QUANTITATIVE ASSESSMENT OF SOME PREVENTIVE HEALTH SERVICES PROVIDED FOR ADOLESCENT INDIVIDUALS IN DUBAI IN 2010

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MSc DISSERTATION

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Keywords: Dubai, Adolescent health, Youth, Preventive health services, Risky behaviors, screening, counseling

Abstract

The adolescence period is a transitional phase that is characterized by physical, emotional, social and behavioral growth. It is a time where transition from childhood to adulthood takes place and dramatic biological changes occur through the body. Many health issues arise during this period and most morbidity and mortality that occur among adolescents result from their participation in health damaging behaviors. Common adolescent health problems include violence, unintended injuries, use of tobacco and other drugs and obesity. Early interventions to identify risky behaviors and unhealthy habits can improve the health of today's adolescents and tomorrow's adults.

Research has shown that clinicians' provision of preventive services for adolescents falls below recommended levels. The aim of this investigation is to assess whether adolescents in Dubai receive some of the recommended preventive health services offered to them by health care professionals on the following topics: tobacco, safety (seat belt and helmet use), physical activity and diet.

The study found that the rate of counseling adolescents on weight, healthy eating, physical activity, using a helmet for safety and drug use is low. Only 18% of adolescents were screened for smoking and 13.2% adolescents were screened for seat belt use.

Findings from this study suggest the need to improve the delivery of adolescents' preventive health services on some health issues common among adolescents in Dubai. Health authorities and policy makers in Dubai and the UAE should consider the need for national guidelines and programs regarding preventive health services for adolescents. Training clinicians and health providers on dealing with adolescents on skills required for optimal delivery of preventive health services is essential.

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By

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STATEMENT OF AUTHENTICITY

I have read the HBMeU Regulations relating to plagiarism and certify that this dissertation is all my own work and does not contain any unacknowledged work from any other sources

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CHAPTER 1
INTRODUCTION

1.1 Background

The transition from childhood to adulthood and the beginning of puberty is a critical period in every person's life. This period is characterized by several changes occurring throughout the body of every male and female. These changes are sometimes associated with feelings of anxiety and eagerness to know more about what is happening. Most of these young people overcome this period with no evident problems. However, there are still groups that suffer during this period and this can have an impact on the whole family and can extend to school and society (Neinstein et al. 2008).

Unlike adults and children, adolescents are the least group to receive routine medical care and rarely visit a family physician. Most of them consider themselves healthy and are reluctant to discuss health related issues for reasons that might include embarrassment and confidentiality. Screening and prevention guidelines are very clear for children and adults. However, there are still no clear guidelines for adolescents (Stephens 2006).

Several risky behaviors among adolescents can lead to illness, disabilities and death. These include intentional and unintentional injuries and violence, tobacco use, unhealthy dietary behaviors and physical inactivity. According to Hwa Yi et al. (2009) "clinical and community based programs can reduce these risky behaviors among adolescents significantly; reduce the burden of the disease and lower overall medical costs".

1.1.1 Definitions of adolescent

The concept of adolescence became popular during the twentieth century, as well as research on behavior and development during the adolescence period. This further highlighted the important aspects of adolescence and adolescent health services and systems that can help support the healthy development of adolescents into adults (Lawrence *et al.* 2009).

Several terms are used in literature to describe adolescents. These include: youth, young people and teenagers. The definition of adolescence is different and varies from a program or organization to another and from country to country. As a result, there is no

standard or a universal definition of adolescence that can be described. The period of adolescence can range from as young as 10 to as old as the age of 25 according to the different views of researchers, organizations and policy makers.

Adolescence is a "transitional period characterized by physical, emotional, social, behavioral and spiritual growth. It is a period of time where transition from childhood to adulthood takes place and dramatic biological changes occur throughout the body" (Lawrence *et al.* 2009).

The World Health Organization (WHO) defines adolescents as young people aged 10-19 years old. According to their statistics "there are about 1.2 billion adolescents in the world today, which means that 1 in 5 people in the world is an adolescent" (World Health Organization 2009).

Adolescence stage can be divided into three chronological phases: early, middle and late adolescence. Each stage is characterized by different development characteristics and health issues. Early adolescence includes individuals aged between 11-14 years of age who are concrete thinkers and are still incapable of understanding the effects of their behaviors on their health and are also still attached to their parents or other adults. During middle adolescence (15-17 years), there is continued physical development in addition to several social and emotional changes. These individuals are capable of abstract thinking as well as complex and logical thinking. During this period, adolescents are allowed to make their own decisions concerning their health. Experimenting with risky behavior can occur during this stage (Stephens 2006). Late adolescence (18-21 years) is characterized by a period of independence and major decisions concerning education and career. Although risky behavior may still continue during this period, adolescents in this stage are more aware of the effects of their behaviors on their health.

During adolescence identity formation takes place and many adolescents start to make independent choices and may experiment with new behavior. Friends and peers can influence their choices resulting in risky behaviors that can affect their health and wellbeing. Furthermore, adolescents begin to make independent purchases, such as food, drinks and unhealthy snacks that may have a negative outcome to their health (Lawrence et al. 2009).

1.1.2 Adolescent health

The World Health Organization defines health as "the complete physical, mental and social well-being and not merely the absence of disease or infirmity" (World Health Organization 2003). The absence of disease does not necessarily mean that the person is healthy. It is necessary to identify the health risk behaviors adolescents engage in, as well as evaluating their mental health in order to reduce the preventable causes of mortality and morbidity within the adolescent population (Serhan 2010).

Adolescent or youth health deals with the prevention and treatment health and wellbeing. Unlike the health of adults and children, adolescent health is more complex and requires professionals to deal with them in a biopsychosocial approach. Adolescent health is a wide spectrum and includes: adolescent medicine, mental health services, school health services, social work services and child protection services.

1.1.3 Health Issues during adolescence

It is important to pay a special attention to the health of adolescents. The reasons behind this as was mentioned by Mcintyre (2002) are: to reduce death among adolescents now from reasons that can be preventable such as violence and road traffic accidents, to reduce the burden of disease in later life, and to invest in their health and prevent unhealthy practices such as smoking and incorrect eating behavior.

In order to improve the health outcomes for this group of people, it is essential for health care authorities to provide them with the preventive services they need and educate them on the important health issues facing them. The health needs for adolescents differ from one group to another and from one society to another. According to the World Health Organization the common health problems affecting adolescents include mental health problem, substance use, violence, unintentional injuries, nutrition problems, sexual and reproductive health and Human Immunodeficiency Virus (HIV) infection (World Health Organization 2009). However, some of these problems might be very common in a country and less in another.

1.1.4 Adolescent Preventive Health Services

Health services can be categorized into preventive and curative services. Clinical preventive health services deal with the care that prevents the occurrence of illness. They are defined by Park et al. (2001) as "services that are delivered by a physician or other health care provider in a clinical setting such as a medical office or health center. These services are designed to delay the onset of several health problems or to identify them early, in order to reduce their impact more effectively". In the USA, over the last century, preventive health care has become an important aspect of medical practice, leading to significant improvements in overall health (Stephens 2006).

Despite the fact that most adolescents are considered healthy, several health problems of adolescents require specific screening and counseling services that are considered important in this age group. Most of the clinical services are medical in nature such as immunizations for infectious diseases and screening for breast or colon cancer in adults. However, in adolescents the most important preventive services focus on behaviors and psychosocial issues that have an effect on their health (Park et al. 2001).

According to the American Academy of Pediatrics (2008) the primary causes of mortality and morbidity during adolescence include alcohol, substance abuse, drunk driving, sexual activity, depression, suicide, smoking, violence and guns. Although these causes may differ from one country to another and from one society to another, they present significant threats to adolescents' health. However, most of these causes are preventable with proper counseling and health education. In addition, most chronic diseases acquired during adulthood have origins during childhood and adolescence which can have long standing health effects across the entire lifespan (Park et al. 2001). Reducing the practice of risky behavior among adolescents can lead to a decrease in adult morbidity and mortality, and associated unhealthy consequences.

Adolescent health education could be provided through different sources. Parents and other family members, schools, family doctors, and the media all play a role in educating adolescents in matters of their health. Health education is one of the preventive services that could be provided to adolescents. Adolescents can be approached through different channels to provide them with the education and preventive health services they require. Clinical encounters offer an opportunity for providing adolescents with preventive

services. Primary health care physicians can easily communicate with adolescents and provide them with the care they require if the right skills and methods were applied.

1.2 Problem statement and research questions

Improving the quality of health care has been a priority of many health care systems all over the world in recent years. Important features of quality care for all age groups as was stated by the American Academy of Pediatrics (2008) include access, affordability, cultural effectiveness, communication and empathy. Providing quality care for adolescents includes services that are developmentally appropriate and address the needs for this age group. Preventive services that include anticipatory guidance, screening and counseling are considered an important component of adolescent health because of the nature of the preventable health problems in this age group. However, according to American Academy of Pediatrics research has shown that "preventive services and the content of care delivered to most adolescents do not meet guidelines for care or the perceived needs of adolescent patients".

According to Irwin *et al*. (2009) evidence have shown that providing information and services to adolescents result in their improved health. However, some barriers can make the provision of preventive services difficult such as lack of healthcare provider training, physician attitudes and external factors related to the health system. Although some countries have developed clear guidelines that provide clear recommendation on the provision of adolescent preventive health services, these guidelines are still not well established in Dubai. Some of the preventive services exist as a part of the Wellness Promotion Program that is used in primary health care centers while others are provided as a part of school health programs. As a result, most of the preventive services that are provided by health care professionals for adolescents are provided opportunistically and might not include all the topics that are important in this age group. This can result in missing certain risky behaviors and health concerns that may be improved with an appropriate intervention if discovered at this age.

