⁵⁷⁾. As a tool to measure the severity of dependence and alcohol-related health problems, the AUDIT provides an indicator of the severity of dependence in alcohol-dependent individuals seeking outpatient treatment ⁽⁵⁸⁾. The AUDIT has been internationally validated to screen alcohol related problems, with different languages and populations like Africa, Europe,

primary healthcare setting and university students ^(54,59) . The subjects were briefed about alcohol-dependence and how to look at alcohol-dependent individual as having a health disorder instead of a moral problem. Subjects were also instructed about signs and symptoms of alcohol-dependence and about the nature of the alcohol dependence syndrome as a psychiatric disorder. They were told how to conduct and score AUDIT. They were not trained on the brief intervention part of the AUDIT. The training session lasted for 90 minutes, the usual amount of time spent on standard AUDIT training and it was expected to be sufficient to change stigmatizing attitudes among the medical students. The training session is outlined in Appendix 6.

The Fagerström Test for Nicotine Dependence (FTND):

The Fagerstrom Test for Nicotine Dependence (FTND) consists of six self-report questions. It is a valid test that measures nicotine dependence and can assist physicians in determining appropriate cessation treatment. It can help customize a treatment plan to the individual smoker's need and can therefore increase the possibility of successful long-term smoking cessation ^(51,52) .

Subjects were equally divided and assigned to the new groups from the control and experimental groups of study phase 1, as follows:

- Group A (Control, Vignettes and FTND training only):

Subjects in this group completed part 1 of the study and then underwent a training session on the Fagerström Test for Nicotine Dependence (FTND).

- Group B (Vignettes and AUDIT training only):

Subjects in this group completed phase1 of the study and then underwent a training

session on AUDIT.

- Group C (Vignettes, AUDIT training and discussion):

Subjects in this group completed phase 1 of the study and then underwent a training session on AUDIT followed by a focus group discussion (Figure 2.4).

Instrument and Procedure

All groups in phase 2 of the study had already been through phase 1 of the study as a baseline.

Group A

After completing phase 1 of the study, subjects in this group underwent FTND training. After completion, the sample was asked to answer the nicotine and alcohol-dependence questionnaire again (Appendix 2 and 3), provide diagnosis and treatment recommendations, and complete the AUDIT training surveys (Appendix 5 and 7).

Group B

After completing phase 1 of the study, subjects in this group underwent AUDIT training. After completion, the sample was asked to answer the nicotine and alcohol-dependence questionnaire again (Appendix 2 and 3), provide diagnosis and treatment recommendations, and complete the AUDIT training surveys (Appendix 5 and 7).

Group C

After completing phase 1 of the study, subjects in this group underwent AUDIT training and participated in a focus group discussion (Appendix 8). After completion, the sample was asked to answer the nicotine and alcohol-dependence questionnaire again (Appendix 2 and 3), provide diagnosis and treatment recommendations, and complete

the AUDIT training surveys (Appendix 5 and 7).

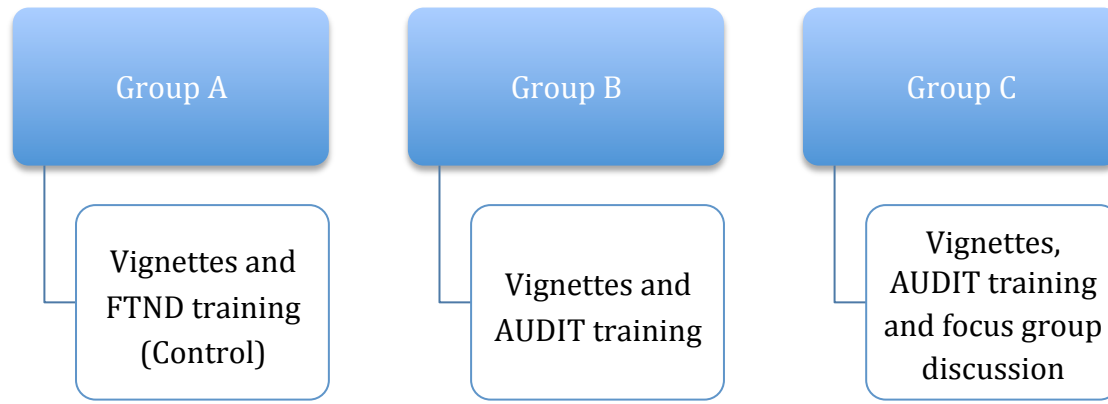


Figure 2.4. Control (A) and Experimental Groups (B and C)

The following variables were used to investigate the effect of AUDIT training on the attitudes of the medical students and compare them with the other groups who did not receive AUDIT training and those who went through focus group discussion on top of the training.

Predictor variables

- Independent variables (the perceived cultural/religious background of the patient):
 - 1) Cultural/religious background of the patients presented in the vignette (Arab-Muslim vs. European) and
 - 2) AUDIT training: No training, training without discussion, training with discussion (Groups A, B and C).

Outcome Measures

- Dependent variables (the way the patient is perceived and treated by the physician):
 - 1) Perception and attitude towards patients conditions, measured by using the nicotine and alcohol-dependence questionnaires ⁽⁴⁵⁾ (Appendices 2 and 3). The scales used were: alcohol-dependence is not a disease, alcohol dependent persons lack will power, have low social status and have poor prognosis. Similar scales were used for nicotine-dependence.
 - 2) Diagnosis and treatment recommendations e.g. providing health advice, referral to specialized treatment or rehab. Subjects were given a list of different ICD-10 mental health conditions to select from in order to register their diagnoses of the portrayed patients ⁽⁴⁷⁾ . The participating students were asked to select the appropriate treatment approach from a standardized list ⁽⁴⁸⁾ and to provide health management plans to the patients. This was done to determine if they discriminate between the patients according to their cultural background and the health condition. (Appendix 5).
 - 3) Stigma/social distance scale. Subjects were asked to describe their feelings towards dealing with individuals similar to the portrayed patients outside their profession and in different situations ⁽⁴⁵⁾ (Appendix 5).
 - 4) Subjects in Group A, B and C have answered a training evaluation survey at the end of the study. The survey included questions about their attitude

after the training toward alcohol-dependent individual and mental health patients ⁽¹⁸⁾ .

- 5) The purpose of having all groups answer the same surveys was to test whether the training had an effect on subjects attitudes towards alcohol-dependent individuals and whether it was related to alcohol-dependence or not.
- Covariates measured included students' demographics, as the samples may differ on a variety of personal and demographic characteristics that should be controlled during analysis and evaluation of cultural differences in attitude responses ⁽¹⁹⁾ .

2.3 Sampling method

A sample (131 students) of AGU Years 5 and 6 medical students who were enrolled for the Academic Year 2014-2015 were included in the RCT. The number of students and their gender and nationality was obtained from the Admission and Registration Unit of AGU (Table 2.2)

Table 2.2: Students Enrolled at the College of Medicine and Medical Sciences (CMMS) – AGU for Academic Year 2014-2015

	Year 1		Year 2		Year 3		Year 4		Year 5		Year 6		Total		Grand Total
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
Bahrain	24	57	29	42	29	41	12	31	11	17	12	20	117	208	325
Kuwait	15	47	20	41	14	31	12	29	14	24	11	24	86	196	282

Saudi Arabia	16	20	19	20	30	16	32	22	37	38	23	19	157	135	292
Oman	0	6	1	11	0	6	0	4	1	5	0	2	2	34	36
UAE	0	1	0	0	0	0	0	0	0	0	0	1	0	2	2
Qatar	0	4	0	0	0	0	0	0	0	0	0	0	0	4	4
Other	0	0	0	0	1	0	0	1	0	1	0	0	1	2	3
Total	55	135	69	114	74	94	56	87	63	85	46	66	363	581	944
Grand Total	190		183		168		143		148		112		944		944

Source: Admission and Registration Unit – AGU

2.4 Data collection and follow-up

Data was collected over four days; the subjects were divided into four groups each day according to their group assignment. Day 1 for group A, day 2 for group B, day 3 and 4 for group C. Subjects responded to the same instruments at the end of the study according to their group assignment (Figures 2.5-2.7).

- On Day 1, group A subjects started with part 1 of the study by reading the vignettes and answering the surveys. After that, part 2 of the study started by conducting FTND training session for 90 minute, followed by the surveys.
- On Day 2, group B underwent the same procedure as group A, except that they underwent AUDIT training instead of FTND.
- On Day 3 and 4, group C underwent the same procedure as group B with the addition of group discussion before answering the surveys.

All subjects were debriefed after completing the study and their responses were collected for analysis.

