Title
Knowledge, Attitudes and Beliefs about Smoking in Jordanian Men who are Smokers and Hospitalized with a Cardiovascular Diagnosis

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Knowledge, Attitudes and Beliefs about Smoking in Jordanian Men who are Smokers and Hospitalized with a Cardiovascular Diagnosis

by

Rami Azmi Elshatarat

DISSERTATION

Submitted in partial satisfaction of the requirements for the degree of

DOCTOR OF PHILOSOPHY

in

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in the

GRADUATE DIVISION

of the

Dedication

I dedicate this dissertation to:

My parents, Azmi Elshatarat and Azeeza Elshatarat for instilling the importance of hard work and higher education. I would never have been able to finish my dissertation without their guidance and support. You are great parents and the persons I love the most in this world. I will not forget your caring, patient, help, and prayers for our God to bless and guide me;

My cousin Nawaf Shatrat for his encouragement and guidance to complete my dissertation;

My grandfather, Mahmoud Elshatarat for opening my eyes to the world;

My uncles Lafee Yousef Elshatarat; Ghazi Elshatarat; and Amin Elshatarat for their encouragement and guidance to help me reach my dreams.

In closing, I would like to thank Allah (God) for giving me wisdom and guidance throughout my life to finish this dissertation. For only through Allah's grace and blessings has this dissertation been possible.

In the name of Allah, the Beneficent, the Merciful:

> *Say: Lo! As for me, my Lord hath guided me unto a straight path, a right religion, the community of Abraham, the upright, who was no idolater (161). Say: Lo! my worship and my sacrifice and my living and my dying are for Allah, Lord of the Worlds (162). He hath no partner. This am I commanded, and I am first of those who surrender (unto Him) (163). Holy Quran, Chapter 6 (Al-Anaam), 161-163.*

> *"Are those who know equal with those who know not? But only men of understanding will pay heed (9)." Holy Quran, Chapter 39 (Az-Zumar), 9.*

Acknowledgment

This dissertation arose in part out of years of research that has been done since I came to the United States of America. I have worked with a great number of people who deserve special mention who have contributed in many ways to the research and the writing of this dissertation. It is a pleasure to convey my gratitude to them all in my humble acknowledgment.

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Knowledge, Attitudes and Beliefs about Smoking in Jordanian Men Who are Smokers and Hospitalized with a Cardiovascular Diagnosis

Rami Azmi Elshatarat, RN, MSN, PhD

ABSTRACT

Background: Tobacco use is the most preventable cause of death worldwide. Despite high rates of tobacco use and high prevalence of cardiovascular disease (CVD) in Jordan, little is known about smoking behaviors in patients who smoke and have CVD.

Objectives: To describe perceptions and patterns of smoking in patients hospitalized with CVD in Amman, Jordan.

Methods: This cross-sectional study recruited a convenience sample from two hospitals. Data were collected using medical record abstraction and structured interviews.

Results: This sample of consists of 112 men who were hospitalized with CVD; they were middle-aged (52.5 ± 9.7 years), most were married, educated (≥ high school), and had incomes above the national average. The mean number of years of cigarette smoking was [35.9 (±10.4)], and they smoked 24.5(±13.62) cigarettes per day. The majority (82.3%) had medium to high nicotine dependence. About 40% had attempted to quit smoking in the past 12 months using "their own way without help from others," and intend to quit in the future using the same unsuccessful methods. The men were unaware of hazards of smoking such as stroke and addiction to nicotine; nor of the long term health benefits of quitting smoking. A logistic regression analysis showed that men with higher income (OR: 7.7, 95% CI: 2.7, 22.3), with longer hospital stays (OR: 2.6, 95% CI:1.3, 5.3), in acute cardiac settings (OR:3.9, 95% CI:1.2, 12.7), and a diagnosis of an acute CVD event (OR:3.0, 95% CI:1.1, 8.3) were more confident in their ability to quit smoking.

Discussion: The key findings were that men with CVD were heavy smokers, unaware of the addictive nature of smoking and of the benefits of quitting. Some had previous unsuccessful quit attempts using their own methods, but planned to use these methods again in the future. These findings suggest that every patient admitted to the hospital must be screened for smoking status. Those who smoke need to be offered evidence based smoking cessation education and counseling.

Approved:

Erika S. Froelicher, RN, MA, MPH, PhD, FAAN
Disseration Chairperson

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Chapter I: Dissertation Introduction

Introduction

Tobacco use is the most preventable cause of death worldwide (Centers for Disease Control and Prevention [CDC], 2007). It causes 1in 10 deaths among adults worldwide (Levine & Kinder, 2004) and more than 435,000 deaths each year in the United States (CDC, 2007). Tobacco use is a risk factor for six of the eight leading causes of death globally (ischemic heart disease, cerebrovascular disease, lower respiratory infections, chronic obstructive pulmonary disease (COPD), tuberculosis and cancer of the trachea, bronchus, and lung) (World Health Organization [WHO], 2008). Of the approximately 1.2 billion smokers in the world, about half of them will die from diseases caused by smoking (Mackay, Ericksen & Shafey, 2006) and more than 80% of the world's tobacco-related deaths will be in low and middle-income countries (Mathers & Loncar, 2006). By 2030, deaths related to tobacco use will exceed eight million annually worldwide (Mathers & Loncar, 2006).

During the 20th century, approximately 100 million people died from diseases related to tobacco use. Tobacco use causes at least one quarter of all deaths from heart disease worldwide (WHO, 2002). In the United States, approximately 61 million people suffer from some form of cardiovascular disease (American Heart Association [AHA], 2005). Americans die at a rate of one in 33 seconds, (2,600 deaths daily) from cardiovascular disease (CVD) (United States Department of Health and Human Services [USDHHS], 2004). In Jordan, CVD is the highest leading cause of death, which is responsible for about 38.2% of all deaths in Jordan annually (WHO, 2006a). The vast majority of those with CVD have at least one risk factor. In the

Middle East, cigarette smoking, diabetes mellitus, hypertension, and hyperlipidemia are the most prominent risk factors for CVD (Hammoudeh et al., 2006).

Tobacco use contributes to reduction in life expectancy, loss of productivity and increases medical costs (Das, 2003). Over 15 billion cigarettes are smoked every day worldwide (Levine & Kinder, 2004). Tobacco-related health care costs approximately US $81 billion annually (Guindon, et al., 2006). In Egypt, over 10% of household expenditures in low-income homes are spent on tobacco (Nassar, 2003).

Globally, tobacco use, production, and consumption are continuing (Mackay, Ericksen & Shafey, 2006). Despite the harmful consequences of tobacco use and the population's awareness of these health problems, approximately 1,200 children and adolescents become new cigarette smokers daily (Substance Abuse and Mental Health Services Administration, 2007). If current trends continue, smoking is estimated to kill one in six people worldwide (WHO, 2002). Even with recommendations to stop smoking, smokers with life-threatening medical problems such as acute coronary syndrome are unable to quit (CDC, 2006). In 2005, only 4 to 7 percent of 19 million American adults who attempted to quit smoking were successful (CDC, 2006). Despite all the information about the adverse health consequences, many smokers particularly in developing countries cannot or choose not quit their smoking habit (Royal College of Physicians of London, 2000).

One third of the adult male population smokes globally (WHO, 2002). Approximately, 45 million (21%) adult Americans are smokers (CDC, 2007). In Jordan, smoking is a growing problem. Approximately, 61.7% of men and 7.9% of women in Jordan are smokers, which has the highest prevalence for smoking among all countries in the Middle East (WHO, 2008).

More than 4,000 toxic or carcinogenic chemicals have been found in tobacco smoke (WHO, 2002). Nicotine is a major ingredient in tobacco that leads to nicotine dependence, contributes to the harmful habit of tobacco use and results in high morbidity and mortality rates worldwide (USDHHS, 2004). Tobacco use causes at least one quarter of all deaths from heart disease worldwide (WHO, 2002). In the United States, approximately 61 million people suffer from some form of cardiovascular disease (AHA, 2005).

In Jordan, CVD is the highest leading cause of death (WHO, 2006a). The vast majority of those with CVD have at least one risk factor. In the Middle East, cigarette smoking, diabetes mellitus, hypertension, and hyperlipidemia are the most prominent risk factors for CVD (Hammoudeh et al., 2006).

Tobacco is the only legal consumer product that is responsible for adverse health effects. Tobacco is widely used worldwide due to low prices, aggressive and widespread marketing, people's lack of awareness of its adverse health effects and inconsistent tobacco control polices (WHO, 2008).

Cigarettes are the most frequently used type of tobacco. Another form of traditional tobacco use used in Middle Eastern and Asian countries is the waterpipe. It is also gaining popularity in the US and Europe (WHO, 2006b). Lack of awareness about the adverse health effects of tobacco use and mistaken beliefs that other forms of tobacco (e.g. waterpipe) are less harmful than cigarettes perpetuate the public health concern of tobacco use. Although it is becoming known worldwide that all forms of tobacco are lethal and cause addiction, some countries have little knowledge about the health concerns of tobacco use (WHO, 2006c). One survey found that about 99% of British women did not know of the association between smoking and cervical cancer. Another survey found that 60% of Chinese adults were unaware that

smoking could cause lung cancer (WHO, 2002). This gap in knowledge is a rational explanation for the continued popularity of all forms of tobacco globally. Since there are different forms of tobacco and varying regulations, many of these forms do not include the same warning labels, taxes and other restrictions that are placed on cigarettes (WHO, 2008). Therefore, the public needs to be warned and educated about the hazards of all tobacco forms in order to limit tobacco use.

Despite high rates of tobacco use and the prevalence of CVD in Jordan, little is known about smoking behaviors particularly among CVD patients. Even with tobacco control policies and efforts to help people to quit smoking, there are no active smoking cessation programs in Jordan. According to databases search including PubMed, CINAHL, and Google; there are no published studies about smoking knowledge, attitudes and beliefs among patients with CVD in Middle Eastern countries, particularly Jordan. This is problematic because is very important to understand individuals' perceptions and behaviors related to smoking and to develop smoking cessation programs. Health care providers need baseline information to implement successful smoking cessation strategies. Information is needed that includes smokers' demographic characteristics, smoking history, smokers' patterns, smokers' knowledge and beliefs about smoking hazards, health risks, the benefits of quitting smoking, smokers' future intentions for quitting, confidence in their ability to stop smoking, and their preferred methods for quitting (Sohn, et al., 2007). Once these characteristics are known smoking cessation education and strategies to quit smoking can be individualized.

Research Purpose

This study aims to describe perceptions and patterns of smoking among hospitalized Jordanian patients with CVD, particularly those who smoke cigarettes and/or waterpipes. Very little is known about smoking behaviors among Jordanian patients, particularly patients with CVD. Therefore, the results from this study will provide baseline information that can be used to guide further clinical research and to help establish smoking cessation programs.

Research objectives

The specific objectives of this study of a sample of hospitalized Jordanian smokers with CVD are: 1) to describe smoking customs in subjects' homes; 2) to identify the rules about smoking inside the men's homes and workplaces; 3) to describe cigarette smoking patterns; 4) to describe waterpipe smoking patterns; 5) to identify knowledge, attitudes and beliefs about cigarette smoking; 6) to identify knowledge, attitudes and beliefs about waterpipe smoking; 7) to identify perceptions about the health benefits of cigarette smoking cessation; 8) to identify perceptions about the health benefits of waterpipe smoking cessation; 9) to evaluate awareness of the addictive properties of cigarette smoking; 10) to evaluate awareness of the addictive properties of waterpipe smoking; 11) to describe the history of quit attempts for those who made a serious attempt to quit cigarette smoking; 12) to describe the history of quit attempts for those who made a serious attempt to quit waterpipe smoking; 13) to identify patients' willingness to quit cigarette smoking; 14) to identify patients' willingness to quit waterpipe smoking; 15) to evaluate confidence in quitting cigarette smoking; 16) to evaluate confidence in quitting waterpipe smoking; 17) to identify smoking cessation methods that were used in the past to quit smoking by who has made an attempt to quit smoking 18) to identify smoking cessation methods that will be used in the future to quit smoking by who intended to quit smoking; 19) to identify

men's depression severity; and 20) to identify the predictors of subjects' confidence to quit cigarette smoking.

Summary

This dissertation consists of five chapters. Chapter 1 includes the dissertation introduction, which includes smoking prevalence and background, the significance of the study of smoking behavior of CVD patients, and the purpose of this study. Chapter 2 includes a review of the literature about history of tobacco use; the health hazards of tobacco use and patients' knowledge, attitudes; and beliefs about smoking. Chapter 3 describes the study methods and includes information about the study design, setting, sample, and the measures used. In chapter 4 the study results will be presented. The findings from this study, the strengths and limitations, and the studies implications for further research and nursing practice will be discussed in chapter 5.

Chapter II

Literature Review

Chapter II: Literature Review

Introduction

The worldwide smoking epidemic threatens more lives than any infectious disease (WHO, 2008). WHO (1997) estimates that premature deaths related to tobacco use in developing countries will exceed deaths from AIDS, tuberculosis, and the complications of childbirth combined. Tobacco use has been recognized as a chief avoidable cause of multiple cancers, cardiovascular disease, stroke, complications of pregnancy, chronic obstructive pulmonary disease and other diseases. Cardiovascular disease and stroke are the most common health risks of smoking. These health consequences are the major leading causes of disability, suffering and death in the world. Smoking cessation reduces the morbidity and mortality associated with such diseases (USDHHS, 2004).

The rates of smoking have steadily declined over the last few decades in developed countries such as the United States, mostly due to policies that increased taxes imposed on the sale of cigarettes and implementation of smoke free environments at work and in public places. However, in developing countries, tobacco consumption is rising by 3.4% per year (WHO, 2002).

The prevalence of smoking in Jordan remains unacceptably high, 61.7% of men and 7.9% of women use tobacco (WHO, 2008). In the United States, among those 18 years and older, 25.2% of men and 20% of women are smokers (AHA, 2005). Approximately, 12 times as many British people have died from smoking related diseases as died in World War II (WHO, 2002).

Instituting tobacco control policies and developing smoking cessation programs for the public are essential in order to end this epidemic. To develop effective smoking cessation

programs, basic information about smokers' knowledge and their attitudes and beliefs about smoking is needed (Sohn et al., 2007).

The following topics will be presented in this chapter: history of tobacco use; health hazards of tobacco use including cardiovascular disease, cancer, respiratory disease, and reproductive system disease; smoking controls in Jordan; and benefits of smoking cessation. In addition, an overview and background of smokers' knowledge, attitudes and beliefs about cigarette smoking or/and waterpipe use will be presented.

History of Tobacco Use

Nicotiana tabacum and *Nicotiana rustica,* the plant names for tobacco are native plants in Central and South America (Haustein, 2003; Royal College of Physicians, 2000), as well as in Peru and Ecuador (Musk & De Klerk, 2003). Historically, cultivation of tobacco plants started in ancient times, around 6000 B.C in the Americas (Haustein, 2003; Mackay & Eriksen, 2002; Royal College of Physicians, 2000). American Indians actually began using tobacco around the first century B.C. for medicinal (healing properties) and ceremonial purposes (Royal College of Physicians, 2000). Figure II.1 shows the history of tobacco. In 1492, when Christopher Columbus arrived in North America, tobacco use was universal throughout the American continents and Cuba (Mackay & Eriksen, 2002; Musk & De Klerk, 2003). In the same year, Columbus took tobacco back to Europe (Mackay & Eriksen, 2002).

In the 1500s, the Turks introduced tobacco to the Middle East, particularly Egypt (Mackay & Eriksen, 2002). In 1565, Captain Sir John Hawkins introduced tobacco into British society. Within 20 years, tobacco smoking became fashionable in Britain (Royal College of Physicians, 2000).

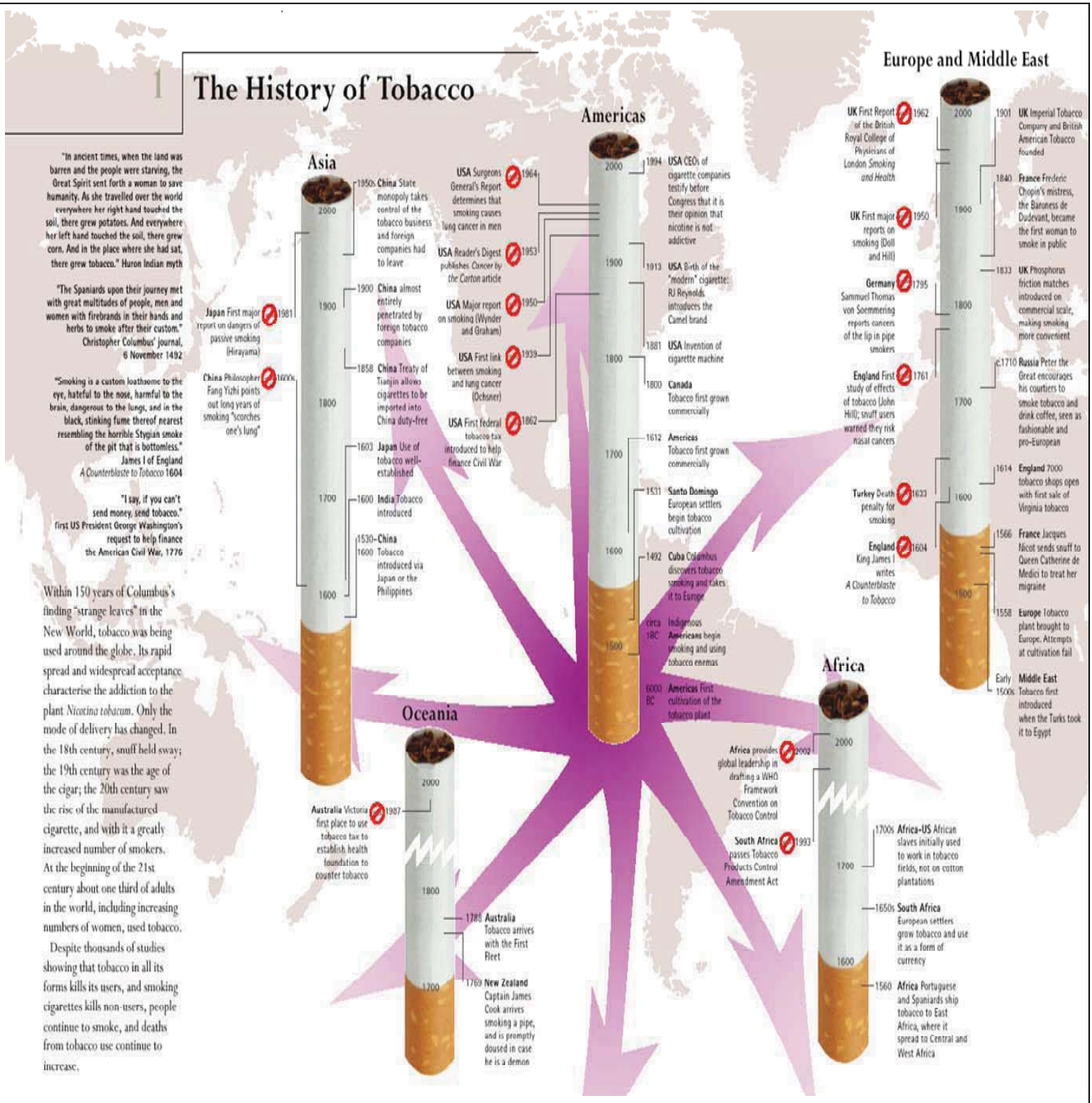

Figure II.1: The history of tobacco.
Source: Mackay J. & Eriksen M. (2002). *The tobacco atlas*. Geneva, Switzerland: World Health Organization.

In 1571, Nicholas Monardes, a Spanish physician, wrote a book on the benefits of the tobacco plant. Monardes claimed that tobacco could cure 36 health problems such as toothaches, worms and lockjaw (Royal College of Physicians, 2000).

As early as the 16th century, the ill effects of tobacco were recognized. In the 1600s, King James I discouraged the tobacco smoking habit. He reported that smoking could be harmful to health (Musk & De Klerk, 2003; Royal College of Physicians, 2000). For example, he said that tobacco was hateful to the nose, harmful to the brain and to the lungs (Royal College of Physicians, 2000). In 1604, he produced a report entitled "Counterblaste to Tobacco" (Mackay & Eriksen, 2002; Musk & De Klerk, 2003; Royal College of Physicians, 2000). From 1530 to 1600, tobacco was introduced to China via Japan and the Philippines (Mackay & Eriksen, 2002). In 1560, tobacco arrived in East Africa brought by Portuguese and Spanish ships. It then spread to Central and West Africa (Mackay & Eriksen, 2002). In the 16th and 17th centuries, waterpipes were commonly used, initially by affluent individuals; then, tobacco use spread gradually to all levels of society (Royal College of Physicians, 2000). More recently, tobacco was introduced to Oceania (presently includes Australia and Pacific Islands). It arrived in New Zealand in 1769 and in Australia in 1788 (Mackay & Eriksen, 2002). In the 1850s, the first marketing of tobacco occurred in England (Musk & De Klerk, 2003). Manufactured cigarettes, considered to be early tobacco products, were prepared by a combination of hand and machine and then were made solely by machines (Musk & De Klerk, 2003).

A variety of forms of tobacco became available. Tobacco was originally used as snuff, which is tobacco in the form of a powder that is prepared to be inhaled or "snuffed" through the nose and absorbed by the mucus membranes. Tobacco leaves that are chewed is another form of tobacco use (Doll, 1999; Musk & De Klerk, 2003). Tobacco can be eaten, drunk (like tea),

smeared over bodies (to kill parasites), used in eye drops and enemas (Musk & De Klerk, 2003) and taken nasally as a powder (Doll, 1999). Tobacco was used for medicinal purposes as an analgesic, antiseptic, and as a cure for a variety of ailments (Musk & De Klerk, 2003). It was widely used medicinally in Europe to treat "cough, asthma, headaches, stomach cramps, gout, women's diseases, intestinal worms, open wounds, and malignant tumours" (Doll, 1999, p. 290). In addition, it was used for religious ceremonies (Musk & De Klerk, 2003).

By the end of the 17th century, tobacco was used as snuff. In the 18th century, cigars replaced snuff which was widely used in Spain and Portugal. After this time, cigarettes began to be manufactured and were used in South America. Subsequently, use of cigarette smoking also increased in Spain. Cigarettes did not become available until the Crimean War and then they were commonly used. Cigarette smoking became fashionable in Britain after officers returned from the Crimean War (Doll, 1999; Royal College of Physicians, 2000). By the end of the 19th century, cigarettes began to replace cigars. Cigarette smoking increased rapidly after World War I, particularly in Britain. Then, after World War II, cigarettes largely replaced all other tobacco products in most developed countries (Doll, 1999). Smoking was limited to males until the 19th century (Royal College of Physicians, 2000). Women began smoking in large numbers in the Maori population of New Zealand, and then in the US and Britain in the 1920s. Smoking increased among women, particularly in Britain, during World War II because many women started to work outside the home and they earned independent incomes (Doll, 1999). Ever since King James I of England of 1604 claimed that using tobacco could be detrimental to health, much work has been done to demonstrate the hazards of tobacco use. It has taken a long time to demonstrate it as a leading cause of death (Musk & De Klerk, 2003). In the United Kingdom, the Interdepartmental Committee on Physical Deterioration introduced a law in 1908 that prohibited

the sale of tobacco to children under 16 years old (Doll, 1999). In Germany, the Association against Tobacco for the Protection of Nonsmokers was formed in 1904 (Doll, 1999).

Over time, the perceptions about the benefits of tobacco use have changed. The world became more aware of the health hazards of tobacco use. It has taken a long time to demonstrate tobacco use as a leading cause of death (Musk & De Klerk, 2003). In the 1920s and 1930s, pathologists observed an increase in the incidence of lung cancer. In the 1950s, scientists concluded that tobacco use was a major cause of lung cancer (Musk & De Klerk, 2003). In 1957, the U.S. Public Health Service published the first statement on cigarette smoking, concluding that it was a cause of lung cancer. In 1962, the Royal College of Physicians in London stated that there was a causal relationship between smoking and lung cancer (Musk & De Klerk, 2003). By the beginning of the 20th century, tobacco's beneficial effects had been completely rejected. The addictive qualities of nicotine found in tobacco became clearly known (Doll, 1999; USDHHS, 1988). It is well known that smoking is a major cause of several diseases (Mackay & Eriksen, 2002; Musk & De Klerk, 2003; USDHHS, 2004).

Tobacco Use and Health Hazards

Tobacco use is a worldwide health problem (Peto, et al., 1996; USDHHS, 2004) and a major leading cause of preventable and premature morbidity and mortality (Benowitz, 2003; McGinnis & Foege, 1999; Peto, et al., 1996; Doll, Peto, Boreham & Sutherland, 2004). Smoking causes CVD; pulmonary disease such as COPD; cancers such as lung, oral cavity, larynx, stomach, kidney and others; peptic ulcer disease; osteoporosis; inflammatory bowel disease; cataracts and increased complications from surgery, adverse reproductive effects and other diseases (Doll, et al., 2004; Mackay & Eriksen, 2002; Shaikh, Vijayaraghavan, Sulaiman, et al., 2008; Soares & Melo, 2008). Figure II.2 shows tobacco health risks.