Although well known guidelines issued by reputable organizations recommend the delivery of preventive services that include a wide array of health issues particular to adolescents, some of these services do not apply to the UAE as they are not considered a

major health concern. For example alcohol abuse among adolescents is not common in the UAE due to the fact that alcohol is banned from public places and is only available in certain places that are difficult to access by adolescents. However, some cases might be found but are not known and not documented in literature. Another health issue that is not very common among adolescents in UAE is sexually transmitted diseases and sexual health issues. It is well known that sexual contact out of wedlock is illegal in UAE and is forbidden among Muslim communities. Some cases may be found but are not of a major health concern and also they are not documented in literature. Other health issues in the UAE pose a significant concern: for example obesity, smoking and lack of physical activity.

The principal purpose of this study was to evaluate the provision of some preventive health services to adolescents in Dubai in 2010. The target health areas that were assessed are tobacco, safety (seat belt and helmet use), physical activity and diet.

To achieve this objective, the study sought to answer the following research questions:

1. What are the trends of usage of health care services among adolescents?
2. Do adolescents in Dubai receive some of the preventive health services on the major health concerns that are common among their age group?

1.3 Rationale and objectives of the study

The rational of this study are:

This study can generate data about the rate of delivery of some preventive counseling and screening services provided to adolescents. To the best of the author knowledge, no similar data exists about preventive health services among adolescents in Dubai. It is hoped by this study to fill out the gap and contribute to the literature on adolescent health in the UAE. This study focuses on middle aged adolescents where most risky behavior take place and can impact their future health. Although preventive guidelines for adolescents were established recently, research has shown they can have a positive outcome on the health of adolescents (Irwin et al. 2009). Measuring the provision of these services and the factors related to it can help in developing measures to implement such services.

This study also provides an assessment of clinical preventive services for adolescents and the level to which health care providers adhere to them. Adolescents' opinion on the

helpfulness of some services can give an idea on the effectiveness of these services and what areas are required for improvement.

Adolescents in high schools aged fourteen to eighteen were selected for the study. The reason for this was because this is the age where most risky behaviors occur and when most adolescents indulge in new experiences and younger adolescents may report less reliably about the provision of some services. Because adolescents spend most of their times in school, I decided to select my sample from the schools in Dubai. Schools also play a role in providing preventive health services and health information that can help them improve their overall health and wellbeing.

The main objective of this study intends to investigate whether adolescents in Dubai receive the basic preventive health services that is required at their age and has shown to result in better health and well being for their age group. The aim of this investigation is to evaluate whether adolescents in Dubai receive the recommended preventive health services offered to them by health care providers including physicians and nurses and school health professionals; and where are these services provided. The target health areas that were assessed included tobacco, safety (seat belt and helmet use), physical activity and diet.

Some of the specific objectives are:

1. To identify the pattern of health care utilization by adolescents in Dubai.
2. To assess whether counseling and screening on health behaviors topics such as smoking, diet, weight and exercise are provided to adolescents by health care providers in Dubai.
3. To evaluate the effectiveness of the communication between health care providers and adolescents.
4. To measure the level of health awareness among adolescents to some common health related issues that include safety, healthy diet, physical activity, risks of smoking and other substance abuse.

CHAPTER 2
LITERATURE REVIEW

2.1 Overview

According to the American Academy of Pediatrics (2008) adolescents are among the least likely to have access to health care and the rate of their primary health care visits are the lowest among all age groups. However, even among those receiving medical care, most of them do not receive sufficient preventive counseling services and health promotion.

Several professional organizations and health systems in some countries have developed guidelines concerning the provision of preventive health services to adolescents, including preventive, counseling and screening services and annual visits. Among these countries is the USA and Australia. In the USA specific services that should be provided to adolescents were recommended by a number of professional medical and governmental organizations including the American Academy of Pediatrics, American Medical Association, American Academy of Family Physicians and the US Maternal and Child Health Bureau (MCHB) (Irwin *et al.* 2009). The society for Adolescent Medicine also recommends including periodic preventive health screening in the health insurance benefit packages for adolescents. Most of these guidelines recommend preventive health visits every 1 to 2 years in healthy adolescents and more often for those with several risk factors (Park *et al.* 2001).

These services ideally should be provided by primary health care physicians or school based health clinics. The standard preventive services for adolescents include immunizations for infectious diseases, encouraging good health habits and providing guidance on avoiding risky behavior, encouraging healthy eating habits, physical activity and exercise; avoiding tobacco, alcohol and other substances; the use of seatbelts and avoiding interpersonal violence and other injury prevention strategies. The American Academy of Pediatrics recommends screening for all adolescents and those found to be at risk are further assessed for other risk factors including hypertension, hyperlipidemia, obesity, eating disorders, substance abuse, sexual activity, pregnancy, sexual transmitted diseases, school performance, learning disorders, depression, suicidality and involvement in violence or abuse.

However, despite the presence of these guidelines, it was found that the provision of preventive services for adolescents remains far below the recommended levels (Adams *et al.* 2009). Moreover, the US has made less progress in reaching its morbidity and mortality reduction goals for adolescents, than it has for the rest of the age groups during the past two decades (Park *et al.* 2001).

2.2 Barriers to the Delivery of clinical preventive services

Despite the presence of guidelines and recommendations for physicians regarding adolescents' health, a number of studies have suggested that this had little impact on changing their practice and following the guidelines (Cabana *et al.* 1999). The reasons behind this may include lack of proper healthcare providers training and knowledge on matters related to adolescents, physician attitudes and external factors such as linguistic barriers (Ozer *et al.* 2001). Other reasons include issues related to the health system and financing the health services (Park *et al*. 2001).

- Issues related to physicians and health care providers

Some healthcare providers may be unaware of the existence of new or revised guidelines. Some physicians are reluctant to address issues related to adolescent health, in particular those with social and behavioral etiologies that they may consider a sensitive topic. This is because prevention skills need training, and not all medical schools offer this training in their undergraduate curriculum. Another reason is physicians' confidence in their own counseling skills and effectiveness in modifying patients' risk factors to prevent disease which may lead them to abstain from providing preventive health services. Other physicians prefer not to address sensitive issues to avoid the need to answer questions where they cannot provide answers and referrals (Park *et al.* 2001).

It was also found that some health care providers believe that preventive health counseling is ineffective and that adolescents will not change their behavior as a result of counseling (Rosen *et al.* 1997). This reason behind this may be because treating an acute symptom or illness can produce immediate results that are visible. This can result in clinicians, patients and families satisfaction and help physicians self esteem. However, the feedback on preventive services is lengthy and time consuming causing clinicians frustration and disappointment (Rosen *et al.* 1997).

- Issues related to the health system

Several aspects of the health care system can present a barrier for health care providers to follow the recommended preventive services. One of these aspects is lack of resources such as referral sources, educational materials and skilled staff (Park *et al.* 2001). The issue of time is considered an important barrier by many clinicians as these services may take up to between thirty to forty five minutes in low risk adolescents and longer for those with multiple risk factors and problems (Rosen *et al.* 1997). This time with an individual patient is not offered in most clinical settings, making it difficult for clinicians to provide these services. In addition, most health care systems consider the non-medical preventive services such as health education low priority, especially in busy health care systems with urgent needs receive priority (Igra *et al.* 1993).

2.3 Adolescent health in the UAE

In the UAE, amongst the most common health problems in adolescents are obesity and smoking (Tar-ching 2010). The prevalence of childhood obesity in the UAE is dramatically increasing and is exceeding the high percentages found in USA and Europe (Bin Zaal *et al.* 2009). Researches done in the UAE have shown that childhood obesity is becoming a major health concern. A cross sectional study that evaluated the association between the dietary habits and behavioral factors with the increased risk of obesity among adolescents in Dubai showed that the highest percentage of obesity was observed among 14 years old boys (30.5%) and 13 years old girls (35.4%) (Bin Zaal *et al.* 2009).

Another study, which investigated the prevalence of overweight in adolescent females in the UAE, found that a high proportion of adolescent females were overweight, or at risk for overweight (Al-hourany *et al.* 2003).

A study on smoking habits among high school boys in UAE have shown that by the time the students graduate one third of the students are already regular smokers (Bener and Al-ketbi 1999). According to the World Health Organization (2006) 24.3% of males aged 13-15 years were current smokers, 42% of males aged 17 years were current smokers while only 2.9% of females aged 13-15 years were current smokers. A recent survey by Dubai Health Authority that was conducted under the Tobacco Free Dubai Campaign between October 2009 and April 2010 found that 71 % of high school students in Dubai

smoke cigarettes, 10.9 % smoke hubble-bubble (which is also called shisha), 9.2% smoke pipe, 1.9 % smoked cigar and 1.1% chewed tobacco.

Physical activity levels among adolescents are very low, especially in females, contributing to the increase in obesity levels in the young population. This was demonstrated in a study that investigated the patterns of physical activity and levels of inactivity in adolescent females in the UAE. The study also showed that cultural and weather restrictions and social change of the community in the UAE played a major role in decreasing the levels of inactivity (Henry *et al.* 2004).

A global school based student health survey by the Ministry of Health that included a total number of 2,114 students aged 13-15 years across Dubai was performed in 2005. The survey found that the percentage of students who were physically attacked one or more times during the past 12 months was 33.9 ± 4.2 while those who were involved in a physical fight one or more times during the past 12 months was 44.2% ± 4.3 (boys 53.7 ±4.1 %, girls 35.8% ±4.8). The survey also found that 17.4% ± 3.8 of the total students were physically active for a total of at least 60 minutes per day on all seven days during the past 7 days.

Road traffic accidents are considered a major global concern in the past few decades. It is the second leading cause of mortality in the UAE including Dubai (World Health Organization 2006). A cross sectional study conducted in Dubai by Al Marzooqi *et al.* (2010) that explored the trends in road traffic accidents found that the numbers of road traffic injuries are steadily increasing over the years with a 38% increase from the year 2002 to 2008 among UAE nationals as well as expatriates. The associated mortality showed an overall increase of 54% during the same period. The study also found that the age distribution of road traffic injuries showed two peaks in the age groups 18 to 26 years and 63 to 71 years. This implies that older adolescents and young adults are at increased risk of injury from road traffic accidents. High speed limits and careless driving are considered the most common factors associated with road traffic accidents (Bener 2005). Health education and counseling on this risky behavior during adolescence years can play a major role in preventing adult morbidity and mortality through modifying this behavior and its related outcomes.