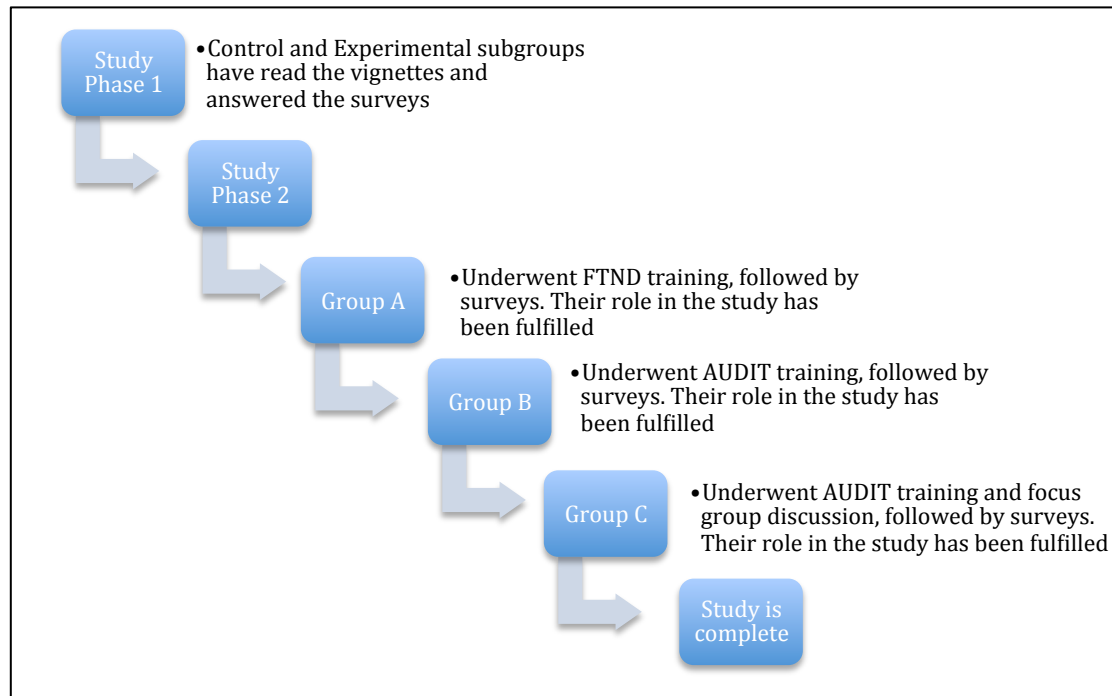


Figure 2.5: Data collection plan

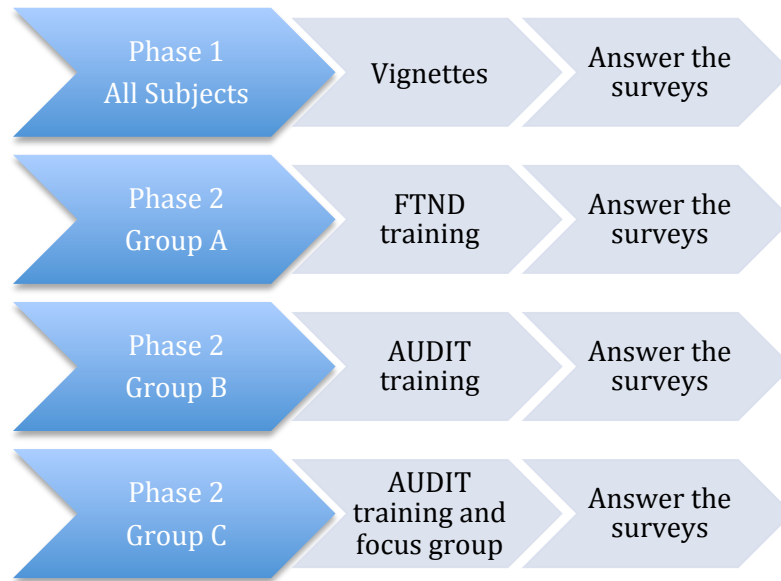


Figure 2.6: Timing of instruments distribution according to group assignment

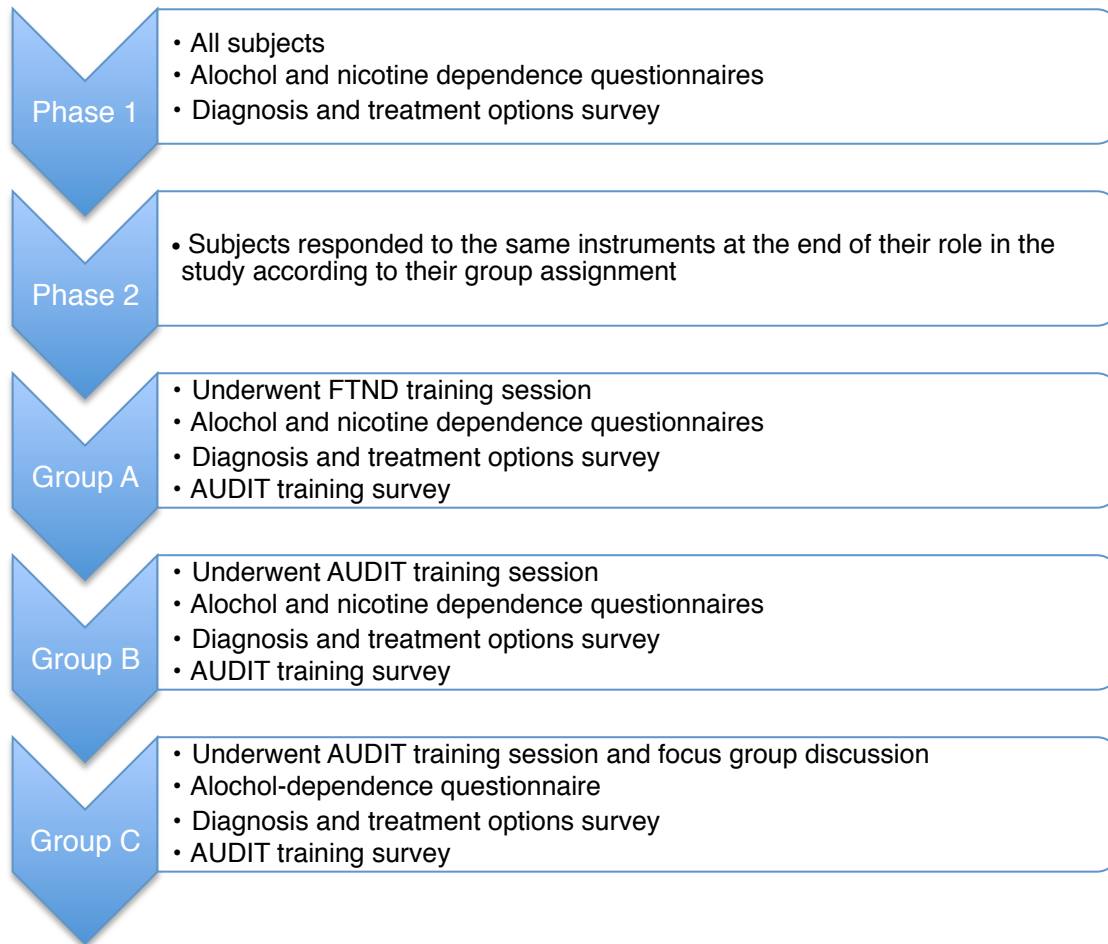


Figure 2.7: Instruments used in the study according to group assignment

2.5 Data analysis

SPSS statistical package 22.0 was used for data analysis. Descriptive statistics were produced as frequencies and percentages for discrete variables, while means and standard deviations were calculated for continuous variables.

2.5.1 Study Phase 1

Differences between both groups in outcome measures were studied using two-factor analysis of variance (ANOVA). Repeated measures were used to analyze the

differences between the groups. A 2 x 2 x 2 analysis of covariance (subjects' demographics) was performed (2 between-subjects x 2 within subjects x 2 within subjects).

2.5.2 Study Phase 2

Differences between groups (A, B and C) in outcome measures and covariates were studied using two-factor analysis of variance (ANOVA). Two orthogonal contrasts were assessed as follows:

- 1) Group A was contrasted with Groups B and C collectively [A vs. (B+C)]. This analysis tested for the effect of having training and group discussion (B+C) compared to subjects with neither training nor group discussion (A).
- 2) Contrast between group B and C [B vs. C] tested for the additional effect of focus group discussion (C) versus AUDIT training alone (B).

Because of the large number of statistical tests, only the most important findings for main effects and interaction effects are described in the Results and Discussion, but all tests are reported in the tables. The interactions with medical year, gender, nationality, patient order and portrayed patient were not discussed here since they are not related to our hypothesis, and they were included in the design to reduce the error variance.

2.6 Human subjects and ethical considerations

The research proposal was approved by the academic advisory committee and then it was submitted to and approved by the institutional review board (IRB) of the University

of Connecticut and the ethical committee of the Arabian Gulf University (AGU) in Bahrain. Study participation was on a voluntary basis and participants were assured of the confidentiality of their study data. They were able to end their participation at any time and the information they provided was reported anonymously.

Chapter 3: Results

3.1 Sociodemographic Characteristics of the Medical Students

Of the 260 medical students who were enrolled in years 5 and 6 during the academic year 2014-2015, 131 students participated in the study, resulting in an overall response rate of 50.4%. This was the number of subjects needed for medium effect size, which was specified at the beginning of the study.

The response rates for Years 5 and 6 were 66.2% and 29.5%, respectively. Fifty six percent of the female students responded to the questionnaire compared to 43.1% of the male students. The response rate of the Bahraini students was the highest (53.3%) compared to Saudi (52.1%) and Kuwaiti (43.8%) students (Table 3.1).

Table 3.1: Response Rate by Gender, Medical Year and Nationality

	Responded % (N)	Not responded % (N)	<i>p - value</i>
Gender			
Male	43.1 (47)	56.9 (62)	0.470
Female	55.6 (84)	44.4 (67)	
Medical Year			
Year 5	66.2 (98)	33.8 (50)	< 0.001
Year 6	29.5 (33)	70.5 (79)	
Nationality			
Bahraini	53.3 (32)	46.7 (28)	0.578
Kuwaiti	43.8 (32)	56.2 (41)	
Saudi	52.1 (61)	47.9 (56)	
Other	60.0 (6)	40.0 (4)	
Overall	50.4 (131)	49.6 (129)	

Tables 3.2 and 3.3 present the sociodemographic characteristics of the participating medical students by gender, age, medical year and nationality. Sixty four percent of the

students were females and 35.9% were males. Of these medical students, 46.6% were Saudi nationals, 24.4% were Bahraini, 24.4% were Kuwaiti and the rest were other Arab (4.6%). Most of the participants were from year 5 (74.8%), compared to those from year 6 (25.2%) with an average age of 23.1 years.

Table 3.2: Sociodemographic Characteristics of the Medical Students

		<i>Total</i>
		% (N)
Age (Mean)		23.1 (131)
Gender	Male	35.9 (47)
	Female	64.1 (84)
Medical Year	Year 5	74.8 (98)
	Year 6	25.2 (33)
Nationality	Bahraini	24.4 (32)
	Kuwaiti	24.4 (32)
	Saudi Arabian	46.6 (61)
	Other	4.6 (6)
Total number of subjects		100 (131)

Table 3.3: Distribution of the Medical Students by Gender, Nationality and Medical Year

	Year 5		Year 6	
	Male % (N)	Female % (N)	Male % (N)	Female % (N)
Bahraini	23.7 (9)	18.3 (11)	0.0 (0)	50.0 (12)
Kuwaiti	13.2 (5)	28.3 (17)	11.1 (1)	37.5 (9)
Saudi	60.5 (23)	46.7 (28)	88.9 (8)	8.3 (2)
Other	2.6 (1)	6.7 (4)	0.0 (0)	4.2 (1)
Total	100.0 (38)	100.0 (60)	100.0 (9)	100.0 (24)

Table 3.4 presents the sociodemographic characteristics of the participating medical students in phase 1 of the study. The 131 participants were equally distributed into the control (50.4%) and experiment (49.6%) groups. Age, medical years and nationalities of

the participants in both control and experimental groups were equivalent and represent the participants in general. Participants were not distributed evenly according to gender in both groups as males and females were 18.2% and 81.8% for the control group, while they were 53.8% and 46.2% for the experimental group, respectively. This was taken into consideration and controlled in the statistical analysis.

Table 3.4: Demographic Characteristics of Medical Students in Study Phase 1

		Study Phase 1		<i>p - value</i>
		Control Euro	Experimental Arab	
		% (N)	% (N)	
Number of subjects		50.4 (66)	49.6 (65)	
Age (Mean)		23.0	23.1	0.479
Gender	Male	18.2 (12)	53.8 (35)	< 0.001
	Female	81.8 (54)	46.2 (30)	
Medical Year	Year 5	74.2 (49)	75.4 (49)	0.880
	Year 6	25.8 (17)	24.6 (16)	
Nationality	Bahraini	28.8 (19)	20.0 (13)	0.400
	Kuwaiti	27.3 (18)	21.5 (14)	
	Saudi Arabian	39.4 (26)	53.8 (35)	
	Other	24.4 (32)	24.4 (32)	

Table 3.5 presents the sociodemographic characteristics of the participating medical students in phase 2 of the study. The 131 participants were evenly distributed into groups A (37.4%), B (33.6%) and C (29.0%). Age, gender and nationalities of the participants in all groups were equivalent and represent the participants in general. Participants were not distributed evenly according to medical year and this was taken in consideration and controlled for during the statistical analyses.

Table 3.5: Demographic Characteristics of Medical Students in Study Phase 2

		Study Phase 2			<i>p - value</i>
		Group A	Group B	Group C	
		FTND	AUDIT	AUDIT + Discussion	
		% (N)	% (N)	% (N)	
Number of subjects		37.4 (49)	33.6 (44)	29.0 (38)	
Age (Mean)		23.0	23.0	23.3	0.405
Gender	Male	36.7 (18)	34.1 (15)	36.8 (14)	0.955
	Female	63.3 (31)	65.9 (29)	63.2 (24)	
Medical Year	Year 5	85.7 (42)	84.1 (37)	50.0 (19)	< 0.001
	Year 6	14.3 (7)	15.9 (7)	50.0 (19)	
Nationality	Bahraini	16.3 (8)	25.0 (11)	34.2 (13)	0.455
	Kuwaiti	26.5 (13)	22.7 (10)	23.7 (9)	
	Saudi Arabian	55.1 (27)	45.5 (20)	36.8 (14)	
	Other	2.0 (1)	6.8 (3)	5.3 (2)	

3.2 Cultural Background - Study Phase 1

3.2.1 Stigma/Social Distance Scale

Table 3.6 presents the mean scores of medical students in the stigma/social distance scale. It shows significant differences ($p < 0.001$) between medical students attitudes toward alcohol and nicotine dependent individuals, as the mean scores were 2.8 and 3.3 respectively (Figure 3.1). This indicates that medical students would prefer to have a larger social distance between them and alcohol-dependent individuals compared to nicotine-dependent individuals. On further analysis, control and experimental groups showed similar attitudes, however. There were no significant differences between them.

Table 3.6: Stigma/Social distance scale

D/I		Mean	SD	F	df	p value
Alcohol		2.7	0.55	173.35	1	< 0.001
Nicotine		3.3	0.46			
Control (Euro)		3.0	0.42	0.89	1	0.348
Experimental (Arab)		3.0	0.46			
Control (Euro)	Alcohol	2.7	0.52	0.15	1	0.700
	Nicotine	3.3	0.42			
Experimental (Arab)	Alcohol	2.7	0.57			
	Nicotine	3.3	0.51			

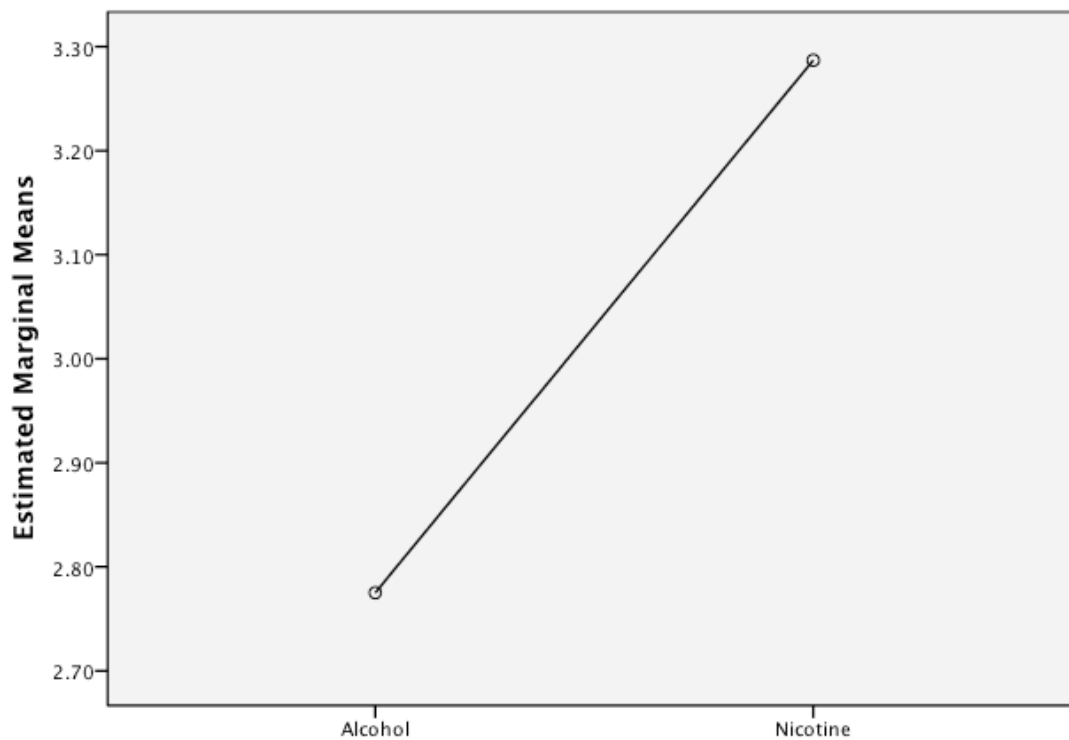


Figure 3.1: Estimated Marginal Means for Stigma/Social Distance Scale among Medical Students