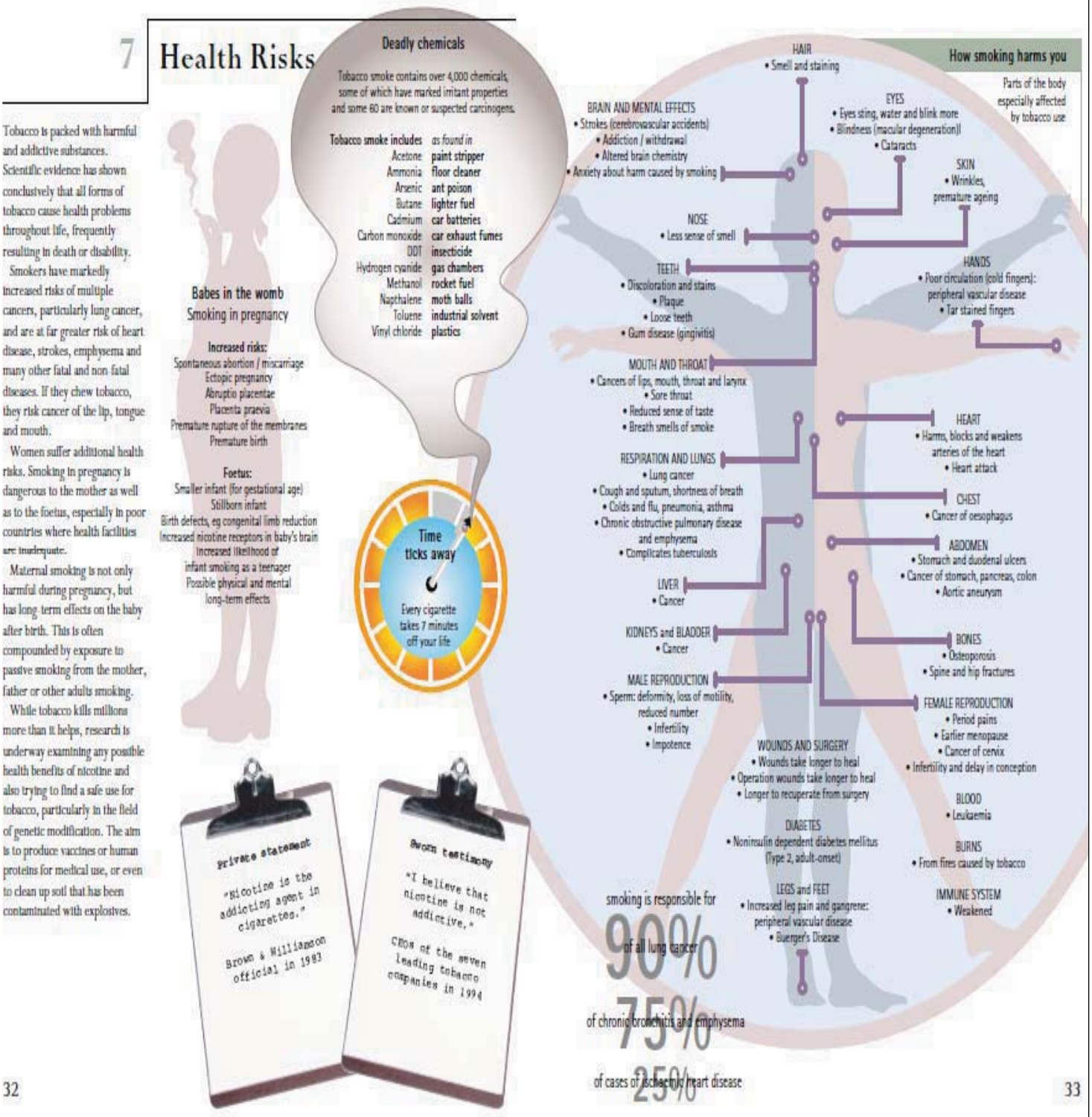

Figure II.2. Health risks of smoking.
Source: Mackay J. & Eriksen M. (2002). *The tobacco atlas*. Geneva, Switzerland: World Health Organization.

From 1997 to 2025, more than 500 million people were predicted to die from tobacco-related diseases (WHO, 1997). In addition, annually, deaths related to tobacco use exceed all deaths from human immunodeficiency virus, illegal drug use, alcohol use, motor vehicle injuries, suicides, and murders combined (CDC, 2008).

Tobacco Use and CVD

Tobacco use is one of the major causes of CVD (Benowitz, 2003; Prasad, Kabir, Dash & Das, 2009). Tobacco is believed to affect several pathophysiological mechanisms that contribute to CVD. Cigarette smoking produces coronary ischemia by increasing myocardial oxygen demand and decreasing myocardial blood supply (Figure II.3) (Benowitz, 2003). The constituents of cigarette smoke that have the greatest toxic effect contributing to CVD are nicotine, carbon monoxide, and oxidant gases (Benowitz, 2003; Prasad, Kabir, Dash & Das, 2009). Nicotine is a sympathomimetic drug that releases catecholamines from neurons and the adrenal glands. It increases heart rate, blood pressure, myocardial contractility and cardiac output, increasing myocardial work, resulting in an increased demand for myocardial blood flow (myocardial oxygen demand) (Benowitz & Gourlay, 1997; Benowitz, 2003; Pyrgakis, 2009). When carbon monoxide binds to hemoglobin, it reduces the amount of hemoglobin available to carry oxygen and it impedes oxygen release by hemoglobin. This results in a reduction of myocardial oxygen supply. For this reason, tobacco use lowers exercise tolerance in patients with angina pectoris and COPD (Benowitz, 2003). Cigarette smoking increases oxidative modification of low-density lipoprotein (LDL). Oxidant stress contributes to cardiovascular disease through endothelial dysfunction, lipid abnormalities and platelet activation (Ambrose & Barua, 2004; Benowitz, 2003; Benowitz, & Gourlay, 1997; Burke, & Fitzgerald, 2003).

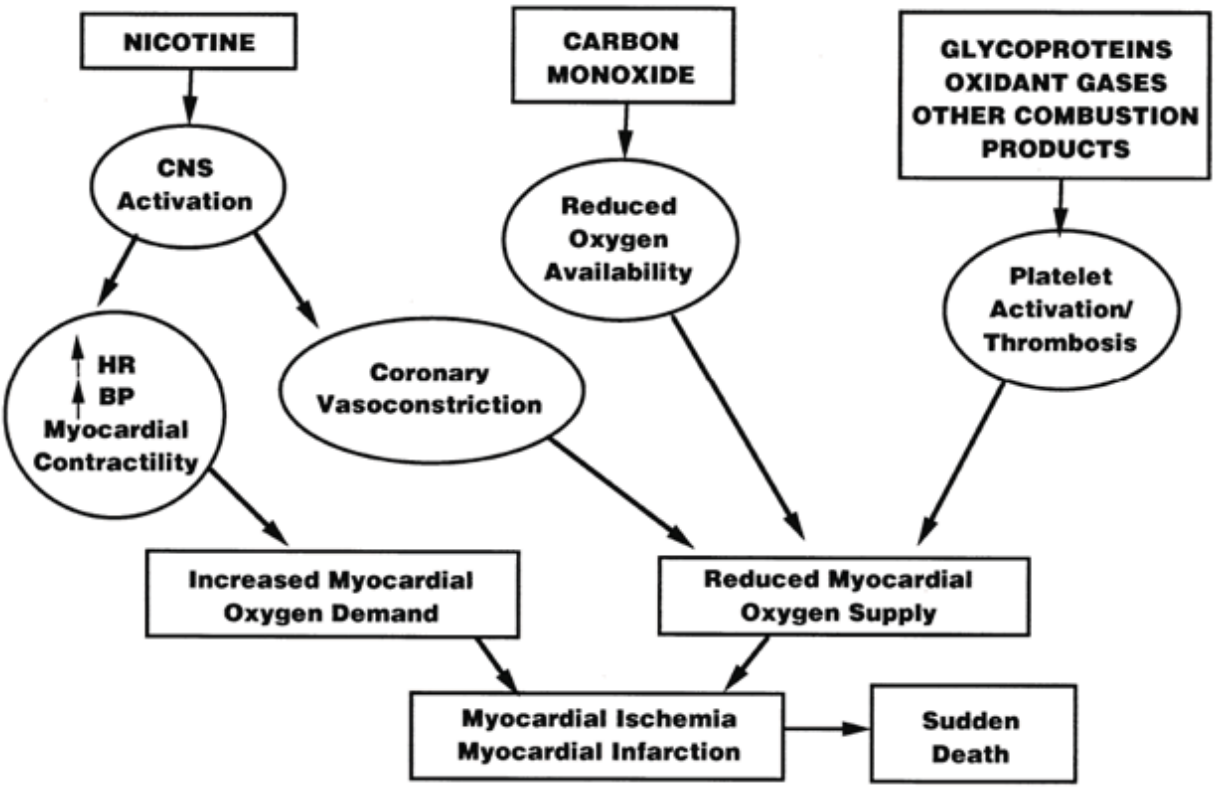

Figure II.3. Cigarette smoking and acute coronary events.

Source: Reprinted with permission from Benowitz, N. L. (2003). Cigarette smoking and cardiovascular disease: Pathophysiology and implications for treatment. *Progress in Cardiovascular Diseases, 46*(1), 191-111.

Tobacco toxins contribute to the development of atherosclerosis, characterized by deposits of fatty plaques resulting in scarring with thickening or hardening of the artery wall, inflammation of the artery wall and blood clots (Ambrose & Barua, 2004; Benowitz, 2003). These tobacco-related pathological changes of blood vessels are the response to obstruction of arterial blood flow and contribute to heart attacks and strokes. Tobacco use also contributes to

CVD by increasing oxidation of LDL, a significant pathogenic risk factor for atherosclerosis (Ambrose & Barua, 2004; Benowitz, 2003; Prasad, Kabir, Dash, et al., 2009).

Smoking accelerates the atherosclerotic process by several mechanisms including: 1) adverse effects on lipids, 2) endothelial damage, 3) hemodynamic stress, 4) oxidant injury, 5) neutrophil activation, 6) enhanced thrombosis, and 7) increased fibrinogen and blood viscosity (Benowitz & Gourlay 1997). Smoking is associated with vasoconstriction and coronary arterial endothelial dysfunction (Benowitz, 2003). In addition, smoking impairs the response of coronary blood flow to increased myocardial oxygen demand (Benowitz, 2003; Benowitz, & Gourlay, 1997). The vascular effects of cigarette smoking also increase the risk of vasospastic angina and decrease the response to anginal medications (Benowitz, 2003).

Endothelial injury is the initial event in atherogenesis and is a major factor in CVD (Benowitz, & Gourlay, 1997). Smoking contributes to endothelial injury in peripheral and coronary arteries (Benowitz, 2003; Ross, 1999). Atherosclerosis is the major underlying pathological factor for CVD, namely coronary heart disease (CHD), stroke, and peripheral arterial disease (Benowitz, & Gourlay, 1997; Erhardt, 2009). There is a causal relationship between tobacco use and subclinical atherosclerosis (Benowitz, 2003; USDHHS, 2004).

Smoking produces a chronic inflammatory state (Benowitz, 2003; Ross, 1999). This chronic inflammation includes localized inflammatory responses in the lungs and a systemic inflammatory response (Ross, 1999), which manifests through elevations in such markers as leukocytes (Benowitz, 2003; Ross, 1999), C-reactive protein, and acute phase reactants (e.g., fibrinogen) in the circulating blood (Benowitz, 2003; Yanbaeva, Dentener, Creutzberg, et al., 2007). These markers are considered to be potential risk factors for CVD (Yanbaeva, Dentener,

Creutzberg, et al., 2007). For example, clinical studies show that persons with high leukocyte counts have an increased risk for CHD (Madjid, Awan, Willerson & Casscells, 2004).

There is an association between smoking and adverse lipid profiles and the combination increases the risk of atherogenesis (Benowitz & Gourlay, 1997; Benowitz, 2003). Smoking increases concentrations of total LDL and very low-density lipoprotein (VLDL) cholesterol, and decreases levels of high-density lipoprotein (HDL) cholesterol (Benowitz & Gourlay, 1997; Burns, 2003; Erhardt, 2009; Prasad, Kabir, Dash, et al., 2009). Conversely, HDL levels increase in persons who stop smoking (Eliasson, Hjalmarson, Kruse, et al., 2001).

Smoking, CHD, and Sudden Death. Coronary heart disease (myocardial infarction [MI], ischemic heart disease, and angina pectoris) results from atherosclerosis of the coronary arteries, and is the leading cause of death in the United States (AHA, 2005). There is an effect of smoking on platelet properties including platelet activation and platelet adhesion (Benowitz, 2003), which plays a significant role in CHD. The combined effect of smoking on the blood vessels and platelet activity leads to the formation of thromboses, the main underlying factor for sudden cardiac death (Benowitz, 2003). Sudden death is the sudden, abrupt loss of heart function (AHA, 2005). The vast majority of patients who die from sudden cardiac death have at least two coronary arteries with about 90 percent occlusion (USDHHS, 2004). Tobacco use is a powerful predictor of sudden cardiac death, especially in patients with coronary artery disease. Therefore, patients with CVD should quit smoking to reduce the mortality from sudden cardiac death.

Smoking and cerebrovascular disease. Cerebrovascular disease is the deficit in brain cells function that is the result of an interruption in the arterial blood flow to the brain (Pyrgakis, 2009). It can be transitory (transient ischemic attack) or permanent (stroke). Strokes are classified as either ischemic or hemorrhagic. In the United States, the incidence of stroke is about

610,000 cases annually (Lloyd-Jones, 2009). Studies show that there is a causal association between smoking and cerebrovascular disease, particularly for ischemic strokes (Hawkins, Brown & Davis, 2002; Pyrgakis, 2009). There is evidence that smoking has adverse affects that contribute to ischemic stroke. These adverse effects include peripheral thrombus formation due to increased platelet activation; changes in cerebral blood flow; breakdown of the blood–brain barrier; and alterations in the cerebrovascular endothelium (Hawkins, Brown & Davis, 2002).

Smoking and abdominal aortic aneurysm. An aortic aneurysm is characterized by dilatation of the aorta between the arch and the division of the iliac arteries. Abdominal aortic aneurysm is the most common type of aortic aneurysm (Benowitz, 2003; Erhardt, 2009). In 2003, abdominal aortic aneurysms caused about 15,000 deaths and 60,000 hospitalizations in the United States (AHA, 2005). Because of high aortic pressure across its wall and the fact that there are usually no symptoms until the aneurysm ruptures, aortic aneurysmal ruptures can lead to sudden death. Atherosclerosis is the main risk factor for abdominal aortic aneurysm.

There is a causal relationship between smoking and formation and growth of abdominal aortic aneurysm (Kakafika, 2007). Tobacco use is associated with the extent of atherosclerosis in the abdominal aorta. The incidence of death from ruptured abdominal aneurysms is higher in smokers than in nonsmokers (Doll, Peto, Wheatley, et al., 1994; Lloyd-Jones, 2009). The mortality rate from rupture of abdominal aortic aneurysms increased reportedly fourfold in current smokers compared with nonsmokers and was increased twofold in former smokers in the British population (Doll, et al., 1994). The pathogenesis of abdominal aortic aneurysm includes degradation of elastin in the wall of the aorta, and inflammation (Benowitz, 2003).

To summarize, tobacco use alters vascular function, and structure. It also activates platelet aggregation. These are considered to be major factors contributing to CVD including CHD, cerebrovascular disease, abdominal aortic aneurysms and sudden cardiac death.

Tobacco Use and Cancer

In the United States, cancer is the second leading cause of death. Smoking causes most cases of lung cancer (USDHHS, 2004). Cancer was the first disease to be linked to smoking. The 1964 Surgeon General's report concluded that cigarette smoking in men was causally linked to lung and laryngeal cancer (USDHHS, 2004). Smokers are 20 times more likely to develop lung cancer than nonsmokers. Smoking causes approximately 90% of lung cancer deaths in men and 79% in women in the United States (American Cancer Society [ACS], 2003). Cancer-causing agents in tobacco contribute to damage of important genes which control the growth of body cells and allow them to grow abnormally, leading to cancer (ACS, 2009).

There is a causal relationship between smoking and cancers of the bladder, oral cavity, pharynx, larynx, esophagus, lung, stomach, cervix, renal pelvis, pancreas and acute myeloid leukemia (ACS, 2009). Mouth cancers among pipe and cigar smokers are more common than in those who smoke cigarettes. Reductions in use of tobacco or smokeless tobacco could prevent about 30,200 new cases and 7,800 deaths from oral cavity and pharyngeal cancers annually in the United States (ACS, 2003).

Tobacco use contributes to alteration in human genes, resulting in abnormal cell growth. Tobacco use is recognized as having a major role in causing cancers in various body systems including respiratory, gastrointestinal, renal systems.

Smoking and Respiratory Disease

In addition to the fact that smoking is a major cause of lung cancer, it can also harm the respiratory system. Smoking injures the respiratory airways and lung tissues, which may lead to COPD, emphysema, and other respiratory diseases (Clark, Murphy, Hey, et al., 2006; Kamholz, 2006). In the United States, COPD is the fourth leading cause of death. Annually, about 118,000 people die from COPD (Arias, Anderson, Kung, et al., 2003).

Smoking contributes to immune suppression and depresses the defenses against infections. Smokers are more likely than nonsmokers to have upper and lower respiratory tract infections (Tollerud, et al., 1989). The USDHHS (2004) concluded that there is a causal relationship between smoking and COPD morbidity and mortality, acute respiratory illnesses, including pneumonia, asthma in childhood and adolescence.

Smoking and Reproductive System Disease

The risk of infertility increases in women who are smokers (Augood, Duckitt & Templeton, 1998; Hughes & Brennan, 1996). Studies show that there is a causal relationship between smoking and reduced fertility in women (Hughes & Brennan, 1996; USDHHS, 2004). Pregnant women who smoke are more likely to have complications such as placenta previa (growth of the placenta too close to the cervical canal) requiring delivery of the infant by Caesarean section. Pregnant women who smoke are also more likely to develop abruption placenta (premature separation of the placenta from the uterine wall) leading to preterm delivery, stillbirth, and sudden infant death syndrome (Martin, 2002; Ventura, Mosher, Curtin, Abma & Henshaw, 2000). Nicotine use causes umbilical cord vasoconstriction, which decreases the flow of oxygen and nutrients to the fetus and leads to low birth weight (often less than 5.5 pounds)

(Shiono & Behrman, 1995). Therefore, smoking has numerous effects that can compromise childbirth.

Other Health Effects of Smoking

Smoking has many effects on various organs and vessels. It has been associated with adverse consequences in other parts of the body. For example, it increases the risk of fractures (loss of bone density after menopause and hip fractures), impotence in men, eye diseases (such as cataracts), serious gum infections, dental diseases, complications after surgery (poor wound healing and development of respiratory complications), suppression of the immune system, and peptic ulcers (Abt, 2009; Bartsch, 2007; Derentowicz, 1999; Johnson, 2001; Mackay & Eriksen, 2002; Parasher & Eastwood, 2000). Moreover, hospital stays are longer for smokers compared to nonsmokers. Smokers use more medical services than those who do not smoke. So, medical expenses for smokers are higher than for nonsmokers (Hurley & Matthews, 2007; McGhee, 2006).

Smoking Regulations in Jordan

In 1999, Jordan's Global Youth Tobacco Survey (GYTS) was conducted to examine tobacco use among Jordanian students between the ages of 13 and 15 years. The investigators found that 19.3 % of students (25% of male students and 14.5 % of female students) were smokers. This is primarily due to peer pressure, and easy access to cigarettes. People in Jordan spend about $350 million annually on tobacco products (Ma'ayeh, 2003). Despite the lack of research conducted on tobacco use, knowledge, attitudes, and practices, the government and health institutions are aware of the problems resulting from the high prevalence of smoking and its health risks for the Jordanian population.

Jordan was one of the first countries in the Middle East to introduce anti-smoking regulations. According to the Health Law of Jordan passed in 1977, no smoking was allowed in public places or on public transport and tobacco advertising was prohibited. Those who violated the public health law were subject to a jail sentence of up to four months or a fine ranging from Jordanian Dinar (JD) 25 to JD 500 ($35 to $700), or both penalties. This tobacco-related legislation promoted a tobacco-free community and protected people from exposure to secondhand smoke. In 2001, Jordanian law imposed restrictions on the sale of tobacco to minors as part of the Juvenile Monitoring Legislation. The penalties for vendors who sell tobacco products to minors (less than 18 years old) are JD 20 ($28) for a first violation, and it is doubled if the offence is repeated. The penalty is increased to a fine of JD 100 and a jail sentence of up to one year (Ma'ayeh, 2003).

In 2001, the Ministry of Health started a three month media campaign through its tobacco control program, which was designated as a "Jordanian No Tobacco Day." It used television ads, radio, official newspapers, billboards, and publications to fight tobacco use, promote awareness of the health hazards of smoking, and provide information to quit smoking (Ma'ayeh, 2003). Unfortunately, no studies were done to examine the efficacy of these tobacco regulation programs.

Knowledge, Attitudes and Beliefs about Smoking

All of the research about the knowledge, attitudes and beliefs about smoking in Jordan has been conducted at universities with students and health care providers (physicians and nurses) who are highly educated. Therefore, the findings of these studies do not represent the whole community. In addition, no studies have investigated the knowledge, attitudes and beliefs

about smoking hazards, the benefits of quitting smoking or intentions to quit among hospitalized patients or patients with CVD who are smokers.

In this section, the literature pertaining to the knowledge, attitudes and beliefs about smoking among Jordanians with CVD will be reviewed. An extensive literature search was done in databases including PubMed, CINAHL, and Google for relevant published articles about smoking behavior in Jordan and neighboring countries such as Saudi Arabia. The findings from these studies were compared with those from studies in developed countries such as the United States and the United Kingdom.

Knowledge, Attitudes and Beliefs about Smoking in Jordanian People

Developing countries including Jordan have a higher smoking prevalence compared to developed countries (Kofahi & Haddad, 2005). In Jordanian universities, the prevalence of smoking in students is very high in men (50.2%), but relatively lower in women (6.5%). Kofahi and Haddad (2005) conducted a cross-sectional study to evaluate students' knowledge about lung cancer and smoking as a health-related risk factor, as well as the benefits of and barriers to smoking cessation. The researchers conducted their research at the Jordan University of Science and Technology, which is the second largest university and health sciences campus in Jordan. The researchers recruited 400 students randomly from different schools (160 students from the medical and science schools and 240 students from the engineering school). The researchers used a Lung Cancer and Smoking Survey to collect the data, which is a reliable survey. Kofahi and Haddad (2005) found that students agreed that smoking had the following effects: hurts the fetus of pregnant women (97%), and hinders the infant's weight gain (73%). More than half (53%) of students believed that older people cannot benefit from quitting smoking. Approximately 58% of students believed that smoking or passive smoking increased the risk of developing lung cancer.

They reported that the benefits of quitting smoking included: saving money (79%), feeling healthier (81%), living a longer life (37%), and reducing hassles in public places (70%). Also, students reported that it is difficult to quit smoking for numerous reasons including: smoking helps a person to relax (30%), smoking reduces being bored (19%), addictive properties of tobacco (40%), and peer pressure (40%).

A cross-sectional study was conducted in April, 2005 to determine the prevalence of smoking and its associated factors among Yarmouk University students, one of the largest Jordanian universities (Khader & Alsadi, 2008). The researchers used a simple random sampling method to obtain 712 students from the medical and engineering buildings of Yarmouk University. Approximately 90% of the participants were undergraduates. Arabic versions of the World Health Organization Smoking Questionnaire and the Attitudes towards Smoking Questionnaire were used to collect the data from the subjects. The Arabic version questionnaires were valid and reliable. Khader and Alsadi (2008) observed that the prevalence of smoking in Jordanian university students is higher than in the universities of nearby countries such as the Syrian Arab Republic (19%) (Maziak, et al., 2004), Lebanon (21%) (Tamim, et al., 2003), and the Kingdom of Saudi Arabia (29%) (Hasim, 2000). The rates are lower than those reported in Kuwait (42.2%) (Alansari, 2005) and Turkey (42.5%) (Metintas, 1998). Khader and Alsadi (2008) found that there was a significant difference in prevalence between the genders. About 35% of students were currently smokers (57% among males and 11% among females, $p < 0.05$). More than 86% of smokers smoked daily; approximately 80% used cigarettes, 19.3% were waterpipe smokers and 0.4% were cigar smokers. More than half (56%) of cigarette smokers smoked less than 10 cigarettes/day. About 22% smoked 10–20 cigarettes/day. First year students had lower odds of being smokers than 2nd, 3rd or 4th year students. Students from the

disciplines of religion and law were less likely to smoke compared with students in other disciplines. The prevalence of smoking increased significantly in relation to a rise in students' family income, decreasing academic achievement and increasing number of family members or friends who smoke. The majority (85%) of smokers started smoking at age 15 years or older. The major reasons for starting smoking that were obtained from the survey included: motivated by friends (47%), for pleasure (39%) and to relieve stress (30%). More than half (54%) of smokers reported that they tried to quit smoking but they failed. Approximately 37% of smokers intended to quit smoking in the future, whereas, 39% of smokers did not know if they would quit smoking in the future. About 35% of non-smokers reported that the reason for not smoking was the adverse effects of smoking, one third abstained from smoking due to religious reasons and 27% believed that smoking was a useless habit.

Haddad and Malak (2002) studied the habits, attitudes, and practices related to smoking behaviors among students of Jordan University of Science and Technology, in northern Jordan, to get a clear picture of their smoking habits. They found many risk factors that resulted in increasing tobacco use in the Middle East. These factors included the following: an increase in income, interest in smoking on the part of girls and women, tobacco campaigns, and being unaware of the dangers and hazards of smoking (Haddad & Malak, 2002). The reasons for smoking included: stress relief, life problems, peer pressure, social acceptance issues, family history (parental modeling of smoking behavior), lower educational attainment, and lower economic status. It was also noted by researchers that maturity, self confidence, independence, and a high personality profile were goals for young smokers (Haddad & Malak, 2002). On the other hand, Haddad and Malak (2002) found other reasons for not smoking which included: religion, sensory issues such as bad taste or smell, negative health consequences, impaired

physical performance, negative physiological response, and issues related to family (Haddad & Malak, 2002). Haddad and Malak (2002) found that 28% of the students were smokers (50% men and 6.5% women). The prevalence of smoking increased significantly with increasing numbers of years of study. The majority of smokers (75%) were daily smokers, 68% smoked cigarettes, 30% used waterpipes and a low percentage of smokers smoked cigars (2%). The smokers reported that their favorite place for smoking was the cafeteria (28%), home (26%), inside college buildings (22%), or the bathroom (10%). Moreover, there was a significant gender difference in terms of where students preferred to smoke: males reported in the cafeteria (31%), while females preferred to smoke in the bathroom (52%). The investigators concluded that the reason for the significant difference in numbers of smokers between genders (low smoking prevalence among females) and female preference for smoking in the bathroom may be due to social unacceptability or inaccurate self-reporting due to shame. The researchers found that the major reasons for initiation of smoking were pleasure (35%) and relieving stress (28%). The majority of smokers (70%) reported that they intended to quit smoking in the future. Serious intention to quit smoking may be related to smokers' beliefs about the hazards of smoking and its harm to their health. The important findings in this study are that the majority of the subjects were cigarette smokers, intended to quit smoking in the future for better health and smoked in public places. Therefore, educating these students about the health hazards of second-hand smoke is needed to decrease smoking and avoid the adverse effects of passive smoking among university students in Jordan.