A study in Al Ain city in UAE by Eid *et al.* (2009) found that motorcyclists accounted for 37% of traffic injuries. It also found that injuries of the extremities and head were frequent among pedestrians, motorcyclists, and bicyclists, while head and spine injuries were more common among front and rear vehicle occupants and drivers. According to the study head injury was a major factor affecting mortality among the sampled population. Seat belt wear by all vehicle occupants including back passengers and helmet use by motorcyclists and bicyclists in addition to protective clothing can reduce injuries. Health education and legalization is an important factor in ensuring that these measures are taken. Educating adolescents on these topics and the fatal outcomes of these behaviors is needed to ensure the development of health adults.

2.4 Adolescent preventive services in Dubai

The Dubai Health Authority (DHA) under the government of Dubai is the main regulator of health in the Emirate. Its health services serve the population of Dubai which is estimated to be around 1.8 millions according to the latest statistics (Dubai Statistics Center 2010). There are three main hospitals and fourteen primary health care centers throughout Dubai region.

Preventive health services are provided to adolescents in Dubai in government health centers opportunistically as there are no scheduled well visits provided for adolescents for routine preventive services. Some preventive health services for adolescents are also provided as a part of school health services.

- Preventive health services in primary health care

In the year 2009 evidence based clinical guidelines were developed for primary health care professionals as a part of the Wellness Promotion Services which include preventive measures, education and the best available evidence that assist in keeping people healthy and safe (Dubai Health Authority 2009). The wellness promotion program was developed by the Medical Affairs Department in Primary Health Care as a part of the strategy to promote the well being of the population. It is describes clear and logical steps that guide clinicians. It is also designed as a tool to assist health care providers such as physicians, nurses, health educators and office staff in primary health care centers to integrate wellness promotion into daily practice. The guidelines were developed with

reference mainly to the guidelines for preventive activities in general practice developed by The Royal Australian College of General Practitioners and the recommendations of the United States Preventive Services Task Force (USPSTF) for the year 2007 (Dubai Health Authority 2009).

The wellness promotion program is developed for the adult and adolescent population. On the other hand preventive health services for children are well implemented in primary health care and include immunizations, regular well child health visits and health education regarding breast feeding and diet.

The recommendations present in the wellness promotion guide are based on current evidence based on guidelines for preventive activities, resources available and the culture. The preventive health services in the wellness promotion program that can be applied to adolescents include:

- *Measurement of height and weight and blood pressure*

  Height and weight measurement should be performed at every visit. Blood pressure should be measured at every visit for those at high risk such as overweight and obesity.

- *Nutritional assessment*

  Advice should be given to those individuals at average risk for developing nutritional related problems every two years. They should be asked about the number of portions of fruits and vegetables per day and the types of fat eaten. Those at high risk should be provided a proper advice and referred to the dietician every six months.

- *Physical activity*

  Individuals who are at average risk should be questioned for current level of activity every twelve months. Those at increased risk should be questioned at every visit and assessed for readiness for more activity.

- *Substance abuse assessment for drugs and alcohol*

  All patients fourteen years of age and over should be asked about the quantity and frequency of alcohol intake and number of alcohol free days each week every three years.

- *Screening for tobacco use*

Smoking status should be assessed for those above ten years of age every twelve months and those who smoke should be offered brief smoking cessation counseling and followed up.

- Immunization
- Mental health assessment
- Screening for diabetes mellitus for those at high risk
- Screening for skin cancer for those at high risk

❖ School health preventive services

School health services also play a role in providing adolescents with preventive health services including health education programs, regular medical examination of students, growth and development assessment and immunizations.

The school health department under the DHA has set guidelines for the school health services and provides supervision in the implementation and evaluation of the program. These services however cover only the private schools in the emirate of Dubai which reach a number of 145 schools. The school health program sends a team of doctors and nurses to schools to ensure that students have received all the requisite vaccinations they require. The team is also involved in promoting a healthy lifestyle through conducting presentations and workshops to educate students about the dangers of smoking and the health hazards associated with obesity and unhealthy lifestyle. In the beginning of the year 2010 an annual plan has been developed by the School Health department in DHA with a great emphasis on nutrition and physical activity, to encourage students across schools in Dubai to adopt a healthier lifestyle (Dubai Health Authority 2010).

On the other hand, public schools health services are provided by the Ministry of Health and cover all public schools in the emirate of Dubai. The preventive guidelines are similar somewhat to the ones set by the School Health Department in DHA and include: fitness assessment, health education, dental health, mental health assessment and immunizations. They have well established programs for health education that include general hygiene, physical activity, nutrition, communicable disease prevention, mental health, safety and violence/intentional and non intentional injury, first aid and

smoking prevention (Ministry of Health, UAE 2006). They also have the child obesity program that screen all public schools students for obesity and those at risk for developing obesity. This program provides health education regarding healthy eating and diet plan as well as involving the family in the management plan.

2.5 Health education in the UAE

Health education is an essential component of preventive and community health. It is multifaceted because it should target different groups of the population through different methodologies that include conferences, courses, lectures and national awareness weeks. However, the UAE still lacks a reference centre for health education in the community as well as radio and television production unit that can help in broadcasting awareness programs through different media channels. Moreover, the diversity of nationalities and languages pose a challenge on public communication.

Many activities for utilization of health education exists, however, they are isolated and uncoordinated between the different health systems that exist in the UAE. There is still no attempt at joining forces in a well studied program that can be utilized for the whole country (World Health Organization 2006).

There is still a need to strengthen the telecommunication infrastructure in health care institutions as most hospitals, primary health care centers, medical colleges and other health facilities lack the necessary infrastructure to install electronic health solutions. Using the internet for health information and for delivery and promotion of health care services are still underutilized in the UAE (World Health Organization 2006). Although some efforts have been done in DHA regarding health education on common diseases whether through campaigns and community lectures, adolescent health education is not well developed. Most of the health education for adolescents takes place in schools under the supervision of the school health department, but a well established health education program utilized in schools that throughout Dubai is still not available.

2.6 Benefits of Health Education among adolescents

It is known that low levels of physical activity in young people have been linked to increased rates of obesity, cardiovascular disease and poor mental health. However, a study has found that lack of knowledge about benefits of physical activity is one of the reasons adolescents do not participate in physical activities (World Health Organization 2009). As a result, it is important for adolescents to gain sufficient knowledge regarding the important health issues and preventive measures in order to improve their health and wellbeing.

Three out of four adolescent deaths are caused by unintentional injury and violence. This is the result of unhealthy and risky behaviors among this age population. According to a study approximately three fourths of adolescent deaths were considered preventable (Montalto 1998). Health education regarding the prevention of injuries and the risks related to unhealthy behaviors can play a role in reducing the morbidity and mortality related to them.

Another important aspect is to provide adolescent with the health education appropriate for their age and educational level. Health education materials designed for adults cannot be presented to adolescents and children. Special care should be given to designing and preparing health education presentations and written material in order to reach the adolescents and make them understand the full impact of the issues that might have an effect on their health.

2.7 Research on the assessment of preventive health services provided to adolescents

Research that assessed the provision of health services is limited in the literature. Few studies have assessed the extent of adolescent preventive health services, the contents of these visits and the degree to which health care professionals adhere to the guidelines available at their organization. In the UAE no similar studies have been done on this issue. Most of the studies published were performed in the United States. These studies have suggested that although adolescents attend regular preventive visits, the contents of these visits do not always meet the professional standards (Park *et al.* 2001).

The National Committee for Quality Assurance (NCQA) in the USA use the rates of immunization and the rates at which children and adolescents have well visits as quality indicators for health maintenance organizations. However, these measures provide no

information about the provision of preventive counseling and screening. Moreover, these measures do not take into account that these preventive services are sometimes provided outside the scheduled well visits (American Academy of Pediatrics 2008).

A survey by Marshall et al revealed that among the 1,842 primary care pediatricians surveyed only 49% screened younger adolescents (11-14 years) and 73% screened older adolescents (15-17 years) for consumption of alcohol (Marcell and Millstein 2000).

Lawrence et al. (2009) stated in their study that although the national guidelines in USA recommend that adolescents should be screened for drug, alcohol and cigarette use few surveys showed that the number of adolescents that receive these is low.

Although a number of studies have shown that not all adolescents receive routine preventive care, some physicians do not screen all adolescents for risky behavior and only target the high risk group. Some studies have shown a relationship between the involvement of adolescents in risky behavior and receiving counseling for that behavior (Lawrence et al. 2009). However, some adolescents do not speak to their physicians about their engagement in risky behavior and as a result they do not receive appropriate counseling for that behavior. A survey found that among the group of adolescents that engaged in high risk behaviors 63 percent did not inform their physicians about these risks (Lawrence et al. 2009).

Although the previous mentioned studies discussed implementation of preventive health services, more research is needed in order to provide definitive evidence of the efficacy and effectiveness of specific and overall preventive interventions for adolescents is needed. The process of evaluating preventive health services is needed is challenging. It requires large sample size, well defined outcomes, suitable data collection methods and long term follow up. In addition funding this type of research requires funding that may not be granted. As a result, little research has focused on the outcomes of preventive interventions (Lawrence et al. 2009).

2.8 The Young Adult Health Care Survey (YAHCS)

One of the largest studies conducted in the United States developed a survey that can be used to measure adherence to consensus guidelines for adolescent preventive counseling and screening services. This survey is the Young Adult Health Care Survey (YAHCS)

which provides a feasible, reliable and valid method for measuring how well the health care system provides adolescents with recommended preventive care. It is used to assess whether health care providers screen adolescents for risky health behaviors and mental or behavioral problems. It is also used to assess whether adolescents were counseled on essential behavior topics including alcohol, tobacco, sexually transmitted diseases, birth control, diet, weight, exercise, depression and violence (Klein and Peck 2001).