3.2.2 Alcohol and nicotine dependence questionnaires

Table 3.7 presents the mean scores of medical students in their scores on the alcohol and nicotine dependence questionnaires. There were significant differences between medical students in the main effect of factor 1 ($p = 0.049$), factor 2 ($p = 0.027$) and factor 3 ($p < 0.001$). Mean scores for factor 1 were 3.8 and 3.9 for alcohol and nicotine, respectively. These scores indicate that medical students believe that alcohol dependence is a disease compared to nicotine-dependence. Mean scores for factor 2 were 4.5 and 4.2 for alcohol and nicotine, respectively. This indicates that medical students believe that nicotine-dependent individuals are more capable to control their smoking behavior compared to drinking behavior in alcohol-dependent individuals. Mean scores for factor 3 were 3.6 and 3.0 for alcohol and nicotine, respectively. These scores indicate that medical students believe that alcohol-dependent individuals come from the lower socio-economic strata of society compared to their beliefs toward nicotine-dependent individuals. On the other hand, there were no significant differences between medical students in factor 4, where the mean scores were 3.9 and 3.8 for alcohol and nicotine, respectively. On further analysis, control and experimental groups showed similar attitudes, however. There were no significant differences between them, except for trends in factor 3 in the main effect ($p = 0.091$) and in the interaction effect ($p = 0.055$).

Table 3.7: Alcohol and nicotine dependence questionnaire scale scores

	D/I		Mean	SD	F	df	p value
Factor 1: Dependence as an illness	Alcohol		3.7	1.07	3.97	1	0.049
	Nicotine		4.0	1.09			
	Control (Euro)		3.8	0.84	1.65	1	0.202
	Experimental (Arab)		3.9	0.96			
	Control (Euro)	Alcohol	3.7	0.92	0.03	1	0.869
		Nicotine	3.9	1.05			
	Experimental (Arab)	Alcohol	3.8	1.20			
		Nicotine	4.1	1.13			
Factor 2: Loss of control	Alcohol		4.5	1.03	5.00	1	0.027
	Nicotine		4.3	1.12			
	Control (Euro)		4.4	0.88	0.04	1	0.843
	Experimental (Arab)		4.4	0.92			
	Control (Euro)	Alcohol	4.5	0.99	0.02	1	0.884
		Nicotine	4.3	1.07			
	Experimental (Arab)	Alcohol	4.5	1.08			
		Nicotine	4.2	1.17			
Factor 3: Social status of the dependent person	Alcohol		3.6	1.02	31.53	1	< 0.001
	Nicotine		3.0	1.09			
	Control (Euro)		3.4	0.87	2.91	1	0.091
	Experimental (Arab)		3.1	0.85			
	Control (Euro)	Alcohol	3.8	0.94	3.77	1	0.055
		Nicotine	3.0	1.14			
	Experimental (Arab)	Alcohol	3.3	1.03			
		Nicotine	2.9	1.05			
Factor 4: Prognosis for recovery	Alcohol		3.8	0.93	0.37	1	0.547
	Nicotine		3.9	0.98			
	Control (Euro)		3.7	0.86	2.69	1	0.104
	Experimental (Arab)		3.9	0.77			
	Control (Euro)	Alcohol	3.7	0.97	0.08	1	0.895
		Nicotine	3.7	0.97			
	Experimental (Arab)	Alcohol	3.9	0.88			
		Nicotine	4.0	0.99			

3.2.3 Diagnosis

Table 3.8 presents the mean scores of medical students primary and secondary diagnoses of patients described in both the alcohol and nicotine dependent vignettes. It shows significant differences ($p= 0.027$) in the primary diagnosis main effect, as medical students tend to diagnose the alcohol-dependent patient with more of psychiatric disorders, compared to the nicotine-dependent patient, where medical students tend to diagnose the patient with a combined disorder of substance abuse and psychiatry-related disorders. The same trend is seen on further analysis between control and experimental groups ($p=0.069$). In secondary diagnoses, there were no significant differences between alcohol and nicotine in general or between control and experimental groups, as all means tend to deviate toward psychiatry-related diagnosis.

Table 3.8: Diagnosis

	D/I		Mean	SD	F	df	p value
Primary Diagnosis	Alcohol		2.4	0.86	5.01	1	0.027
	Nicotine		2.1	0.96			
	Control (Euro)		2.2	0.78	1.30	1	0.257
	Experimental (Arab)		2.4	0.67			
	Control (Euro)	Alcohol	2.4	0.91	3.37	1	0.069
		Nicotine	2.0	0.99			
	Experimental (Arab)	Alcohol	2.4	0.82			
		Nicotine	2.3	0.90			
Secondary Diagnosis	Alcohol		2.3	0.51	0.171	1	0.680
	Nicotine		2.2	0.63			
	Control (Euro)		2.3	0.51	0.70	1	0.406
	Experimental (Arab)		2.3	0.47			
	Control (Euro)	Alcohol	2.3	0.52	0.752	1	0.388
		Nicotine	2.3	0.58			
	Experimental (Arab)	Alcohol	2.3	0.51			
		Nicotine	2.2	0.68			

3.2.4 Treatment Recommendations

Table 3.9 presents the mean scores of medical students' treatment recommendations for the patients described in the vignettes as having alcohol or nicotine- related conditions. There were significant differences between medical students in all treatment recommendations except treatment recommendation 2. The results indicate that medical students are in favor of clinical management with the patient's primary care physician for those with nicotine dependence compared to alcohol-dependent individuals ($p < 0.001$). They would prefer to follow up alcohol-dependent individuals with behavioral therapies ($p = 0.002$). Medical students were in favor of referring alcohol-dependent individuals to a rehabilitation unit ($p < 0.001$), social worker ($p < 0.001$), or psychiatrist ($p < 0.001$) and to start detoxification therapy ($p < 0.001$). Medical students agreed that both the alcohol and nicotine dependent individuals would need follow up with counseling with no significant differences between conditions. Moreover, medical students were in favor of using all the recommendations to treat alcohol-dependent individuals more than nicotine- dependent individuals ($p < 0.001$).

On further analysis, control and experimental groups showed similar attitudes. Medical students were in favor of starting detoxification therapy for the Arab alcohol-dependent patient more than the European patient ($p = 0.018$) as shown in Figure 3.2. There were no significant differences in the rest of the treatment recommendations between control and experimental groups.

Table 3.9: Treatment recommendations

	D/I		Mean	SD	F	df	p value
Tx1: Clinical management with patient's primary care physician	Alcohol		2.6	1.38	21.93	1	< 0.001
	Nicotine		1.9	1.19			
	Control (Euro)		2.3	1.08	1.47	1	0.229
	Experimental (Arab)		2.2	1.10			
	Control (Euro)	Alcohol	2.6	1.43	0.05	1	0.820
		Nicotine	2.0	1.17			
	Experimental (Arab)	Alcohol	2.5	1.34			
		Nicotine	1.8	1.21			
Tx2: Follow up with counseling	Alcohol		1.8	1.04	0.09	1	0.760
	Nicotine		1.9	1.02			
	Control (Euro)		1.9	0.84	2.20	1	0.141
	Experimental (Arab)		1.7	0.85			
	Control (Euro)	Alcohol	2.0	1.12	0.20	1	0.660
		Nicotine	1.9	1.00			
	Experimental (Arab)	Alcohol	1.7	0.94			
		Nicotine	1.8	1.05			
Tx3: Follow up with behavioral therapies	Alcohol		1.9	1.07	9.74	1	0.002
	Nicotine		2.3	1.19			
	Control (Euro)		2.1	0.88	0.05	1	0.824
	Experimental (Arab)		2.1	0.95			
	Control (Euro)	Alcohol	1.9	1.08	0.01	1	0.928
		Nicotine	2.3	1.21			
	Experimental (Arab)	Alcohol	1.9	1.07			
		Nicotine	2.3	1.19			
Tx4: Start detoxification therapy	Alcohol		2.1	1.19	26.75	1	< 0.001
	Nicotine		2.6	1.30			
	Control (Euro)		2.5	1.18	2.66	1	0.106
	Experimental (Arab)		2.2	1.01			
	Control (Euro)	Alcohol	2.3	1.32	5.77	1	0.018
		Nicotine	2.6	1.25			
	Experimental (Arab)	Alcohol	1.9	1.01			
		Nicotine	2.6	1.35			
Tx5: Refer to social worker	Alcohol		2.3	1.17	26.30	1	< 0.001
	Nicotine		3.0	1.20			
	Control (Euro)		2.7	1.00	1.20	1	0.276
	Experimental (Arab)		2.6	1.05			
	Control (Euro)	Alcohol	2.3	1.12	0.31	1	0.577
		Nicotine	3.0	1.11			
	Experimental	Alcohol	2.3	1.24			

	(Arab)	Nicotine	3.0	1.29			
Tx6: Refer to rehabilitation unit	Alcohol		1.7	1.08	16.63	1	< 0.001
	Nicotine		2.3	1.23			
	Control (Euro)		2.1	0.92	0.02	1	0.880
	Experimental (Arab)		2.0	1.03			
	Control (Euro)	Alcohol	1.7	1.14	0.61	1	0.438
		Nicotine	2.4	1.16			
	Experimental (Arab)	Alcohol	1.7	1.04			
		Nicotine	2.3	1.31			
Tx7: Refer to psychiatrist	Alcohol		1.8	1.07	82.86	1	< 0.001
	Nicotine		3.4	1.21			
	Control (Euro)		2.6	0.78	0.378	1	0.540
	Experimental (Arab)		2.6	0.95			
	Control (Euro)	Alcohol	1.9	1.15	0.36	1	0.549
		Nicotine	3.4	1.03			
	Experimental (Arab)	Alcohol	1.7	0.98			
		Nicotine	3.4	1.37			
Tx8: All of the above	Alcohol		2.2	1.16	16.92	1	< 0.001
	Nicotine		2.8	1.24			
	Control (Euro)		2.6	1.14	2.58	1	0.112
	Experimental (Arab)		2.3	0.98			
	Control (Euro)	Alcohol	2.4	1.28	0.01	1	0.910
		Nicotine	2.9	1.21			
	Experimental (Arab)	Alcohol	2.1	1.01			
		Nicotine	2.6	1.28			

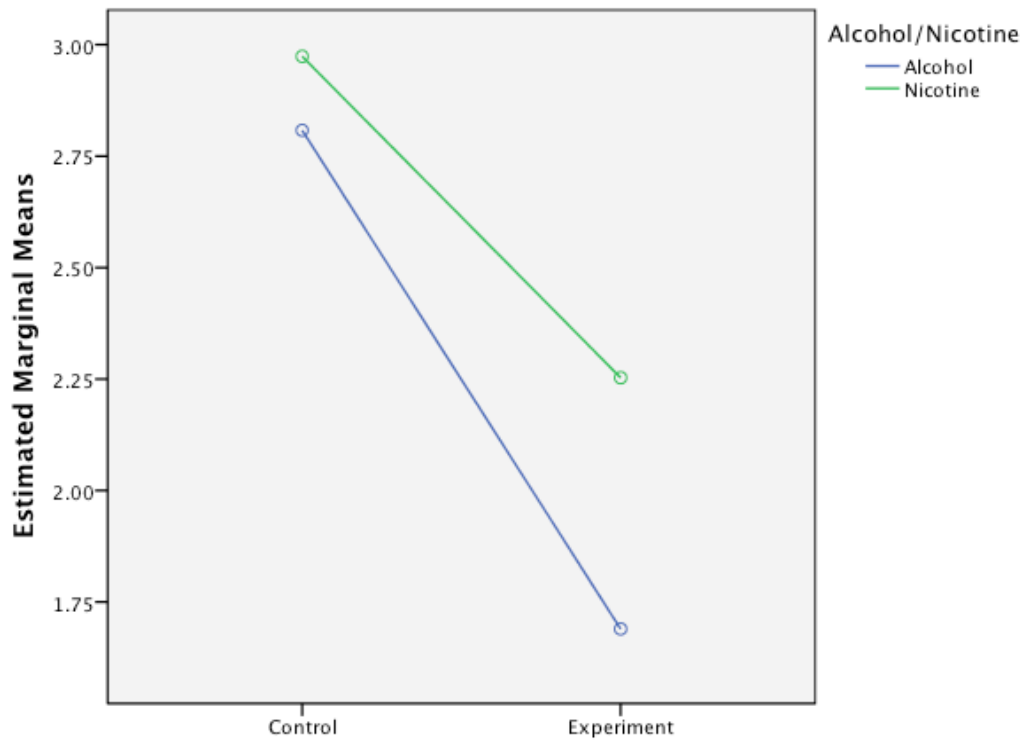


Figure 3.2: Estimated Marginal Means for Starting Detoxification Therapy among Control and Experimental groups

3.3 Training Programs - Study Phase 2

3.3.1 Stigma/Social Distance Scale

Table 3.10 presents the mean scores of medical students on the stigma/social distance scale according to the training groups. There were significant differences ($p < 0.001$) in the main effect between participants' attitudes towards alcohol-dependent and nicotine dependent individuals. There were no significant differences between their pre/post attitudes towards alcohol-dependent individuals and those who are nicotine-dependent.