Al-Kayed, Sawair, Burgan and Khraisat (2005) randomly selected 524 adult patients to assess the awareness of health risks associated with smoking. The study was conducted in four main primary health care centers in Amman, Jordan. The data was collected between January

and March 2003. The researchers used SPSS (version 10) for data analysis and management. The researchers found that about 30% of patients were current smokers, 60% of patients were non-smokers and 9% were ex-smokers. Moreover, they found that 87% of patients were aware that smoking is an important etiological factor related to lung cancer. Approximately 40% of patients believed that smoking contributes to hypertension, 64% believed that it contributes to heart disease and 34% believed it contributes to strokes. Therefore, there is a knowledge deficit about the health hazards of smoking.

Shishani, Nawafleh and Froelicher (2008) noted that health professionals have a major role in promoting smoking cessation. In particular, nurses and physicians are considered good role models for patients and the public. They have a strong role in assessing the smoking behavior of their patients, and in advising their patients to stop smoking. Shishani, Nawafleh and Froelicher (2008) noted that Jordan has the fourth highest smoking rate among Arab countries. They conducted a descriptive cross-sectional study to assess the prevalence of smoking in Jordanian nurses and physicians and assessed their needs regarding smoking cessation. The researchers recruited 164 nurses and 87 physicians from five Jordanian hospitals. Approximately 75% of the participants were men, and 25% were women. Less than half (46%) of participants were nonsmokers, 42% were current smokers, and 12% were former smokers. Approximately 83% of the current smokers were cigarette smokers, and 17% smoked waterpipe. Waterpipe smoking was significantly more popular with women, while smoking cigarettes was more popular with men. The investigators found that the majority of the participants believed that health professionals should have an active role in advising patients to quit. More than two-thirds of the subjects responded that they needed training in smoking cessation techniques. None of the nursing or medical schools in Jordan offer content about smoking cessation in their curricula.

This increases the probability of knowledge deficits about effective smoking cessation interventions in nurses and physicians in Jordan. Therefore, patients will not receive appropriate medical advice and assistance in quitting smoking. Although health care professionals are aware of the importance of taking a smoking history from their patients, they did not usually do so in their practice. Only 42% of participants (37% of nurses and 52.2% of physicians) responded that cigarettes and waterpipe are both addictive. This knowledge deficit about the addictive nature of tobacco forms indicates a major problem among health care providers. Educating health care providers about nicotine dependence and tobacco use treatments to decrease smoking habits in health care institutions and the whole community is very important.

Knowledge, Attitudes and Beliefs about Smoking in Arabic Countries

There is little information about smoking prevalence, the factors influencing smoking, attempts to quit smoking, or community awareness about the health risks of tobacco in another Arabic country, Saudi Arabia. Therefore, Siddiqui, Ogbeide and Al Khalifa (2001) recruited 634 patients (boys and men, 12 years old and older) who were attending primary care clinics at the Department of Family and Community Medicine of the Alkharj Military Hospital in Saudi Arabia. The researchers found that 34% of the participants were current smokers, 16% were ex-smokers, and 49% were nonsmokers. The majority (66%) of smokers reported that the reason for starting smoking was their friends' influence. Approximately 75% had thought of stopping smoking, 55% had actually attempted to quit smoking and 34% reported that the lack of willpower was the reason for their failed attempts to quit smoking. Almost all of the participants (97%) were aware of the harmful effects of smoking. Approximately 80% of the participants believed that the presence of a special smoking cessation clinic would be helpful in their smoking cessation efforts.

Memon, et al. (2000) recruited 3,859 participants (1,798 males, 2,061 females) to determine the epidemiology and patterns of smoking among Kuwaiti adults. The investigators found that 34.4% of men and 1.9% of women were smokers. The following factors were independently associated with smoking: lower education (OR = 3.5; 95% CI = 1.5, 8.4), lower employment grade (OR = 4.1; CI = 2.5, 6.7), and being a separated, divorced, or widowed woman (OR = 4.9; 95% CI = 2.0, 11.8). The majority of smokers began smoking when they were younger than 20 years old. The majority of participants responded that they smoked in the presence of their children. Half of the participants reported that they wanted to stop smoking, and 56% had attempted to quit. The greatest barrier to quitting smoking was uncertainty about ‘‘how to quit.” Almost half of the former smokers had quit between the ages of 20 and 29 years. The key findings in this study were that the Kuwaiti adults were not aware of the hazards of secondhand smoke and lacked knowledge about smoking cessation methods to use to quit smoking. Therefore, health education about the consequences of passive smoking and effective strategies for quitting smoking through different methods such as medical advice, conferences and use of the media is necessary.

Knowledge, Attitudes and Beliefs about Smoking in Western Countries

In the U.S., Froelicher, Christopherson, Miller and Martin (2002) conducted a randomized clinical trial, and reported their cross-sectional baseline data from 10 hospitals in the San Francisco Bay Area in California. A sample of 277 women with CVD were recruited to describe the demographic, psychosocial, and medical characteristics, and smoking patterns of women hospitalized with CVD in the United States. The purpose of the study was to assess their knowledge, beliefs and attitudes about smoking and its health effects and to examine their intention to and confidence in quitting smoking. The participants’ ages ranged from 33 to 86

years. Half of the women were college graduates or higher, 40% were married and three-quarters were Caucasian. More than three-quarters had tried more than two times to quit smoking. About 71% of the women rated themselves as higher than 5 out of 10 on the confidence scale (self-efficacy) for quitting smoking. More than half of the women had a high score on the depression screening measure. The women perceived a moderate level of stress in their lives. The majority of women stated that they were "very likely" or "likely" to avoid serious health problems if they quit smoking. Approximately 43% of women reported that the method they used previously to quit smoking was "quit on own," while 17% used nicotine replacement therapy.

As noted by Packer and colleagues (2005), there are few studies about smoking knowledge, attitudes and practices among health care professionals in the US. They recruited 162 attendees at American Indian and Alaska Native health care conferences to assess their perceptions about smoking. The participants' occupations were physician, medical student, allied health care, and others. The researchers found that two-thirds of the participants responded "No" to the question "have you ever smoked 100 cigarettes in your life." Approximately 11% were current smokers. Approximately 9% reported that smoking was allowed in their homes, while more than three-quarters reported that there was no smoking in their households. Almost all Native American physicians asked their patients about smoking behavior and advised them to quit. Participants believed that smoking causes lung cancer, heart disease, and other diseases (97.3%), low birth weight babies (96%), and cervical cancer (70%). More than half (55%) of participants believed that smoking is associated with depression. In addition, the majority of the study subjects believed that smoking is the most preventable cause of death and they were aware of the risks of secondhand smoke.

In 2007, the twelfth in a series of studies carried out as a national survey for the Department of Health and the National Health Service (NHS) Information Centre for health and social care assessed smoking behavior and attitudes in Great Britain. Lader (2007) found that 22% of the subjects over the age of 16 years smoked. Of these, approximately 22% of the subjects were current cigarette smokers, 25% were male and 20% were female. An additional 27% were ex-smokers and non-smokers (51%). For smokers, 32% smoked < 10 cigarettes per day; 43% smoked 10 to19 cigarettes per day; and 24% smoked > 20 cigarettes per day. Smoking within five minutes of awakening was common among those who smoked at least 20 cigarettes per day. People in manual occupations (30%) were more likely to smoke than those in managerial or professional occupations (16%). Men (28%) were more likely than women (23%) to have to quit smoking cigarettes. Approximately 74% (77% of males and 70% of females) of current smokers wanted to quit smoking. Smokers who had made a serious attempt to quit in the last year or in the last five years were more likely to want to give up smoking "very much," more than those who had not. The majority (about 86%) of smokers who wanted to stop smoking wanted to quit for at least one of these health reasons: 71% responded that quitting smoking would be better for their health in general, 22% said it would reduce the risk of smoking-related illness, and 17% said it was because of health problems they had at present. Other reasons for wanting to give up smoking were financial, 27% of smokers responded that they could not afford to smoke or considered smoking a waste of money; 20% responded that they wanted to quit smoking because of family pressure; 15% wanted to quit because of the effect of smoking on children. Only 7% of smokers said that the reason was because of the ban on smoking in public places. Moreover, 77% of smokers responded that they intended to give up smoking in the future. About 60% of current smokers had made a serious attempt to quit smoking in the past

five years. Smokers who had made a serious attempt to quit smoking in the past five years were more likely to intend to stop smoking (86%) than were those who had not (64%). More than half of smokers received some kind of advice or help for quitting smoking in the last year. The same proportion had received medical advice to stop smoking in the past five years. In terms of awareness of the dangers of smoking, about 42% of people believed that smoking was responsible for most of the premature deaths in the United Kingdom. Over 80% responded that secondhand smoking would increase the risk of lung cancer, bronchitis and asthma. Two-thirds said that smoking was not allowed at all in their homes. Approximately 80% of smokers answered that they did not smoke at all when a child was in the room. The majority (86%) of participants agreed with restrictions on smoking at work, and on the smoking ban in restaurants (94%), indoor shopping centers (92%), indoor sports and leisure centers (95%), indoor bus stations (85%) and in other public places such as banks and post offices (96%). In addition, 94% of the people agreed with smoking restrictions in places where children under the age of 16 might be present.

In a study of South Korean men, the prevalence of smoking is one of the highest rates in the world (57%) and CVD is the second most common cause of death in South Korean men (Sohn, et al., 2007). Nonetheless, smoking cessation has rarely been studied in South Korea. Therefore, Sohn and colleagues conducted a cross-sectional, descriptive study to examine the beliefs of South Korean men who were hospitalized with CVD about the health benefits of smoking cessation. The study also aimed to determine their intentions to quit smoking and to identify the factors associated with their confidence in quitting smoking. The researchers recruited 97 men hospitalized with CVD (including CHD, heart failure, valvular disease, and peripheral arterial disease) who were admitted to the cardiology unit in two university hospitals

in Seoul, South Korea. The participants had to have had a history of tobacco use within the past month. The majority of the participants (85%) responded that they agreed that quitting smoking could help them to avoid or at least reduce their probability of getting serious health problems. The participants responded that smoking cessation could avoid or reduce the risk of developing respiratory disease (87%), heart disease (78%) and lung cancer (66%). Over three-fourths of the participants believed that smoking was directly harmful to their health. Approximately 71% of the participants agreed that there were benefits from stopping smoking even if the person had smoked for more than 20 years. The majority of the participants (84%) responded that they intended to quit smoking during the next month. Almost all of the participants (96%) had health-related reasons for stopping smoking. In terms of past and future smoking cessation methods selected by the participants, approximately 53% of men who tried to quit smoking depended on themselves and did not get any other assistance. More than 86% of participants who intended to quit smoking in the future selected this same method. The next most common method used to stop smoking was snacks (16%). About 14% of the participants used nicotine replacement therapy (NRT) and 6% participated in smoking cessation programs or education. Half of the participants wanted to participate in a formal educational smoking cessation program, if a program was available during their hospitalization. More than half of the participants answered that they were confident in their ability to quit smoking. A multiple logistic regression analysis was used to identify the predictors of low confidence in the ability to quit smoking. The researchers found that there were three statistically significant independent predictors for low confidence in stopping smoking: being married (OR: 5.54, 95% CI: 1.33, 23.08), having high alcohol use as measured with CAGE screening (score = 2) (OR: 3.25, 95% CI: 1.20, 8.80), and having started smoking at age less than 20 years old (OR: 2.96, 95% CI: 1.14, 7.68). The key

findings in this study were that the majority of Korean men who were hospitalized with CVD were aware of the health hazards of smoking and the benefits of quitting smoking. Even though the majority of them planned to quit smoking after hospital discharge, they were not aware of effective smoking cessation methods. Therefore, it is very important to identify the perceptions about smoking cessation and future plans to quit smoking before establishing smoking cessation programs and to base them on individual needs.

Overview of Waterpipe Use

Waterpipes are commonly used in the Middle East, India, and other countries. More than 100 million people worldwide smoke waterpipes daily (Knishkowy & Amitai, 2005). In the Middle East, smoking waterpipes (also called hookah, hubble-bubble, gouza, narghile or shisha) is a common social activity. Waterpipe use is commonly associated with older males, and those from lower socioeconomic levels (WHO, 2006b). Recently, waterpipe use has been spreading among youths, and among people from higher socioeconomic levels, as well as to Europe and the US where this is a relatively new but rapidly increasing practice especially near college campuses (Knishkowy & Amitai, 2005). Waterpipe smoke contains similar or higher concentrations of carbon monoxide, nicotine, tar, and heavy metals than cigarettes, which contribute to the same adverse health consequences associated with cigarette smoking including malignancy, impaired pulmonary function, low birth weight, and others (Knishkowy & Amitai, 2005). Most health care professionals are unfamiliar with the health consequences of waterpipe smoking, which is a new challenge for them (Knishkowy & Amitai, 2005).

Despite the spread of cigarette smoking in the 20th century, waterpipe smoking continues to be a very popular practice, particularly in Arabic countries, where it is an important social

activity and is used during cultural traditions and ceremonies such as such as weddings and funerals (WHO, 2006b). Comparing the differences between waterpipe and cigarette smoking, waterpipe smokers have less frequent exposure (one to four sessions per day) but they are more intense exposures per session (varying between 15 and 90 minutes). Waterpipe users have exposures to nicotine that is as much as 100-200 cigarettes per session (WHO, 2006b). Because the temperature of burning tobacco in waterpipes is lower than in cigarettes, waterpipe smokers need more force to pull air through the water, which results in inhaling tobacco smoke deeply into the lungs. This may lead to more injury to the cells of the oral and respiratory systems than that of cigarette smoking (WHO, 2006b). Moreover, due to the habit of sharing waterpipes without changing the mouthpiece, waterpipe smokers are more likely to get oral cavity infections than cigarette smokers (WHO, 2006b).

There are three types of tobacco used in waterpipes: 1) ma'assel (mixture of 30% tobacco fermented with 70% honey or molasses and usually fruit flavors such as mango, banana, orange, grape, mint, cappuccino, strawberry or apple); 2) tombak (also called *ajami* in Syria, a pure, dark paste of tobacco) (Knishkowy & Amitai, 2005; Maziak, Ward & Eissenberg, 2004) and 3) *Jurak* which is moistened, dried and shaped before it is smoked. *Ma'assel* is the most popular type (WHO, 2006b). Usually, regular waterpipe users smoke several *hagar* (portions of tobacco used) per session. The tobacco product of each *hagar* contains the nicotine equivalent of 2–12 cigarettes (WHO, 2006b).

Waterpipes vary in size, shape, and composition. The waterpipe (Figure II.4) is composed of a head (called korsi or hagar when it is filled with tobacco), metal body, glass bottle, and a flexible connecting tube (pipe or hose, made of rubber or a wooden hollowed stick) with a mouthpiece (Knishkowy & Amitai, 2005; Maziak, et al., 2004). The head, where the tobacco is

placed, is usually covered with a conical cap and charcoal on top to burn the tobacco. The body connects the head with the neck of bottle, which is partially filled with water to filtrate the smoke. Occasionally, juice or rose water is added to the water, which adds more flavor to the tobacco. The tube is attached to the top of the waterpipe bottle, which allows smokers to inhale the smoke from the water surface by strong suction from the mouthpiece. The mouthpiece is fixed to the pipe, which is commonly changed after each use in cafés in urban areas (Maziak, Ward & Eissenberg, 2004; WHO, 2006b).

Figure II.4. Components of waterpipe.

In Jordan, the hookah is commonly used, especially by teenagers. There is an erroneous belief that the hookah is less harmful than cigarettes and creates a more pleasurable feeling in its user. Since the 1990s, many cafés have opened in Jordan that offer the hookah to both men and women (Hadidi & Mohammed, 2004). There are a few studies in Jordan that have assessed the nicotine amount in tobacco products used in waterpipes. Hadidi and Mohammed (2004) analyzed the nicotine content of 13 commercial brands of hookah tobacco over an eight month period at the Toxicology Laboratory, at the University of Jordan, to compare it with the nicotine content in cigarettes. The investigators found that one serving, also called "one head" (the top part of a hookah that is used as the container for the tobacco), of unflavored tobacco had a nicotine content equivalent to 70 regular cigarettes. One head of flavored tobacco, such as honey (glycerin and other flavors may be added to the tobacco), contains on average one-third of the nicotine present in 20 cigarettes and results in a 20% higher plasma nicotine level. Therefore, hookahs do not present a lower risk than cigarettes in relation to nicotine dependence (Hadidi & Mohammed, 2004).

Knowledge, Attitudes and Beliefs about the Use of a Waterpipe

Maziak, Ward, Soweid and Eissenberg (2004) reviewed the literature that examined waterpipe epidemiology, health effects, public policy and waterpipe smokers' behavior, knowledge, beliefs and attitudes. A Medline search of names of waterpipes such as ''waterpipe,'' and ''narghile'' was conducted. Sixty-four published papers, ''in press'' manuscripts, or abstracts were retrieved. The majority (80%) of these studies were conducted in the Middle East, nine in Asia, two in Europe, and one in the United States. A few studies assessed knowledge, attitudes and beliefs about waterpipe use. Maziak et al. (2004) reported that waterpipe smoking was common in restaurants and cafes in the Middle East. Global health organizations face

challenges in dealing with this health hazard because little is known about patterns of waterpipe use. Smokers' perceptions, and their awareness of health consequences related to waterpipe use and its addiction are not well understood.

Maziak and colleagues (2004) found that waterpipe use in the Eastern Mediterranean region is high. For example, according to a national survey in Kuwait, 57% of men and 69% of women had used a waterpipe at least once in their lifetimes. Waterpipe use is also common in rural villages in Egypt. Approximately 22% of Egyptian men reported that they were current or past users and most of them started using after they were 18 years old. In Syria, approximately half of university students had tried waterpipes, and 25% of men were current users. This prevalence is similar in Lebanon where 30.6% of men and 23.4% of women students of Beirut University reported that they were current, weekly waterpipe users. In addition, more than one quarter of Arab American adolescents reported that they had used a waterpipe. Moreover, Maziak and colleagues (2004) found that waterpipe smokers perceived waterpipes to be less harmful than cigarettes. This is thought to be the reason why waterpipe use is becoming popular. For example, 30% of Syrian university students believed that waterpipe use is less harmful than smoking cigarettes. In Egypt, 21% of adult men responded that they were more likely to smoke waterpipes than cigarettes because waterpipes are less harmful. Nonetheless, the majority of smokers knew about the association of waterpipes with lung cancer, asthma, heart disease, and infection transmission. Maziak and colleagues (2004) noted that nicotine dependence is common among cigarette smokers and dependence on waterpipes could result from repeated waterpipe smoking. However, no study has addressed waterpipe withdrawal syndrome.

Dependence is apparent through continued waterpipe use despite the potential health risks, financial costs, and the reported difficulty in quitting. Waterpipes are associated with CVD

including atherosclerosis and CHD. Waterpipe use is associated with risk of cancer, decreased pulmonary function, and other diseases. Waterpipe sharing may lead to the spread of tuberculosis and viruses (herpes and hepatitis) (Maziak, et al., 2004).

In Egypt, according to a national survey conducted in 2002, an estimated 34% of adult men used cigarettes exclusively, 10% used waterpipes exclusively and 3% used both (WHO, 2006b). Another survey was conducted in the rural areas of the Nile Delta (nine randomly selected villages) in 2003–2004 (WHO, 2006B). A total of 10,161 individuals participated in this survey. The results of this survey were that 16% of the participants were cigarette smokers, only 4% of the participants were waterpipe smokers and 1% reported smoking both. Waterpipe use was inversely related to educational level. Most of the waterpipe users thought that the health hazards of using waterpipes were less than for smoking cigarettes (WHO, 2006B). To gain knowledge about smoking behavior among Egyptian women, a survey was conducted to investigate the knowledge of and attitudes about waterpipe use in women (WHO, 2006B). One hundred ninety six women students were recruited from nine cafés in two universities (Cairo University and Sixth of October University) in Cairo which provided waterpipes, cold drinks, coffee, tea and snacks. The survey revealed that 27% of the women students smoked cigarettes only, while 38% smoked waterpipes only, and 32% used both types. Most of the women waterpipe smokers used waterpipes because they are fashionable and they believed waterpipes are less harmful than cigarettes (WHO, 2006B).

Maziak, Ward and Eissenberg (2004) conducted a cross sectional survey in 17 randomly selected cafes/restaurants in Syria that offered waterpipes and soft drinks. The participants were waterpipe smokers (161 men and 107 women) older than 18 years. The study proposed to investigate the factors related to waterpipe dependence, attitudes, experience with quitting

attempts and future intentions to quit using waterpipes. The participants were asked about their waterpipe use (categorized into daily, weekly or monthly). The researchers found that the majority of subjects used waterpipes weekly, smoked waterpipes mainly with others, smoked waterpipes more frequently than when they started, smoked waterpipes mainly in cafes or restaurants, believed they could quit waterpipe use anytime, had no intentions of quitting smoking waterpipes, were not current cigarette smokers, believed that they were not "hooked on" waterpipes, thought of waterpipes when they were not available, and believed that the presence of waterpipes was important in their choice of a cafe/restaurant.

In Syria, Ward and colleagues (2005) recruited 268 waterpipe smokers from cafes and restaurants. The researchers found that less than of half of the participants responded that they were ''very hooked.'' The majority (87%) believed they could quit using waterpipes at any time. Approximately 30% of waterpipe users were interested in quitting. The majority (90%) of them responded that health concerns were the primary reasons to quit. About 60% of the participants had tried to quit but these attempts were unsuccessful.

Maziak, Eissenberg, Rastam, et al. (2004) conducted a cross-sectional study in Syria to assess beliefs and attitudes related to waterpipe use. In this study, 587 students participated (86 waterpipe smokers, 109 cigarette smokers and 433 non-smokers). The researchers found that most participants responded that what they most liked about waterpipes were the smell and taste. They disliked the smoke produced, the pollution, and the perceived adverse health effects. Half of the students believed that waterpipes were more harmful to health than cigarettes, while 30% believed the opposite and 20% believed that cigarettes and waterpipes were equally harmful. Respiratory disease was considered to be the most common adverse health effect of waterpipe

smoking. Waterpipes were more acceptable than cigarettes to families and more acceptable to women than men.

Despite growing evidence about dependence on waterpipes and their adverse health consequences, waterpipe use has spread to several countries beyond the traditional places where waterpipe smoking is customary including the United States (Ward, et al., 2007). Because little is known about waterpipe use behavior in the United States, Ward and colleagues (2007) studied the characteristics of U.S. waterpipe users. They recruited 109 waterpipe users from Richmond, Virginia and 34 users from Memphis, Tennessee to examine their history, knowledge, attitudes, and beliefs about waterpipe use, its hazards and their intention to quit in the future. The researchers found that the majority of participants in both cities were men (75%), young adults (18–25 years old), college students or had a college degree, and started using the waterpipe before they were 21 years old. They used waterpipes one or more times per week, smoked waterpipes with more than one friend and at home, usually they shared the same waterpipe with others (98%), and used flavored tobacco (94%). The majority of participants believed that they were “not hooked” on waterpipes (91%), were ‘‘very’’ confident they could quit at any time (79%), had no intentions of quitting, expected to use waterpipes at the same or greater frequency in 5 years. They believed that waterpipes, compared to cigarettes, had less serious health effects, were less addictive, and delivered less nicotine. One third of the Richmond users responded that they ‘‘almost always’’ smoked in cafes or restaurants, while this was uncommon among Memphis users. Approximately, 61% of participants in both cities had used other tobacco products (i.e., regular pipes, cigars, or smokeless tobacco) in the past 30 days. One third of participants used waterpipes to smoke substances other than tobacco (presumably, marijuana).

The researchers concluded that the participants from both these United States cities were unaware of the harmful effects on health and the addictive properties of waterpipe use.

The other study which took place in Richmond, Virginia showed similar results (Smith-Simone, Maziak, Ward & Eissenberg, 2008). In this study, 201 waterpipe smokers were recruited from cafes and from an Internet forum (www.HookahForum.com). The researchers found that most waterpipe users believed waterpipe tobacco smoking was less harmful and addictive than cigarettes. The majority of participants (96%) were confident about their ability to quit, but only 32% intended to quit.

Waterpipes are becoming common in Western countries. Data is limited on waterpipe smoking prevalence, attitudes, and behavior in Western countries. Jackson and Aveyard (2008) conducted a cross-sectional survey to examine prevalence, risk factors, symptoms of addiction, and smoke intake among waterpipe smokers. The researchers recruited 937 students from Birmingham University with a follow up of 28% (21 of 75) regular waterpipe smokers. Sixty-three customers of a waterpipe café near the University completed the study of CO intake. The investigators found that 16% of participants were current tobacco users, of which 30% were exclusive waterpipe smokers, and 34% were exclusive cigarette smokers. More than one-third (38%) of participants had tried waterpipes, of whom 21% smoked a waterpipe regularly (at least monthly). The majority (84%) of those who tried waterpipes were introduced to it by their friends. Men were more likely than women to smoke waterpipes regularly. Four-fifths of Arabic students had tried waterpipes, twice as many as others of different ethnic groups. The majority (90%) of students believed that waterpipe smoking was bad for their health, but 68% thought that waterpipes were less damaging than cigarettes. Less than 10% of regular waterpipe smokers had tried to quit but failed. This was one of the rare studies that commented on and provided

information about dependence in waterpipe users. One-third of smokers had experienced cravings for smoking waterpipes. The exhaled carbon monoxide (CO) concentration means (±SD) before and after waterpipe smoking were 5.1 (±9.3) parts per million (ppm) and 37.4 (±25.8) ppm, respectively. Waterpipe smoking sessions lasted between 15 and 60 minutes. These results demonstrate the high intake of smoke in café waterpipe users in the UK. Their exhaled CO levels were as high as those in persons seeking help to stop cigarette smoking. This high nicotine intake from waterpipes explains the emerging evidence of dependence. The students' perception of a relative lack of harm from waterpipe smoking supports the increasing rates of waterpipe smoking among Western students.