This survey was developed through a multistage process that began with identifying the preventive care guidelines established by a number of health organizations in the US. Some topics were eliminated because evidence showed that adolescents do not validly or reliably report on these topics. The YAHCS was administered to those aged 14 to 18 rather than younger adolescents who may not report reliably about the provision of some services as was found through evidence (Klein and Peck 2001).

Results from this study indicated that the YAHCS is a feasible tool that can be used for standardized assessments of performance in the area of adolescent preventive counseling and screening (Klein and Peck 2001). The study found that the average preventive counseling and screening scores ranged from 18.2% for discussing risky behavior topics to 50.4% for discussing diet, weight, and exercise topics.

2.9 Study Location

The selected study area is the city of Dubai one of the seven emirates constituting the United Arab Emirates. Dubai is situated on the southern shore of the Arabian Gulf and is the second largest Emirate after Abu Dhabi. Dubai's population is estimated at 1.8 million (Dubai Statistical Center 2010). Dubai is considered one of the most multicultural cities in the world as the expatriate community covers most of the population. Dubai is divided geographically by the Dubai Creek into two parts: Deira and Bur Dubai.

Islam is the official state religion of the UAE but because of the large multicultural population living in Dubai other religious communities also reside in the city. Languages that are spoken in Dubai besides Arabic, which is the official language, include: English Urdu, Persian, Hindi, Bengali, Tamil, Tagalog, Chinese and Malayalam .

2.10 Education in Dubai

The school system in Dubai is similar to that of the UAE and is under the regulation of the Ministry of Education (MOE) which is responsible for the accreditation of schools in UAE. The Knowledge and Human Development Authority (KHDA) was established in Dubai in 2006 to develop the education and human resource sectors and to license educational institutes in the Emirate.

Schools in Dubai serve the UAE nationals and non nationals and many curriculums are available to serve the various cultural groups living in Dubai. Because of the large number of expatriates in Dubai, 86% of students are enrolled in private schools. According to key education statistics for Dubai by KHDA for the academic year 2009/2010 the number of students at private schools has increased by around 9% year on year, while the number of students at public schools has fallen (Knowledge and Human Development Authority 2010).

As of the academic year 2009/2010 there are a total number of 228 schools in Dubai and a total number of 209, 590 students. There are 83 public schools that are run by the Ministry of Education and serve UAE nationals as well as Arab expatriates. The number of private schools in Dubai is 145 and serves UAE nationals as well as the vast expatriate community (Table 2.1) Arabic is the medium of instruction in public schools with English being taught as a second language while English is the medium of instruction in most private schools (Knowledge and Human Development Authority 2010).

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2.1 Total Number of schools and students in Dubai in 2010

Total Number of Schools and Students		
Type	Schools	Students
Public	83	28,552
Private	145	181,038
Total:	228	209,590

Source: KHDA 2010

According to the Knowledge and Human Development Authority (2010) Dubai schools offer 13 types of curriculum and include public schools that offer the Ministry of Education curriculum, private schools that offer the Ministry of Education curriculum, United Kingdom curriculum schools, United States curriculum schools, Indian curriculum schools, schools offering International Baccalaureate programs, Pakistani curriculum schools, French Curriculum, Iranian curriculum and four schools that offer a unique curricula (German, Japanese, Philippine and Russian). (Table 2.2)

Table 2.2 Curricula taught in Dubai Schools and number of students in each curriculum

Students by Type of Curriculum		
Type of School	**Schools**	**Students**
Government MoE	80	26,772
Private MoE	15	16,486
UK	54	55,821
US	32	39,430
Indian	21	54,619
IB	6	3,851
French	4	2,949
Iranian	6	2,555
Pakistani	4	3,435
Philippine	2	2,232
German	1	290
Japanese	1	188
Russian	1	249
Institute of Applied Technology	1	713
Total:	**228**	**209,590**

Source: KHDA 2010

Private schools in Dubai are categorized by the Ministry of Education into English private schools (these include the American and British curricula schools), Arabic private schools where English is the medium of instruction and offers British and American curricula as well as Ministry of Education curricula, Indian schools and others (French, Iranian, German, Philippine, Russian, Pakistani schools.

Secondary education in Dubai is offered in public and private schools. Secondary public schools have students from grades 10 to 12 while most private schools teach children from kindergarten to senior high school years. Some private schools that follow the British curriculum offer grade 13 which is equivalent to the foundation year in universities. The number of students attending secondary schools, grades (10 to12) is also high in private compared to public schools. There are 20 secondary public schools currently in Dubai with a total number of 6,700 students. The number of private schools that offer secondary education (grades 10-13) is 119 with a total number of 26,554 students (Knowledge and Human Development Authority 2010).

The English Private schools as well as Arabic private schools in Dubai are similar in many ways and have a diverse population of students including Arabs and non Arabs because in both schools the medium of instruction is English, with Arabic and Islamic Studies being taught according to Ministry of Education curriculum in Arabic private schools while in English private schools they are taught in lesser intensity.

CHAPTER 3
METHODOLOGY

3.1 Research Design

The research design is a descriptive cross sectional study.

3.2 Study Area and population

The study was conducted in the schools located in the Emirate of Dubai only. The focus of my study was adolescents attending grades 10 to 12 with the age range of 15-19 years old.

3.3 Study sample and sampling procedure

The sample size of this study is 1000 high school students. The sample is a stratified sample. To select the adolescent sample, the researcher first obtained a list of Dubai secondary schools from the KHDA and the number of the total students in secondary education. There are twenty public schools and one hundred nineteen private schools that offer secondary education in Dubai. Another list was also obtained from the school health department that includes all the schools in Dubai divided into schools located in Bur Dubai and schools located in Deira in order to choose an equal number of schools from each part of Dubai. The researcher used the Ministry of Education classification of schools and made another list with four categories: public schools, private schools that offer the Ministry of Education curriculum, English private schools and Indian schools.

Before selecting schools the sample size was determined. This was done using an online sample size calculator from the National Statistical Service (National Statistical Service 2010). The total number of high school students in Dubai is 33,254. The sample size with 95% confidence level and 3% relative standard error was determined to be 1,000. One thousand adolescents were selected as the study sample, 250 from each of the following group of schools: 1. public schools 2. Arabic private schools 3. English private schools 4. Indian schools.

3.4 Selection of schools

Sampling was a cluster sample where Dubai was divided into two regions (Deira and Bur Dubai). A list of schools was made from each. For each list schools were

subdivided into four groups that include public schools, Arabic private schools, English private schools and Indian schools then randomly selected one school for every group in each region reaching a total of 16 schools.

The following schools were selected:

1. Public:
    - Al Sufooh High School-girls
    - Sakina Bint Al Hussain High School-girls
    - Dubai High School- boys
    - Al Safa High School-boys
2. Private Arabic (boys and girls):
    - Al Mawakeb School
    - Dubai International School
    - Al Ittihad Private School
    - Dubai National School
3. Indian Curriculum:
    - Our own English High School-Bur Dubai Branch (girls)
    - Our Own English High School- Al Warqaa Branch (boys)
    - The Indian High School-Boys and Girls
    - Arab Unity School-boys and girls
4. Private English (boys and girls):
    - Wellington International school
    - American International School
    - English College
    - European school of Dubai

Letters from the University was sent to the selected schools, asking for permission to conduct the study. The researcher called or emailed the schools that were selected asking to meet the principal or any administrator asking for an appointment to meet them in order to explain the purpose of my study and to ask permission to conduct the study in the schools selected.

All public schools and Arabic private schools have accepted to participate. Only one Indian school was uncooperative. The English Private schools were the most difficult as

they took a long time to reply and were very difficult to access as they did not accept my request to meet with the principal easily and even after sending an email explaining the purpose of the study and a copy of the questionnaire two schools did not reply and one school agreed to participate in the beginning of September 2010. One school only participated from this group which is the American International School. Because of the limited time available for the study, the study was conducted in the schools that accepted to participate. As a result the sample of the schools comprised 11 schools from the 16 schools that were initially selected.

The purpose of the study and the sample requested was explained to the principal or the person in charge of the schools that agreed to participate in the study. A formal letter from the university to that particular school was provided further explaining the nature of the study. Most schools were hesitant to spare extra time for students to complete the questionnaire and asked if the number of copies need to be completed could be left with the administration and they will be the ones submitting the questionnaires. Because the sample included students attending grades 10-12, one class from each grade was randomly selected by the researcher and asked the school to submit the questionnaires to the class selected only. All the schools had more than two classes for each grade with a number of students ranging from 25 to 30. Two classes were selected from each grade, one boy's and one girl's class, in the schools that had a mixed population in order to reach the target sample of 1,000 from the 11 schools. Although the questionnaire was clear, instructions were given to the person responsible for submitting the questionnaire that one answer only should by selected for each question.

3.5 Data collection instrument

Data was collected through a self-administered questionnaire adapted from the Young Health Care Survey in the USA (Appendix A). The instrument is a 27 item questionnaire that included demographic variables, variables that measured health utilization by adolescents, counseling on health and safety, health education and information and general health of the adolescents. The questionnaire was also used to assess adolescents' perception to the consultation with health care providers and how helpful was the interaction.

The questionnaire is adapted from the Young Adult Health Care Survey (YACHS) that was developed in the USA (Klein and Peck 2001). The YAHCS was developed under the Child and Adolescent Health Measurement Initiative (CAHMI). It is available free of charge on CAHMI's Web site in both English and Spanish versions and can be used by health care systems (Agency for Healthcare Research and Quality 2006). The (YACHS) study assessed whether health care providers screen adolescents for risky health behaviors and mental or behavioral problems. It also assessed whether adolescents were counseled on essential behavior topics including alcohol, tobacco, sexually transmitted diseases, birth control, diet, weight, exercise, depression and violence. Even in the YAHCS study, common topics were eliminated from consideration due to the fact that adolescents do not report on these topics in a reliable manner (Klein and Peck 2001).