On further analysis, there was a trend ($p = 0.052$) between participants' attitudes toward alcohol and nicotine-dependent individuals according to the type of training they received. Moreover, there were significant differences ($p = 0.013$) between participants' pre and post training attitudes toward alcohol and nicotine-dependent individuals according to the type of training they received. Table 3.11 presents the results of contrasting the three training types; there were no significant differences between them.

Table 3.10: Stigma/Social distance scale among training groups

D/I			Mean	SD	F	df	p value
Alcohol			2.7	0.49	205.86	1	< 0.001
Nicotine			3.3	0.44			
Pre			3.0	0.44	0.41	1	0.523
Post			3.0	0.42			
Group A - Nicotine (Control)			3.0	0.38	0.33	2	0.718
Group B - AUDIT only			3.0	0.43			
Group C - AUDIT + Discussion			3.0	0.41			
Alcohol		Pre	2.7	0.55	2.12	2	0.148
		Post	2.8	0.51			
Nicotine		Pre	3.3	0.46			
		Post	3.3	0.50			
Group A		Alcohol	2.7	0.47	3.06	2	0.052
		Nicotine	3.3	0.42			
Group B		Alcohol	2.7	0.45			
		Nicotine	3.3	0.48			
Group C		Alcohol	2.8	0.56			
		Nicotine	3.2	0.40			
Group A		Pre	3.0	0.41	0.40	2	0.67
		Post	3.0	0.43			
Group B		Pre	3.0	0.46			
		Post	3.0	0.45			
Group C		Pre	3.0	0.45			
		Post	3.0	0.39			
Group A	Alcohol	Pre	2.7	0.50	4.58	2	0.013
		Post	2.7	0.49			
	Nicotine	Pre	3.3	0.46			

		Post	3.3	0.49			
Group B	Alcohol	Pre	2.8	0.53			
		Post	2.7	0.56			
	Nicotine	Pre	3.3	0.50			
		Post	3.3	0.52			
Group C	Alcohol	Pre	2.7	0.63			
		Post	2.9	0.45			
	Nicotine	Pre	3.2	0.42			
		Post	3.2	0.48			

Table 3.11: Contrast between groups in stigma/social distance scale

Dependent Measure	Group A vs. (B+C) (<i>p</i> value)	Group B vs C (<i>p</i> value)
Stigma/Social distance scale	0.573	0.616

3.3.2 Alcohol and Tobacco dependence questionnaires

Tables 3.12 to 3.15 present the mean scores of medical students on the alcohol and nicotine dependence questionnaires according to the training groups. There were significant differences between medical students in the main effect of factor 1 ($p = 0.013$), factor 2 ($p = 0.024$) and factor 3 ($p < 0.001$). There were no significant differences between medical students pre and post training attitudes on factors 1, 2, 3 or 4. On further analysis according to training groups, participants' pre training attitudes were significantly different ($p = 0.035$) post training attitudes in factor 2, with a trend ($p = 0.073$) between their attitudes towards alcohol-dependent and nicotine-dependent individuals. Participants' pre and post training attitudes in factor 4 toward alcohol-dependent individuals were significantly different ($p = 0.043$) than their pre and post

attitudes toward nicotine-dependent individuals. Table 3.16 presents the results of contrasting the three training types.

The attitudes of those who received FTND training were significantly different ($p = 0.029$) compared to those who received AUDIT training in factor 2. Moreover, the attitude of those who received AUDIT only training were significantly different ($p = 0.028$) compared to those who received AUDIT and discussion training in factor 2 as well. There was a trend ($p = 0.077$) in factor 4 between those who received AUDIT only training and those who received AUDIT and discussion training.

Table 3.12: Factor 1 (Dependence as an illness) - Alcohol and nicotine dependence questionnaires scores compared among training groups

D/I		Mean	SD	F	df	p value
Alcohol		3.8	1.02	6.45	1	0.013
	Nicotine	4.0	1.00			
Pre		3.9	0.90	0.29	1	0.595
	Post	3.9	1.05			
Group A - Nicotine (Control)		4.0	0.87	0.97	2	0.382
Group B - AUDIT only		3.9	1.05			
Group C - AUDIT + Discussion		3.7	0.74			
Alcohol	Pre	3.7	1.07	0.05	2	0.829
	Post	3.8	1.17			
Nicotine	Pre	4.0	1.09			
	Post	4.0	1.17			
Group A	Alcohol	3.8	0.90	0.339	2	0.714
	Nicotine	4.1	1.12			
Group B	Alcohol	3.8	1.22			
	Nicotine	4.0	1.02			
Group C	Alcohol	3.6	0.91			
	Nicotine	3.8	0.80			
Group A	Pre	3.9	0.89	0.78	2	0.461
	Post	4.0	0.99			

Group B		Pre	3.9	1.02	2.10	2	0.128
		Post	3.8	1.20			
Group C		Pre	3.7	0.76			
		Post	3.7	0.93			
Group A	Alcohol	Pre	3.7	0.92			
		Post	3.9	1.08			
	Nicotine	Pre	4.1	1.21			
		Post	4.3	1.20			
Group B	Alcohol	Pre	4.0	1.29			
		Post	3.7	1.30			
	Nicotine	Pre	3.9	1.00			
		Post	4.0	1.25			
Group C	Alcohol	Pre	3.5	0.93			
		Post	3.7	1.14			
	Nicotine	Pre	3.8	1.02			
		Post	3.7	0.97			

Table 3.13: Factor 2 (Loss of control) - Alcohol and nicotine dependence questionnaires scores compared among training groups

D/I		Mean	SD	F	df	p value
Alcohol		4.4	0.96	5.25	1	0.024
Nicotine		4.3	0.90			
Pre		4.4	0.90	0.58	1	0.448
Post		4.2	1.06			
Group A - Nicotine (Control)		4.4	0.86	0.03	2	0.974
Group B - AUDIT only		4.4	0.70			
Group C - AUDIT + Discussion		4.3	0.88			
Alcohol	Pre	4.6	1.03	0.70	2	0.404
	Post	4.3	1.19			
Nicotine	Pre	4.3	1.12			
	Post	4.3	1.01			
Group A	Alcohol	4.5	0.98	2.69	2	0.073
	Nicotine	4.2	0.96			
Group B	Alcohol	4.3	0.85			
	Nicotine	4.4	0.78			
Group C	Alcohol	4.4	1.04			
	Nicotine	4.2	0.96			
Group A	Pre	4.3	0.91	3.47	2	0.035

		Post	4.4	0.97	1.12	2	0.330
Group B		Pre	4.5	0.75			
		Post	4.2	0.76			
Group C		Pre	4.4	1.04			
		Post	4.1	1.42			
Group A	Alcohol	Pre	4.5	1.11			
		Post	4.6	1.10			
	Nicotine	Pre	4.1	1.08			
		Post	4.3	1.13			
Group B	Alcohol	Pre	4.4	0.97			
		Post	4.2	0.90			
	Nicotine	Pre	4.6	0.94			
		Post	4.2	0.81			
Group C	Alcohol	Pre	4.6	1.01			
		Post	4.1	1.52			
	Nicotine	Pre	4.1	1.28			
		Post	4.4	1.05			

Table 3.14: Factor 3 (Social status of the dependent person) - Alcohol and nicotine dependence questionnaires scores compared among training groups

D/I		Mean	SD	F	df	<i>p</i> value
Alcohol		3.5	0.97	38.42	1	< 0.001
Nicotine		3.0	1.03			
Pre		3.3	0.87	0.42	1	0.519
Post		3.2	1.10			
Group A - Nicotine (Control)		3.2	0.93	1.31	2	0.274
Group B - AUDIT only		3.1	0.87			
Group C - AUDIT + Discussion		3.3	0.88			
Alcohol	Pre	3.6	1.02	1.16	2	0.283
	Post	3.4	1.19			
Nicotine	Pre	3.0	1.09			
	Post	2.9	1.25			
Group A	Alcohol	3.5	1.01	1.45	2	0.239
	Nicotine	2.9	1.14			
Group B	Alcohol	3.3	0.96			
	Nicotine	3.0	0.94			
Group C	Alcohol	3.6	0.94			
	Nicotine	3.0	1.01			

Group A		Pre	3.2	0.93	1.73	2	0.183
		Post	3.2	1.04			
Group B		Pre	3.2	0.89			
		Post	3.1	0.97			
Group C		Pre	3.4	0.78	1.53	2	0.222
		Post	3.2	1.32			
Group A	Alcohol	Pre	3.6	1.13			
		Post	3.5	1.06			
	Nicotine	Pre	3.2	1.13			
		Post	3.2	1.32			
Group B	Alcohol	Pre	3.4	0.99			
		Post	3.2	1.10			
	Nicotine	Pre	3.0	1.03			
		Post	3.0	1.03			
Group C	Alcohol	Pre	3.7	0.90			
		Post	3.5	1.43			
	Nicotine	Pre	3.1	1.14			
		Post	2.9	1.41			

Table 3.15: Factor 4 (Prognosis for recovery) - Alcohol and nicotine dependence questionnaires scores compared among training groups

D/I		Mean	SD	F	df	p value
Alcohol		3.8	0.82	0.93	1	0.337
Nicotine		3.8	0.88			
Pre		3.8	0.82	0.71	1	0.402
Post		3.8	0.85			
Group A - Nicotine (Control)		3.8	0.75	0.49	2	0.615
Group B - AUDIT only		3.7	0.79			
Group C - AUDIT + Discussion		3.8	0.74			
Alcohol	Pre	3.8	0.93	0.15	2	0.702
	Post	3.7	0.96			
Nicotine	Pre	3.9	0.98			
	Post	3.8	1.01			
Group A	Alcohol	3.8	0.81	0.84	2	0.435
	Nicotine	3.9	0.90			
Group B	Alcohol	3.7	0.87			
	Nicotine	3.7	0.84			
Group C	Alcohol	3.8	0.80			

		Nicotine	3.9	0.91	1.09	2	0.340
Group A		Pre	3.9	0.79			
		Post	3.8	0.85			
Group B		Pre	3.8	0.86			
		Post	3.6	0.82			
Group C		Pre	3.8	0.82			
		Post	3.8	0.90			
Group A	Alcohol	Pre	3.8	0.91	3.26	2	0.043
		Post	3.8	0.98			
	Nicotine	Pre	4.0	0.98			
		Post	3.9	0.98			
Group B	Alcohol	Pre	3.7	0.97			
		Post	3.7	0.97			
	Nicotine	Pre	3.9	0.99			
		Post	3.6	0.93			
Group C	Alcohol	Pre	3.9	0.93			
		Post	3.7	0.93			
	Nicotine	Pre	3.7	0.98			
		Post	4.0	1.13			

Table 3.16: Contrasts between groups in alcohol and nicotine dependence questionnaires scores

Dependent Measure	Group A vs. (B+C) (<i>p</i> value)	Group B vs C (<i>p</i> value)
Factor 1: Dependence as an illness	0.866	0.452
Factor 2: Loss of control	0.029	0.028
Factor 3: Social status of the dependent person	0.322	0.401
Factor 4: Prognosis for recovery	0.588	0.077

3.3.3 Diagnosis

Tables 3.17 and 3.18 present the mean scores of medical students primary and secondary diagnoses of patients portrayed in both alcohol and nicotine dependent vignettes according to the training groups. There were no significant differences

between participants' pre/post primary and secondary diagnosis of alcohol dependent individuals and those who are nicotine dependent. On further analysis according to training groups, there were no significant differences between participants' pre/post primary and secondary diagnosis of alcohol dependent individuals and those who are nicotine dependent according to the training type they received. Table 3.19 presents the results of contrasting the three training types, where there were no significant differences between them.