Roskin and Aveyard (2009) conducted a qualitative study of waterpipe smoking behavior. They examined the social and cultural contexts of waterpipe smoking, and the knowledge and beliefs about the health consequences of waterpipe smoking. Twelve waterpipe smokers were recruited from Birmingham, England and Toronto, Canada to participate in this study. Using snowball sampling, a semi-structured interview was carried out to identify waterpipe smokers' patterns and to explore their health beliefs about waterpipe practice. They found that nine of subjects were students, and six of the subjects were of Arabic ethnicity. Eleven of the subjects were aged 18-25 years old and had visited the Middle East. Middle Eastern culture has played a significant role in introducing waterpipes to individuals of other cultures. Less than half of the subjects smoked cigarettes in addition to waterpipes. They believed that waterpipe smoking was more appealing than cigarettes. The majority of the subjects believed that waterpipe smoking was less harmful than cigarette smoking. The British subjects reported that the lack of media campaigns warning about health hazards of waterpipes led the population to believe that waterpipes were safer than cigarettes. All of the British subjects were unfamiliar

with what is written on tobacco boxes about the health hazards of waterpipe smoking because the tobacco packets were labeled in Arabic. Some subjects responded that they craved the relaxing experience of smoking waterpipes, but none of them identified this as having the potential to become addictive. The majority of the subjects reported that they will continue to smoke waterpipes at the university, but maybe they will quit in the future. The Canadian respondents reported that their families disapproved of smoking at home. British students reported no disapproval from their families. This study shows there is a lack of awareness about the health hazards of and possible addiction to waterpipes among Canadian and British waterpipe users. This may be related to insufficient media campaigns and warnings about the hazards of waterpipe use. There are no warning signs in English on tobacco boxes. There is also a lack of health education programs or information about the adverse health consequences of waterpipe smoking.

Mock, Ward, Eissenberg and Maziak (2008) conducted a qualitative study in Syria, using one-to-one interviews with 16 adult narghile smokers and 16 adult cigarette smokers. The purpose was to assess these smokers' feelings, experiences and beliefs regarding their initiation, use patterns, and attempts to quit waterpipe smoking. This study aimed to explore whether narghile smokers are different from cigarette smokers in their smoking habits. The investigators found that waterpipe smokers responded that waterpipe use was a pleasurable social experience embedded in cultural rituals. Cigarette smokers felt that cigarette smoking was a mundane, oppressive, personal addiction. Waterpipe users initiated smoking in their 20s. They believed that it was an accepted social practice, which led them to feel a sense of togetherness and cultural identity with others. Cigarette smokers started when they were teenagers. Men cigarette smokers may have started smoking to becoming a ‘‘real man.” Unlike cigarette smokers, waterpipe users

believed it was not harmful to them or others. Both cigarette and waterpipe smokers responded that it is difficult to quit smoking. Most cigarette smokers had tried to quit, but few of the waterpipe smokers had ever tried to quit and they had not expressed an interest in quitting.

Benefits of Smoking Cessation

Smoking cessation has short- and long-term benefits, and is associated with reductions in tobacco-related morbidity and mortality (Benowitz & Gourlay, 1997). The benefits of quitting smoking are presented in Figure II.5. The benefits of quitting smoking begin as soon as 20 minutes after the last smoked cigarette and last for years (Figure II.6).

Since the first report by the U.S. Surgeon General on tobacco use in 1964, all data demonstrate the hazards of tobacco use on the human body and the benefits of smoking cessation. In 2004, the Surgeon General's report updated the data about the benefits of smoking cessation, specifically for the cardiovascular system. The report concluded that smoking cessation is very beneficial for persons diagnosed with CVD. Smoking cessation markedly reduces the risk of recurrent myocardial infarction and sudden cardiac death (AHA, 2005). It improves recovery from surgeries and enhances the quality of life for patients' after cardiac surgery (Gottlieb, 1992; Hart, 1993; Samet, 1990; Samet, 1992). Several studies have found that smoking cessation reduces the risks of premature death from CVD by 50% or more (AHA, 2005). Smoking cessation reduces peripheral artery occlusive disease in patients who quit smoking as compared with those who continue smoking. Smoking cessation improves exercise tolerance, reduces the risk of amputation after peripheral artery surgery, and increases overall survival (Burns, 2000, Fagerstrom, Hart, 1993; Gottlieb, 1992; 2002; Mulcahy, 1990; Samet, 1990; Taylor, Hasselblad, Henley, Thun, & Sloan, 2002; USDHHS, 1990).

Figure II.5. The benefits of quitting smoking.

Source: United States Department of Health and Human Services. (2004). *The health consequences of smoking: A report of the Surgeon General.* Atlanta, GA: U.S. Department of Health and Human Services. Centers for Disease Prevention and Control, National Center for Chronic Disease Prevention and Promotion, Office on Smoking and Health.

Figure II.6. Short and long term benefits of quitting smoking.

Source: United States Department of Health and Human Services. (2004). *The health consequences of smoking: A report of the Surgeon General.* Atlanta, GA: U.S. Department of Health and Human Services. Centers for Disease Prevention and Control, National Center for Chronic Disease Prevention and Promotion, Office on Smoking and Health.

It is essential that health care providers, particularly physicians and nurses provide smokers with information about smoking hazards and educate smokers about the short-term and long-term health benefits of smoking cessation.

Summary

Historically, the first use of tobacco was for medicinal purposes. Tobacco was used to treat wounds and several diseases including respiratory and gastrointestinal diseases, and headaches. It was used as an analgesic and antiseptic. Smoking tobacco became a fashionable habit in such countries as Britain and France specifically among women. Over time, the mistaken beliefs about the beneficence of tobacco changed. Tobacco became known as a toxic, harmful product. Five decades ago, tobacco was known to be a major cause of lung cancer. At the beginning of the last century, the idea of tobacco's beneficial effects had been completely rejected and the idea of nicotine as an addictive drug became clearly known. Smoking now is known as a major cause of cancers, CVD, stroke, chronic respiratory disease, adverse reproductive effects and other diseases.

Jordan has a high smoking prevalence compared to developed countries. There are risk factors for smoking in Jordan as well as in other Arab countries: increasing household income, low educational level and increasing number of family members or friends who smoke. University students in Jordan as well as in other Arab countries are knowledgeable about the health risks of smoking. The majority of smokers start smoking in their teenage years and the reasons for initiation of smoking are for pleasure and to relieve stress. Even though there are tobacco policies established in Arab countries against smoking in public places and smoking around children, Arab students and adolescents, particularly female students still smoke in the cafeteria, at home, inside college buildings, and in bathrooms. The majority of students reported

that the reasons for not smoking include the adverse health effects of smoking, religious beliefs, sensory issues such as bad taste or smell, beliefs that smoking is a useless habit and issues related to family disapproval, specifically among females. Many smokers have tried quitting smoking, but they failed. The majority of smokers reported that they had intentions of quitting smoking in the future. The main reason for quitting smoking was related to smoking health hazards.

Waterpipes are commonly used in the Middle East. Waterpipe smokers inhale similar or higher concentrations of CO, nicotine, tar, and heavy metals as in cigarettes. Waterpipes are associated with nicotine dependence and adverse health consequences such as those associated with cigarette smoking including multiple cancers, CVD, respiratory diseases, low birth weight, and others. Waterpipe smokers believed that waterpipes were less harmful than cigarettes. The majority of waterpipe smokers believed that they could quit waterpipe use anytime, and they had no intentions of quitting smoking waterpipes. Wrong beliefs about health hazards and nicotine dependence caused by waterpipes lead waterpipe smokers to believe that they are not addicted to nicotine, that it is easy to quit waterpipe smoking anytime they want, and that it is not problem to get pleasure from practicing this social activity without considering its harm to themselves and to others.

Chapter III

Research Methods

Chapter III: Research Methods

Introduction

Little is known about smoking cessation among Jordanians. Smoking is a major cause of serious disease and death all over the world (USDHHS, 2004). This study aims to explore the perceptions about the important phenomenon of smoking cessation among CVD patients. Results from the study will be useful for further research, development of successful smoking cessation programs, and primary preventive care for diseases such as CVD, thus having the potential to improve the community's health status.

This chapter will describe the research methods used for this study: design, setting, sample, data collection procedures, data management and analysis plan, and human subject protection. This study is a descriptive, cross sectional study. Hospitalized patients with CVD were recruited from two hospitals in Jordan. The Statistical Package for the Social Sciences (SPSS, version 15) software analysis program was used to analyze the data.

Methods

Study Design

A descriptive, cross-sectional study was conducted to address the research objectives that will enhance our knowledge of the patterns and perceptions of hospitalized Jordanian patients with CVD.

Setting

The subjects for this study were recruited from two private hospitals (Specialty Hospital, and Al-Essra Hospital) in Amman, Jordan between October 13th, 2009 and November 18th, 2009.

Both of these hospitals provide a full range of cardiovascular medical and surgical specialties. Hospitalized patients with CVD who were admitted to different departments (medical and surgical wards, cardiac catheterization unit, intensive care unit [ICU], coronary care unit [CCU]) in the hospitals were identified.

The Specialty Hospital consists of 250 beds. The ICU-CCU department contains 20 beds and echocardiography room. It is considered to be the most advanced ICU-CCU in Jordan. The cardiac catheterization unit contains six beds for cardiac care for pre and post cardiac catheterization patients. The capacity of Al-Essra Hospital is 146 beds. The ICU-CCU department contains 22 beds, and echocardiography room, with its advanced medical equipment and devices. Before conducting this study, institutional approval was obtained from the Directors of Nursing and Chief Medical Officers of Specialty Hospital and Al-Essra Hospital.

Sample

A convenience sample of 125 subjects was recruited from the two hospitals in Amman, Jordan. Due to the small number of women (n=13) who were available for this study; only the data for men will be presented in this analysis. A total of 112 men provided the data for this study.

A sample size calculation for a logistic regression analysis was completed to detect any association between selected independent variables and the outcome “confidence to quit cigarette smoking”. A sample size of 120 subjects would be sufficient to include 10-12 variables in the estimation equation of multiple linear logistic regression (Polit & Beck, 2004). Because the confidence to quit smoking was not normally distributed, multiple logistic regression was use to estimate the relationships. Approximately 10 subjects per variable are needed (Long, 1997). An

exploratory procedure was used where subsets of variables were tested with a final parsimonious model including only those variables that were previously significant in the subset analysis. Subset analyses were conducted of five demographic variables, six CVD and psychological risk factor variables, three hospitalization factor variables, four cigarette smoking pattern independent variables, four smoking customs in the subject's home independent variables.

Subjects were included in the study if they: 1) were 18 years of age or older; 2) had been admitted to the hospital with the diagnosis of CVD, including coronary heart disease (angina pectoris, unstable angina, or myocardial infarction), heart failure, arrhythmia, aortic aneurysm, peripheral arterial disease, for interventional cardiology or a cardiac surgical procedure; 3) spoke Arabic; 4) smoked cigarettes and/or waterpipe, and 5) were conscious and oriented at the time of the interview. Subjects were excluded if they: 1) had a concurrent psychiatric disorder such as dementia or schizophrenia; or 2) had a medically unstable condition. Patients in unstable condition were excluded because participating in this study might be too demanding for them. The nurses who provided care for the eligible subjects were asked to confirm that they were medically stable, conscious and oriented at the time of the interview.

Data Collection Procedure

Permission to conduct the study was provided by the Directors of Nursing and the Chief Medical Officers at Specialty Hospital and Al-Essra Hospital. The researchers screened newly admitted patients to determine if they met the inclusion criteria for the study by checking: a) the patients' kardex; b) the admission notebook on each unit/ward; c) the patients' medical record. The following information was abstracted from the medical record: patient length of stay, diagnosis on admission, subjects' height, subjects' weight, and CVD risk factors (hypertension,

CVD family history, hyperlipidemia, and diabetes mellitus) of each subject. Because some Jordanian patients may not be aware of their risk factor status and actual height and weight, the medical record is likely to be more accurate than subject recall or self report information. The patients' nurses were consulted to determine whether or not the patients were hemodynamically stable. The patients who met the eligibility criteria were asked to participate in this study. The researcher explained the purpose of the study, provided additional information about the study to the eligible subjects and answered all of their questions. The researcher reviewed the written informed consent form with the eligible subjects at a time convenient for them. For a prospective subject who needed additional time to decide about participating in the study, an additional meeting with the researcher was scheduled. A written informed consent was signed by those individuals who decided to participate in the study.

The researcher collected the data for this study directly from patients' medical records and from questionnaires completed through face to face interviews with the subjects, or from self report questionnaires, for those who preferred to complete the questionnaires independently. No additional medical procedures or medications were involved. The researcher interviewed all subjects in their private rooms. The interviews took between 25 and 40 minutes to complete.

According to Jordanian culture, it is acceptable for a male researcher to interview a female subject. In most hospitals in Jordan, male nurses provide care for female patients. This research study did not require any physical contact with the subject. However, for some women having a male enter the room and interview her could be considered a violation of her "modesty." For this reason, for female subjects, the researcher requested that a female nurse from the unit ask the subject if she had any objections to being interviewed by a male research

nurse. For subject who did not wish to have a male researcher interview her in a private room, a colleague of the researcher, a female nurse who had been trained in the interview procedures, conducted the interview.

Data was collected from patients' medical records and from their completed questionnaires. Questionnaires included the Global Adult Tobacco Survey (GATS) Core Questionnaire with Optional Questions (Centers for Disease Control [CDC], 2008), the Narghile-Waterpipe Users Survey (Asfar, Ward, Eissenberg & Maziak, 2005), and the Patient Health Questionnaire (PHQ). Additional related questions about knowledge of health benefits of smoking cessation, willingness to quit smoking and confidence to quit smoking were included in the questionnaire.

Instruments

The GATS was developed by the CDC and WHO in 2007 as a new component in the ongoing Global Tobacco Surveillance System (GTSS). The GATS is a nationally representative household standard global adult tobacco survey, which was conducted in 16 low- and middle-income countries, including Egypt and Turkey. The GATS Core Questionnaire with Optional Questions covers these topics: prevalence (cigarette smoking and other tobacco use), exposure to risk, second-hand smoke exposure and policies, smoking cessation, risk perceptions, knowledge, attitudes and perception, exposure to media, economics issues related to tobacco use, and a waterpipe module. Results from the GATS will assist countries in the formulation and implementation of effective tobacco control interventions (CDC, 2008).

The three knowledge questions developed and validated by National Cancer Institute's Community Intervention Trial for Smoking Cessation in 1989 (CDC, 1990) in many surveys aimed to assess smokers' beliefs about the health benefits of smoking cessation, were completed

by all subjects. This questionnaire has also been used in previous studies (Froelicher, et al., 2004; Sohn, et al., 2007). This questionnaire includes one question and two statements: 1) "How likely do you think it is that you will avoid or decrease serious health problems from smoking if you quit?" 2) "If a person has smoked for more than 20 years, there is little health benefit to quitting;" and 3) "My smoking is harming my health." The subjects' response for the first question was very likely, likely, unlikely, very unlikely, and uncertain. While the subjects' response for the two statements were "strongly agree, agree, disagree, strongly disagree, neither disagree nor agree, and I do not know." In addition to these questions, the subjects answered three questions that have been used in a previous study (Sohn, et al., 2007). The questions included: 1) "How likely do you think it is that you will avoid or decrease your chances of the development of lung cancer if you quit smoking?" 2) "How likely do you think it is that you will avoid or decrease the development of heart disease if you quit smoking?" 3) "How likely do you think it is that you will avoid or decrease the development of respiratory disease if you quit smoking?" (Sohn et al., 2007). The subjects' response for the all the 3 questions were "very likely, likely, unlikely, very unlikely, and uncertain."

Participants' willingness to quit smoking was measured by a question modified from instruments that have been used in previous studies (Froelicher & Christopherson, 2000; Sohn, et al., 2007), asking, "How willing are you to make a serious quit attempt of (cigarettes/waterpipe) in the next month?" The participants responded on an 11-point scale that ranged from 0 (not at all willing) to 10 (extremely willing).

Subjects' confidence in their ability to quit smoking was also measured by use of a question that was modified from instruments used in previous studies (Froelicher & Christopherson, 2000; Sohn, et al., 2007), asking, "How confident are you that you will be able

to quit smoking (cigarettes/waterpipe) once you are discharged from the hospital?" These responses were also measured on a scale ranging from 0 (not at all confident) to 10 (totally confident).

To assess the preferred methods for quitting cigarette/waterpipe smoking in the past and in the future, the subjects who made a serious quit smoking attempt and/or who were willing to give up smoking were given a choice from examples of methods such as: "My own way without help from others," physical exercise, pharmacotherapy, snacks, counseling, educational materials, or smoking cessation programs (CDC, 2008; Sohn, et al., 2007). To identify the reasons for quitting smoking, and to identify the subjects who were thinking of giving up smoking, questions from a previous study were used (Lader, 2007). The reasons offered for quitting smoking were: for better health in general, less risk of getting a smoking related illness, present health problems, financial reasons, family pressure, harms children and others, ban on smoking in public places, and doctor's advice.

Questions related to waterpipe smoking patterns, attitudes, and beliefs about the health hazards and benefits of quitting waterpipe smoking were adopted from Narghile-Waterpipe Users Survey, which was used in a previous study (Asfar et al., 2005).

The PHQ-2 was used to identify currently depressed subjects (Whooley & Simon, 2000). The PHQ-2 includes two questions: "Over the past 2 weeks, how often have you been bothered by any of the following problems? 1) Little interest or pleasure in doing things, and 2) feeling down, depressed, or hopeless." If the subject answered "yes" to either or both questions, the subject was asked to complete all 9 PHQ items (PHQ-9) (Kroenke, Spitzer & Williams, 2001). The subjects respond to the categories: not at all = 0, several days = 1, more than half the days =

2, or nearly every day = 3. Depression severity for the total score of the PHQ-9 is interpreted as follows: minimal symptoms of short duration (PHQ-9 score <10), mild to moderate depression (PHQ-9 score 10-19), or major depression (PHQ-9 score ≥ 20) (Kroenke, Spitzer & Williams, 2001).

The PHQ-2 and PHQ-9 are brief instruments, acceptable to patients that can be self-administered and completed in 5 minutes or less. The PHQ-9 has been used in many cultures and has been translated from English into Dutch, Italian, Spanish, German, and Arabic. Moreover, it has a reported sensitivity of 0.80 (95% CI = 0.71, 0.87) and specificity of 0.92 (95% CI = 0.88, 0.95) (Gilbody, Richards, Brealey & Hewitt, 2007).

The researcher used the translated Arabic versions of the Narghile-Waterpipe Users Survey (Asfar et al., 2005) and the PHQ-9 (www.phqscreeners.com/overview.aspx) (Pfizer Inc., 2005). The GATS Core Questionnaire with Optional Questions (CDC, 2008), the additional related questions in the questionnaire, and the consent form were provided in both English (Appendix A) and Arabic (Appendix B). These instruments were translated and then back-translated to English by an accredited translator. The translator is an expert in translation of documents relating to behavioral and clinical studies.

Human Subject Protection

The study was submitted to the University of California, San Francisco (UCSF) Committee on Human Research (CHR) for review and approval by the campus Ethics Committee. Formal approvals from the hospitals' administrations and the CHR of UCSF were obtained before data collection. All subjects were informed of the study purpose, the benefits and risks of participation. Information was obtained directly from subjects and their medical records. The

subjects were notified that they could stop completing the questionnaire or end the interview at any time. All subjects signed the written informed consent, which was attached to each questionnaire.

There was no direct benefit to any subject for participating in this study. However, the information that the subjects provided may help health professionals better understand the smoking habits of Jordanian smokers, and their beliefs about smoking cessation. Also, results from the study will help health professionals to establish successful smoking cessation programs. The benefits of participating in this study outweigh the risks to the individual study participants. The proposed study is associated with minimal risk and aims to improve our understanding of CVD patients' perceptions about smoking and the health benefits of smoking cessation. The subjects might have felt uncomfortable about discussing the details of their health and smoking habits. The subjects might also be concerned that their privacy and the confidentiality of their health status could be at risk. The researcher did his best to ensure privacy during the interviews by obtaining the information directly from the subjects in their private rooms. The researcher tried to approach the subjects during non visiting hours or at a convenient time that the subject agreed to have the interview scheduled. Data kept in locked file cabinet, and electronic data were protected with a password. The subjects were notified that if the information from this study is published or presented at scientific meetings, their name and other personal information will not be used.

Data Analysis

SPSS (version 15) was used for statistical analysis. Descriptive statistics included means, standard deviations, median and range, and frequencies were used to evaluate the subjects' demographics, their willingness to quit cigarette/waterpipe smoking, and their confidence in quitting cigarette/waterpipe smoking.

Frequencies were used to determine: 1) smoking customs in subjects' home; 2) the rules about smoking inside the men's homes and workplaces; 3) cigarette/waterpipe smoking patterns; 3) knowledge, beliefs, and attitudes about cigarette/waterpipe smoking; 4) knowledge and beliefs about the benefits of quitting cigarette/waterpipe smoking; 5) awareness of the addictive properties of cigarette/waterpipe smoking; 6) history of quit attempts for those who made a serious attempt to quit cigarette/waterpipe smoking; 7) willingness to quit cigarette/ waterpipe smoking; 8) confidence in quitting cigarette/waterpipe smoking; 9) smoking cessation methods used in the past to quit cigarette/waterpipe smoking; 10) smoking cessation methods that will be used in the future to quit cigarette/waterpipe smoking; and 11) men's depression severity.

Multiple logistic regression was used to identify the potential predictors of confidence in quitting cigarette smoking and these independent variables (demographic, CVD and risk factors, hospitalization factors, cigarette smoking pattern, smoking customs in the subject's home). The results are presented as odds ratios (OR) with a 95% confidence interval (CI).

Table III.1 shows the coding categories for variables that were used in logistic regression analysis. The dependent variable is self-efficacy (confidence) to quit smoking after hospital discharge. In previous studies (Doolan, Stotts, Benowitz, et, al., 2008; Smith, Reilly, Miller, DeBusk, & Taylor, 2002; Taylor, et al., 1996) the researchers used 70 as a cut-off point for

confidence to quit smoking. The scale ranged from 0 to 100. In this study, smoking was coded to low confidence (< 7 = 0), and high confidence (≥7 = 1). The mean age of the men was used to categorize age (> 52 years = 0; ≤ 52 years = 1). Using the model of a previous study (Sohn, et al., 2007), the independent variables were coded as follows: marital status (married vs. not married); education (< high school vs. ≥ high school); work status (employed vs. not employed). The average monthly family income in Jordan was JD 400 (The Hashemite Kingdom of Jordan Department of Statistics, 2006). Family income was coded as low income (≤ JD 400) and high income (> JD 400). Based on the cut-off point for the PQH-9 reported in previous studies (McManus, Pipkin, & Whooley, 2005 ; Williams, et al., 2005), symptoms of depression were coded as PHQ-9 ≥ 10, and PHQ-9 < 10. Based on the heaviness of smoking index (Heatherton, Kozlowski, Frecker & Robinson, 1989), the first cigarette after waking was coded > 30 minutes versus ≤ 30 minutes, and the number of cigarettes smoked per day was coded ≤ 20 cigarettes versus > 20 cigarettes.

Conclusion

The subjects' medical records were reviewed to obtain the demographic and clinical data needed. The Men were interviewed and the researcher filled in the answers on the questionnaire. All data were analyzed using the SPSS statistical program (version 15).

Table III.1. Coding of Variables for Logistic Regression

Variable	Coding
Depended variable	
Confidence to quit cigarette	Low confidence (< 7) = 0
	High confidence (≥ 7) = 1
Independent variable	
Age	> 52 years =0
	≤ 52 years =1
Marital status	Not married =0
	Married =1
High education	< high school =0
	≥ high school =1
Work status	Not employed =0
	Employed =1
Monthly family income	Low income (≤ JD 400) =0
	High income (> JD 400) =1
History of hypertension	Yes = 0
	No =1
CVD family history	Yes = 0
	No =1
Diabetes mellitus	Yes = 0
	No =1
Hyperlipidemia	Yes = 0
	No =1
BMI	Overweight or obese (≥ 25 kg/cm^2) =0
	Normal (< 25 kg/cm^2) =1
Depression	Moderate to severe (≥ 10) =0
	Minimal and mild (< 10) =1
Unit	Medical/ Surgical award =0
	CCU, ICU, and post cardiac catheterization recovery =1

Table III.1 Continued. Coding of Variables for Logistic Regression

Variable	Coding
Diagnosis on admission	Other diagnosis* =0
	MI, stable angina, and unstable angina =1
No. of cigarette smoked per day	> 20 cigarettes =0
	≤ 20 cigarettes =1
First cigarette after waking	≤ 30 minutes =0
	> 30 minutes =1
Present of other smoker(s) in home	Yes = 0
	No = 1
Smoking inside the home	Allowed =0
	Not allowed =1
Smoking in every room	Yes = 0
	No = 1
Smoking in the presence of children	No = 0
	Yes = 1

* Arrhythmia, congestive heart failure, coronary heart disease for investigation, valvular disease, cardiomyopathy, aortic aneurysm, and endocarditis.

Chapter IV

Results

Chapter IV: Results

Results

This chapter presents the findings from the study. Data were collected from two private hospitals in Amman, Jordan between October 13th, 2009 and November 18th, 2009. The researcher approached 141 eligible subjects who were hospitalized with a CVD diagnosis. Eleven of them declined to participate in the study, three subjects did not complete the interview, and two subjects did not return the self-report questionnaires. Because only 13 women (10.4%) completed the study, women were excluded from the report of results of this chapter since such a small number would distort the study findings for the majority of the sample. A total of 112 men provided data for this study. More than three-quarters (78.6 %) of them were interviewed using a structured questionnaire in their private rooms, and 21.4% completed the self-report questionnaire by themselves.

The majority of the men were middle-aged [mean age = 52.5 (±9.7) years], married (75.0%), had completed high school or higher levels of education (67.9%), and were employed (63.4%). About 60.7% of the men had a monthly family income that was average or above average for Jordanian standards (The Hashemite Kingdom of Jordan Department of Statistics, 2006) (Table IV.1).