However, this paper assessed some preventive services and did not cover all issues that were covered in YAHCS. As a result only the questions that applied to the study were selected. The areas the questionnaire assessed were tobacco, diet, exercise and unintentional injuries as these problems are common in UAE and preventive services can help in reducing the burden of these problems and lead to better outcomes.

In the YAHCS study the questionnaire was designed and written at the sixth to eighth grade reading level in order to be easily read and understood by adolescents with different educational levels as was confirmed by cognitive testing. This reading level is also applies to the questionnaire used in this study. For public schools, the questionnaire was translated into Arabic language by a professional translation office (Appendix B).

The questionnaire began with questions on adolescents' background. These include questions on age, gender, grade, main language spoken at home and the overall average grade achieved in school. The reason for this information is to gather baseline information about the participants and to check for differences within the different groups.

The second part of the questionnaire measures health care utilization. This included questions on the last time the adolescent visited a health care provider for routine care and the setting where the adolescent go to receive medical care. The reason behind these questions is to assess the frequency of routine care among adolescents and to find out the place adolescents visit most frequently for their medical care in order to assist in quality improvements.

The third part of the questionnaire asked about health and safety and included questions on counseling on health behaviors such as weight, healthy eating and diet, physical activity, safety tips and drugs; screening for health risks such as smoking; adolescent self report of smoking, helpfulness of counseling provided in understanding the risks of smoking and screening for health behavior such as wearing seat belts. The reason behind choosing these topics is that they are very important and included in the DHA wellness promotion guidelines. This part is the most important in the questionnaire as it measures the provision of the most important health services to adolescents.

The next part includes questions on health information regarding safety, healthy diet and exercise and risks of smoking and substance abuse. The questions ask only if they have seen or heard information on these topics and not the source. The purpose of these questions is assessment of the availability of health information in the adolescent community.

The final part of the questionnaire assessed the adolescent health care in the last 12 months and their experiences with their health care providers. The questions measured the degree of communication between adolescents and their health care provider in terms of presenting them with the help they need, listening carefully to their problems, explaining things clearly and showing adolescents respect for what they have to say. The purpose of these questions is to assess the helpfulness of health care providers and the effect of communication.

Additional questions asked adolescents if they had a serious health problem that went untreated and about any health problem that they currently have. The last question asked adolescents to rate the health care they received from all providers in the last 12 months through choosing a number from a 1-10 scale in order to find out the overall rating of care through the perspective of adolescents.

3.6 Operationalization of variables

The provision of preventive counseling and screening on health behaviors such as smoking, diet and exercise was measured by asking adolescents to report on whether these services were provided to them by a health care provider or not. The helpfulness of the discussion on smoking and driving was measured through a five item likert scale that

ranged from not at all helpful to very helpful. Adolescents' experience with their health care and the communication skills of health care providers was measured through a five item likert scale that ranged from never to always and assessed whether certain elements of the clinical encounter were present and was helpful. Adolescents were also asked to rate the health care received in the past year through a scale that ranged from zero to ten where zero is the worst health care and ten is the best health care possible.

3.7 Hypothesis

This study is intended to test the following hypothesis:

1. Preventive counseling and screening health services for adolescents on smoking, diet, physical activity and safety issues in Dubai is low.
2. Gender differences occur among adolescents who receive counseling on smoking and safety issues.

   $H_{o1} = \mu_1 = \mu_2$

   $H_A = \mu_1 \neq \mu_2$

   Where μ_1 represents males and μ_2 females
3. Adolescents have a good level of health awareness on health related issue that are of concern to their age group such as information on safety, healthy diet and risks of smoking.

3.8 Data management and analysis

The questionnaire questions were pre-coded prior to the data entry. Statistical analysis was performed using the program SPSS (The Statistical Package for Social Sciences), version 14.0. Coded data were entered the in the SPSS program. Data were presented using descriptive statistics in the form of frequencies and percentages for variables.

In order to test the hypothesis that states that there are gender differences among the adolescents in receiving preventive counseling on smoking and safety issues, independent t test was performed where the independent variables was the gender (male and female) and dependant variable was whether counseling was provided to adolescents on smoking and seat belt use or not.

Cross tabulation was also performed to study the relationships between the variables in order to determine if differences exist between males and females and Chi square test was used to test for statistical significance. The Pearson correlation coefficient was used to test the association between variables. For most variables there was no consistent systematic relationship found.

The use of SPSS program was appropriate because the sample size was large and because the data was obtained through a standard questionnaire. Data management and analysis was conducted by the researcher after collection of data.

CHAPTER 4

RESULTS

4.1 Overview

Based on Data collected from 730 questionnaires with adolescent boys and girls in eleven schools namely Al Sufooh High School for girls, Sakina Bint Al Hussain High School for girls, Dubai High School for boys, Al Safa High School-boys, Al Mawakeb School, Dubai International School, Al Ittihad Private School, Dubai National School, Our own English High School Girls Branch, Our Own English High School Boys Branch, The Indian High School and the American International School. Although the study intended to obtain equal sample of adolescents from all classes, the students who answered the questionnaire were 730 yielding to a response rate of 73%.

Table 4.1 Demographic characteristics of adolescents in the study

Characteristic		Frequency n=730	Percentage
Sex			
Boys		357	48.9
Girls		373	51.09
Age in years			
14 -15		184	25.2
16-17		458	62.7
18-19		88	12.1
Class			
Grade 10		227	31.1
Grade 11		263	36
Grade 12		240	32.9
Main language spoken at home			
Arabic		565	77.4
Indian		82	11.2
Languages			
English		61	8.4
Persian		20	2.7
French		2	0.3
Average grades achieved in school			
90-100		223	30.5
80-89		245	33.6
70-79		151	20.7
60-69		88	12.1
≤59		23	3.2

4.2 Demographic characteristics of the adolescents

The adolescents were sampled from eleven schools and from different classes. Out of 730 participants 257 (35.2%) were males (64.8%) and 473 were females. The average age of adolescents is 16.2 years with the youngest being 14 years of age and the oldest 19 years old. 31.1% of adolescents were in grade 10, 36% in grade 11 and 32.9% in grade 12. Three quarters of them (77.4%) speaks Arabic as the first language, followed by different Indian languages (11.2%), English (8%), Persian (2.7%), and French (0.3%). The average grades achieved by adolescents in school varied with most adolescents' grades in the 80-89 group (33.6%) and the least in the 59 and below group (3.2%). Table 4.1 above shows the characteristics of adolescents that participated in the study.

4.3 Health care utilization

The respondents were asked about the last time they visited a doctor or health care provider for regular or routine care. . The majority of adolescents (64.2%) reported having seen a health care provider in the past 12 months. 177 adolescents (24.2%) reported no visits for regular check up while 85 (11.6%) adolescents reported a routine visit in the past 2 years. The results are summarized in Figure 4.2 below.

Table 4.2 Adolescents time of last routine health care visits by gender

Last routine health visit	Gender		Total N=730
	Male N=257	Female N=473	
I did not go to a doctor or clinic for a regular check-up	59	118	177
0-6 months ago	133	220	353
7-12 months ago	34	81	115
13-24 months ago	9	32	41
more than 2 years ago	22	22	44

The next question asked about the setting adolescents usually seek for medical care. Most adolescents (40.5%) had visited hospitals, followed by doctor's office or clinic (33.8%), primary health care clinic (6%), school nurse (3%) and hospital emergency room (24%). Ninety seven adolescents (13.3%) reported having no usual place they seek for medical

care. The health care setting that is accessed mostly by males (47.5%) is hospitals while females (38.1%) access doctors' office or clinics the most

4.4 Preventive health and safety services

The next part of the questionnaire addressed preventive health and safety services provided to adolescents by their health care providers including doctors, nurses and school health staff. Adolescents were asked to reply with "yes" or "no" on whether their health care providers talked to them about issues related to their health and safety. These issues included the following topics: height, healthy eating or diet, physical activity, using a helmet when riding a bicycle or motor bike and drug use. The responses of adolescents were similar on topics related to weight, healthy eating and physical activity. In addition, safety topics yielded also a high number of "no" responses with 94.2% and 88.2% of adolescents said that their health care provider did not talk to them about using a helmet when riding a bicycle or motor bike, and drug use respectively. 11.3% of males compared to 2.7% of females discussed helmet use while 21% of males compared to 6.8% of females discussed drug use with their health care providers. The responses of the adolescents are summarized in the table 4.3 below. Chi-square analysis found that students with lowest average grades at school received more counseling on using a helmet and drug use ($p<0.004$).