Table 3.17: Primary Diagnosis among training groups

D/I			Mean	SD	F	df	p value			
Alcohol			2.3	0.80	0.48	1	0.491			
Nicotine			2.1	0.86						
Pre			2.3	0.73	0.43	1	0.516			
Post			2.2	0.82						
Group A - Nicotine (Control)			2.4	0.70	0.01	2	0.987			
Group B - AUDIT only			2.3	0.70						
Group C - AUDIT + Discussion			2.1	0.75						
Alcohol	Pre		2.4	0.86	1.26	2	0.267			
	Post		2.3	0.93						
Nicotine	Pre		2.1	0.96				0.37	2	0.695
	Post		2.2	0.93						
Group A	Alcohol		2.5	0.74	0.81	2	0.448			
	Nicotine		2.2	0.87						
Group B	Alcohol		2.3	0.80				0.81	2	0.448
	Nicotine		2.1	0.85						
Group C	Alcohol		2.1	0.87				0.81	2	0.448
	Nicotine		2.1	0.87						
Group A	Pre		2.4	0.69	1.59	2	0.213			
	Post		2.4	0.80						
Group B	Pre		2.3	0.73				1.59	2	0.213
	Post		2.2	0.81						
Group C	Pre		2.1	0.78				1.59	2	0.213
	Post		2.2	0.86						
Group A	Alcohol	Pre	2.5	0.82	1.59	2	0.213			

Group B	Nicotine	Post	2.5	0.86			
		Pre	2.1	0.97			
		Post	2.2	0.92			
	Alcohol	Pre	2.4	0.85			
		Post	2.2	0.97			
	Nicotine	Pre	2.2	0.97			
		Post	2.1	0.96			
	Group C	Alcohol	Pre	2.2	0.92		
			Post	2.1	0.94		
		Nicotine	Pre	2.0	0.96		
			Post	2.2	0.94		

Table 3.18: Secondary Diagnosis among training groups

D/I		Mean	SD	F	df	p value
Alcohol		2.3	0.47	0.35	1	0.554
Nicotine		2.2	0.56			
Pre		2.3	0.49	0.60	1	0.444
Post		2.3	0.50			
Group A - Nicotine (Control)		2.3	0.43	0.00	2	0.997
Group B - AUDIT only		2.4	0.41			
Group C - AUDIT + Discussion		2.2	0.52			
Alcohol	Pre	2.3	0.51	0.09	2	0.772
	Post	2.3	0.52			
Nicotine	Pre	2.2	0.63			
	Post	2.2	0.58			
Group A	Alcohol	2.3	0.46	0.43	2	0.655
	Nicotine	2.2	0.50			
Group B	Alcohol	2.3	0.44			
	Nicotine	2.3	0.54			
Group C	Alcohol	2.2	0.50	0.91	2	0.409
	Nicotine	2.2	0.64			
Group A	Pre	2.3	0.43			
	Post	2.3	0.51			
Group B	Pre	2.4	0.49	0.57	2	0.569
	Post	2.3	0.46			
Group C	Pre	2.2	0.55			
	Post	2.2	0.55			
Group A	Alcohol	Pre	2.3	0.57	2	0.569
		Post	2.3			
	Nicotine	Pre	2.3			

		Post	2.1	0.55			
Group B	Alcohol	Pre	2.4	0.49			
		Post	2.2	0.49			
	Nicotine	Pre	2.2	0.70			
		Post	2.3	0.54			
Group C	Alcohol	Pre	2.2	0.52			
		Post	2.3	0.58			
	Nicotine	Pre	2.2	0.70			
		Post	2.2	0.66			

Table 3.19: Contrasts between groups in primary and secondary diagnoses

Dependent Measure	Group A vs. (B+C) (<i>p</i> value)	Group B vs C (<i>p</i> value)
Primary diagnosis	0.573	0.150
Secondary diagnosis	0.837	0.601

3.3.4 Treatment Recommendations

Tables 3.20 to 3.27 present the mean scores of medical students treatment recommendations for alcohol and nicotine dependence according to the training groups. There were significant differences between medical students towards alcohol-dependent and nicotine-dependent individuals in the main effect of treatment recommendation 1 ($p < 0.001$), treatment recommendation 3 ($p < 0.001$), treatment recommendation 4 ($p < 0.001$), recommendation 5 ($p < 0.001$), recommendation 6 ($p < 0.001$), recommendation 7 ($p < 0.001$) and recommendation 8 ($p < 0.001$). There were significant positive differences between participants' pre training and post training recommendations in treatment recommendation 1 ($p < 0.001$), treatment recommendation 4 ($p = 0.007$), treatment recommendation 5 ($p = 0.037$), treatment recommendation 7 ($p = 0.003$), treatment recommendation 8 ($p = 0.007$) and a trend in treatment recommendation 3 ($p = 0.064$). There were significant positive differences

between medical students pre and post treatment recommendations for alcohol-dependent individuals and pre and post recommendations for nicotine-dependent individuals, in treatment recommendations 1 ($p = 0.001$), 4 ($p = 0.015$) and 7 ($p = 0.005$).

On further analysis, there were significant differences across training groups between participants' attitudes towards alcohol-dependent and nicotine-dependent in treatment recommendation 2 ($p = 0.036$) and a trend in treatment recommendation 3 ($p = 0.050$).

There were also significant positive differences between their pre-training attitudes and post-training attitudes in treatment recommendation 1 ($p = 0.005$), treatment

recommendation 5 ($p = 0.020$), treatment recommendation 7 ($p < 0.059$) and treatment recommendation 8 ($p < 0.001$). Moreover, there were significant positive differences

between medical students pre and post treatment recommendations for alcohol-dependent individuals and pre and post recommendations for nicotine-dependent

individuals, in treatment recommendations 4 ($p = 0.004$) and 5 ($p = 0.048$). There was a trend in treatment recommendation 6 ($p = 0.059$). Table 3.28 presents the results of

contrasting the three training types, where there were no significant differences between them.

Table 3.20: Treatment Recommendation 1 (Clinical management with patient's primary care physician) among training groups

D/I		Mean	SD	F	df	p value
Alcohol		2.3	1.18	14.91	1	< 0.001
Nicotine		1.9	1.01			
Pre		2.3	1.09	17.24	1	< 0.001
Post		1.9	1.04			
Group A - Nicotine (Control)		2.1	0.97	0.703	2	0.498
Group B - AUDIT only		2.0	1.04			
Group C - AUDIT + Discussion		2.2	0.82			
Alcohol	Pre	2.6	1.38	11.03	2	0.001
	Post	2.0	1.24			
Nicotine	Pre	1.9	1.19			
	Post	1.8	1.12			
Group A	Alcohol	2.3	1.13	1.61	2	0.207
	Nicotine	1.9	1.04			
Group B	Alcohol	2.3	1.33			
	Nicotine	1.7	1.07			
Group C	Alcohol	2.4	1.10			
	Nicotine	2.0	0.90			
Group A	Pre	2.2	1.09	5.63	2	0.005
	Post	1.9	1.01			
Group B	Pre	2.0	1.10			
	Post	1.9	1.16			
Group C	Pre	2.6	1.02			
	Post	1.8	0.92			
Group A	Alcohol	Pre	2.5	1.29	2	0.281
		Post	2.1			
	Nicotine	Pre	1.9			
		Post	1.8			
Group B	Alcohol	Pre	2.5			
		Post	2.1			
	Nicotine	Pre	1.7			
		Post	1.8			
Group C	Alcohol	Pre	2.8			
		Post	1.8			
	Nicotine	Pre	2.3			
		Post	1.7			

Table 3.21: Treatment Recommendation 2 (Follow up with counseling) among training groups

D/I		Mean	SD	F	df	p value
Alcohol		1.8	0.92	0.04	1	0.843
Nicotine		1.9	0.90			
Pre		1.8	0.85	0.10	1	0.752
Post		1.8	0.92			
Group A - Nicotine (Control)		1.8	0.84	1.99	2	0.144
Group B - AUDIT only		1.9	0.85			
Group C - AUDIT + Discussion		1.8	0.55			
Alcohol	Pre	1.8	1.04	0.23	2	0.633
	Post	1.8	1.08			
Nicotine	Pre	1.9	1.02			
	Post	1.9	1.12			
Group A	Alcohol	1.7	0.86	3.47	2	0.036
	Nicotine	2.0	1.06			
Group B	Alcohol	2.0	1.16			
	Nicotine	1.7	0.82			
Group C	Alcohol	1.7	0.63			
	Nicotine	1.9	0.77			
Group A	Pre	1.8	0.85	1.92	2	0.153
	Post	1.9	0.98			
Group B	Pre	1.8	0.93			
	Post	1.9	0.97			
Group C	Pre	1.9	0.76			
	Post	1.7	0.79			
Group A	Alcohol	Pre	1.7	1.24	2	0.295
		Post	1.7			
	Nicotine	Pre	2.0			
		Post	2.0			
Group B	Alcohol	Pre	2.0			
		Post	2.1			
	Nicotine	Pre	1.7			
		Post	1.7			
Group C	Alcohol	Pre	1.8			
		Post	1.6			
	Nicotine	Pre	1.9			
		Post	1.8			

**Table 3.22: Treatment Recommendation 3 (Follow up with behavioral therapies)
among training groups**

D/I		Mean	SD	F	df	p value
Alcohol		1.9	0.95	16.69	1	< 0.001
Nicotine		2.2	1.01			
Pre		2.1	0.91	3.54	1	0.064
Post		2.0	1.01			
Group A - Nicotine (Control)		2.2	0.95	1.69	2	0.191
Group B - AUDIT only		2.0	0.91			
Group C - AUDIT + Discussion		1.9	0.63			
Alcohol	Pre	1.9	1.07	1.28	2	0.261
	Post	1.8	1.04			
Nicotine	Pre	2.3	1.19			
	Post	2.1	1.15			
Group A	Alcohol	2.0	1.02	3.11	2	0.050
	Nicotine	2.4	1.18			
Group B	Alcohol	1.9	1.02			
	Nicotine	2.2	0.98			
Group C	Alcohol	1.8	0.77			
	Nicotine	1.9	0.74			
Group A	Pre	2.2	0.97	2.12	2	0.127
	Post	2.2	1.10			
Group B	Pre	2.1	1.01			
	Post	2.0	1.02			
Group C	Pre	2.0	0.72			
	Post	1.7	0.86			
Group A	Alcohol	Pre	1.9	2.31	2	0.106
		Post	1.9			
	Nicotine	Pre	2.6			
		Post	2.4			
Group B	Alcohol	Pre	2.0			
		Post	1.9			
	Nicotine	Pre	2.2			
		Post	2.1			
Group C	Alcohol	Pre	1.9			
		Post	1.7			
	Nicotine	Pre	2.1			
		Post	1.7			

Table 3.23: Treatment Recommendation 4 (Start detoxification therapy) among training groups

D/I		Mean	SD	F	df	p value
Alcohol		2.0	1.04	29.38	1	< 0.001
Nicotine		2.4	1.11			
Pre		2.3	1.10	7.72	1	0.007
Post		2.2	1.05			
Group A - Nicotine (Control)		2.2	0.99	2.04	2	0.137
Group B - AUDIT only		2.4	1.09			
Group C - AUDIT + Discussion		2.0	0.85			
Alcohol	Pre	2.1	1.19	6.19	2	0.015
	Post	2.0	1.07			
Nicotine	Pre	2.6	1.30			
	Post	2.3	1.24			
Group A	Alcohol	2.0	1.02	0.45	2	0.642
	Nicotine	2.4	1.15			
Group B	Alcohol	2.2	1.15			
	Nicotine	2.6	1.13			
Group C	Alcohol	1.8	0.91			
	Nicotine	2.3	1.05			
Group A	Pre	2.4	1.07	1.13	2	0.325
	Post	2.1	1.12			
Group B	Pre	2.5	1.22			
	Post	2.4	1.03			
Group C	Pre	2.1	0.99			
	Post	2.0	0.97			
Group A	Alcohol	Pre	2.0	6.03	2	0.004
		Post	2.1			
	Nicotine	Pre	2.8			
		Post	2.1			
Group B	Alcohol	Pre	2.3			
		Post	2.2			
	Nicotine	Pre	2.6			
		Post	2.6			
Group C	Alcohol	Pre	1.9			
		Post	1.7			
	Nicotine	Pre	2.4			
		Post	2.2			

Table 3.24: Treatment Recommendation 5 (Refer to social worker) among training groups

D/I		Mean	SD	F	df	p value
Alcohol		2.3	1.08	21.99	1	< 0.001
Nicotine		2.8	1.16			
Pre		2.6	1.02	4.59	1	0.037
Post		2.5	1.14			
Group A - Nicotine (Control)		2.5	1.04	0.49	2	0.617
Group B - AUDIT only		2.7	1.05			
Group C - AUDIT + Discussion		2.4	0.86			
Alcohol	Pre	2.3	1.17	2.43	2	0.125
	Post	2.3	1.21			
Nicotine	Pre	3.0	1.20			
	Post	2.7	1.32			
Group A	Alcohol	2.2	1.08	0.16	2	0.854
	Nicotine	2.8	1.20			
Group B	Alcohol	2.5	1.11			
	Nicotine	3.0	1.28			
Group C	Alcohol	2.1	1.02			
	Nicotine	2.8	0.95			
Group A	Pre	2.5	1.07	4.19	2	0.020
	Post	2.5	1.17			
Group B	Pre	2.9	1.06			
	Post	2.6	1.20			
Group C	Pre	2.6	0.87			
	Post	2.3	1.02			
Group A	Alcohol	Pre	2.1	3.21	2	0.048
		Post	2.3			
	Nicotine	Pre	2.8			
		Post	2.7			
Group B	Alcohol	Pre	2.7			
		Post	2.3			
	Nicotine	Pre	3.1			
		Post	2.9			
Group C	Alcohol	Pre	2.1			
		Post	2.1			
	Nicotine	Pre	3.0			
		Post	2.5			