Cardiovascular Risk Factors

More than half of men reported that they had a family history of CVD (56.3%), and hypertension (55.4%). Less frequently, men reported that they had diabetes mellitus (39.3%) or hyperlipidemia (30.4%). The subjects' body mass index (BMI) ranged from 20.2 kg/cm^2 to 39.4

kg/cm^2. The mean (±SD) BMI for the men was 27.2 (±3.0) kg/cm^2. Approximately 64.3% of the men were overweight, and 16.1% were obese (Table IV. 2).

Table IV.1. Demographics for Jordanian Men Hospitalized with CVD (n=112)

Demographics	%	n
Marital status		
Single	5.4	6
Married	75.0	84
Divorced	2.7	3
Widowed	17.0	19
Level of education		
No formal schooling	2.7	3
Primary school	11.6	13
Secondary school	17.9	20
High school	30.4	34
College/university	34.8	39
Post graduate degree	2.7	3
Work status		
Government employee	17.9	20
Non-government employee	29.5	33
Self-employed	16.1	18
Retired	21.4	24
Unemployed	15.2	17
Monthly family income (JD*)		
< 200	5.4	6
200-400	33.9	38
401-600	34.8	39
601-800	12.5	14
> 800	13.4	15

	Mean	SD**	Min†	Max‡
Age (year)	52.46	±9.74	33	74
Weight (kg)	77.40	±10.63	55	118
Height (cm)	168.43	±6.38	153	185

* JD = Jordanian dinar (1 JD= $1.40). ** Standard deviation.
† Minimum. ‡ Maximum.

Table IV.2. Cardiovascular Risk Factors for Hospitalized Jordanian Men with CVD (n=112)

Cardiovascular Risk Factors			%	n
Hypertension			55.4	62
CVD family history			56.3	63
Diabetes mellitus			39.3	44
Hyperlipidemia			30.4	34
Body Mass Index (BMI) kg/cm^2				
Normal (18.5 - 24.9)			19.6	22
Overweight (25.0 - 29.9)			64.3	72
Obese (30.0 - 39.9)			16.1	18
	Mean	SD*	Min**	Max†
BMI	27.24	±3.0	20.20	39.43

* Standard deviation. ** Minimum. † Maximum.

Hospitalization Factors

The majority of men (58%) were interviewed in the Coronary Care Unit (CCU). At time of interview, most men's (41.1 %) length of stay in the hospital was 2 days. The most common diagnosis at admission was acute coronary syndrome (68.8%), including unstable angina (28.6%), stable angina (24.1%), and myocardial infarction (16.1%). The most common invasive cardiac procedures or surgical interventions performed on men after admission were cardiac catheterization (42.9 %) and cardiac stent insertion (Table IV.3).

Assessment of Smoking Before Hospitalization

Approximately, 68% of the men had visited their doctors or other health care providers in the past 12 months. More than half of them (53.8%) had visited their doctors or other health care providers once or twice in the past 12 months (Table IV.4). About 83.3% of them were asked if they smoked when they visited their doctors or other health care providers. The majority of men (83.8%) who were asked about smoking were advised to quit smoking by their doctors or other health care providers.

Table IV.3. Hospitalization Factors for Hospitalized Jordanian Men with CVD (n=112)

Hospitalization factors	%	n
Unit		
Coronary care unit (CCU)	58.0	65
Intensive care unit (ICU)	8.0	9
Cardiac catheterization recovery unit	4.5	5
Medical/surgical ward	29.5	33
Patient's length of stay in hospital at time of interview		
1 day	38.4	43
2 days	41.1	46
3 days	15.2	17
4 days	4.5	5
6 days	0.9	1
Diagnosis on admission		
Stable angina	24.1	27
Unstable angina	28.6	32
Myocardial infarction	16.1	18
Arrhythmia	8.0	9
Congestive heart failure	8.9	10
Coronary heart disease for investigation	5.4	6
Valvular disease	2.7	3
Others *	6.3	7
Invasive cardiac procedure or surgical intervention after admission		
Cardiac catheterization	42.9	21
Stent	34.7	17
Coronary artery bypass graft	18.4	9
Valve surgery	4.1	2

* Cardiomyopathy, aortic aneurysm, and endocarditis.

Table IV.4. Smoking Assessment before Hospitalization

Smoking Assessment before Hospitalization	%	n
Visited a doctor or other health care provider in the past 12 months	67.9	76
Number of doctor or health care provider visits in the past 12 months		
1 or 2	53.8	42
3 to 5	34.6	27
6 or more	11.5	9
During any visit to a doctor or health care provider in the past 12 months, were you asked if you smoke tobacco? Yes (n=78)	83.3	65
During any visit to a doctor or health care provider in the past 12 months, were you advised to quit smoking tobacco? Yes (n=68)	83.8	57

Smoking Customs in Men's Homes

The number of persons who lived in the men's homes ranged from 2 to 11 (Table IV.5); the mean (±SD) was 5.97 (±2.03). When the men were asked about the number of male members of the household who were current smokers (including the subject), 48.6% of the men answered that they were the only smoker in their home. More than one-third of the men (38.7%) reported that they had more than one current man smoker in their home. Only 7.2% of the men reported that they had a woman current smoker among their household members.

Table IV.5. Men's Household Members and Smoking Customs (n=112)

	Mean	SD*	Min**	Max†	Mode
Number of persons who live in the subject's household (including the subject)	5.97	2.03	2	11	6
Number of children in subject's household					
Boys	2.21	1.38	0	6	2
Girls	1.77	1.26	0	6	2
Number of household members who were 15 years of age or older (including the subject)					
Male	2.40	1.21	1	6	2
Female	1.83	0.91	1	5	1
Number of household members who were current smokers (including the subject)					
Male	1.67	0.78	1	5	1
Female	0.07	0.26	0	1	0

* Standard deviation. ** Minimum. † Maximum.

Rules About Smoking Inside the Men's Homes and Workplaces

The majority of men (89.3%) reported that smoking was allowed inside their home. Only 40.2% of the men reported that smoking was allowed in every room inside their home.

Approximately 64% of the men reported that smoking inside their home was allowed in the presence of children (Table IV.6).

Table IV.6. Rules about Smoking Inside Men's Homes and Workplaces (n=112)

Rules about Smoking	%	n
Rules about smoking inside men's home		
Smoking inside the home		
Allowed	89.3	100
Not allowed, but exceptions	8.0	9
Never allowed	0.9	1
No rules	1.8	2
Smoking in every room	40.2	45
Smoking in the presence of children	64.0	71
Rules about smoking inside men's workplaces		
Work indoors or outdoors		
Indoors	69.4	50
Outdoors	11.1	8
Both	19.4	14
Indoor smoking policy at work		
Allowed anywhere	31.3	21
Allowed only in some indoor areas	43.3	29
Not allowed in any indoor areas	19.4	13
There is no policy	6.0	4
Men smoking indoor at work	76.6	49
Other people smoking indoors at work	82.9	92

Nearly three-quarters of the men (69.4%) worked in indoor areas. About 19.4% of the men worked in both indoor and outdoor areas. Less than half of the men (43.3%) reported that smoking was allowed only in some indoor areas, and 31.3% reported that smoking was allowed anywhere at work. Approximately 76.6% of those who worked in indoor areas reported that they

had smoked at work during the past 30 days. The majority of employed men (82.9%) reported having noticed other people smoking indoors at work during the past 30 days.

Men's Smoking Patterns

Most of the men (91.1%) were daily cigarette smokers. Almost all of them (99.1%) smoked manufactured cigarettes, and only 0.9% smoked rolled cigarettes. Approximately 18.8% of men smoked waterpipes. Only 9.8% of men reported that they smoked both cigarettes and waterpipes. On average, the men reported having started cigarette smoking when they were about 17 years old. The average number of years of regular cigarette smoking was 35.9 years. Waterpipe smokers began smoking in their mid-twenties (27.9 ± 7.4) (Table IV.7).

The majority of waterpipe smokers (85.7%) reported that they started to use waterpipes with their friends. About two-thirds (66.7%) preferred to smoke waterpipes with their friends in their homes (47.6%) or in the cafés or restaurants (47.6%), and shared the same waterpipe with others (52.4%). Three-quarters of waterpipe smokers reported that they increased smoking at certain times such as during the holidays (77.8%), summer season (38.9%) or when they felt stressed (50%). On average, the monthly cost of waterpipe smoking was about JD 18 ($25). Approximately 66.7% believed that they could quit waterpipe smoking any time. However, 61.9% of waterpipe smokers stated that the main challenge to quitting was peer pressure from friends. Less frequently they reported that boredom and free time (33.3%), and addiction and habit (9.5%) were the main challenges. Only 26.5% reported that warning labels on cigarette packages led them to think about quitting. Approximately 52.3% of cigarette smokers believed that all cigarettes were equally harmful. Most waterpipe smokers (57.1 %) believed that cigarettes were more harmful than waterpipes; 23.8% of waterpipe smokers believed that

waterpipe smoking was more harmful; and 19% believed that cigarettes were equally harmful as waterpipes.

Table IV.7. Smoking History, Patterns, and Cessation Perceptions in Hospitalized Jordanian Men with CVD

Smoking History, and Patterns	Mean	SD	Min*	Max**
Age started smoking cigarettes (year)	17.2	±3.76	11	32
Number of year of cigarette smoking	35.9	±10.38	13.0	60.0
Age started smoking waterpipe (year)	27.9	±7.39	19	50
Number of waterpipes smoked per week	3.7	±4.54	0.25	21
Monthly cost of waterpipe smoking (JD)	17.9	±14.35	2	50

Smoking History, Patterns, and Cessation Perceptions	%	n
Smoke both cigarettes and waterpipes	9.8	11
Smoke cigarettes	91.0	102
Smoke waterpipes	18.8	21
How did you start smoking waterpipes?		
Alone	4.8	1
With friend/friends	85.7	18
With family member/members	9.5	2
Currently smoke waterpipes		
Alone	14.3	3
With friend/friends	66.7	14
With family member/members	19.0	4
Place of usual waterpipe smoking		
Home	47.6	10
Cafe/restaurant	47.6	10
Other or no particular place	4.8	1
Share waterpipe with others	52.4	11

Table IV.7 continued. Smoking History, Patterns, and Cessation Perceptions in Hospitalized Jordanian Men with CVD

Smoking History, Patterns, and Cessation Perceptions	%	n
Is there a season or time of year when your narghile smoking increases? Yes	81.0	17
Period of increased waterpipe smoking frequency		
Holidays	77.8	14
Summer	38.9	7
Stress	50.0	9
Can quit waterpipe any time	66.7	14
In the last 30 days, have warning labels on cigarette packages led you to think about quitting? Yes	26.5	26
Do you think that some types of cigarettes could be less harmful than other types, or are all cigarettes equally harmful?		
Could be less harmful	47.7	51
All equally harmful	48.6	52
Beliefs about harmful effects of waterpipes compared to cigarettes		
Cigarettes are more harmful	57.1	12
Cigarettes are equally harmful	19.0	4
Waterpipe is more harmful	23.8	5

Heaviness of Smoking Index (HSI)

The number of cigarettes smoked per day ranged from 4 to 80 cigarettes. The mean (±SD) was 24.5 (±13.62) cigarettes per day. Most of the cigarette smokers (45.1%) smoked 11 to 20 cigarettes per day. Most of the cigarette smokers (44.7%) reported that they usually smoked their first cigarette 31 to 60 minutes after awakening. The total score HIS mean (±SD) was 3.2 (±1.6). Most of the cigarette smokers (58.8%) had medium nicotine dependence (Table IV. 8).

Table IV.8. Heaviness of Smoking Index for Men with CVD (n=110)

	Mean	SD*	Min**	Max†
Number of cigarettes smoked per day	24.5	±13.62	4	80
HIS score	3.2	±1.64	0	6
		Points	%	n
Number of cigarettes smoked per day				
1 - 10 cigarettes		0	11.8	12
11 - 20 cigarettes		1	45.1	46
21 - 30 cigarettes		2	22.5	23
≥ 31 cigarettes		3	20.6	21
First cigarette after waking				
Within 5 minutes		3	13.6	14
6 to 30 minutes		2	23.3	24
31 to 60 minutes		1	44.7	46
More than 60 minutes		0	18.4	19
Nicotine dependence		HIS score		
Low		0 - 1	17.6	18
Medium		2 – 4	58.8	60
High		5 - 6	23.5	24

* Standard deviation. ** Minimum. † Maximum.

Knowledge and Beliefs about Health Hazards of Smoking

The majority of the men (82.9%) believed that breathing other people's smoke could cause serious illness in non-smokers (Table IV. 9). Most of them believed that second hand smoke could cause heart disease in adults (74.7%), lung diseases in children (89.5%), and lung cancer in adults (52.6%).

Table IV. 9. Knowledge and Beliefs about Health Hazards of Secondhand Smoke (n=112)

Knowledge / Beliefs	Yes		No		Don't know	
	%	n	%	n	%	n
Does breathing other people's cigarettes/waterpipe smoke cause serious illness in non-smokers?	82.9	92	12.5	14	4.5	5
Does breathing smoke from other people's cigarettes cause any of the following?						
Heart disease in adults	74.7	71	17.9	17	7.4	7
Lung illnesses in children	89.5	85	3.2	3	7.4	7
Lung cancer in adults	52.6	50	29.5	28	17.9	17

All of the cigarette smokers knew that smoking could cause serious illness. The majority of them believed that cigarettes could cause respiratory system diseases (99%), cardiovascular diseases (94.2 %), and lung cancer (83.7%). Less than half of them (38.5%) were aware that cigarettes could cause strokes. Only 38.5% said that cigarettes could cause other bodily effects.

When waterpipe smokers were asked about the health hazards of waterpipes, all of them knew that waterpipes could cause respiratory system diseases. Approximately 90.5% of them believed that waterpipes could cause cardiovascular disease. A smaller proportion believed that waterpipe smoking could cause lung cancer (85.7%), or strokes (57.1%). About 38.1% believed that waterpipes don't cause other bodily effects (Table IV.10).

Table IV.10. Knowledge and Beliefs about Health Hazards of Cigarette and Waterpipe Smoke

Knowledge / Beliefs		Yes		No		Don't know	
		%	n	%	n	%	n
Does smoking cigarettes cause the following? (n=102)							
1	Stroke (blood clots in the brain that may cause paralysis)	48.1	50	27.9	29	24.0	25
2	Cardiovascular effects	94.2	98	4.8	5	1.0	1
3	Respiratory system diseases (e.g., asthma, chronic obstructive pulmonary disease)	99.0	103	1.0	1	0	0
4	Lung cancer	83.7	87	12.5	13	3.8	4
5	Other bodily effects	38.5	40	32.7	34	28.8	30
Does smoking waterpipes cause the following? (N=21)							
1	Stroke (blood clots in the brain that may cause paralysis)	57.1	12	28.6	6	14.3	3
2	Cardiovascular effects	90.5	19	9.5	2	0	0
3	Respiratory system diseases (e.g., asthma, chronic obstructive pulmonary disease)	100.0	21	0	0	0	0
4	Lung cancer	85.7	18	9.5	2	4.8	1
5	Other bodily effects	38.1	8	38.9	8	23.8	5

Beliefs about the Health Benefits of Smoking Cessation

Approximately, 95.2% of cigarette smokers believed that cigarette smoking was harmful to their health; and 90.5 % believed that waterpipe smoking was harmful to their health. When the men were asked "If a person has smoked cigarettes/waterpipes for more than 20 years, there is little benefit to quitting," 43.7% of cigarette smokers and 33.3% of waterpipe smokers said they "neither disagree nor agree or I do not know." Most men believed that smokers would avoid or decrease serious health problems, avoid or decrease the chance of getting respiratory diseases, heart disease, and lung cancer if they quit cigarette/waterpipe smoking (Table IV.11).

Table IV.11. Beliefs about the Health Benefits of Smoking Cessation

Beliefs	Cigarette smokers (n=103)		Waterpipe smokers (n=21)	
	%	n	%	n
How likely do you think it is that you will avoid or decrease serious health problems if you quit cigarette/waterpipe smoking?				
Very likely or likely	88.4	91	90.5	19
Unlikely or very unlikely	5.8	6	9.5	2
Uncertain	5.8	6	0	0
My cigarette/waterpipe smoking is harming my health.				
Strongly agree or agree	95.2	98	90.5	19
Strongly disagree or Disagree	0.9	1	4.8	1
Neither disagree nor agree or I do not know	3.6	4	4.8	1
If a person has smoked cigarettes/ waterpipes for more than 20 years, there is little benefit to quitting.				
Strongly agree or agree	23.3	24	38.1	8
Strongly disagree or Disagree	33.0	34	28.6	6
Neither disagree nor agree or I do not know	43.7	45	33.3	7
How likely do you think it is that you will avoid or decrease the chance of getting respiratory diseases if you quit cigarette/waterpipe smoking?				
Very likely or likely	92.2	95	94.6	20
Unlikely or very unlikely	1.8	2	4.8	1
Uncertain	5.4	6	0	0
How likely do you think it is that you will avoid or decrease the chance of getting heart disease if you quit cigarette/waterpipe smoking?				
Very likely or likely	91.2	94	85.8	18
Unlikely or very unlikely	4.5	5	9.5	2
Uncertain	3.6	4	4.8	1
How likely do you think it is that you will avoid or decrease the chance of getting lung cancer if you quit cigarette/ waterpipe smoking?				
Very likely or likely	69.9	72	85.7	18
Unlikely or very unlikely	13.6	14	4.8	1
Uncertain	15.2	17	9.5	2

Perceptions about Addictive Properties

Most cigarette smokers (71.6%) and waterpipe smokers (85.7%) believed that smoking is addictive. When waterpipe smokers were asked about their beliefs about the addictive effects of waterpipe smoking compared to cigarettes, most of them (66.7%) believed that cigarettes were more addictive. About 28.6% of them believed that cigarettes were equally addictive, and 4.8% believed that waterpipe smoking was more addictive (Table IV.12).

Table IV.12. Perceptions about Addictive Properties of Cigarette/Waterpipe Smoking

Perceptions about Addictive Properties	%	n
Do you believe cigarettes/waterpipes are addictive? Yes		
Cigarette smokers	76.5	78
Waterpipe smokers	40	8
What do you believe about the addictive effects of waterpipe smoking compared to cigarettes?		
Cigarettes are more addictive	66.7	14
Cigarettes are equally addictive	28.6	6
Waterpipe is more addictive	4.8	1

History of Quit Attempts

More than one-third (39.8 %) of cigarette smokers tried to stop cigarette smoking at least once during the past 12 months (Table IV.13). The mean (±SD) for the last attempt to quit cigarette smoking was 21.9 days (±25.2). Only 19% of waterpipe smokers quit smoking at least once during the past 12 months. The mean for the last attempt to quit waterpipe smoking was 37 (±46) days.

Table IV.13. History of Quitting Attempts in Hospitalized Jordanian Men with CVD

History of Quitting Attempts			%	n
During the past 12 months, have you tried to stop cigarette smoking? Yes			39.8	41
During the past 12 months, have you tried to stop waterpipe smoking? Yes			19.0	4
	Mean	SD*	Min**	Max†
How long was the last period of quitting cigarette smoking? (days)	21.9	±25.21	2	120
How long was the last period of quitting waterpipe smoking? (days)	37.0	±46.03	7	90

* Standard deviation. ** Minimum. † Maximum.

Willing to Quit Smoking

The men were asked "How willing are you to make a serious quit attempt for cigarette/waterpipe in the next month?" The men's responses ranged from zero (not at all willing) to 10 (extremely willing). Based on the willingness median, the men's willingness rates were coded to two categories (Table IV.14). The mean (±SD) for cigarette smokers' willingness to quit cigarettes was 6.1 (±3.5). The mean (±SD) for waterpipe smokers' willingness to quit waterpipes was 4.8 (±3.8). Slightly less than half of cigarette smokers (49.5%) reported that their willingness to make a serious attempt to quit cigarette smoking was more than 7. About 45% of waterpipe smokers' reported their willingness to quit smoking was more than 5.

Confidence in Quitting Smoking after Hospital Discharge

The men's responses to the question, "How confident are you that you will be able to quit cigarette/waterpipe smoking once you are discharged from the hospital?" ranged from zero (not at all confident) to 10 (totally confident). The mean (±SD) for cigarette smokers' confidence in quitting cigarette smoking was 6.2 (±3.6). The mean (±SD) for waterpipe smokers' confidence in quitting waterpipe smoking was 4.6 (±3.7). Approximately 58.3% of cigarette smokers had

confidence levels higher than 7. The median confidence to quit waterpipe smoking for men was coded into two categories (Table IV. 15). Less than half of waterpipe smokers (38.1%) reported that their confidence levels were more than 5.

Table IV.14. Willing to Make a Serious Quit Attempt in the Next Month in Hospitalized Men with CVD

	Mean	SD*	Min**	Max†	Mode	Median
Serious willingness to quit cigarette smoking in the next month (n=103)	6.1	±3.49	0	10	8.0	7.0
Serious willingness to quit waterpipe smoking in the next month (N=21)	4.8	±3.78	0	10	8.0	4.5
					%	n
Serious willingness to quit cigarette smoking in the next month						
≤ 7					50.5	52
> 7					49.5	51
Serious willingness to quit waterpipe smoking in the next month						
≤ 5					55.0	11
> 5					45.0	9

* Standard deviation. ** Minimum. † Maximum.

Table IV. 15. Confidence in Quitting Smoking after Hospital Discharge in Hospitalized Men with CVD

	Mean	SD*	Min**	Max†	Mode	Median
Confidence in quitting cigarette smoking after hospital discharge (n=103)	6.2	±3.59	0	10	9.0[a]	8.0
Confidence in quitting waterpipe smoking after hospital discharge (n=21)	4.6	±3.65	0	10	0	5.0
				%		n
Confidence in quitting cigarette smoking after hospital discharge						
< 7				41.7		43
≥ 7				58.3		60
Confidence in quitting waterpipe smoking after hospital discharge						
≤ 5				61.9		13
> 5				38.1		8

* Standard deviation. ** Minimum. † Maximum.[a] Multiple modes exist. The smallest value is shown.

Reasons for Quitting Smoking

The men who were willing to quit smoking were asked about their reasons for being willing to quit smoking (Table IV.16). Most cigarette smokers reported that their reasons for quitting smoking were to better their health in general (95.2%), the presence of health problems (97.6%), and doctor's advice (94%). A small proportion of cigarette smokers said that their reasons for quitting smoking were financial (22.6%), or bans on smoking in public places (28.6%). The majority of waterpipe smokers' reasons for quitting smoking were to better their health in general (100%), to lower their risk of getting smoking-related illnesses (100%), the presence of health problems (93.3%), and doctor's advice (93.3%). Fewer of them reported that the reasons for quitting smoking were family pressure (53.3%), harms children and others (53.3%), financial reasons (20%), and bans on smoking in public places (20%).

Table IV.16. Reasons for Quitting Cigarette and/or Waterpipe Smoking

Reasons to quit smoking	Cigarette smoking (n=90)		Waterpipe smoking (n=20)	
	%	n	%	n
Better for health in general	95.2	80	100	15
Less risk of getting smoking related illness	81.0	68	100	15
Present health problems	97.6	82	93.3	14
Financial reasons	22.6	19	20.0	3
Family pressure	65.5	55	53.3	8
Harms children and others	46.4	39	53.3	8
Ban on smoking in public places	28.6	24	20.0	3
Doctor's advice	94.0	79	93.3	14

Methods Used in the Past to Quit Smoking

All of the men who tried to quit smoking were asked about the methods that they used in the past to quit smoking. The majority of cigarette smokers (82.9%) and waterpipe smokers (95.2%) tried to quit smoking their "own way without help from others." Lower proportions of cigarette smokers (58.5%) and waterpipe smokers (61.9%) decreased the number of cigarettes/waterpipe to quit smoking. About one-third of cigarette smokers (31.7%) tried counseling, educational materials, or smoking cessation programs. In addition, cigarette smokers used other methods to quit smoking such as snacks (22.5%), physical exercise (17.1 %), and nicotine replacement therapy (NRT) (14.6%). About half of waterpipe smokers (47%) used snacks, and 22.9% used physical exercise to quit smoking. However, waterpipe smokers did not use NRT, medication or counseling, educational materials, or smoking cessation programs to quit smoking (Table IV.17).

Methods to be Used in the Future to Quit Smoking

The men who were willing to quit smoking were asked about their preferred methods for quitting in the future. All of the waterpipe smokers and most cigarette smokers (75%) reported that they would use their "own way without help from others" to quit smoking. The waterpipe smokers were interested in using snacks (53.3%); counseling, educational materials, or smoking cessation programs (60%); and NRT (6.7%) to quit smoking. Fewer cigarette smokers planned to use snacks (44.6%); counseling, educational materials, or smoking cessation programs (47%); or NRT (8.5%) (Table IV.17). Almost one-quarter of cigarette smokers and waterpipe smokers planned to use physical exercise to quit smoking. Approximately 4.9% of cigarette smokers reported that they would use prescription medications to quit. However, none of the waterpipe smokers planned to use prescription medications to quit smoking.

Table IV.17. Methods Used in the Past, and to be Used in the Future to Quit Smoking

Method	Methods to quit cigarette smoking				Methods to quit waterpipe smoking			
	Used in past		To be used in future		Used in past		Will be used in future	
	%	n	%	n	%	n	%	n
My own way without help from others	82.9	34	95.2	80	75.0	3	100.0	15
Nicotine replacement therapy, such as the patch or gum	14.6	6	8.5	7	0	0	6.7	1
Other prescription medications	2.4	1	4.9	4	0	0	0	0
Counseling, educational materials, or smoking cessation programs	31.7	13	47.0	39	0	0	60.0	9
Physical exercise	17.1	7	22.9	19	25.0	1	26.7	4
Decreasing number of cigarettes/waterpipe smoking	58.5	24	61.9	52	50.0	2	40.0	6
Snacks (e.g., gum, candies)	22.5	9	44.6	37	25.0	1	53.3	8

Beliefs about Indoor Smoking Policies

Almost all of the men believed that smoking should not be allowed in places of worship or schools (Table IV.18). They also supported the law that prohibits smoking inside places of worship and schools. Most of the men reported that smoking should not be allowed in hospitals (94.4%), universities (86.3%), or public transportation vehicles (83.7%).