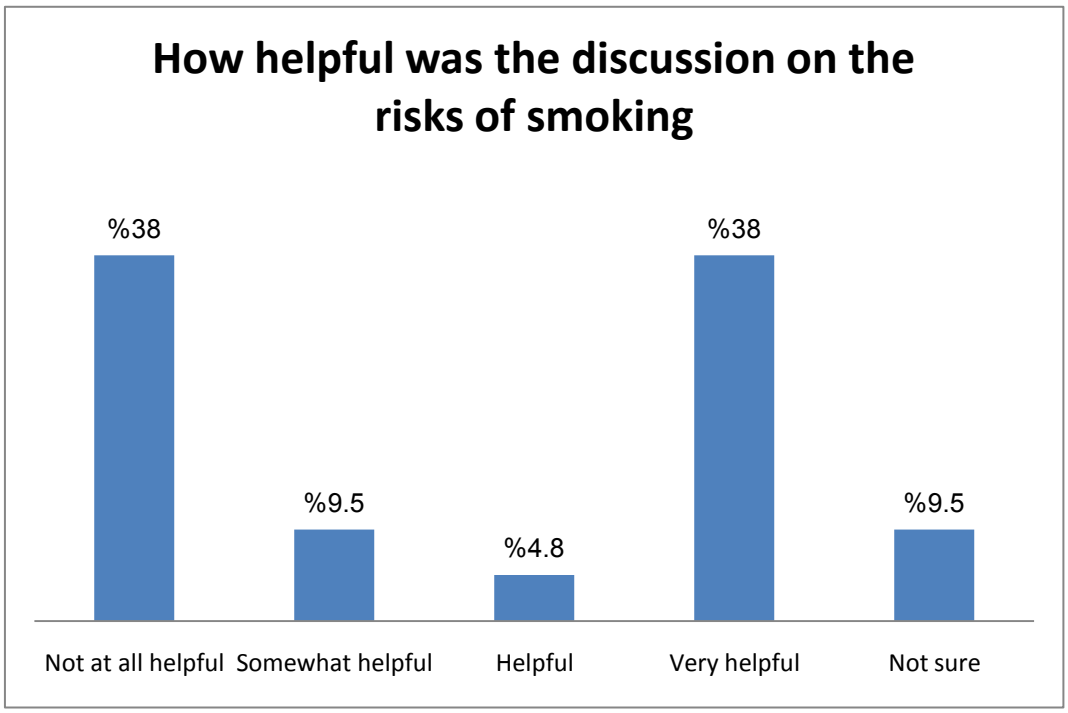
Table 4.3 Responses of adolescents on whether some health and safety topics were discussed with a health care provider in the last 12 months

Topic	Yes (Frequency) n=730	%		No (Frequency) n=730	%
Weight	253	34.7		477	65.3
Healthy eating	286	39.2		444	60.8
Physical activity	263	36		467	64
Using a helmet for safety	42	5.8		688	94.2
Drug use	86	11.8		644	88.2

This part also asked adolescents about whether they have received preventive screening on smoking. Only 132 (18.1%) adolescents (94 males, 39 females) said "yes" while 598 adolescents (81.9%) said "no". For those who had answered "yes" they were further asked about the helpfulness of this discussion in making them understand the risks of cigarette smoking on their health. They had to choose among a five items likert scale that

ranged from not at all helpful to very helpful. Out of those who have responded "yes" 85 (63.9%) reported that the discussion was helpful (36 helpful, 49 very helpful). Eighteen adolescents (13.5%) reported that the discussion was not helpful, 21 (15.8%) reported that it was somewhat helpful while 9 adolescents were not sure. Figure 4.1 below summarizes these results.

Figure 4.1 Adolescents response to how helpful the discussion was with health care providers in understanding the risks of smoking



Adolescents were further asked if they ever smoked cigarettes in the last 12 months in order to measure their practice of risky behavior. Out of those surveyed, 70 (9.6%) adolescents reported having smoked with 56 (80%) of them being males while 14 (20%) were females (Table 4.4).

Table 4.4 Smoking among adolescents

		Frequency n=730	**%**
Smoking	Yes	70 Males 56 Females 14	9.6%
	No	660	90.4%

Independent t test was used to compare the rate of counseling and discussing smoking between males and females and showed a p value < 0.000 (Table 4.5).

Table 4.5 Independent t test showing differences between males and females on smoking counseling

Group Statistics

	Gender	N	Mean	Std. Deviation	Std. Error Mean
Smoking	male	257	1.65	.477	.030
	female	473	1.91	.288	.013

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Discussion on smoking	Equal variances assumed	316.363	.000	-9.016	728	.000	-.255	.028	-.311	-.200
	Equal variances not assumed			-7.847	359.766	.000	-.255	.033	-.319	-.191

Those who smoked were further asked several questions related to their smoking behavior. The first question asked them to indicate the number of cigarettes they smoke to assess the severity of the habit of smoking among adolescents. Half of the adolescents who smoke (48.6%) reported smoking less than 10 cigarettes per day, 24.2% smokes ten to twenty cigarettes per day and 27.1% smokes more than twenty cigarettes per day. Next they were asked if during the last twelve months a doctor or other health provider talked to them about how and why to quit smoking. The aim of this question was to assess the provision of an intervention if a risky behavior was detected. The answers varied among those who smoked with 21 (30%) of adolescents reported having the discussion on quitting smoking with their doctor or health care provider, 21 (30%) reported not having it while 28 (40%) did not discuss quitting smoking because they did not tell their doctor or health provider that they smoked cigarettes.

The adolescents who had a discussion with their doctor or health provider were asked to evaluate the helpfulness of these discussions on a five item likert square that ranged from not at all helpful to helpful. Eight adolescents (38%) thought it was not at all helpful, while another 8 (38%) thought it was very helpful.

Next adolescents were asked about their behavior regarding the use of seat belt while riding or driving a car and whether they were counseled by their doctor or health care provider on the importance of wearing a seat belt. Adolescents responded on how often they wear seat belts on a five item likert scale ranging from never to always. The mean response was sometimes.

Adolescents were further asked if during the last twelve months a doctor or other health provider talked to them about the importance of wearing a seat belt. Only 96 (13.2%) responded "yes" while 634 (86.8%) were not counseled. Males were counseled more than females on seat belt use and independent t test (Table 4.6 below) that was performed showed a significant differences ($p<0.000$).

Table 4.6 Independent t test showing differences between males and females on receiving counseling for seat belt use

Group Statistics

	Gender	N	Mean	Std. Deviation	Std. Error Mean
Q16	male	257	1.80	.403	.025
	female	473	1.91	.291	.013

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Counseling on seat belt use	Equal variances assumed	69.931	.000	-4.219	728	.000	-.109	.026	-.160	-.058
	Equal variances not assumed			-3.843	404.125	.000	-.109	.028	-.165	-.053

4.5 Health information on health and safety

The next part of the questionnaire asked adolescents whether they heard or saw information regarding safety tips, the benefits of healthy diet and exercise and the risks of smoking or other substance abuse in the last twelve months. The aim of this question is to assess the availability of educational material, regardless of the source, that provided health information for adolescents. The sources that could provide this include doctors, health care providers, nurses, school health staff, books, magazines, internet and others. The majority of adolescents reported having seen or heard the information regarding the above mentioned topics within the past twelve months. Table 4.5 below summarizes the results.

Table 4.7 Health information seen or heard in the last twelve months

Health information topic	Yes (Frequency) n=730	%	No (Frequency) n=730	%
Safety tips	478	65.5	252	34.5
Healthy diet, Physical activity and exercise	620	84.9	110	15.1
Risks of smoking and substance abuse	578	79.2	151	20.7

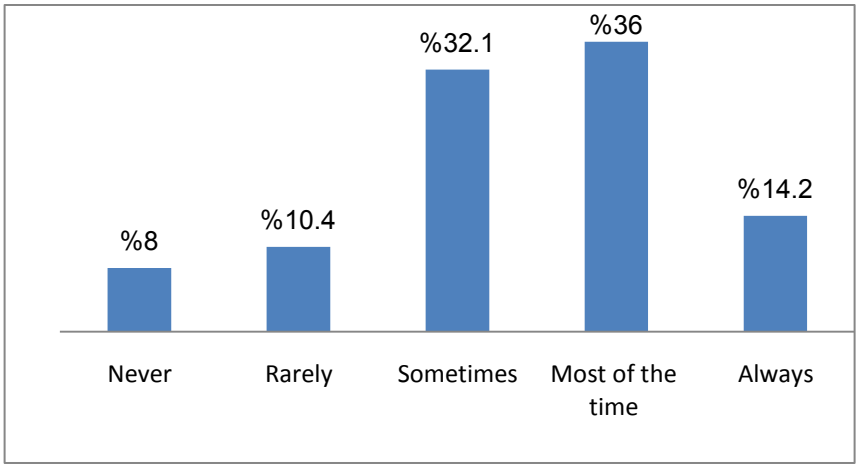
Independent t-test was performed to test the difference between the males and females and the level of health awareness through the health information they have seen or read in the past twelve months. No significant differences were noted among the two groups.

4.6 Adolescents' health care in the last twelve months

This part of the questionnaire asked adolescents about their experience with health care providers in regards to their helpfulness and communication skills in dealing with adolescents. The aim was to assess adolescents experience with the health care they receive from doctors and other health care providers. One question asked adolescents how often were office staff at a doctor's office or clinic in the last twelve months as helpful as they thought they should be. Half of the sampled adolescents thought that the staff were helpful (14.2% always, 35.5% most of the time). The responses varied for the rest of adolescents with 32.1% reported that they were helpful sometimes, 10.4% reported that they were

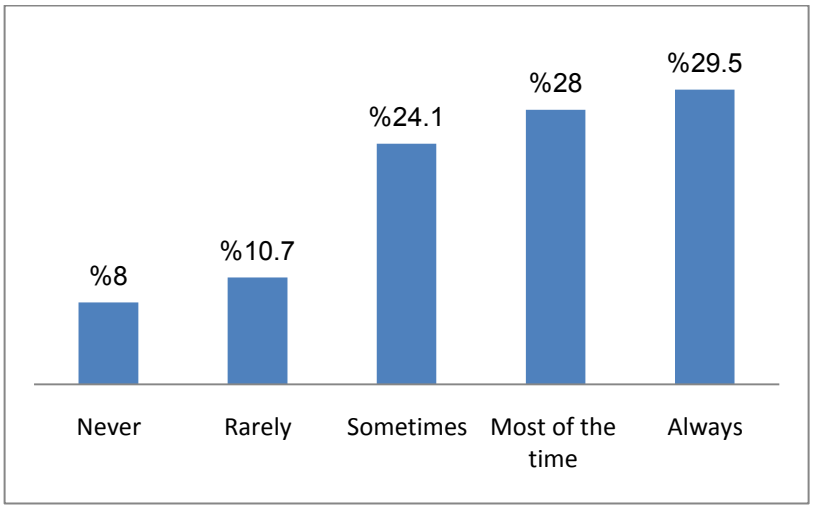
rarely helpful and 7.8% thought that the staff were never helpful. The mean response was sometimes. Results are presented in figure 4.2 below.