Table 3.25: Treatment Recommendation 6 (Refer to rehabilitation unit) among training groups

D/I		Mean	SD	F	df	p value
Alcohol		1.7	0.86	28.78	1	< 0.001
Nicotine		2.3	1.13			
Pre		2.1	0.98	0.041	1	0.841
Post		2.0	0.94			
Group A - Nicotine (Control)		1.9	0.81	0.76	2	0.471
Group B - AUDIT only		2.2	1.04			
Group C - AUDIT + Discussion		2.0	0.73			
Alcohol	Pre	1.7	1.08	0.01	2	0.941
	Post	1.7	0.97			
Nicotine	Pre	2.3	1.23			
	Post	2.2	1.24			
Group A	Alcohol	1.6	0.71	0.46	2	0.632
	Nicotine	2.2	1.12			
Group B	Alcohol	1.8	1.07			
	Nicotine	2.4	1.16			
Group C	Alcohol	1.7	0.76			
	Nicotine	2.3	1.11			
Group A	Pre	1.9	0.83	1.47	2	0.240
	Post	1.9	1.00			
Group B	Pre	2.3	1.20			
	Post	2.0	0.93			
Group C	Pre	1.9	0.82			
	Post	2.0	0.90			
Group A	Alcohol	Pre	1.6	2.99	2	0.059
		Post	1.7			
	Nicotine	Pre	2.3			
		Post	2.1			
Group B	Alcohol	Pre	2.0			
		Post	1.7			
	Nicotine	Pre	2.5			
		Post	2.3			
Group C	Alcohol	Pre	1.6			
		Post	1.7			
	Nicotine	Pre	2.3			
		Post	2.4			

Table 3.26: Treatment Recommendation 7 (Refer to psychiatrist) among training groups

D/I		Mean	SD	F	df	p value
Alcohol		1.8	0.85	78.24	1	< 0.001
Nicotine		3.2	1.06			
Pre		2.6	0.87	9.54	1	0.003
Post		2.4	0.90			
Group A - Nicotine (Control)		2.5	0.75	0.46	2	0.633
Group B - AUDIT only		2.4	0.86			
Group C - AUDIT + Discussion		2.5	0.67			
Alcohol	Pre	1.8	1.07	8.44	2	0.005
	Post	1.8	1.05			
Nicotine	Pre	3.4	1.21			
	Post	2.9	1.25			
Group A	Alcohol	1.9	0.90	0.43	2	0.654
	Nicotine	3.2	1.11			
Group B	Alcohol	1.7	0.89			
	Nicotine	3.1	1.16			
Group C	Alcohol	1.9	0.77			
	Nicotine	3.2	0.91			
Group A	Pre	2.6	0.88	2.99	2	0.059
	Post	2.4	0.94			
Group B	Pre	2.6	0.91			
	Post	2.2	0.89			
Group C	Pre	2.5	0.83			
	Post	2.5	0.87			
Group A	Alcohol	Pre	1.8	1.65	2	0.201
		Post	1.9			
	Nicotine	Pre	3.4			
		Post	3.0			
Group B	Alcohol	Pre	1.9			
		Post	1.6			
	Nicotine	Pre	3.4			
		Post	2.8			
Group C	Alcohol	Pre	1.7			
		Post	2.0			
	Nicotine	Pre	3.4			
		Post	3.0			

Table 3.27: Treatment Recommendation 8 (All of the above) among training groups

D/I		Mean	SD	F	df	p value
Alcohol		2.2	1.14	21.14	1	< 0.001
Nicotine		2.7	1.20			
Pre		2.5	1.07	7.73	1	0.007
Post		2.3	1.20			
Group A - Nicotine (Control)		2.4	1.04	0.13	2	0.883
Group B - AUDIT only		2.2	1.14			
Group C - AUDIT + Discussion		2.6	1.03			
Alcohol	Pre	2.2	1.16	0.09	2	0.768
	Post	2.1	1.23			
Nicotine	Pre	2.8	1.24			
	Post	2.5	1.31			
Group A	Alcohol	2.2	1.07	0.69	2	0.507
	Nicotine	2.6	1.24			
Group B	Alcohol	2.0	1.23			
	Nicotine	2.5	1.17			
Group C	Alcohol	2.3	1.14			
	Nicotine	2.9	1.18			
Group A	Pre	2.4	1.02	1.76	2	0.181
	Post	2.4	1.15			
Group B	Pre	2.3	1.14			
	Post	2.1	1.22			
Group C	Pre	2.7	1.05			
	Post	2.4	1.25			
Group A	Alcohol	Pre	2.2	0.54	2	0.587
		Post	2.2			
	Nicotine	Pre	2.7			
		Post	2.5			
Group B	Alcohol	Pre	2.2			
		Post	2.0			
	Nicotine	Pre	2.6			
		Post	2.5			
Group C	Alcohol	Pre	2.4			
		Post	2.1			
	Nicotine	Pre	3.0			
		Post	2.6			

Table 3.28: Contrasts between groups in treatment recommendations

Dependent Measure	Group A vs. (B+C) (<i>p</i> value)	Group B vs C (<i>p</i> value)
Treatment 1	0.475	0.566
Treatment 2	0.378	0.167
Treatment 3	0.184	0.170
Treatment 4	0.196	0.148
Treatment 5	0.946	0.853
Treatment 6	0.751	0.489
Treatment 7	0.197	0.594
Treatment 8	0.705	0.131

3.3.5 Training feedback

Table 3.29 presents the results of participants' feedback evaluation of the training sessions they received. There were significant differences ($p = 0.047$) between participants in response to question 4 (Has your attitude changed toward Mental illnesses?). Moreover, a trend ($p = 0.054$) was observed between the participants in their response to question 1 (Has your knowledge about alcohol-dependence improved?). Table 3.30 presents the results of contrasting the three training types, where there were significant differences between them in question 1 ($p = 0.025$), question 2 ($p = 0.037$) and question 4 ($p = 0.016$). Moreover, there was a trend between them in question 5 ($p = 0.067$).

Table 3.29: Training feedback among training groups

Dependent Measure	Training Group	Mean	SD	F	df	<i>p</i> value
Q1 Has your knowledge about alcohol-dependence improved?	Group A	2.1	0.74	2.99	2	0.054
	Group B	2.5	0.50			
	Group C	2.3	0.54			

Q2 Has your attitude changed toward alcohol-dependence?	Group A	1.6	0.50	2.30	2	0.104
	Group B	1.4	0.50			
	Group C	1.4	0.49			
Q3 Has your knowledge about Mental illnesses improved?	Group A	2.0	0.61	0.48	2	0.621
	Group B	2.1	0.46			
	Group C	2.0	0.57			
Q4 Has your attitude changed toward Mental illnesses?	Group A	1.6	0.53	3.14	2	0.047
	Group B	1.4	0.50			
	Group C	1.3	0.48			
Q5 Do you think you will act differently now toward mental illness?	Group A	1.4	0.55	1.76	2	0.177
	Group B	1.6	0.70			
	Group C	1.3	0.65			
Q6 Did you change your opinion after presentation toward the patients?	Group A	1.7	0.65	0.64	2	0.530
	Group B	1.6	0.77			
	Group C	1.5	0.67			

Table 3.30: Contrast between groups in training feedback

Dependent Measure	Group A vs. (B+C) (<i>p</i> value)	Group B vs C (<i>p</i> value)
Question 1	0.025	0.437
Question 2	0.037	0.616
Question 3	0.372	0.736
Question 4	0.016	0.463
Question 5	0.850	0.067
Question 6	0.293	0.636

3.4 Manipulation Questions

Medical students were asked two questions at the end of the study to explore their awareness of the purpose of this research and the reason behind having both alcohol and nicotine dependence vignettes. Sixty three percent of participants reported they did not know the real purpose of the study compared to those who did infer the purpose

(36.2%). Seventy four percent of participants stated they did not know the purpose of having alcohol and nicotine vignettes compared to 26.1% who said they did know the purpose (Figure 3.3).

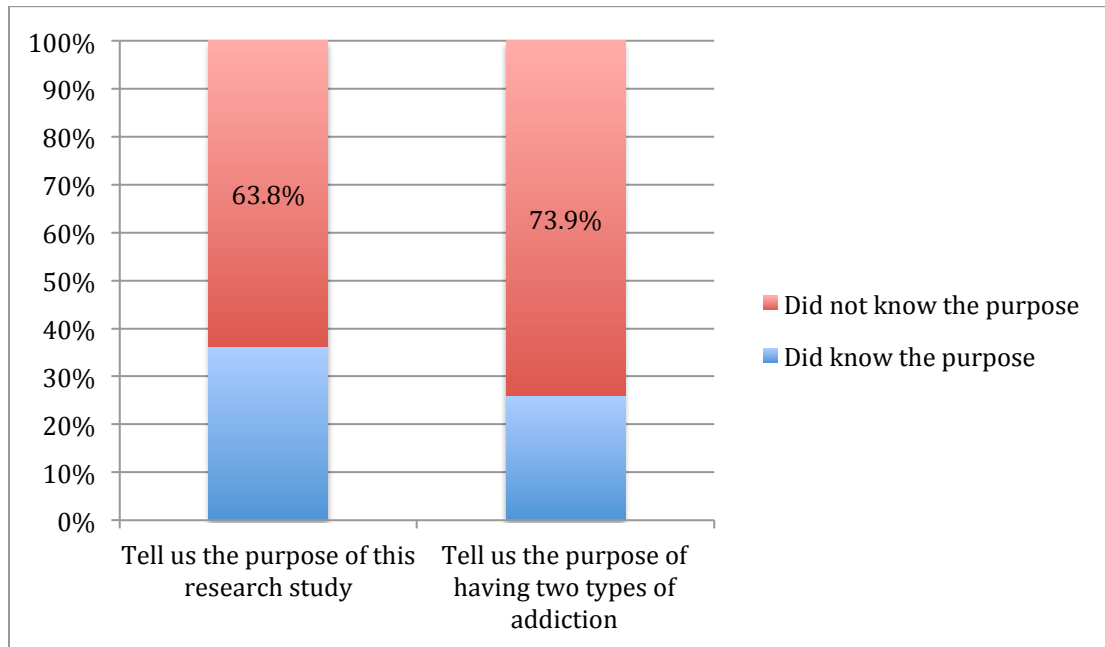


Figure 3.3: Medical students responses to the manipulation questions

Chapter 4: Discussion

4.1 Cultural Background - Study Phase 1

At the beginning of the study, we hypothesized that more stigmatizing attitudes would be expected towards alcohol-dependent individuals compared to nicotine-addicted individuals and according to cultural background of the patient (Arab-Muslim vs. European individuals). The results showed that there were significant differences ($p < 0.001$) between medical students attitudes towards alcohol-dependent and nicotine-dependent individuals, which indicates that medical students stigmatize alcohol-dependent individuals by having a larger social distance between them compared to a smaller social distance with nicotine-dependent individuals. Medical students believe that alcohol dependence is a disease compared to nicotine-dependence ($p = 0.049$) and that nicotine-dependent individuals are more capable of controlling their smoking behavior compared to drinking behavior among alcohol-dependent individuals ($p = 0.027$). Moreover, medical students believe that alcohol-dependent individuals come from the lower socio-economic strata of society compared to nicotine-dependent individuals ($p < 0.001$).

When medical students were asked to diagnose alcohol and nicotine dependent individuals, they diagnosed alcohol-dependent individuals with significantly more psychiatry-related disorders compared to how they diagnosed nicotine-dependent individuals where they use more of a mixture of substance-use and psychiatry-related disorders.

Medical students were in favor of clinical management with the patient's primary care physician for those with nicotine dependence compared to alcohol-dependent individuals ($p < 0.001$), while they preferred more of specialized therapy for alcohol-dependent individuals. They preferred to follow up alcohol-dependent individuals with behavioral therapies ($p = 0.002$): to refer them to a rehabilitation unit ($p < 0.001$), a social worker ($p < 0.001$), or a psychiatrist ($p < 0.001$) and to start detoxification therapy ($p < 0.001$). Overall, medical students were in favor of using all treatment options to treat alcohol-dependent individuals when compared to nicotine-dependent individuals ($p < 0.001$).

To test our hypotheses, the outcome measures were further analyzed according to the cultural background of the patients (Arab/European). Except for the preference of medical students to recommend detoxification therapy for the Arab alcohol-dependent patient more than for the European patient ($p = 0.018$) and trends in primary diagnosis ($p = 0.069$) and the social status of the dependent person ($p = 0.055$), there were no significant differences between medical students attitudes toward Arab and European patients.