Table IV.18. Beliefs about Indoor Smoking Policies (n=112)

Location	Smoking should not be allowed in these indoor areas:		Support the law that prohibits smoking inside these indoor areas:	
	%	n	%	n
Hospitals	94.4	102	93.1	95
Workplaces	62.3	66	68.6	70
Restaurants	49.0	51	61.8	63
Public transportation vehicles	83.7	87	86.3	88
Schools	99.0	103	98.0	100
Universities	86.3	88	86.3	88
Places of worship	100	104	99.0	101

The Media and Smoking

Most men reported that they noticed advertisements or signs promoting tobacco in the last month in stores where tobacco is sold (52.9%), and in newspapers or magazines (40%) (Table IV.19). When the men were asked if they noticed information in the media that informed the community about the dangers of smoking cigarettes or encouraged people to quit smoking, the men reported that they noticed this in newspapers or in magazines (42.4%), television (40%), and radio (24.7%) (Table IV.20).

Table IV.19. Media Advertisements or Signs Promoting Cigarettes/Waterpipes (n=112)

Noticed any advertisements or signs promoting cigarettes/waterpipe in these places:	%	n
Stores where tobacco is sold	52.9	54
Television	1	1
Radio	0	0
Billboards	10.3	10
Posters	6.3	6
Newspapers or magazines	40.0	38
Cinemas	10.0	4
Internet	5.6	2
Public transportation vehicles or stations	6.4	6
Public walls	25.8	25

Table IV. 20. Noticed Information about the Dangers of Smoking (n=112).

Noticed information about the dangers of smoking in these places:	%	n
Newspapers or magazines	42.4	39
Television	40.0	40
Radio	24.7	20

Depression Screening Scores

In response to PHQ-2, about 18.8% of men reported that they had "been bothered by little interest or pleasure in doing things", and 19.6% "felt down, depressed, or hopeless" during the past 2 weeks. The men who answered "yes" to either question on the PHQ-2 (Table IV. 21) were requested to complete the Patient Health Questionnaire-9 (PHQ-9). The PHQ-9 scores for the men ranged from 2 to 16. The mean (±SD) PHQ-9 score was 6.8 (±3.2). According to PHQ-9 scores, 59.5% of the men had mild depression.

Table IV. 21. Patient Health Questionnaire and Depression Severity for Hospitalized Men with CVD

Brief Patient Health Questionnaire (PHQ-2) (n=112)			%	n
Over the past 2 weeks, have you been bothered by any of the following problems?				
1) Little interest or pleasure in doing things			18.8	21
2) Feeling down, depressed, or hopeless			19.6	22
Answered "yes" for both 1 and 2			8.9	10
Patient Health Questionnaire (PHQ-9) (n=33)	Mean	±SD	Min*	Max**
PHQ-9 total score (n=33)	6.8	±3.2	2	16
Depression severity	PHQ-9 total score		%	n
Minimal depression	1-4		24.2	8
Mild depression	5-9		57.6	19
Moderate depression	10-14		15.2	5
Moderately severe depression	15-19		3.0	1
Severe depression	20-27		0	0

Predictors of Confidence in Quitting Cigarette Smoking

Six separate models were tested using multiple logistic regression analysis to identify the independent variables that were associated with self-efficacy (confidence) to quit cigarette smoking in Jordanian men smokers who were hospitalized with CVD. Table IV.22 shows the coding of variables for logistic regression. Results for the following research questions are provided next:

Table IV.22. Coding of Variables For Logistic Regression

Variable	Coding	%	n
Depended variable			
Confidence to quit cigarette	Low confidence (< 7) = 0	41.7	43
	High confidence (≥ 7) = 1	58.3	60
Independent variable			
Age	> 52 years =0	50.0	56
	≤ 52 years =1	50.0	56
Marital status	Not married =0	25.0	28
	Married =1	75.0	84
High education	< high school =0	32.1	36
	≥ high school =1	67.9	76
Work status	Not employed =0	36.6	41
	Employed =1	63.4	71
Monthly family income	Low income (≤ JD 400) =0	39.3	44
	High income (> JD 400) =1	60.7	68
History of hypertension	Yes = 0	55.4	62
	No =1	44.6	50
CVD family history	Yes = 0	56.3	63
	No =1	43.8	49
Diabetes mellitus	Yes = 0	39.3	44
	No =1	60.7	68
Hyperlipidemia	Yes = 0	30.4	34
	No =1	69.6	78

Table IV. 22 Continued. Coding of Variables for Logistic Regression

Variable	Coding	%	n
BMI	Overweight or obese (≥ 25 kg/cm^2) =0	80.4	90
	Normal (< 25 kg/cm^2) =1	19.6	22
Depression	PHQ-9 (≥ 10) =0	15.2	6
	PHQ-9 (< 10) =1	84.8	27
Unit	Medical/ Surgical ward =0	29.5	33
	CCU, ICU, and post cardiac catheterization recovery =1	70.5	79
Diagnosis on admission	Other diagnosis* =0	68.8	77
	MI, stable angina, and unstable angina =1	31.3	35
No. of cigarette smoked per day	> 20 cigarettes =0	36.9	38
	≤ 20 cigarettes =1	63.1	65
First cigarette after waking	≤ 30 minutes =0	36.9	38
	> 30 minutes =1	63.1	65
Present of other smoker(s) in home	Yes = 0	56.8	63
	No = 1	43.2	48
Smoking inside the home	Allowed =0	89.3	100
	Not allowed =1	10.7	12
Smoking in every room	Yes = 0	40.2	45
	No = 1	59.8	67
Smoking in the presence of children	No = 0	36.0	40
	Yes = 1	64.0	71

* Arrhythmia, congestive heart failure, coronary heart disease for investigation, valvular disease, cardiomyopathy, aortic aneurysm, and endocarditis.

Research Question 1: Are the five demographic variables (age, marital status, education, work status, monthly family income) associated with confidence in quitting cigarette smoking after hospital discharge?

A multiple logistic regression analysis was performed using five demographic variables: age (>52 vs. ≤ 52 years); marital status (not married vs. married); education (< high school vs. ≥ high school); work status (not employed vs. employed); and monthly family income (low income

vs. high income). The dependent variable was specified as self efficacy (confidence) for quitting cigarette smoking (low confidence [< 7] vs. high confidence [≥ 7]). Monthly family income was the only statistically significant independent variable associated with confidence in ability to quit cigarette smoking in the context of all five variables (Table IV.23). The men who had a high monthly income (> JD 400) were more likely to be confident in their ability to quit cigarette smoking after hospital discharge (OR: 5.45, 95% CI: 2.22, 13.40).

Table IV.23. Multiple Logistic Regression Analysis with Five Demographic Variables that Predict High Confidence in Quitting Cigarette Smoking*

Demographics Variables**	OR	95% CI	*P* value
Age (≤52)	0.47	0.14, 1.61	0.23
Marital status (married)	1.95	0.63, 6.00	0.25
Education (≥ high school)	0.99	0.35, 2.80	0.99
Work status (employed)	1.51	0.44, 5.15	0.51
Monthly family income (high income)	5.45	2.22, 13.40	< 0.05 †

* Outcome variable was coded as 0: low confidence (< 7); 1: high confidence (≥ 7)
** Comparisons: age (> 52 years); marital status (not married); education (< high school); work status (not employed); monthly family income (low income). † *P* value is significant (< 0.05).

Research Question 2: Are the six CVD and risk factor variables (history of hypertension, CVD family history, hyperlipidemia, history diabetes mellitus, BMI, and depression) associated with confidence in quitting cigarette smoking after hospital discharge?

To identify the significant CVD and risk factors that were associated with high confidence (≥ 7) in the men's ability to quit cigarette smoking, a multiple logistic regression analysis was performed using the six independent variables: history of hypertension (yes vs. no);

CVD family history (yes vs. no); hyperlipidemia (yes vs. no); history diabetes mellitus (yes vs. no); BMI (normal vs. overweight or obese); and depression (PHQ-9 ≥ 10 vs. PHQ-9 < 10). None of these variables were statistically significant in the model (Table IV.24).

Table IV. 24. Multiple Logistic Regression Analysis with Six CVD And Psychological Risk Factor Variables that Predict High Confidence in Quitting Cigarette Smoking*

CVD and Psychological Risk Factors **	OR	95% CI	*P* value
History of hypertension (no)	1.25	0.19, 8.24	0.82
CVD family history (no)	0.60	0.07, 4.91	0.64
Hyperlipidemia (no)	0.42	0.07, 2.35	0.32
Diabetes mellitus (no)	2.67	0.45, 15.77	0.28
BMI (Normal [< 25 kg/cm^2])	3.82	0.50, 29.20	0.20
Depression (PHQ-9 < 10)	1.83	0.19, 17.95	0.61

* Outcome variable was coded as 0: low confidence (< 7); 1: high confidence (≥ 7)
** Comparisons: history of hypertension (yes); CVD family history (yes); hyperlipidemia (yes) diabetes mellitus (yes); BMI (overweight or obese [≥ 25 kg/cm^2]); depression (moderate to severe [≥ 15]). † *P* value is significant (< 0.05).

Research Question 3: Are the three hospitalization factors of patient's unit, length of stay in the hospital, and diagnosis on admission associated with confidence in quitting cigarette smoking after hospital discharge?

A multiple logistic regression analysis was performed including three hospitalization factor patient's unit (medical/surgical ward vs. CCU, ICU, or post cardiac catheterization recovery); length of stay in the hospital (days); and diagnosis on admission (MI, stable angina and unstable angina vs. other diagnoses). All three variables were statistically significant. The

men who were in the CCU, ICU or post cardiac catheterization recovery at time of the interview compared to men who were interviewed in medical/surgical ward (OR: 3.17, 95% CI: 1.14, 8.83), who had longer hospital stays (OR: 2.22, 95% CI: 1.27, 3.85) or were admitted with a diagnosis of MI, and stable angina or unstable angina compared to other CVD diagnosis (OR: 2.94, 95% CI: 1.19, 7.27) were more likely to be confident in their ability to quit smoking (Table IV. 25).

Table IV. 25. Multiple Logistic Regression Analysis with Three Hospitalization Factor Variables that Predict High Confidence in Quitting Cigarette Smoking*

Hospitalization Factors**	OR	95% CI	*P* value
Unit (CCU, ICU, or post cardiac catheterization recovery)	3.17	1.14, 8.83	0.03†
Patient's length of stay in hospital at time of interview (day)	2.22	1.27, 3.85	0.01†
Diagnosis on admission (MI, stable angina, or unstable angina)	2.94	1.19, 7.27	0.02†

* Outcome variable was coded as 0: low confidence (< 7); 1: high confidence (≥ 7)
** Comparisons: unit (medical/ surgical ward); diagnosis on admission (others diagnosis).
† *P* value is significant (< 0.05)

Research question 4: Are the four cigarette smoking pattern independent variables (age started smoking cigarettes, number of years of regular smoking, number of cigarettes smoked per day, and first cigarette after waking) associated with confidence in quitting cigarette smoking after hospital discharge?

A multiple logistic regression analysis included four cigarette smoking pattern variables: age of starting smoking cigarettes (year); number of years of regular smoking (years); number of cigarettes smoked per day (> 20 cigarettes vs. ≤ 20 cigarettes); and first cigarette after waking (≤30 minutes vs. > 30 minutes) was performed to identify the predictors of confidence in the

ability to quit cigarette smoking. The men who started cigarette smoking at an older age (OR:1.2, 95% CI: 1.0, 1.4) were more confident in their ability to quit smoking. The other variables in the model were not statistically significant with respect to high confidence in quitting smoking (Table IV.26).

Table IV.26. Multiple Logistic Regression Analysis with Four Cigarette Smoking Pattern Independent Variables that Predict High Confidence in Quitting Cigarette Smoking*

Smoking Patterns**	OR	95% CI	*P* value
Age started smoking cigarettes (year)	1.16	1.01, 1.35	0.04†
Number of years of regular smoking (year)	0.99	0.95, 1.04	0.75
Number of cigarettes smoked per day (≤ 20 cigarettes)	0.98	0.40, 2.42	0.96
First cigarette after waking (> 30 minutes)	0.94	0.38, 2.37	0.90

* Outcome variable was coded as 0: low confidence (< 7); 1: high confidence (≥ 7)
** Comparisons: number of cigarettes smoked per day (> 20 cigarettes); first cigarette after waking (≤ 30 minutes). † *P* value is significant (< 0.05)

Research question 5: Are the four smoking customs in the subject's home independent variables (presence of other smoker(s) in the home, smoking inside the home, smoking in every room, and smoking in the presence of children) associated with confidence in quitting cigarette smoking after hospital discharge?

A multiple logistic regression analysis was performed using four variables: presence of other smoker(s) in the home (yes vs. no); smoking inside the home (allowed vs. not allowed); smoking in every room (yes vs. no); and smoking in the presence of children (yes vs. no). The

dependent variable was specified as confidence in quitting cigarette smoking. None of these variables were statistically significant in the model (Table IV. 27).

Table IV. 27. Multiple Logistic Regression Analysis with Four Smoking Customs in the Subject's Home Independent Variables that Predict High Confidence in Quitting Cigarette Smoking*

Smoking Customs in Men's Homes **	OR	95% CI	*P* value
Presence of other smoker(s) in home (no)	1.11	0.49, 2.50	0.80
Smoking inside the home (not allowed)	1.31	0.36, 4.84	0.68
Smoking in every room (no)	1.06	0.43, 2.61	0.90
Smoking in the presence of children (yes)	0.80	0.31, 2.07	0.65

* Outcome variable was coded as 0: low confidence (< 7); 1: high confidence (≥ 7)
** Comparisons: present of other smoker(s) in home (yes); smoking inside the home (allowed); smoking in every room (yes); smoking in the presence of children (no).
† *P* value is significant (< 0.05).

Research question 6: Are the previously significant variables (monthly family income, unit, patient's length of stay in hospital at time of interview, diagnosis on admission, age started smoking cigarettes) associated with confidence in quitting cigarette smoking after hospital discharge?

A parsimonious model was tested using the statistically significantly associated variables from each of the previous five models (Table IV. 28). It included these variables (monthly family income, unit, patient's length of stay in hospital at time of interview, diagnosis on admission, age started smoking cigarettes) with self-efficacy (confidence) in quitting smoking as the dependent variable. The men with higher income (OR: 7.7, 95% CI: 2.7, 22.3), who were in the CCU, ICU,

or post cardiac catheterization recovery at time of the interview (OR: 3.9, 95% CI: 1.2,12.7), with longer stays in the hospital (OR: 2.6, 95% CI: 1.3, 5.3) and who were admitted with a diagnosis of MI, stable angina or unstable angina (OR: 3.0, 95% CI: 1.1, 8.3) were more confident in their ability to quit smoking.

Table IV. 28. Multiple Logistic Regression Analysis with Four Smoking Customs in the Subject's Home Independent Variables that Predict High Confidence in Quitting Cigarette Smoking*

Significant Variables from Previous Models**	OR	95% CI	*P* value
Monthly family income (high income)	7.70	2.66, 22.27	< 0.05†
Unit (CCU, ICU, and post cardiac catheterization recovery)	3.92	1.21, 12.70	0.02†
Patient's length of stay in hospital at time of interview (day)	2.63	1.33, 5.26	0.01†
Diagnosis on admission (MI, stable angina, or unstable angina)	2.98	1.07, 8.32	0.04†
Age started smoking cigarettes (year)	1.02	0.87, 1.24	0.77

* Outcome variable was coded as 0: low confidence (< 7); 1: high confidence (≥ 7)
** Comparisons: monthly family income (low income); unit (medical/surgical ward); diagnosis on admission (others diagnosis). † *P* value is significant (< 0.05).

In conclusion, a convenience sample of 112 men were recruited from two private hospitals in Amman, Jordan. Subjects in this study were Arabic speaking smokers with CVD who were older than 18 years of age. The study findings have been presented above in chapter 5, the findings of the research study will be discussed and recommendations will be made for nursing practice to address beliefs and patterns of smoking by Jordanian men in subsequent chapters.

Chapter V

Discussion

Chapter V: Discussion

Discussion

This a unique study conducted in the Middle East that describes knowledge, attitudes, and beliefs about smoking, as well as the perception of the benefits of quitting smoking, and the willingness and confidence to quit smoking among men hospitalized with CVD. The men were recruited after a stressful event and a diagnosis of CVD from one of two hospitals in Amman, Jordan, 89% of the subjects who were invited to take part in this study agreed to participate.

The results of the study identified the smoking and waterpipe use behaviors and practices of 112 Jordanian men admitted to one of two private hospitals in the capital city of Jordan, Amman for CVD. The demographic characteristics of participants included: the majority of the men were married, highly educated, and employed. The average age was about 52 years old, which is similar to previous studies investigating cardiovascular risk factors in Jordanian men with CHD (Hammoudeh, et al., 2006), and to hospitalized men Korean smokers with CVD (Sohn, et al., 2007).

In addition to being smokers, the men reported a high frequency of other CVD risk factors such as a family history of CVD (56.3%), hypertension (55.4%), diabetes mellitus (39.3%), and hyperlipidemia (30.4%). The percentages of CVD risk factors in these men were higher than reported in hospitalized Korean men with CVD (Sohn, et al., 2008). Sohn and colleagues reported that less than half of the Korean men (46.4%) had hypertension, 29% had diabetes mellitus, and about quarter of the men had hyperlipidemia. The findings of this study are consistent with those reported by Hammoudeh and his colleagues (2006) which indicated that 95% of Jordanian men with CHD had ≥1 CVD risk factor, 28% had two CVD risk factors, and

28% had three CVD risk factors. About 40% of men had diabetes mellitus, 38% had hypertension, 19% had hypercholesterolemia, and 60% had low high-density lipoprotein cholesterol (Hammoudeh, et al., 2006). These findings indicate that the Jordanian patients with CVD report a high frequency of one or more CVD risk factors in addition to being smokers. Tobacco use combined with other factors is responsible in causing a high mortality rate from CVD. Deaths from CVD are considered the number one killer in many countries such as Jordan and U.S.

The high frequency of overweight/obesity in men of this study agreed with a previous survey by the WHO (2006), which indicated that obesity is a major emerging risk factor for the development of CVD and other health problems in Jordanian men. In this study, none of the men were underweight, while 64.3% of the subjects were overweight (25-29.9 kg/cm^2) and 16.1% were obese ($\geq$ 30 kg/cm^2). A national study in Jordan showed that 33% men aged $\geq$25 years were obese ($\geq$ 30 kg/cm^2) (WHO, 2006c).

The majority of the subjects in this study started cigarette smoking as adolescents, which is much earlier than the waterpipe smoking, and reported in previous studies investigated hospitalized patients with CVD in America (Froelicher, et al., 2002; Smith, Reilly, Miller, et al., 2002) and Korea (Sohn, et al., 2008). Some of the reasons for starting cigarette smoking before 18 years of age included motivation by smokers in their household and community, knowledge deficits about the health consequences of smoking, cigarette accessibility, and beliefs of becoming a "real man" if they start smoking at an early age. Therefore, health educational programs about smoking health hazards and enforcement of tobacco regulations on selling tobacco for minors are needed to prevent the second generation from smoking.

In terms of judicial support of anti-smoking laws, in Jordan it is prohibited to sell of tobacco products to minors and smoke in public places. Jordan was one of the first countries in the Middle East to introduce anti-smoking regulations (Ma'ayeh, 2003). However, many of the men said that the majority of tobacco vendors do not follow the rules that prohibited sells of tobacco to minors.

The age at which men in this study started smoking waterpipes ranged from 19 to 50 years. This is similar to a previous study conducted in Egypt (Maziak, Ward, Soweid & Eissenberg, 2004). The subjects reported that they initiated waterpipe smoking after they were 18 years old. In this study, the mean age of starting waterpipe smoking was 28 years, which is older than when they started to smoke cigarettes. Most of the men reported that they started waterpipe smoking with their friends. They reported that they currently smoke waterpipes with their friends, smoke in their homes or their friends' homes, and share the waterpipe with others. The main challenge to quitting waterpipe smoking was that usually this activity takes place among friends or relatives and was therefore viewed as a difficult challenge to forego as a social activity. The results of this study are similar to the findings of a previous study by Ward and colleagues (2007) who examined the history, knowledge, attitudes, and beliefs about waterpipe use in 133 waterpipe smokers in two states in the U.S. They reported that the majority of the subjects started waterpipe smoking before they were 21 years old, smoked waterpipes with more than one of their friends at home, and usually shared the same waterpipe with others. In 2008, Jackson and Aveyard reported that the majority of 937 students from Birmingham University, UK, also initiated waterpipe smoking with their friends,indicating that the most began smoking waterpipes as part of social activity and may have been unaware about the health hazards of secondhand smoking. The problem is that most of them started waterpipe smoking for fun and

over time they became addicted to waterpipes. Therefore, education of the community about the health hazards of waterpipes, addictive prosperities of waterpipes, and the harms of secondhand smoke need to be made public as part of health education.

The majority of men in this study reported that cigarette smoking was more harmful than waterpipe smoking. This result is similar to findings in previous studies from Syria, Egypt, the United States, Canada, and the UK (Maziak, Ward, Soweid & Eissenberg, 2004; Roskin & Aveyard, 2009; Smith-Simone, Maziak, Ward & Eissenberg, 2008; WHO, 2006b). However, Maziak, Eissenberg, Rastam, et al. (2004) reported that most subjects in their study believed that waterpipes were more harmful than cigarettes. The knowledge deficit about the harm of waterpipe smoking might be linked to the idea that filtering smoke through warm water creates a much smoother inhalation resulting in the incorrect interpretation of "no harm" of waterpipe smoking. The beliefs about the harm of waterpipes in the men of this study differ from previous study (WHO, 2006b). The waterpipe smokers need more force to pull the air through the water to burn the tobacco in waterpipes, which leads them to inhale the waterpipe smoke deeply into the lungs. This results in more injury to respiratory system than that of cigarette smoking (WHO, 2006b). The findings in this study are consistent with most of the literature that indicate that there is a lack of knowledge about the health hazards of waterpipe smoking. Educating the community about the hazards of waterpipes is needed to correct these misconceptions. When communities become more aware of the hazards of waterpipe smoking, it might be easier to decrease this smoking habit.

In this study the average number of cigarettes smoked per day was 24.5. About 43% of the subjects reported that they smoked >20 cigarettes per day, and approximately 63% smoked the first cigarette less than 30 minutes after waking, suggesting high nicotine dependency

(Heatherton et al., 1989). The majority of the subjects (82.4%) were moderately to highly nicotine dependent (heaviness of smoking index [HIS] total score was ≥ 2) (Heatherton, et al., 1989). These results are similar to those of Korean men hospitalized with CVD (Sohn, et al., 2008). The researchers reported that the mean of number of cigarettes smoked per day was 22.3. About 65% of the participants smoked the first cigarette less than 30 minutes after awakening (Sohn, et al., 2008). The findings from this study indicate that most of the men were heavy cigarette smokers and addicted to tobacco. To achieve long-term abstinence from tobacco and preventing relapse can be facilitated by treatment with pharmacological therapy included nicotine replacement medications.

Tobacco use is known as a major avoidable cause of CVD and other health problems yet only half of the men in this study believed that cigarette/waterpipe smoking caused strokes, and the majority of the men were unaware of the effect of cigarette/waterpipe smoking on other body systems. The majority of the subjects were aware of the correlation of cigarette and waterpipe smoking and CVD, as well as its harmful effects on the respiratory system, such as COPD, bronchitis, and asthma, and lung cancer. Haddad and Malak (2002) noted that the lack of awareness of the hazards of smoking was a risk factor for increased tobacco use in the Middle East. Only 58% of undergraduate students in one Jordanian university believed that smoking caused lung cancer (Kofahi & Haddad, 2005). Al-Kayed, Sawair, Burgan and Khraisat (2005) found patients who attended primary health care centers in Amman, Jordan, were unaware of the contribution of smoking to hypertension and strokes. Only 64% of them believed that smoking contributed to heart disease. The lack of knowledge about the health hazards of smoking among Jordanian people suggests that there is inadequate education. The lack of knowledge in outpatients and Jordanian students lead them to increase the smoking habits. Also, when the

other people including the adolescents and the patients with CVD notice the students who are highly educated and the outpatients who had no chronic disease use tobacco, this lead them to believe that there is no direct association between smoking and CVD and others chronic diseases.

Health education is essential to correct wrong beliefs about the hazards of tobacco use. Since most of the men in this study as well as Jordanian smokers in general started tobacco use before they were 18 years old, public health education about the health hazards of smoking is likely to be most beneficial at an earlier age through school based education and should be part of the school curriculum, as well as part of education during each health care visit by their physicians or health care providers. In addition, self-help interventions provide tailored materials such as print out, audiotapes, video tapes, and computer programs and Web-based information, which may provide effective methods to help the hospitalized patients to quit smoking. Few of the men noticed information about the dangers of smoking placed on the cigarette packages, in the media on television or the radio, or in newspapers. Increasing the number of programs that discuss topics about the health hazards of smoking might be helpful for improving knowledge in communities

When the men were asked about their beliefs about the health benefits of smoking cessation, the majority of the subjects were aware that cigarette/waterpipe smoking was harmful to their health. They believed that cigarette/waterpipe smoking cessation decreases the risk for serious diseases, and the chance of having health problems such as CVD, respiratory disease and lung cancer. The men in this study were more aware about the previous knowledge of health benefits from quitting smoking than the hospitalized Korean men with CVD (Sohn, et al., 2007). However, most of the men in this study had a serious lack of knowledge about the benefits of

smoking cessation for people who have smoked for more than 20 years. While most of the Korean men (77.3%) and American women (80.5%) who were hospitalized patients with CVD reported that they “strongly disagree” or “disagree” with the statement that “there is little benefit to quit smoking if the person has smoked for more than 20 years”. This misconception of little long term benefits from smoking cessation may lead smokers, particularly those subjects who have smoked for more than 20 years, to not even try to quit smoking. The literature indicates that there are long term benefits from smoking cessation. One year after quitting, the excess risk of CHD is half that of a smoker's. Stroke risk is reduced to that of a non-smoker 5 to 15 years after quitting. 15 years after quitting, the risk of CHD is the same as a non-smoker's (USDHHS, 2004).