Figure 4.2 Adolescents responses to how often were office staff at a doctor's office or clinic as helpful as they thought they should be



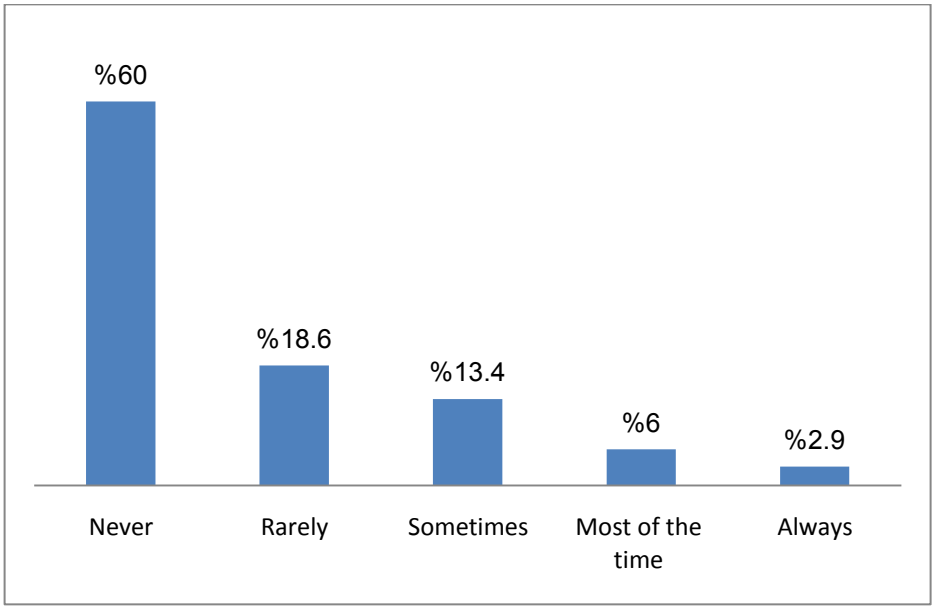
Next adolescents were asked to report on how often did doctors or other health care providers listen carefully to them. The aim of this question was to measure the listening skills of health care providers from the point of view of adolescents. More than half of the adolescents reported that doctors or other health care providers listened carefully to them (always 29.5%, most of the time 27.5%). Twenty four percent said that doctors listen to them carefully sometimes while 18.6% said that rarely did doctors listen carefully to them. Few adolescents (8.2%) said that doctors or other health care providers never listen carefully to them. Results are presented in figure 4.3 below.

Figure 4.3 Adolescents response to how often did doctors or other health care providers listened carefully to them in the last 12 months



Adolescents were then asked to report on how often they had a hard time speaking with or understanding a doctor or other health provider because they spoke different languages. The aim of this question is to assess whether adolescents perceive language as a barrier when communicating with their health care providers. The majority of adolescents (78.1%) reported having no hard time speaking with or understanding a doctor or health care provider (59.5% never, 18.6% rarely). The rest had some difficulty with 13.4% reported sometimes having a hard time, 5.6% reported having a hard time most of the time while 2.9 % reported having difficulty always. Results are presented in figure 4.4 below.

Figure 4.4 Adolescents response to how often did they have a hard time speaking with or understanding doctors and health care providers because they spoke different languages

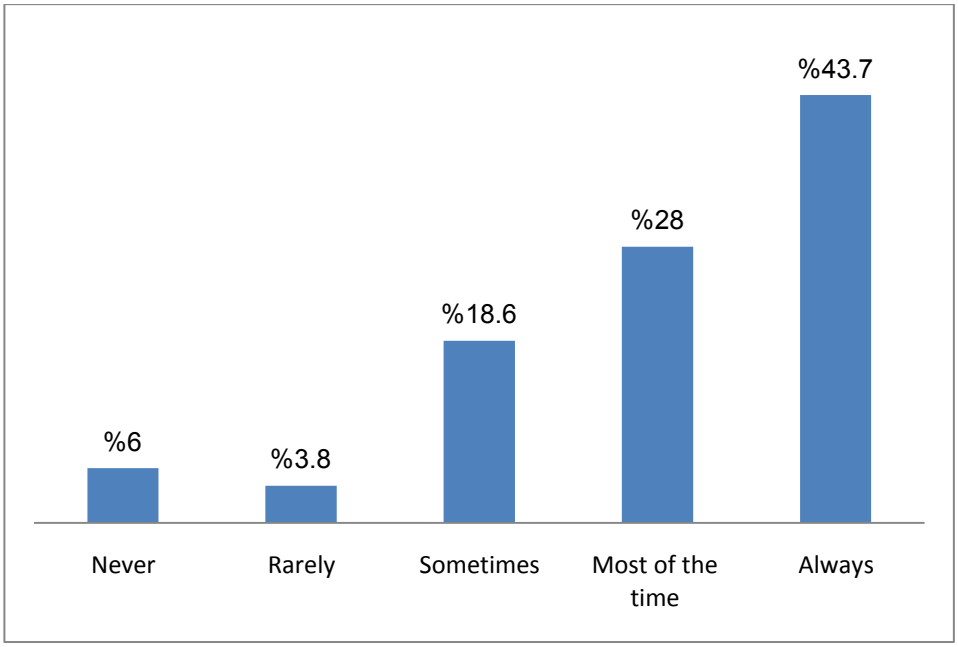


The next question asked adolescent how often did doctors or other health care providers explain things in a way they could understand in the last twelve months. The aim of this question was to assess whether the information provided by doctors and health care providers can be easily understood by the adolescents. Most adolescent responded that the explanation was understood (27.8% always, 32.2% most of the time) while 22.2% sometimes understood explanations. Few adolescents (8.8%) rarely understood explanations and 9% never understood their doctor or health care provider explanation.

Adolescents were then asked if doctors or health providers show respect for what they had to say in the last twelve months. This question aims to assess whether adolescents'

feel respected in their interaction with their doctors or health care providers. The majority of adolescents indicated that they were shown respect for what they had to say (43.7% always, 28.2% most of the time). Some (18.6%) indicated that doctors or health care providers showed them respect for what they had to say sometimes, 3.8% indicated that they were rarely shown respect while 5.6% indicated that they were never shown respect. Results are presented in figure 4.5 below. Males were found to be less satisfied than females in agreeing that doctors show them respect for what they had to say

Figure 4.5 Adolescents response to how often did doctors or other health providers show respect for what they had to say



Adolescents were then asked whether they had a serious health problem in the last twelve months that went untreated. The aim of this question was to assess adolescents experience with the availability of necessary medical care. Table 4.7 below summarizes the results.

Table 4.7 Untreated health problems among adolescents

		Frequency N=730	%
Serious health problem that went untreated in the last 12 months	Yes	115	15.8%
	No	615	84.2%

Then adolescents were asked if they have any specific health problem. The aim of this question was to evaluate the general health of adolescents. Out of 730 adolescents 124 (17%) reported having a specific health problem. They were further asked to specify this health problem. The answers of adolescents were varied and included anemia, asthma, eczema, diabetes, headache/migraine, obesity, muscle pain, dizziness, irregular periods and other conditions that were insignificant. Table 4.8 below presents the conditions.

Table 4.8 Specific health problems among adolescents

Health problem	Frequency n=730	%
Asthma	13	1.8
Anemia	10	1.4
Headache	7	1
Eczema	6	0.8
Muscle pain	4	0.5
Diabetes	3	0.4
Obesity	2	0.3

The last question asked adolescents to rate all health care in the last twelve months from all doctors and health care providers by choosing a number from a scale of zero to ten where zero is the worst health care possible and ten is the best health care possible. The aim of this question is to assess the provision of health care to adolescents from their own point of view. The average mean for the total responses is 7.09.

CHAPTER 5
DISCUSSION

5.1 Overview

This study sought to assess the provision of some preventive services that are required for adolescents in order to improve their health and limit risky behaviors that might have an impact on their health in later years. The study also assessed several quality measures that can help in improving the delivery of these services.

5.2 Response rate

In the initial stage of the study, the sample size number that was chosen was 1,000 adolescent and during data collection a total number of 1,000 questionnaires were distributed. However, after the data collection stage only 730 questionnaires were included in the study. The shortfall in the number of questionnaires from the intended 1,000 were due to the failure of the students to return back some of the questionnaires or to complete all the questions in the questionnaire. Another reason is the period of data collection which took place during the month of April 2009 and this overlapped with examination preparation periods in some schools where students, especially final year students, were not attending schools frequently. Out of the 1,000 questionnaires distributed 766 were returned. One school failed to return the questionnaires and after contacting them several times they informed me that they were misplaced and cannot be found. Out of those returned, 36 questionnaires were discarded because they contained incomplete data. However, the response rate of 73% is ideal to permit analysis and data reliability. The high number of response rate is due to the fact that the questionnaires were hand delivered to adolescents.

5.3 Health care utilization

Adolescents were asked about the last time they visited a doctor or health care provider for routine care. The aim of this question was to find out how frequent do adolescents visit a health care provider or clinician for routine care that does not include an acute or urgent problem. Although 64.2% of the sampled adolescents have been seen by a health care provider the rest either reported not having a well visit at all or had a well visit in the last two years. The ones who reported having had well visits were either seen in the school clinic for routine checkup or went for a checkup visit to the primary health care

centre accompanied by their parents who suggested the visit. The reason behind this could be the fact that there are still no well established guidelines that are developed and implemented only among adolescents that recommend scheduled yearly or regular well visits.

The study showed that the majority of adolescents go to hospitals and doctor's office or clinic for medical care. Hospitals include specialty clinics and those who visit hospitals are in most cases referred to be seen by a specialist for a specific cause. The same applies to a doctor's office or clinic which includes private clinics where any patient has direct access to the doctor, and patients visit only if they have a complaint. Moreover, 24% of adolescents reported seeking emergency room for medical care and are probably seen for an emergency case including an injury or an illness which are also seen in emergency rooms. Preventive services are seldom provided in these settings where patients are seen for a particular concern or disease and treated for it.