4.2 Training Programs - Study Phase 2

The medical students' attitudes were expected to change after proper training on alcohol screening, as education and training have been considered effective anti-stigma interventions ⁽¹⁸⁾. Overall, there were no significant training effects on participants' pre and post attitudes towards alcohol-dependent individuals and nicotine-dependent

individuals in the stigma/social distance scale, the alcohol and nicotine dependence questionnaires and diagnoses. However, there were significant differences between medical students pre and post treatment recommendations for alcohol-dependent individuals and pre and post recommendations for nicotine-dependent individuals. The students became more positive after the training towards managing alcohol-dependent and nicotine-dependent individuals with their primary care physician ($p = 0.001$).

Similarly, they became more positive after the training towards starting both of alcohol-dependent and nicotine-dependent individuals with detoxification therapy ($p = 0.015$).

Medical students became negative after the training towards referring alcohol-dependent individuals to psychiatrists and more in favor of referring nicotine-dependent individuals to them ($p = 0.005$).

The outcome measures were further analyzed according to the three training groups: FTND, AUDIT only and AUDIT with discussion. There were significant differences ($p = 0.013$) between participants' pre and post training attitudes toward alcohol-dependent and nicotine-dependent individuals on the stigma/social distance scale. Their pre and post training attitudes were significantly different ($p = 0.043$) when they looked at the prognosis for recovery of alcohol-dependent compared to their pre and post attitudes toward nicotine-dependent individuals. Even though there were no significant differences between participants' pre/post primary and secondary diagnoses of alcohol dependent individuals and those who are nicotine dependent according to the training they received, there were significant differences between their pre and post treatment recommendations for alcohol-dependent individuals and pre and post recommendations

for nicotine-dependent individuals. Those significant differences were observed in starting detoxification therapy ($p = 0.004$) and in referring the patients to a social worker ($p = 0.048$). Moreover, there was a trend in referring the patients to a rehabilitation unit ($p = 0.059$).

In the students' feedback evaluation of the training sessions, there were significant differences ($p = 0.047$) between the participants in their responses to question 4 (Has your attitude changed toward mental illnesses?). Moreover, a trend ($p = 0.054$) was observed between the participants in their response to question 1 (Has your knowledge about alcohol-dependence improved?). These results are inline with our hypothesis that proper training would change the knowledge and attitudes of medical students towards alcohol-dependent individuals.

To examine the effect training programs further, contrast analyses were performed to look at the differences between the three training groups. We found that the attitudes of those who received FTND training were significantly different ($p = 0.029$) than those who received AUDIT training and AUDIT with discussion on their beliefs about the capability of dependent individuals to control their dependence. Moreover, the attitude of those who received AUDIT only training were significantly different ($p = 0.028$) than those who received AUDIT and discussion training in the same outcome measure. In the prognosis and recovery of alcohol and nicotine dependent individuals, there was a trend ($p = 0.077$) between those who received AUDIT only training and those who received AUDIT and discussion training. In training feedback evaluation, there were significant differences between medical students who received FTND training and those

who received AUDIT training and AUDIT with discussion in question 1 (Has your knowledge about alcohol-dependence improved?) ($p = 0.025$), question 2 (Has your attitude changed toward alcohol-dependence?) ($p = 0.037$) and question 4 (Has your attitude changed toward Mental illnesses?) ($p = 0.016$). Moreover, there was a trend between those who received AUDIT only training and those who received AUDIT and discussion in question 5 (Do you think you will act differently now toward mental illness?) ($p = 0.067$), indicating that participants in groups B and C attitudes have changed towards alcohol-dependence and mental illnesses more than group A participants.

The majority of participants were unaware of the real purpose of the study (63.8%) were not able to guess the reason of having two types of disorder (73.9%).

The discussion above supports our hypothesis that medical students have stigmatized attitudes towards alcohol-dependent individuals compared to nicotine-dependent individuals. The findings suggest that the students would act differently with alcohol-dependent and nicotine dependent individuals, based on the evidence that they hold more stigmatizing attitudes towards alcohol-dependent individuals. This is consistent with what was stated above, as alcohol-dependence or alcoholism is a stigmatized condition ⁽³³⁾ and these attitudes even exist among healthcare professionals ⁽³⁴⁾ On the other hand, the results did not support our hypothesis that stigmatized attitudes would be affected by the cultural background of the dependent individuals, as medical students had the same stigmatized attitudes towards alcohol-dependent individuals regardless of their cultural background. The results suggest that perhaps the medical

curriculum was able to teach the students how to clinically encounter dependent patients without stereotyping according to their cultural background. This also would be explained by the fact that most of the students come from higher socioeconomic status families where such stereotypical attitudes may not be typical.

The results provide limited support to our hypothesis that proper training would change medical students attitudes towards dependent individuals. Significant changes were observed in some of treatment recommendations, but changes were not seen in the stigma/social scale, alcohol and nicotine dependence questionnaires or diagnosis scale; which means that to a certain extent and with proper training of medical students, we could effectively change their stigmatizing behaviors, not attitudes, into more positive behaviors towards alcohol-dependent individuals. The brief training programs were not able to change the stigmatizing beliefs that they have acquired from the society and their surrounding culture, but the same programs were able to add to their medical knowledge by exploring the lines of management for alcohol and nicotine dependent individuals, which might be lacking in their medical education; i.e. training programs were able to improve the knowledge and behaviors of medical students towards addiction and substance use, but were not able to change their stigmatizing attitudes. These results are consistent with the study conducted on medical students in Edmonton, Canada; as they were exposed to an educational intervention that featured an anti-stigma video, and there was an increase of 10% in knowledge and attitudes as measured by pre- and post- test results ⁽¹⁸⁾.

4.3 The Importance of Studying Stigma

Stigma is considered a major barrier to health care and quality of life in illness management ⁽³⁰⁾. According to Link ⁽⁶⁰⁾, stigma has affected public health in three distinctive ways: discrimination, life chances and stress. He claims that the stigmatized person would act less confidently and more defensively with others. They may avoid a threatening contact completely. This would affect their quality of life by putting them in uncomfortable social interactions and constricted social networks. Moreover, depressive symptoms, low self-esteem, unemployment and eventually loss of income would occur.

Stigma processes have an under recognized effect socioeconomic status of the affected individuals, such as employment opportunities, housing, and access to healthcare. Link ⁽⁶⁰⁾ adds that stigma could explain 20% of the variance beyond the effects of age, gender and years of education. Stigmatized individuals would also suffer from chronic stress and its negative effects on their mental and physical health by the continuous denial of the good things and events in individuals lives ⁽⁶⁰⁾.

One important implication of the study of stigma and its relation to treatment services is the anti-stigma work by the World Psychiatric Association (WPA). WPA has synthesized an operational mode that puts stigma and its consequences into a cycle (Figure 4.1).

The model states that a visible abnormality (marker) allows the identification of an individual and would create negative contents by associating it with previous experience, memories or knowledge. Once the marker is perceived in this way (loading), it becomes stigma and any individual who has it will be stigmatized. Stigmatization may lead to

discrimination and this will eventually affect individuals negatively by lowering their self-esteem or affecting their access to health care services. This will amplify the marker and the stigmatization cycle will continue. The advantages of this model are: 1) stigma is seen as part of a process or cycle that could affect the severity of an illness; 2) it will continue to grow until it gets interrupted; and. 3) there is an access point to interventions by health workers, hospitals and communities. Even if stigma is not removed, we can reduce discrimination for instance by legal means ⁽¹⁸⁾.

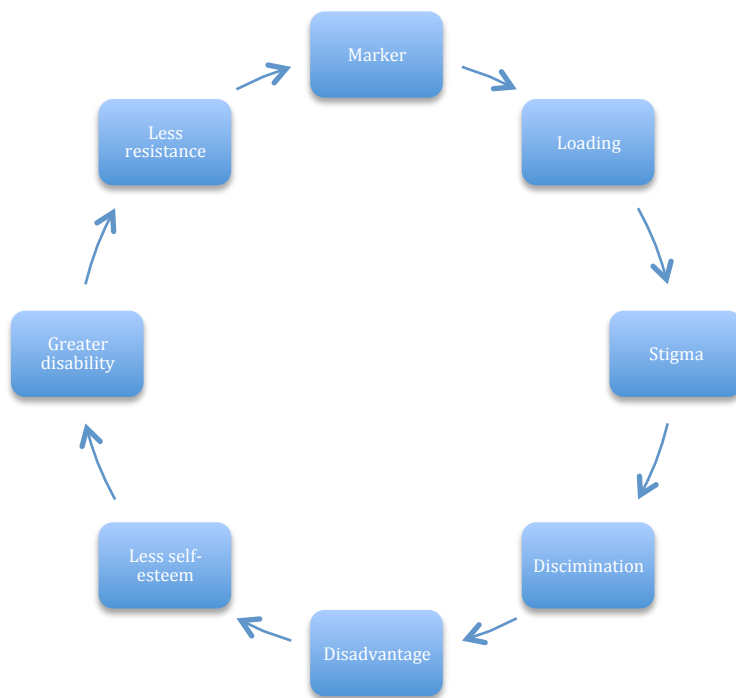


Figure 4.1: Cycle of stigmatization for the individual ⁽¹⁸⁾

4.4 Limitation of the study

At the beginning of the study, we aimed to have a sample size of 132 medical students, We achieved this objective with 131 participating (99.24%) medical students. However, the response rates varied according to gender, nationality and medical year, which might limit the generalization of the results. The majority of the participants were from Bahrain, Saudi Arabia and Kuwait, even though they represent the student body of the Arabian Gulf University (AGU), the results may not be generalizable to the rest of GCC countries, i.e. Qatar, Oman and United Arab Emirates (UAE). As the final MD exam was scheduled a few weeks after the study was conducted, the number of year 6 (final year) students was small, as they preferred to prepare for their exam instead of participating in the study.

Training programs were very short and brief. It is possible that more systematic training programs would remove stigmatizing attitudes between nicotine and alcohol dependence. The time between pre and post tests was short, so the results of the brief training could have been stronger if more time was given to participants (days or weeks) to practice their newly learned screening skills. Although having multi-national medical students gives us an opportunity to have a broader view of their attitudes, a more specific sample of primary care physicians would provide us with more information about their original training and practice. Individual interviewing would be of good value if added to the methods to explore individual feedback from students and their insights about the training and to further explore their attitudes. Future research could explore alcohol stigma and intervention in a wider range of students, including first year students,

and include a stronger intervention and better opportunities to practice screening and brief intervention SBI.

4.5 Implications and recommendations

This study is one of the first studies of alcohol stigma in the Arabian Gulf region. The study has several strengths including the use of vignettes to study stigma, its randomized design and the inclusion of advanced medical students.

Training programs on prevention, screening and brief intervention of substance use, specifically nicotine and alcohol dependence, should be introduced and conducted with physicians, medical students and healthcare providers in the Middle East earlier in their careers. Moreover, training programs should be developed and integrated in medical school curricula, and in particular for the programs at the AGU. Further evaluation of AUDIT and FTND in the Middle East is recommended, with emphasis on cultural differences and the acceptance or rejection of nicotine-dependent and alcohol dependent individuals in the society. Since screening tests are used throughout the world, this would give an opportunity to educate medical professionals on how to manage diseases influenced by stigmatized attitudes. Further research is needed on stigma and stigmatized attitudes in the Middle East toward individuals with mental health disorders in general and substance use in particular. Research might also explore the role of stigmatizing language, such as terms like “alcohol abuse”.

The procedures developed in this study are sensitive to the different types of training and might be used in drug addiction research where we expect biases are even stronger. Moreover, the procedures appear to be sensitive to actual medical behaviors.

This kind of methodology appears to be efficient and sensitive, and could be useful in research on HIV, drug addiction and mental health disorders.