In 1988, the Surgeon General’s report on the health consequences of smoking indicated that cigarettes and other forms of tobacco were powerful “addictive drugs” (USDHHS, 1988). The nicotine concentration in the waterpipes is similar or higher than cigarettes (Knishkowy & Amitai, 2005). Waterpipe users are exposured to nicotine that are the equivalent of 100-200 cigarettes per session (WHO, 2006b). Even though all tobacco forms are known to have addictive properties, the men in this study and in previous studies were unaware of the addictive properties of tobacco use. The majority of the waterpipe smokers believed that cigarettes were more addictive than waterpipes and believed they could quit smoking waterpipes at any time. The lack of awareness about the addictive properties of waterpipe use has also been found in American waterpipe smokers in previous studies (Smith-Simone, Maziak, Ward & Eissenberg, 2008; Ward, et al., 2007). The researchers reported that the most of waterpipe smokers believed waterpipes was less addictive than cigarettes. This knowledge deficit about the addictive

properties of waterpipes leads the waterpipe smokers to believe that they can quit smoking any time and this may result in gaining popularity of waterpipes.

In another study, Shishani, Nawafleh and Froelicher (2008) conducted a descriptive cross-sectional study that assessed the smoking habits in Jordanian nurses and physicians and their needs regarding smoking cessation. The researchers reported that only 42% of 251 Jordanian nurses and physicians responded that cigarettes and waterpipes were both addictive. Both nurses and the physicians reported that their schools curricula did not include information about smoking cessation, indicating a lack of knowledge about damaging effects of smoking, even among health care professionals. Health care providers, who could have a major role in promoting smoking cessation in their patients and the public, are not being effectively used to address smoking in Jordan. Therefore, adding content about the tobacco dependence and treatment in the curricula of all health science schools is needed to improve the smoking cessation in the community.

Khader and Alsadi (2008) reported that 37% of students in Yarmok University, Jordan, intended to quit smoking in the future. Haddad and Malak (2002) reported that 70% of the students at Jordan University of Science and Technology intended to quit smoking in the future. Similarly in a national survey in Great Britain, 77% of smokers responded that they intended to quit smoking in the future (Lader, 2007). Even though hospitalization, specifically for cardiac diagnoses, is a strong motivator for smokers to quit smoking. However, 82% of the cigarette smokers and 70% of the waterpipe smokers in this study were willing to quit smoking after hospital discharge. On the other hand, almost all of Korean men hospitalized with CVD intended to quit smoking after they were discharged from the hospital (Sohn, et al., 2007). Therefore, according to treating tobacco use guidelines, for the patient who is unwilling to make a quit

attempt, clinicians are advised to use motivational interviewing techniques to encourage patients to quit smoking in the future (Miller & Weisner, 2002).

In this study, the majority of the men who had attempted to quit smoking in the past said they used their "own way without help from others." Even though this method didn't help them to quit smoking in the past and, all of the waterpipe smokers and 95.2% of the cigarette smokers who were willing to quit smoking were insistent on using the same method in the future. Using "no help method to quit smoking" is an ineffective method to treat tobacco use compared to other evidence based methods such as pharmacotherapy and counseling. (Fiore, et al., 2008). Tobacco treatment guidelines have concluded that tobacco dependence is a chronic disease that requires systematic interventions (Fiore, et al., 2008; USDHHS, 1988). Fiore, et al. (2008) described the "5 As" model for treating tobacco use and dependence (Ask all patients for tobacco use through systematic screening, Advice to quit, Assess willingness to quit, Assist with quitting and Arrange follow up). If the patient is willing to quit, the clinician should assist the tobacco user to quit smoking by offering medication. Five nicotine replacement therapies (NRTs: nicotine gum, inhalers, lozenges, nasal sprays, and patches) and two non-NRTs (bupropion SR, and varenicline) are available. Counseling or additional treatment based on the tobacco user's needs should be provided. Follow up contacts to prevent relapse should be arranged.

The majority of the men in this study had visited a doctor or other health care provider in the past 12 months. The most of them were asked if they smoked, and were advised to quit smoking. Unfortunately, most of this advice that was included was very brief about the hazards of smoking and benefits of smoking cessation and many of them said that they were not educated about smoking cessation interventions. This indicates the majority of the men had knowledge deficits about tobacco treatment especially the pharmacological treatment. Therefore, health care

providers need to be trained regarding counseling techniques and the use of pharmacological therapies to increase the smoking cessation rates in their patients.

Despite the combination of counseling and medication are the most effective treatments for increased long-term smoking cessation rates (Fiore, et al., 2008), very few of the men in this study who were willing to quit smoking reported that they planned to use pharmacological therapy to quit smoking. Moreover, none of the waterpipe smokers and one-third of the cigarette smokers used counseling, educational materials, or smoking cessation programs in the past. The encouraging results were that 60% of waterpipe smokers and half of the cigarette smokers planned to try these methods for giving up smoking in the future. Physician advice, counseling interventions, providing tailored self-help materials (brochures, pamphlets, videotapes, and audiotapes) and education about pharmacological therapies may help the hospitalized patients to quit smoking.

Although the majority of the men in this study were willing to quit smoking, only 58.3% of cigarette smokers were confident (confidence ≥ 7, range: 0-10) in their ability to quit smoking after hospital discharge. While, 70.4% of Korean hospitalized men with CVD (Sohn, et al., 2007) and 67.2 % of American hospitalized women with CVD (Froelicher, et al., 2002) reported that they had confident (confidence ≥ 70, range: 0-100) in their ability to quit smoking. The mean in confidence in quitting smoking among cigarette smokers (6.2 ± 3.6) in this study was lower than reported in Korean hospitalized cigarette smokers with CVD (8.1 ± 2.6) (Sohn, et al., 2007) and in a previous American study (Smith, et al., 2002). Improving self-efficacy can enhance the individual's success in quitting smoking and preventing smoking relapses. The health care providers can improve self-efficacy in their patients through strategies such as: helping the patients to identify their abilities and to build on past successes in their quit smoking attempt,

providing advice to change their smoking patterns such as no smoking in the home, providing materials to read about smoking cessation methods and the health benefits of smoking cessation, ask the patients to share their beliefs and ideas about smoking cessation strategies (Fiore et al., 2008).

Smoking is more prevalent in the people with a history of depression. Depressed smokers are also less likely to quit smoking (Covey, Glassman & Stetner, 1998). Major depression is known to be associated in patients with CVD, and in patients hospitalized after myocardial infarction (Frasure-Smith, Lespérance, 2006). Screening, referral, and treatment of depression in patients with CAD have been recommended by the American Heart Association (Lichtman, et al., 2008). At a minimum, a simple 2-item instrument of PHQ-2 with simple answers ("yes" or "no") should be used to screen for depression. In this study, all men were asked to answer the two questions (PHQ-2). These questions are: "During the past 2 weeks, have you often been bothered by feeling down, depressed, or hopeless?" and (2) "During the past 2 weeks, have you often been bothered by little interest or pleasure in doing things?" The data showed that 29.5% of the subjects had major depression (answered "yes" to either question). For those who answered "yes" for either question, the questions of PHQ-9 were completed. About 15.2% of the subjects had moderate to moderately severe depression (PHQ-9 scores $\geq$10). This result is similar to a previous study (Sohn, et al, 2008). The Center for Epidemiologic Studies Depression scale (CES-D) is used to screen for depression in Korean smokers hospitalized with CVD (Sohn, et al., 2008). They found that 17.5% of the participants had scores higher than 16 on the CES-D scale (indicating depression).

Multiple logistic regression analyses were used to identify the relationships between selected independent variables and confidence to quit cigarette smoking. Only the men with

higher family income, longer stay in the hospital, admitted with emergency diagnosis (MI, and stable/unstable angina), and who were in critical cardiac units were more confidence in their abilities to quit cigarette smoking after hospital discharge than men admitted to medical/surgical units for non-emergent conditions. In previous study (Sohn, et al., 2007) the Korean hospitalized men with CVD who were not married, and who started smoking after age 20 were more confident about quitting smoking after hospital discharge.

Limitation and Strengths of this Study

This cross-sectional study has several limitations. Because a convenience sample was used for this cross-sectional study design, the generalizability of the findings is limited and needs further confirmation using a random sample of Jordanian men who are hospitalized for a CVD diagnosis. Despite the fact that the Global Adult Tobacco Survey (GATS) was used in 16 countries with the coordination of the World Health Organization, the GATS is a new tool and no data about its psychometric properties are available. Moreover, because the data was collected during hospitalization, while the subjects are under medical care, the actual patients' intentions to quit smoking may actually be different once they have recovered from the acute episode. Actual smoking cessation attempts after hospital discharge may differ from their answers on the intention question in the questionnaire. Given the seriousness of their conditions, the hospitalized patients may have given socially acceptable answers on their questionnaires rather than actual responses.

Despite the limitations and weaknesses of this cross-sectional study, this study is the first to address the beliefs, knowledge and attitudes of hospitalized smokers with CVD about smoking and health benefits of quitting in Jordan particularly and in Arab countries in general where

smoking rates are very high. To achieve successful smoking cessation it is very important to understand smokers' knowledge, attitudes and beliefs about smoking and their perceptions about the benefits of quitting smoking. It is also important to understand their beliefs about preferred methods of quitting smoking. Therefore, the results of this study yielded useful baseline data that can be used to establish effective smoking cessation programs in the Middle East. In addition, the strengths of this cross-sectional design include a short time frame and relatively low costs.

Implications for Future Research

The following modifications are indicated for future studies. Future studies using randomly selected subjects are required to improve the generalizability of the findings to all Jordanian men. To oversample women in order to have a meaningful number included is also an important priority, while fewer women smoke, the increase in young women smokers is rising and it would therefore be beneficial to define their knowledge and patterns of smoking. While the objectives of this study were to include men and women, the number of women available in the allocated data collection period was too few to yield useful analysis results. Additional efforts are needed to identify the reluctance of Jordanian men to even consider quitting smoking; these barriers to quitting smoking need to described, and to determine the perceptions about nicotine withdrawal symptoms for those who willing to quit smoking in the future. Furthermore, experimental studies are needed to evaluate the effect of the smoking cessation interventions in Jordanians.

Implications for Nursing Practice

Adoption of the US smoking cessation guidelines (Fiore, et al, 2008) that recommend the implementation of screening every smoker at every health care encounter is enforced by the Joint Commission on Hospital Accreditation (JACHO) (JACHO, 2009). At the present time smoke

free environments even in hospitals are not enforced uniformly. Signs for smoking ban inside the hospital buildings including patients' room, corridors, and cafeterias must be considered as an intervention to improve smoke free environments in the hospitals. Smoking by the patients, families, visitors, and employee in the hospital buildings is culturally accepted in Jordan. Prohibiting smoking inside the hospital must be enforced. Health care providers must be role models in the hospital. Health care professionals need to be educated not to smoke in the hospital building. Educating patients about the hazards of smoking and benefits of smoking cessation by their health care providers are critical interventions that need to take place. Health care providers must advise and assist the patients in smoking cessation, or refer them to appropriate counseling and smoking cessation programs. To achieve effective outcomes, health care providers need appropriate training programs to develop their knowledge about the smoking cessations strategies. Therefore, the departments of continuing education in each hospital must be concerned about improving the skills and the knowledge of their staff (nurses and physicians) about screening smoking and assisting the patients to quit smoking.

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Appendix A: Questionnaire

1. Subject's ID number: _____

2. Hospital Name: 1) Al-Essra Hospital 2) Specialty Hospital

3. Unit/Floor: _____

4. Patient's length of stay: _____ Days

5. Diagnosis on admission: _____

6. Method of data collection:
   1) Interview
   2) Self admission questionnaire

Section A: Demographics

7. Gender: 1) Male
   2) Female

8. Age: _____Year

9. What is the highest level of education you have completed?

   1) No formal schooling
   2) Primary school completed
   3) Secondary school completed
   4) High school completed
   5) College/university completed
   6) Post graduate degree completed

10. Which of the following best describes your main work status over the past 12 months?
    1) Government employee
    2) Non-government employee
    3) Self-employed
    4) Retired
    5) Unemployed

11. What is your religion?
    1) Muslim
    2) Christian

12. What is your marital status?
    1) Single
    2) Married
    3) Separated
    4) Divorced
    5) Widowed

13. Monthly family income:
    1) < 200 JD
    2) 200-400 JD
    3) 401-600 JD
    4) 601-800 JD
    5) > 800 JD

14. What is your weight? _____ kg

15. What is your height: _____ cm

16. In total, how many persons live in your household? _____

17. How many children in your household? 1) Boys _____ 2) Girls _____

18. How many of the household members are 15 years of age or older?

    1) Male: _____ 2) Female: _____

19. How many persons of these household members are current smokers?

    1) Male: _____ 2) Female: _____

20. Do you have any of these cardiovascular disease (CVD) risk factors?
    1) Hypertension:
        1. No _____ 2. Yes_____
    2) CVD family history (Were your parents or a sibling diagnosed with heart disease before they were 55?):
        1. No _____ 2. Yes_____
    3) Hyperlipidemia: 1. No _____ 2. Yes_____
    4) Diabetes mellitus: 1. No _____ 2. Yes_____

SECTION B. TOBACCO SMOKING

21. How old were you when you first start smoking cigarette? _____Years

22. On average, how many of the following products do you currently smoke each day or week?

1) Manufactured cigarettes?	PER DAY _____ PER WEEK _____
2) Hand-rolled cigarettes?	PER DAY _____ PER WEEK _____
3) Pipes full of tobacco?	PER DAY _____ PER WEEK _____
4) Cigars?	PER DAY _____ PER WEEK _____
5) Waterpipe sessions?	PER DAY _____ PER WEEK _____ PER MONTH _____
6) Any others? (Specify type:_____)	PER DAY _____ PER WEEK _____

23. How soon after you wake up do you usually have your first smoke?
    1) Within 5 minutes.
    2) 6 to 30 minutes.
    3) 31 to 60 minutes.
    4) More than 60 minutes.

SECTION C. CESSATION – TOBACCO SMOKING

24. During the past 12 months, have you tried to stop cigarette smoking?
    1) Yes
    2) No → skip to 27

25. Thinking about the last time you tried to quit, how long did you stop cigarette smoking?
    _____ Day _____ Week _____ Month _____Year

26. Which of these methods did you use to stop cigarette smoking?

Method	Yes	No	I don't know
1) My own way without help from other?			
2) Nicotine replacement therapy, such as the patch or gum?			
3) Other prescription medications?			
4) Counseling, educational materials, or smoking cessation program?			
5) Physical exercise			
6) Decreasing number of cigarettes smoked per day			
7) Snacks (e.g. gum, candies)			
8) Anything else? Specify:_____			

27. Have you visited a doctor or other health care provider in the past 12 months?
    1) Yes
    2) No → skip to 31

28. How many times did you visit a doctor or health care provider in the past 12 months?
    1) 1 or 2
    2) 3 to 5
    3) 6 or More

29. During any visit to a doctor or health care provider in the past 12 months, were you asked if you smoke tobacco?
    1) Yes
    2) No → skip to 31

30. During any visit to a doctor or health care provider in the past 12 months, were you advised to quit smoking tobacco?
    1) Yes
    2) No

31. How willing are you to make a serious quit attempt of cigarette in the next month?

I----------I----------I----------I----------I----------I----------I----------I----------I----------I----------I
0 1 2 3 4 5 6 7 8 9 10

Not at all willing ***Extremely Willing***

If your answer is zero, skip to 34.

32. Now can you tell me, what are the reasons for being willing to quit cigarette smoking?

Reason	Yes	No
1) Better for health in general		
2) Less risk of getting smoking related illness		
3) Present health problems		
4) Financial reasons		
5) Family pressure		
6) Harms children and others		
7) Ban on smoking in public places		
8) Doctor's advice		

33. What are the methods you will use to stop cigarette smoking?

Method	Yes	No	I don't know
1) My own way without help from other?			
2) Nicotine replacement therapy, such as the patch or gum?			
3) Other prescription medications?			
4) Counseling, educational materials, or smoking cessation program?			
5) Physical exercise			
6) Decreasing number of cigarettes smoked per day			
7) Snacks (e.g. gum, candies)			
8) Anything else? Specify:_____			

34. How confident are you that you will be able to quit cigarette smoking once you are discharged from the hospital?

I----------I----------I----------I----------I----------I----------I----------I----------I----------I----------I

0 1 2 3 4 5 6 7 8 9 10

Not at all confident ***Totally confident***

SECTION D. SECONDHAND SMOKE

35. Which of the following best describes the rules about smoking inside of your home?
    1) Allowed
    2) Not allowed, but exceptions
    3) Never allowed..... → skip to 37
    4) No rules..... → skip to 37

36. Inside your home, is smoking allowed in every room?
    1) Yes
    2) No

37. Inside your home, is smoking allowed in the presence of children?
    1) Yes
    2) No

38. Do you usually work indoors or outdoors?
    1) Indoors
    2) Outdoors → skip to 42
    3) Both

39. Which of the following best describes the indoor smoking policy where you work?
    1) Allowed anywhere
    2) Allowed only in some indoor areas
    3) Not allowed in any indoor areas
    4) There is no policy
    5) Don't know

40. During the past 30 days, did <u>you</u> smoke in indoor areas where you <u>work</u>?
    1) Yes
    2) No
    3) Don't know

41. During the past 30 days, did <u>anyone</u> smoke in indoor areas where you <u>work</u>?
    1) Yes
    2) No
    3) Don't know

42. Based on what you know or believe, does breathing other people's smoke cause serious illness in non-smokers?
    1) Yes
    2) No → skip 43
    3) Don't know

43. Based on what you know or believe, does breathing smoke from other people's cigarettes cause any of the following?

Place	Yes	No	Don't know
a. Heart disease in adults?			
b. Lung illnesses in children?			
c. Lung cancer in adults?			

44. For each of the following public places, please tell me if you think smoking should or should not be allowed in indoor areas:

Place	Should be allowed	Should not be allowed	Don't know
1) Hospitals?			
2) Workplaces?			
3) Restaurants?			
4) Public transportation vehicles?			
5) Schools?			
6) Universities?			
8) Places of worship?			

45. For each of the following public places, do you support the law that prohibits smoking inside of these indoor areas:

Place	Yes	No	Don't know
1) Hospitals?			
2) Workplaces?			
3) Restaurants?			
4) Public transportation vehicles?			
5) Schools?			
6) Universities?			
8) Places of worship?			

SECTION E. MEDIA

46. In the last 30 days, have you noticed information about the dangers of smoking cigarettes or that encourages quitting in any of the following places?

Place	Yes	No	Not applicable
1) In newspapers or in magazines?			
2) On television?			
3) On the radio?			
4) On billboards?			
5) Somewhere els → Specify: _____			

47. In the last 30 days, have warning labels on cigarette packages led you to think about quitting?
    1) Yes
    2) No
    3) Don't know

48. In the last 30 days, have you noticed any advertisements or signs promoting cigarettes in the following places?

PLACE	YES	NO	Not applicable
a. In stores where cigarettes are sold?			
b. On television?			
c. On the radio?			
d. On billboards?			
e. On posters?			
f. In newspapers or magazines?			
g. In cinemas?			
h. On the internet?			
i. On public transportation vehicles or stations?			
j. On public walls?			
k. Anywhere else? → Specify:_____			

SECTION F. KNOWLEDGE, ATTITUDES & PERCEPTIONS

49. Based on what you know or believe, does smoking tobacco cause serious illness?
    1) Yes
    2) No …….. Skip 50.
    3) Don't know

50. Based on what you know or believe, does smoking cigarette cause the following?

Place	Yes	No	Don't know
1) Stroke (blood clots in the brain that may cause paralysis)?			
2) Cardiovascular effects?			
3) Respiratory system diseases? (eg. asthma, chronic obstructive pulmonary disease)			
4) Lung cancer?			
5) Other bodily effects?			

51. Do you think that some types of cigarettes could be less harmful than other types, or are all cigarettes equally harmful?
    1) Could be less harmful
    2) All equally harmful

52. Do you believe cigarettes are addictive?
    1) Yes
    2) No
    3) Don't know

53. As far as you know, does your religion discourage smoking?
    1) Yes
    2) No
    3) Don't know

54. What is the ruling on smoking in Islam?
    1) Smoking is strictly forbidden/sinful (*haram*)
    2) Smoking is discouraged (*makruh*)
    3) Other ruling → specify: _____
    4) There isn't any ruling on smoking
    5) Don't know

55. Would you favor or oppose a law that would prohibit smoking in indoor workplaces and public places, such as restaurants?
    1) Favor
    2) Oppose
    3) Don't know

56. Would you favor or oppose increasing taxes on tobacco products?
    1) Favor
    2) Oppose
    3) Don't know

57. Would you favor or oppose a law prohibiting all advertisements for tobacco products?
    1) Favor
    2) Oppose
    3) Don't know

58. How likely do you think it is that you will avoid or decrease serious health problems if you quit cigarette smoking?
    1) Very likely
    2) Likely
    3) Unlikely
    4) Very unlikely
    5) Uncertain

59. My cigarette smoking is harming my health.
    1) Strongly agree
    2) Agree
    3) Neither disagree nor agree
    4) Disagree
    5) Strongly disagree
    6) I do not know

60. If a person has smoked cigarette for more than 20 years, there is little benefit to quitting.
    1) Strongly agree
    2) Agree
    3) Neither disagree nor agree
    4) Disagree
    5) Strongly disagree
    6) I do not know

61. How likely do you think it is that you will avoid or decrease the chance of getting respiratory diseases if you quit cigarette smoking?

    1) Very likely
    2) Likely
    3) Unlikely
    4) Very unlikely
    5) Uncertain

62. How likely do you think it is that you will avoid or decrease the chance of getting heart disease if you quit cigarette smoking?

    1) Very likely
    2) Likely
    3) Unlikely
    4) Very unlikely
    5) Uncertain

63. How likely do you think it is that you will avoid or decrease the chance of getting lung cancer if you quit cigarette smoking?

    1) Very likely
    2) Likely
    3) Unlikely
    4) Very unlikely
    5) Uncertain

SECTION G – WATERPIPE (SHISHA/NARGILE) MODULE

Answer this section if you smoke waterpipe.

64. How did you start smoking the Narghile?
    1) Alone
    2) With friend/friends
    3) With family member/members

65. Currently, do you smoke Narghile?

    1) Alone
    2) With friend/friends
    3) With family member/members

66. Place of usual waterpipe smoking?
    1) Home
    2) Café/restaurant
    3) Other or no particular place

67. Do you *usually* share your Narghile with others?
    1) No
    2) Yes

68. Is there a season or time of year when your Narghile smoking increases?
    1) No, _____ Skip 69.
    2) Yes

69. Period of increased waterpipe smoking frequency? **(select all applicable)**
    1) Holiday
    2) Summer
    3) Stress
    4) Other: _____.

70. At what age did you start smoking Narghile? _____ Years

71. If you smoke waterpipe daily, At what age did you start smoking Narghile daily?
    _____ Years.

72. Monthly cost of waterpipe smoking? _____ JD.

73. Can quit waterpipe any time?
    1) No
    2) Yes

74. During the past 12 months, have you tried to stop waterpipe smoking?
    1) Yes
    2) No → skip to 77

75. Thinking about the last time you tried to quit, how long did you stop waterpipe smoking?

    _____ Day _____ Week _____ Month _____Year

76. Which of these methods did you use to stop waterpipe smoking?

Method	Yes	No	I don't know
1) My own way without help from other?			
2) Nicotine replacement therapy, such as the patch or gum?			
3) Other prescription medications?			
4) Counseling, educational materials, or smoking cessation program?			
5) Physical exercise			
6) Decreasing number of waterpipes smoked per week			
7) Snacks (e.g. gum, candies)			
8) Anything else? Specify:_____			

77. How willing are you to make a serious quit attempt of waterpipe smoking in the next month?

I----------I----------I----------I----------I----------I----------I----------I----------I----------I----------I
0 1 2 3 4 5 6 7 8 9 10

Not at all willing ***Extremely Willing***

If your answer is zero, skip to 80

78. Now can you tell me, what are the reasons for willing to quit waterpipe smoking?

Reason	Yes	No
1) Better for health in general		
2) Less risk of getting smoking related illness		
3) Present health problems		
4) Financial reasons		
5) Family pressure		
6) Harms children and others		
7) Doctor's advice		

79. What are of these methods you will use to stop **waterpipe smoking**?

Method	Yes	No	I don't know
1) My own way without help from other?			
2) Nicotine replacement therapy, such as the patch or gum?			
3) Other prescription medications?			
4) Counseling, educational materials, or smoking cessation program?			
5) Physical exercise			
6) Decreasing number of waterpips smoked per week			
7) Snacks (e.g. gum, candies)			
8) Anything else? Specify:_____			

80. How confident are you that you will be able to quit waterpipe smoking once you are discharged from the hospital?

I----------I----------I----------I----------I----------I----------I----------I----------I----------I----------I
0 1 2 3 4 5 6 7 8 9 10

(***Not at all confident***) (***Totally confident***)

81. Main challenge for quitting waterpipe? (Select all applicable)
    1) Friends
    2) Addiction and habit
    3) Boredom and free time
    4) No challenge

82. Based on what you know or believe, does smoking waterpipe cause the following?

Place	Yes	No	Don't know
1) Stroke (blood clots in the brain that may cause paralysis)?			
2) Cardiovascular effects?			
3) Respiratory system diseases? (eg. asthma, chronic obstructive pulmonary disease)			
4) Lung cancer?			
5) Other bodily effects?			

83. What do you belief about the addictive effects of waterpipe compared to cigarettes?
    1) Cigarettes are more addictive
    2) Equally addictive
    3) Waterpipe is more addictive

84. What do you belief about harmful effects of waterpipe compared to cigarettes
    1) Cigarettes are more harmful
    2) Equally harmful
    3) Waterpipe is more harmful

85. How likely do you think it is that you will avoid or decrease serious health problems if you quit waterpipe smoking?
    1) Very likely
    2) Likely
    3) Unlikely
    4) Very unlikely
    5) Uncertain

86. My waterpipe smoking is harming my health.
    1) Strongly agree
    2) Agree
    3) Neither disagree nor agree
    4) Disagree
    5) Strongly disagree
    6) I do not know

87. If a person has smoked waterpipe for more than 20 years, there is little benefit to quitting.
    1) Strongly agree
    2) Agree
    3) Neither disagree nor agree
    4) Disagree
    5) Strongly disagree
    6) I do not know

88. How likely do you think it is that you will avoid or decrease the chance of getting respiratory diseases if you quit waterpipe smoking?

    1) Very likely
    2) Likely
    3) Unlikely
    4) Very unlikely
    5) Uncertain

89. How likely do you think it is that you will avoid or decrease the chance of getting heart disease if you quit waterpipe smoking?

    1) Very likely
    2) Likely
    3) Unlikely
    4) Very unlikely
    5) Uncertain

90. How likely do you think it is that you will avoid or decrease the chance of getting lung cancer if you quit waterpipe smoking?

    1) Very likely
    2) Likely
    3) Unlikely
    4) Very unlikely
    5) Uncertain

SECTION H. ASSESSMENT OF DEPRESSION

Patient Health Questionnaire (PHQ-2) *

Over the past 2 weeks, have you been bothered by any of the following problems?

1. Little interest or pleasure in doing things:
    1) Yes
    2) No

2. Feeling down, depressed, or hopeless:
    1) Yes
    2) No

***If the answer is "yes" to either question, complete the following questions (Patient Health Questionnaire-9 (PHQ-9).**

Patient Health Questionnaire-9 (PHQ-9)

Over the *last 2 weeks*, how often have you been bothered by any of the following problems? *(use "✓" to indicate your answer)*	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself—or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed. Or the opposite—being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead, or of hurting yourself in some way	0	1	2	3
	add columns:	+	+	

Appendix B

الإستبيان

عنوان الدراسة: المعرفة والمواقف والإعتقادات حول التدخين عند المدخنين الأردنيينِ الذين أدخلوا الى المستشفى بتشخيص أمراض القلب والأوعية الدموية.

1. رقم المشترك : _____
2. اسم المستشفى: 1) المستشفى التخصصي 2) مستشفى الاسراء
3. وحدة / الطابق : _____
4. مدة الإقامة : _____ أيام
5. التشخيص عند الادخال : _____
6. طريقة جمع البيانات: 1) المقابلة الشخصية 2) توزيع الاستبيان على المشترك

معلومات سكانية

7. الجنس : 1) ذكر 2) انثى
8. العمر : _____ سنة

9. ما هو المستوى من التعليم؟
   1) لم التحق بالمدرسة
   2) الابتدائي
   3) الاعدادي
   4) الثانوي
   5) كلية / جامعة
   6) درجة الماجستير أوالدكتوراه

10. ماذا كان عملك خلال السنة الماضية؟
    1) موظف حكومي
    2) موظف غير حكومي
    3) صاحب عمل الخاص
    4) متقاعد
    5) لم اعمل

11. الديانة؟
    1) مسلم
    2) مسيحي

12. الوضع الاجتماعي ؟
1) أعزب
2) متزوج
3) منفصل
4) مطلق
5) أرمل

13. الدخل الشهري للأسرة :
1) أقل من 200 دينار اردني
2) 200-400 دينار اردني
3) 401-600 دينار اردني
4) 601-800 دينار اردني
5) اكثر من 800 دينار اردني

14. ما وزنك؟ _____ كجم

15. ما طولك : _____ سم

16. ما مجموع عدد الأفراد الذين يعيشون في منزلك (بما فيهم انت) ؟ _____

17. ما عدد الأولاد في منزلك؟ 1) _____ ولد 2) _____ بنت

18. ما عدد أفراد الأسرة الذين يبلغون 15 عاما أو أكثر في منزلك (بما فيهم انت) ؟

1) _____ ذكر 2) _____ انثى

19. ما عدد الأشخاص المدخنين من أفراد الأسرة حاليا (بما فيهم انت)؟

1) _____ ذكر 2) _____ انثى

20. هل سبق وأن تم تشخيصك بأحد هذه المخاطر المتعلقة بالاصابة بأمراض القلب والاوعية الدموية ؟

1) ارتفاع ضغط الدم : 1. لا 2. نعم
2) التاريخ العائلي/ أمراض القلب (هل أصيب أحد أفراد أسرتك كوالديك أو أخوتك بالأمراض القلب وهم تحت سن 55 سنة ؟): 1. لا 2. نعم
3) ارتفاع الكولوسترول و الدهنيات : 1. لا 2. نعم
4) مرض السكري: . 1. لا 2. نعم

التدخين

21. كم كان عمرك عندما دخنت أول سيجارة؟ _____ سنة

22. أذكر معدل تدخينك لانواع الدخان التالية يومًا/أسبوعياً؟

1) السجائر؟	في اليوم _____ فى الاسبوع _____
2) سجائر اللف؟	في اليوم _____ فى الاسبوع _____
3) الغليون؟	في اليوم _____ فى الاسبوع _____
4) السيجار؟	في اليوم _____ فى الاسبوع _____
5) الارجيلة؟	في اليوم _____ فى الاسبوع _____ فى الشهر الواحد _____
6) أي أنواع آخرى؟ (حدد نوعها :_____)	في اليوم _____ فى الاسبوع _____

23. متى تدخن أول سيجارة مباشرةً بعد استيقاظك من النوم؟

1) في غضون 5 دقائق.
2) 6 الى 30 دقيقة.
3) 31 إلى 60 دقيقة.
4) أكثر من 60 دقيقة.

التوقف عن التدخين

24. خلال 12 شهرا الماضية ، هل حاولت أن تتوقف عن **تدخين السجائر**؟

1) نعم
2) لا ← انتقل الى سؤال 27

25. فكر في آخر مرة حاولت فيها التوقف عن **تدخين السجائر** ، ما طول الفترة التي توقفت فيها فعلاً عن التدخين ؟
_____ يوم _____ أسبوع _____ شهر _____ سنة

26. ما هي الأساليب و الطرق التي **استخدمتها** لوقف **تدخين السجائر** ؟

الطريقة	نعم	لا	لا أعرف
1) لوحدي دون مساعدة الآخرين؟			
2) العلاج ببدائل النيكوتين مثل العلكة أو اللصقات؟			
3) وصفات أدوية أخرى؟			
4) استشارات طبية أو نشرات تعليمية أو برنامج الإقلاع عن التدخين؟			
5) تمارين رياضية			
6) تقليل عدد السجائر المدخنة يوميا			
7) وجبات خفيفة (مثل العلكة والحلويات)			
8) أي شيء آخر؟ أذكرها :_____			

27. هل قمت بزيارة الطبيب أو مراكز الرعاية الصحية في الأشهر 12 الماضية؟

1) نعم
2) لا ..... انتقل الى سؤال 31

28. كم مرة قمت بزيارة الطبيب أو اي من مراكز الرعاية الصحية في الأشهر 12 الماضية؟
1) 1 أو 2
2) من 3 إلى 5
3) 6 أو أكثر

29. خلال أي زيارة للطبيب أو اي من مراكز الرعاية الصحية في الأشهر 12 الماضية ، هل تم سؤالك اذا كنت تدخن؟
1) نعم
2) لا → انتقل الى سؤال 31

30. خلال أي زيارة للطبيب أو اي من مراكز الرعاية الصحية في الأشهر 12 الماضية ، هل تم نصحك للاقلاع عن التدخين
1) نعم
2) لا

31. ما مدى نيتك للتوقف عن **تدخين السجائر** بشكل جاد في الشهر القادم؟

0 1 2 3 4 5 6 7 8 9 10

لدي نية مطلقة **لا يوجد لدي نية**

إذا كان جوابك صفر ، انتقل الى سؤال 34

32. يمكنك ان تقول لي ، ما هي أسباب نيتك لترك **تدخين السجائر؟**

السبب	نعم	لا
1) أفضل لصحتي		
2) تقليل خطر الإصابة بامراض ناتجة عن التدخين		
3) وجود مشاكل صحية حالية		
4) أسباب مالية		
5) ضغوط أسرية		
6) تقليل أضرارالأطفال وغيرهم الناتجة عن التدخين		
7) منع التدخين في الأماكن العامة		
8) نصيحة الطبيب		

33. ما هي الطرق و الأساليب التي **سوف** تستخدمها للاقلاع عن **تدخين السجائر؟**

الطريقة	نعم	لا	لا أعرف
1) لوحدي دون مساعدة الآخرين؟			
2) العلاج ببدائل النيكوتين مثل العلكة أو اللصقات؟			
3) وصفات أدوية أخرى؟			
4) استشارات طبية أو نشرات تعليمية أو برنامج الإقلاع عن التدخين؟			
5) تمارين رياضية			
6) تقليل عدد السجائر المدخنة يوميا			
7) وجبات خفيفة (مثل العلكة والحلويات)			
8) أي شيء آخر؟ أذكرها:_____			

34. ما مدى تصميمك لترك **تدخين السجائر** بمجرد خروجك من المستشفى؟

0	1	2	3	4	5	6	7	8	9	10
غير مصمم على الاطلاق										**مصمم على الاطلاق**

التدخين السلبي

35. ما أفضل وصف لنظام التدخين داخل منزلك؟
1) مسموح به
2) غير مسموح به ، ولكن هناك استثناءات
3) غير مسموح به ..... انتقل الى سؤال 37
4) لا يوجد نظام ..... انتقل الى سؤال 37

36. هل التدخين مسموح به في كل غرف منزلك؟
1) نعم
2) لا

37. هل التدخين مسموح به في حضور الأطفال داخل منزلك؟
1) نعم
2) لا

أجب على الأسئلة (38 – 41) اذا كنت تعمل خلال 30 يوماً الماضية.

38. هل طبيعة عملك في داخل المباني (أجواء مغلقة) أو في خارج المباني (الهواء الطلق)؟
1) في داخل المباني
2) في الهواء الطلق ..... انتقل الى سؤال 42
3) كلاهما

39. ما هو أفضل وصف لنظام التدخين في الأماكن المغلقة حيث تعمل؟
1) مسموح به في أي مكان
2) مسموح فقط في بعض المناطق المغلقة
3) غير مسموح بها في أي من المناطق المغلقة
4) لا توجد أي نظام
5) لا أعرف

40. خلال 30 يوما الماضية ،هل دخنت في المناطق المغلقة حيث تعمل؟
1) نعم
2) لا
3) لا أعرف

41. خلال 30 يوما الماضية ، هل دخن أي شخص في المناطق المغلقة حيث تعمل؟
1) نعم
2) لا
3) لا أعرف

42. حسب رأيك/معرفتك/اعتقادك، هل استنشاق دخان الآخرين يسبب امراض خطيرة عند **غير المدخنين**؟
1) نعم
2) لا ..... تخطي
3) لا أعرف

43. حسب رأيك/معرفتك/اعتقادك، هل استرشاق **دخان سجائرالآخرين** يسبب أي من الامراض التالية عند **غير المدخنين**؟

المرض	نعم	لا	لا أعرف
1. أمراض القلب عند البالغين			
2. أمراض الرئة عند الأطفال			
3. سرطان الرئة عند البالغين			

44. هل تعتقد أنه يجب **السماح أو غير السماح** للتدخين في كل من الأماكن المغلقة العامة التالية:

المكان	ينبغي أن يسمح	لا ينبغي أن يسمح	لا أعرف
1) المستشفيات؟			
2) أماكن العمل؟			
3) المطاعم؟			
4) مركبات النقل العام؟			
5) في المدارس؟			
6) الجامعات؟			
7) أماكن العبادة؟			

45. هل **تؤيد قوانين** منع التدخين داخل الأماكن العامة التالية:

المكان	نعم	لا	لا أعرف
1) المستشفيات؟			
2) أماكن العمل؟			
3) المطاعم؟			
4) مركبات النقل العام؟			
5) في المدارس؟			
6) الجامعات؟			
8) أماكن العبادة؟			

التدخين و وسائل الإعلام

46. في الايام 30 الماضية ، هل لاحظت اي معلومات حول مخاطر التدخين أو التشجيع على الإقلاع عن التدخين في أي من الأماكن التالية؟

المكان	نعم	لا	لا أعرف
1) في الصحف أو المجلات؟			
2) على شاشة التلفزيون؟			
3) الراديو؟			
4) في مكان آخر؟ اذكرها: _____			

47. في الأيام 30 الماضية ، هل التحذيرات على علب السجائر جعلك تفكر بالتوقف عن التدخين؟

1) نعم
2) لا
3) لا أعرف

48. في الايام 30 الماضية ، هل لاحظت أي **إعلانات تشجع** على تدخين السجائر في الأماكن التالية؟

المكان	نعم	لا	لا أعرف
1. في المحلات ، حيث تباع السجائر؟			
2. على شاشة التلفزيون؟			
3. الراديو؟			
4. على لوحات الإعلانات؟			
5. على الملصقات؟			
6. في الصحف أو المجلات؟			
7. في دور السينما؟			
8. على شبكة الانترنت؟			
9. على وسائل ومحطات النقل العام؟			
10. على الجدران العامة؟			
11. أماكن آخر؟ أذكرها : _____			

المعرفة والمواقف والتصورات حول التدخين

49. حسب رأيك/معرفتك/اعتقادك ،هل التدخين السجائر يسبب أمراض خطيرعند المدخنين؟
1) نعم
2) لا ..... تخطى سؤال 50
3) لا أعرف

اعتقادك، هل تدخين السجائر يسبب أي من الامراض التالية عند المدخنين؟ /معرفتك/50. حسب رأيك

المكان	نعم	لا	لا أعرف
1) السكتة الدماغية (الجلطات الدموية في الدماغ التي قد تسبب الشلل)؟			
2) أمراض القلب والأوعية الدموية؟			
3) أمراض الجهاز التنفسي؟ (مثل الربو ومرض الانسداد الرئوي المزمن)			
4) سرطان الرئة؟			
5) غيرها من التأثيرات الجسدية؟			

51. هل تعتقد أن بعض أنواع السجائر أقل ضررا من الأنواع الأخرى ، أو ان جميع السجائر تضر بنفس المقدار؟
1) يمكن أن تكون بعضها أقل ضرراً
2) جميعها متساوية بالضرر

52. هل تعتقد أن **السجائر** تسبب الادمان؟
1) نعم
2) لا
3) لا أعرف

53. هل دينك يحض الناس على ترك التدخين؟
1) نعم
2) لا
3) لا أعرف

54. ما هو حكم التدخين في الإسلام؟
1) التدخين ممنوع منعا باتا (حرام)
2) مكروه
3) احكام أخرى، أذكرها ــــــــــــــ .
4) لا يوجد أي حكم عن التدخين
5) لا أعرف

55. هل تؤيد أو تعارض القوانين التي تمنع التدخين في **أماكن العمل المغلقة والأماكن العامة** مثل المطاعم؟
1) أؤيد
2) أعارض
3) لا أعرف

56. هل تؤيد أو تعارض **زيادة الضرائب** على منتجات التبغ؟
1) أؤيد
2) أعارض
3) لا أعرف

57. هل تؤيد أو تعارض **التشريعات و القوانين التي تمنع اعلانات** الدخان؟
1) أؤيد
2) أعارض
3) لا أعرف

58. كم ترجح بأنك سوف تتجنب أو تقلل المشاكل الصحية الخطيرة إذا توقفت عن **تدخين السجائر**؟
1) أرجح بشدة
2) أرجح
3) لا أرجح
4) لا أرجح بشدة
5) غير متاكد

59. **تدخين السجائر** يضر بصحتي.
1) أوافق بشدة
2) أوافق
3) لا أوافق ولا أعترض
4) أعارض
5) أعارض بشدة
6) لا أدري

60. إذا كان الشخص قد دخن السجائر لمدة تزيد على 20 عاما ، فانه يوجد فائدة قليلة عند التوقف عن **تدخين السجائر**.
1) أوافق بشدة
2) أوافق
3) لا أوافق ولا أعترض
4) أعارض
5) أعارض بشدة
6) لا أدري

61. كم ترجح بأنك سوف تتجنب أو تقلل فرصة الاصابة **بأمراض الجهاز التنفسي** إذا توقفت عن **تدخين السجائر؟**
1) أرجح بشدة
2) أرجح
3) لا أرجح
4) لا أرجح بشدة
5) غير متاكد

62. كم ترجح سوف تتجنب أو تقلل فرصة الاصابة **بأمراض بأمراض القلب و الشرايين** إذا توقفت عن تدخين السجائر؟
1) أرجح بشدة
2) أرجح
3) لا أرجح
4) لا أرجح بشدة
5) غير متاكد

63. كم ترجح بأنك سوف تتجنب أو تقلل فرصة الاصابة **بسرطان الرئة** إذا توقفت عن **تدخين السجائر؟**
1) أرجح بشدة
2) أرجح
3) لا أرجح
4) لا أرجح بشدة
5) غير متاكد

تدخين الارجيلة

أجب على هذا القسم إذا كنت تدخن الارجيلة

64. مع من كانت *تجربتك الأولى* لتدخين الأرجيلة، هل كانت ؟
1) لوحدك
2) مع صديقك أو أصدقائك
3) مع فرد أو أفراد من عائلتك

65. *حاليا* هل تدخن الأرجيلة غالباً؟
1) لوحدك
2) مع صديقك أو أصدقائك
3) مع فرد أو أفراد من عائلتك

66. ما هو المكان المعتاد لتدخين الارجيلة؟
1) البيت
2) المقهى / المطعم
3) أخرى أو لا يوجد أي مكان معين

67. هل تتشارك في تدخين الأرلئيلة مع أحد *عادةً*، أي تدخنان نفس الأرجيلة؟
1) لا
2) نعم

6. هل هناك فترات *يزداد* فيها معدل تدخينك للأركيلة، مثلا أيام العطل، فصل معين، موسم معين؟
1) لا ..... تخطي 69
2) نعم

69. ما هي الفترات التي يزداد فيها تدخينك للارجيلة؟ **(اختر جميع ما ينطبق)**
1) العطلات
2) فصل الصيف
3) التوتر النفسي
4) أخرى، أذكرها _____ .

70. *في أي عمر* بدأت تدخين الأرجيلة ؟ _____ سنة

71. إذا كنت تدخن الارجيلة يوميا ، *في أي عمر* بدأت تدخين الأرجيلة *يومياً*؟ _____ سنة.

72. التكلفة الشهرية لتدخين الأرجيلة؟ _____ دينار اردني.

73. هل *تعتقد* انه بامكانك *ترك* تدخين الأرجيلة في الوقت الذي تريده؟
1) لا
2) نعم

74. خلال 12 شهرا الماضية ، هل حاولت أن تتوقف عن تدخين الأرجيلة؟
1) نعم
2) لا ..... انتقل الى سؤال 77

75. فكر في آخر مرة حاولت فيها التوقف عن تدخين الأرجيلة ، ما طول الفترة التي توقفت فيها فعلاً عن التدخين ؟

_____ يوم _____ أسبوع _____ شهر _____ سنة

76. ما هي الطرق و الأساليب التي **استخدمها** للاقلاع عن تدخين الأرجيلة ؟

الطريقة	نعم	لا	لا أعرف
1) لوحدي دون مساعدة الآخرين؟			
2) العلاج ببدائل النيكوتين مثل العلكة أو اللصقات؟			
3) وصفات أدوية أخرى؟			
4) استشارات طبية أو نشرات تعليمية أو برنامج الإقلاع عن التدخين؟			
5) تمارين رياضية			
6) تقليل عدد السجائر المدخنة يوميا			
7) وجبات خفيفة (مثل العلكة والحلويات)			
8) أي شيء آخر؟ أذكرها: _____			

77. ما مدى نيتك للتوقف عن **تدخين الأرجيلة** بشكل جاد في الشهر القادم؟

0 1 2 3 4 5 6 7 8 9 10

لا يوجد لدي نية **لدي نية مطلقة**

إذا كان جوابك هو صفر ، انتقل إلى 80

78. يمكنك ان تقول لي ، ما هي أسباب نيتك لترك **تدخين الأرجيلة** ؟

السبب	نعم	لا
1) أفضل لصحتي		
2) تقليل خطر الإصابة بامراض ناتجة عن التدخين		
3) وجود مشاكل صحية حالية		
4) أسباب مالية		
5) ضغوط أسرية		
6) تقليل أضرار الأطفال وغيرهم الناتجة عن التدخين		
7) منع التدخين في الأماكن العامة		
8) نصيحة الطبيب		

79. ما هي الطرق و الأساليب التي **سوف** تستخدمها للاقلاع عن تدخين الأرجيلة ؟

الطريقة	نعم	لا	لا أعرف
1) لوحدي دون مساعدة الآخرين؟			
2) العلاج ببدائل النيكوتين مثل العلكة أو اللصقات؟			
3) وصفات أدوية أخرى؟			
4) استشارات طبية أو نشرات تعليمية أو برنامج الإقلاع عن التدخين؟			
5) تمارين رياضية			
6) تقليل عدد السجائر المدخنة يوميا			
7) وجبات خفيفة (مثل العلكة والحلويات)			
8) أي شيء آخر؟ أذكرها :_____			

80. ما مدى تصميمك لترك تدخين الأرجيلة بمجرد خروجك من المستشفى؟

0 1 2 3 4 5 6 7 8 9 10

غير مصمم على الاطلاق **مصمم على الاطلاق**

81. ما هي الموانع الرئيسية لعدم تركك الأرجيلة؟ **(اختر جميع ما ينطبق)**

1) الأصدقاء
2) الإدمان
3) الملل ووقت الفراغ
4) لا شيء

82. حسب رأيك/معرفتك/اعتقادك، هل تدخين الأرجيلة يسبب أي من الامراض التالية عند المدخنين؟

المكان	نعم	لا	لا أعرف
1) السكتة الدماغية (الجلطات الدموية في الدماغ التي قد تسبب الشلل)؟			
2) أمراض القلب والأوعية الدموية؟			
3) أمراض الجهاز التنفسي؟ (مثل الربو ومرض الانسداد الرئوي المزمن)			
4) سرطان الرئة؟			
5) غيرها من التأثيرات الجسدية؟			

83. ماهو رأيك في تدخين الأركيلة *مقارنة* مع تدخين السجائر من حيث **الإدمان** عليهما، هل تقول:
1) السجائر تسبب الإدمان أكثر من الأرجيلة
2) لهما نفس التأثير
3) الأرجيلة تسبب الإدمان أكثر من السجائر

84. ما هو رأيك **بالآثار الصحية** لتدخين الأرجيلة *مقارنة* مع تدخين السجائر، هل تقول:
1) السجائر أكثر ضرراً من الأرجيلة
2) لهما نفس الضرر
3) الأرجيلة أكثر ضرراً من السجائر

85. كم ترجح بأنك سوف تتجنب أو تقلل المشاكل الصحية الخطيرة إذا توقفت عن **تدخين الأرجيلة** ؟
1) أرجح بشدة
2) أرجح
3) لا أرجح
4) لا أرجح بشدة
5) غير متاكد

86. تدخين **الأرجيلة** يضر بصحتي.
1) أوافق بشدة
2) أوافق
3) لا أوافق ولا أعترض
4) أعارض
5) أعارض بشدة
6) لا أدري

87. إذا كان الشخص قد دخن الأرجيلة لمدة تزيد على 20 عاما ، يوجد فائدة قليلة من التوقف عن **تدخين الأرجيلة**.
1) أوافق بشدة
2) أوافق
3) لا أوافق ولا أعترض
4) أعارض
5) أعارض بشدة
6) لا أدري

88. كم ترجح بأنك سوف تتجنب أو تقلل فرصة الاصابة **بأمراض الجهاز التنفسي** إذا توقفت عن **تدخين الأرجيلة**؟
1) أرجح بشدة
2) أرجح
3) لا أرجح
4) لا أرجح بشدة
5) غير متاكد

89. كم ترجح بأنك سوف تتجنب أو تقلل فرصة الاصابة **بأمراض بأمراض القلب و الشرايين** إذا توقفت عن **تدخين الأرجيلة؟**
1) أرجح بشدة
2) أرجح
3) لا أرجح
4) لا أرجح بشدة
5) غير متاكد

90. كم ترجح سوف بأنك تتجنب أو تقلل فرصة الاصابة **بسرطان الرئة** إذا توقفت عن **تدخين الأرجيلة؟**
1) أرجح بشدة
2) أرجح
3) لا أرجح
4) لا أرجح بشدة
5) غير متاكد

استبيان صحة المريض

91) هل عانيت من المشاكل التالية خلال الاسبوعين الماضيين؟

1. قلة الاهتمام او الاستمتاع بممارسة الاعمال اليومية مثل الاعمال المنزلية او مشاهدة التلفزيون؟
   1) نعم
   2) لا
2. الشعور بالحزن او ضيق الصدر او اليأس؟
   1) نعم
   2) لا

إذا كانت الإجابة على أي من السؤالين السابقين بـ "نعم" ، يرجى الاجابة على كامل الاسئلة التالية أدناه:

92) هل عانيت من المشاكل التالية خلال الاسبوعين الماضيين؟ (ضع اشارة صح حول الاجابة الصحيحة)

السؤال	ولا مرة	أقل من أسبوع	أكثر من أسبوع	طوال الفترة (كل يوم تقريبا)
1. قلة الاهتمام او الاستمتاع بممارسة الاعمال اليومية مثل الاعمال المنزلية او مشاهدة التلفزيون.				
2. الشعور بالحزن او ضيق الصدر او اليأس .				
3. صعوبة في النوم او نوم متقطع او النوم اكثر من المعتاد .				
4. الشعور بالتعب او الارهاق حتى مع اقل مجهود.				
5. قلة الشهية او الزيادة في تناول الطعام عن المعتاد .				
6. الشعور بعدم الرضا عن النفس او الشعور بالفشل او الاحباط.				
7. صعوبة التركيز او قلة الاستيعاب او كثرة النسيان .				
8. بطء في الحركة او قلة الكلام عن المعتاد بدرجة ملحوظة من الاخرين/ او على العكس من ذلك التحدث بسرعة وكثرة في الحركة .				
9. هل شعرت بالحزن لدرجة تفضيل الموت عن الحياة او راودتك افكار لايذاء النفس .				

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