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Appendix 1 - Curriculum Map of College of Medicine and Medical Sciences (AGU)

Year					Phase
1	Pre-Medical				I
2	Unit I 11 Weeks Man & His Environment	Unit II 8 Weeks Life Cycle	Unit III 13 Weeks Respiratory & Cardiovascular	II	
	Professional Skills & Community Health Activities				
3	Unit IV 12 Weeks Metabolism, Endocrine & Reproductive	Unit V 12 Weeks Gastrointestinal & Renal	Unit VI 10 Weeks Haemopoietic & Immune		
	Professional Skills & Community Health Activities				
4	Unit VII 9 Weeks Musculo-Skeletal & Integumentary	Unit VIII 12 Weeks Nervous System, Special Senses & Human Behavior	Unit IX 6 Weeks Medicine, Technology & Society		
	Professional Skills & Community Health Activities				
5	Clinical Rotation 10 Weeks General Medicine	Clinical Rotation 10 Weeks Obstetrics & Gynecology	Clinical Rotation 10 Weeks Pediatrics	Clinical Rotation 10 Weeks General Surgery	III
	Problem based Multi-disciplinary Seminars				
6	Clinical Rotation 8 Weeks Urology 2 Wk Orthopedics 2 Wk Anaesthesia 2 Wk A&E 2 Wk	Clinical Rotation 8 Weeks Psych 4 Wk ENT 2 Wk Opthal 2 Wk	Clinical Rotation 8 Weeks Rheum/Radiol 2 Wk Neurology 2 Wk Dermatology 2 Wk ICU & Infect D. 2 Wk	Clinical Rotation 8 Weeks Family Medicine	MD
	Review 4 Weeks				

Source: College of Medicine and Medical Sciences Prospectus ⁽⁶¹⁾

Appendix 2 - Alcohol-dependence Questionnaire ⁽⁴⁵⁾

On the following pages you will find a number of statements about alcohol-dependence. We want to know how much you agree or disagree with each of the statements. To the right of each statement you can find a rating scale, the points along the scale (1,2,3,...7) can be interpreted as follows:

1. Completely disagree
2. Mostly disagree
3. Disagree more than agree
4. Neutral
5. Agree more than disagree
6. Mostly agree
7. Completely agree

Item	1	2	3	4	5	6	7
1 The average alcohol-dependent person is usually unemployed.							
2 The alcohol-dependent person is helpless to control the amount of alcohol he drinks.							
3 Alcohol-dependence is best described as a habit rather than an illness.							
4 The alcohol-dependent person drinks excessively mainly because he enjoys drinking .							
5 The alcohol-dependent person is seldom helped by any sort of medical or psychological treatment.							
6 The alcohol-dependent person has only himself to blame for his problems.							
7 alcohol-dependent persons, on the average, have a poorer education than other people.							
8 Hardly any alcohol-dependent persons could drink less even if they wanted to.							
9 Very few alcohol-dependent persons come from families in which both parents were abstainers.							
10 Alcohol-dependence never comes about very suddenly.							
11 Alcohol-dependence is not a disease.							
12 Most alcohol-dependent persons could not be rehabilitated even if more help were available to them.							
13 Alcohol-dependent persons are seldom found in important positions in business.							
14 Preferring to drink alone rather than with friends is a sign of alcohol-dependence.							
15 Most alcoholics are completely unconcerned about							

	their problem.							
16	With proper treatment, some alcohol-dependent persons can learn to take the occasional social drink without getting into trouble.							

Appendix 3 - Nicotine (Tobacco) dependence Questionnaire ⁽⁴⁵⁾

On the following pages you will find a number of statements about tobacco (nicotine) smoking. We want to know how much you agree or disagree with each of the statements. To the right of each statement you can find a rating scale, the points along the scale (1,2,3,...7) can be interpreted as follows:

1. Completely disagree
2. Mostly disagree
3. Disagree more than agree
4. Neutral
5. Agree more than disagree
6. Mostly agree
7. Completely agree

Item	1	2	3	4	5	6	7
1 The average nicotine dependent smoker is usually unemployed.							
2 The nicotine dependent smoker is helpless to control the amount of cigarettes he smokes.							
3 Tobacco smoking is best described as a habit rather than an illness.							
4 The nicotine dependent smokers smokes excessively mainly because he enjoys smoking .							
5 The nicotine dependent smoker is seldom helped by any sort of medical or psychological treatment.							
6 The nicotine dependent smoker has only himself to blame for his problems.							
7 Nicotine dependent smokers, on the average, have a poorer education than other people.							
8 Hardly any nicotine dependent smoker could smoke less even if they wanted to.							
9 Very few nicotine dependent smokers come from families in which both parents were never-smokers.							
10 Nicotine dependence never comes about very suddenly.							
11 Nicotine dependent smoking is not a disease.							
12 Most nicotine dependent smokers could not be rehabilitated even if more help were available to them.							
13 Nicotine dependent smokers are seldom found in important positions in business.							
14 Preferring to smoke alone rather than with							

	friends is a sign of nicotine addiction.							
15	Most nicotine dependent smokers are completely unconcerned about their problem.							
16	With proper treatment, some smokers can learn to take the occasional heavy smoking without turning to be nicotine dependent.							

Appendix 4 – Scoring procedures of alcohol-dependence questionnaire ⁽⁴⁵⁾

Scoring:

As you can see from Appendix 2 and 3, an individual can obtain a score from 1 to 7 on each of the 16 items: “1” if he completely disagrees with the item, “2” if he mostly disagrees with it, etc. The four items used to measure each of the factors are shown in Table 1. The statistic, which is of most interest, is the mean factor score for a group of individuals, but for some purposes individual factor scores may be wanted also. To obtain an individual’s score on any factor, take the sum of his scores on the four items defining that factor and divide by four (the number of items). For example, if a person scores 5, 5, 7, and 3 on the four items, his factor score would be the sum of these (20) divided by the number of items (4), or 5.00.

Table 1. Scoring key for the alcohol-dependence questionnaire

Factor	Defining Items	Interpretation	Experts’ Position
Alcohol-dependence as an illness	3, 6, 11,16	A low score indicates the belief that alcohol-dependence is a disease	Low
Loss of control	2, 8, 10,14	A low score indicates the belief that the alcohol-dependence is able to control his drinking behavior	High
Social status of the alcohol dependent person	1, 7, 9, 13	A low score indicates the belief that alcohol-dependence not necessarily come from the lower socio-economic strata of society	Low
Prognosis for recovery	4, 5, 12, 15	A low score indicates the belief that most alcoholics do, and can be helped to, recover from alcohol-dependence	Low

The mean factor score for a group is simply the average of the factor scores obtained by all the individuals in that group. There are three stages in the computation:

1. Compute the sum of the four defining items for each person.
2. Obtain the total of these sums for all the persons in the group.
3. Divide this figure by the number of items (4) times the number of persons.

It is apparent that the mean factor score, whether for an individual or group, for an item or a factor, must vary somewhere between 1.00 and 7.00

Below is a sample computation of the mean factor score on Factor 1 for a group of 12 people, which is: $\text{Mean} = 190 / (4 \times 12) = 3.96$

Factor 1 Mean Computation

Subject code	Item 3	Item 6	Item 11	Item 16	Sum
1	6	1	6	7	20
2	3	3	3	5	14
3	2	2	1	5	10
4	6	2	4	5	17
5	4	1	5	5	15
6	6	1	3	6	16
7	6	4	6	5	21
8	5	1	1	7	14
9	1	6	1	5	13
10	4	1	6	7	18
11	4	1	4	6	15
12	5	5	1	6	17
Sum	52	28	41	69	190

Appendix 5 – Treatment options survey for patients portrayed in the vignettes ⁽¹⁸⁾

Note: Two versions of this survey were administered, one related to alcohol-dependence and one related to nicotine-dependence

I. ICD-10 is the 10th revision of the International Statistical Classification of Diseases and Related Health Problems (ICD), a medical classification list by the World Health Organization (WHO). It contains codes for diseases, signs and symptoms, abnormal findings, complaints, social circumstances, and external causes of injury or diseases.

From the list of diagnoses below, select the most appropriate diagnosis of this particular patient. You may select **ONE PRIMARY** and **MULTIPLE SECONDARY**

ICD-10 Code	Diagnosis	Primary	Secondary
F07	Personality and behavioral disorder		
F09	Organic or symptomatic mental disorder		
F10	Mental and behavioral disorder due to use of psychoactive substance use		
F11	Harmful psychoactive substance use		
F12	Dependence syndrome due to psychoactive substance use		
F13	Withdrawal state due to psychoactive substance use		
F20	Schizophrenia		
F23	Acute and transient psychotic disorder		
F31	Bipolar affective disorder		
F32	Depressive episode		
F41.2	Mixed anxiety disorder		
F43	Reaction to severe stress and adjustment disorder		
F60.2	Dissocial personality disorder		
F98	Behavioral and emotional disorder		

II. In your opinion, what is the appropriate treatment options for this particular patient:

III. Please tell us if you would agree or disagree with the following treatment approaches to treat this particular patient using the scale:

(1) Strongly Agree

(2) Agree

(3) Neither agree nor disagree

(4) Disagree

(5) Strongly Disagree

Read each statement. Record one answer per statement.

Treatment approach		1	2	3	4	5
1	Clinical management with patient's primary care physician					
2	Follow up with counseling					
3	Follow up with behavioral therapies					
4	Start detoxification therapy					

5	Refer to social worker					
6	Refer to rehabilitation unit					
7	Refer to psychiatrist					
8	All of the above					

IV. Please tell us how you would feel in each of the following situations using the scale:

(1) Definitely (2) Probably (3) Probably not (4) Definitely not

Read each statement. Record one answer per statement.

Situation		1	2	3	4
1	I would feel afraid to have a conversation with someone who is like this patient				
2	I would not be comfortable about providing treatment to this patient				
3	I would be able to maintain a friendship with someone who is like this patient outside my profession				
4	I would be comfortable about living in the same building or neighborhood with someone who is like this patient				
5	I would feel ashamed if people knew someone in my family has been diagnosed with the same condition as this patient				
6	If I had the choice, I would not accept individual like this patient to be treated in my clinical practice				

V. Based on patient's symptoms, medical history, culture, religion and other factors. Please explain the reason for your selection of diagnosis and treatment recommendations you have provided:

VI. Demographics

1. To further help us with our analysis please tell us how old you are?

_____ years

2. Are you?

1 Male 2 Female

3. What is your Nationality?

1 Bahraini 2 Kuwaiti 3 Saudi Arabian 4 UAE

5 Omani 6 Qatari 7 Other (Please specify): _____

4. Medical Year

1 Year 5 2 Year 6

Following questions will be provided separately at the end of study procedures

VII. Please tell us what was the purpose of having two types of addiction (alcohol and nicotine) in the study

VIII. Please tell us what was the purpose of this research study.

Appendix 6 – AUDIT Training Outline⁽⁵⁰⁾

Introduction

Objectives and overview

Module 1: Social Factors Epidemiology

Topic 1: Social and epidemiological features

- History of alcohol
- Economic development
- Marketing strategy
- Risk factors of DALY's
- Alcohol mortality
- Heavy Episodic Drinking
- Acute problems
- Acute and chronic health conditions

Topic 2: Determinants of the health-disease-care process

- Multiple factors
- Alcohol and Gender
- Alcohol and social disadvantages
- Alcohol and indigenous populations
- A public health approach

Topic 3: Patterns of drinking

- Classification
- Dependence
- Tolerance
- Withdrawal
- Social consequences of dependence
- Spectrum of Consumption
- Population distribution of alcohol consumption and risk

Module 2: The Alcohol Use Disorders Identification Test (AUDIT)

Topic 1: Alcohol Use Disorders Identification Test (AUDIT)

- AUDIT Domains and Item Content
- Why early detection?
- Characteristics of the AUDIT

Topic 2: Components and Application of AUDIT

- AUDIT
- Frequency of drinking
- Typical quantity
- Frequency of heavy drinking
- Impaired content over drinking
- Morning drinking
- Guilt after drinking
- Blackouts
- Alcohol-related injuries
- Other concerned about drinking
- Administering the AUDIT
- By WHO and WHERE?

Topic 3: Administering AUDIT

- Scoring and interpretation of results
- How to score the AUDIT
- How to make use of AUDIT results
- What does the AUDIT results mean?
- Risk zones
- AUDIT-C
- AUDIT risk level zones

Appendix 7 – AUDIT Training Survey ⁽¹⁸⁾

We would appreciate your time in answering the following a few questions about the presentation. Your responses will help us evaluate whether we are meeting our goals and will help us to improve our performance

1. Has your knowledge about alcohol-dependence improved as a result of this presentation?

1 Not at all 2 Somewhat 3 Considerably

2. Has this presentation changed your attitude towards alcohol-dependent individuals?

1 My attitude has become more positive

2 My attitude has not changed

3 My attitude has become more negative

3. Has your knowledge about other mental illnesses approved as a result of this presentation?

1 Not at all 2 Somewhat 3 Considerably

4. Has this presentation changed your attitude towards people with mental illness?

1 My attitude has become more positive

2 My attitude has not changed

3 My attitude has become more negative

5. What part of this presentation had the most benefit for you?

6. What part of this presentation would you improve?

7. Do you think that you will now act differently towards people with a mental illness as a result of this presentation? Please explain.

8. Did you change your opinion of the patient presented to you today morning after the training session? Please explain. If you did not, please explain.

9. Please tell us what was the purpose of this training session:

10. To further help us with our analysis please tell us how old you are?

_____ years

11. Are you?

1 Male 2 Female

12. What is your Nationality?

1 Bahraini 2 Kuwaiti 3 Saudi Arabian 4 UAE

5 Omani 6 Qatari 7 Other (Please specify): _____

13. Medical Year

1 Year 5 2 Year 6

Appendix 8 – Focus group discussion questions

NOTE: Only use your first names and not to provide any identifying information during the discussion.

1) How do you think the cases presented to you today morning would score on AUDIT? Which AUDIT zone would likely reflect the cases you reviewed? What symptoms from the AUDIT would most likely be endorsed?

2) How would you deal with those patients? What would you discuss with them? What additional questions would you ask? Would you talk about work or family issues? How would you explain your diagnosis?

3) What would you recommend to treat them? What types of treatment did you consider most appropriate? Psychiatric, addiction-focused, medical, other? Where would you refer these patients? Why?