On the other hand, only 6% of the sampled adolescents attend primary health care clinics while 3% visit the school nurse. These findings suggest that primary health care clinics are underutilized by adolescents even though they play a major role in preventive services. The reason behind this may be due to the fact that the primary health care concept is not yet understood by the majority of people in Dubai who prefer secondary care even for mild ailments. The waiting time in primary health care clinics could be another cause for not attending, and this might discourage adolescents from attending as most of them are impatient and prefer private clinics and emergency rooms that have a shorter waiting time.

In comparison, a study that used the YAHCS in Snohomish County in USA (Young Adult Health Care Survey 2000) found that 70.8% of the adolescents sampled went to doctor's office or clinic for usual medical care and 22.4% went to a community health clinic or center. While the hospital emergency room was the least utilized with only 0.6% of the adolescents go there for usual medical care. The health care system in the USA is different than the one we have in Dubai. Emergency rooms only accept urgent cases that are life threatening and not mild complaints such as common cold. In Dubai government and private hospitals the case is different and patients with milder complaints as well as emergency cases can be seen in emergency rooms.

5.4 Preventive health and safety services provided to adolescents in Dubai

The findings of the study suggests that counseling and screening related to diet, weight, exercise, safety and prevention of risky behavior are lower than what is desired. One of the reasons could be due to the fact that most adolescents' visits with clinicians are not well health visits and as a result preventive health services are not always provided. However, some clinicians take this visit with an adolescent an opportunity to provide the basic preventive services.

5.4.1 Diet and exercise

Among the topics discussed, counseling related to healthy eating was the most discussed while using a helmet was the least topic discussed. Healthy eating is a popular issue and is discussed with adolescents not only through physicians but also through school health staff who conduct seminars and presentations regularly on this topic. Despite this, the number of adolescents who reported having a discussion about healthy eating is 39.2% which is considered low. The same applies to discussion of weight and physical activity. The commonest health issue among adolescents in the UAE is obesity which is a growing concern. Unhealthy eating habits and lack of physical activity should be well known to adolescents and counseling on these issues should be more provided. As mentioned previously, adolescents utilize the places with the least suitable settings for preventive services and this might be the reason why few receive counseling.

5.4.2 Safety issues

The number of adolescents reporting discussing helmet with their health care provider is very low. Counseling on using a helmet for safety is an important topic that is rarely discussed with adolescents. It is a common practice among adolescents in Dubai to ride motor bikes, especially on the outskirts of the city where bikes are available for rental and riding on the dunes. Some adolescents also ride bikes in their family or friends farms including males or females. Riding bicycles is also common among adolescents although not as popular as motor bikes. Using a helmet when riding a bike can prevent most injuries related to the head and spinal cord and reduces related mortality and this should be explained to adolescents by health care providers in order to reduce this risky behavior.

The findings also suggest that boys received counseling on helmet and drug use more than girls. This is expected as boys engage in these risky behaviors more than girls

and most health care providers neglect to discuss these issues with girls because of the perception that riding a motorbike is mostly associated mostly with males as well drug use. Some health care providers may not discuss drugs with either males or females because it is a sensitive issue especially if the adolescent is accompanied by a parent or guardian.

Similarly a study by Adams *et al.* (2009) that examined the rates and disparities in preventive health topics covered during routine medical care for adolescents found that only 20% reported discussing helmet use with their providers and that males were more likely to report it than females. The study also found that only 30% of adolescents discussed drug use with their providers. This suggests that even in USA where adolescents' preventive guidelines are well established, it is still below the recommended level.

5.4.3 Screening and counseling on risks of smoking

Findings from the study also show that not all adolescents were screened and counseled on the risks of smoking. Smoking is one of the most common risky behaviors that adolescents engage in despite the known hazards of smoking and the extreme measures taken by the government to limit the number of smokers and increase its risk awareness. All adolescents require screening and counseling on the risks of smoking. The findings also showed that males reported discussion of the risks of smoking more than females. Independent t test showed a p value is < 0.000 and as a result one should reject H_{o1} and conclude that there is a statistical significant between males and females in receiving counseling on smoking. This difference was expected given the cultural influences that might prevent health care providers from discussing this matter with females especially if they are accompanied by an adult. Similar results were also obtained from the YAHCS in Snohomish County (2000) where 25.1% of adolescents discussed smoking with their health care provider. The study by Adams, et al. (2009) in California showed that 29% of adolescents reported discussing tobacco with their providers. Health care providers everywhere although aware of the benefits of screening and counseling on the risks of smoking fail to provide this service to the majority of adolescents.

An interesting finding in the study is the number of adolescents who smoked cigarettes in the past twelve months. Surprisingly, only 9.6% of adolescents admitted to having smoked. This finding is extremely below what it was expected as previous research in Dubai and UAE have shown high a prevalence of smoking among adolescents (World

Health Organization 2006). It could be assumed that adolescents were reluctant to report smoking or were not completely honest out of fear as it is a sensitive issue and some adolescents may deny it, as it is widely inacceptable for adolescents to smoke from the legal and cultural point of view. The lack of openness from the adolescents' side in regards to smoking resulted in the under reporting of this risky behavior.

The study also found that not all adolescent smokers were provided with information on why and how to quit smoking. Irrespective of the health visit, if a physician detected that an adolescent smokes tobacco counseling on the risks and smoking cessation should take place. However, some adolescents reported that they did not tell their health care providers that they smoke cigarettes and as a result were not provided with this service. The Snohomish County YAHCS study (2000) showed that 26.3% of the sampled adolescents talked to their health care providers about how and why to quit smoking.

Although health care providers discussed quitting smoking with some adolescents not all of them thought this discussion was helpful. There could be many reasons behind this that may include the communication skills of the physician or other health provider, lack of proper delivery of information on quitting or the inconvenience of the quitting method that was suggested by the health provider. According to Blumenthal (2007) lack of time from the side of clinicians is a major barrier to the proper delivery of smoking cessation.

5.4.4 Screening and counseling on seat belt use

Adolescents' behavior regarding the wear of seat belt when driving or riding a car is unsatisfactory with a response mean average of sometimes and 13.7% reported never wearing seat belts. The aim of assessing seat belt wear among adolescents was to measure their behavior in order to provide a means for future improvements. Road traffic accidents are the second leading cause of death in the UAE secondary to cardiovascular diseases (World Health Organization 2006). Wearing seat belts is known to prevent the majority of road traffic accidents and reduce overall morbidity and mortality associated with it. Seat belts should be worn all the time while driving and sitting in the front passenger, although some studies recommend rear passengers to wear it too (Eid *et al.* 2009). In Dubai, seat belt regulations are developed by the Dubai Police and seat belt wear is mandatory for all drivers and front seat passengers. According to a researcher at the Roadway Transportation

and Traffic Safety Research Centre of the UAE University in 2007 seat belt use have reduced fatal injuries was associated with a significant reduction in morbidity. However, he also stated that the number of those who wear their seat belts is still low (Kazmi 2007).

The study found that only 13.2% of adolescents reported that their health care providers talked to them about the importance of wearing a seat belt. Males were counseled more than females and the independent t test showed a significant difference (p=0.000) which leads to rejection of $H_{o1.}$

Despite the known significance of seatbelt use in preventing road traffic accidents and the fact that it is a major concern; clinicians neglect to discuss this issue with their adolescent patients. The reason could be the fact that some health care providers do not think that it is their place to discuss the importance of seat belt use and is mainly conducted by other sources such as road traffic authorities, police and school health. The study by Adams, et al. (2009) found that 19% of adolescents reprted discussing seat belt use with their providers even though some organizations in USA, such as the American Academy of Family Physicians, recommend physicians to counsel adolescents on seat belt use (Stephens 2006).

5.5 Adolescents health awareness level

The findings of the study showed that the majority of adolescents are aware on the topics related to safety tips, healthy diet, exercise, risks of smoking and drug use in the last twelve months. These findings align with the findings of the YAHCS study in Snohomish County which yielded similar results (2000). The aim of acquiring this information is to assess the availability of educational material, regardless of the source, that provided health information for adolescents. The sources that could provide this include doctors, health care providers, nurses, school health staff, books, magazines, internet and others.

Because adolescents can easily access different health information topics by seeing or hearing them, it is important for health authorities to supervise the health materials that are made available to the public. This will ensure the availability of reliable and valid information that can provide accurate data.

5.6 Adolescents' experience with health care providers

The study findings showed that only half of the adolescents thought that staffs working in health care settings were helpful. This may be due to miscommunication

between the staff and adolescents or work related issues that keep the staff busy and unable to attend to adolescents' needs. Adolescents are considered a challenging age group and dealing with them can be tricky. However, it is important for staff working in health settings, whether a clinic or a doctor office, to create an adolescent friendly atmosphere where adolescents can feel comfortable and non-threatened.

Although more than half of the adolescents sampled reported that doctors always listened carefully to them, the rest reported differently. The doctor's listening and communication skills can have an impact on the outcome of the consultation with adolescents. Most patients' complaints about doctors are related to problems of communication and not with clinical competency. One of the commonest complaints is that doctors do not listen carefully to patients during consultation (British Medical Journal 1998). Cole and Bird (2000) stated in their book The Medical Interview that "patients will usually continue speaking when they feel their physician is listening". When dealing with adolescents, doctors need to gather some information that may be valuable and serve as a mean for further screening and intervention. A useful opportunity for detection of risky behavior can be missed from failure to listen carefully. Moreover, adolescents may not discuss some important issues if they feel that their physician is not listening carefully. Doctors who indicate willingness to listen and maintain an attentive and interested body posture are more likely to instill confidence and trust in their patients (Cole and Bird 2000). However, these skills are sometimes neglected by some physicians as were found by some studies (British Medical Journal 1998).

Speaking a different language than their health providers was not considered a problem to 78.1% of adolescents who reported no hard time in understanding or speaking to their doctors or health care providers. On the other hand, the results of the YAHCS study in Snohomish County (2000) showed that 94.3% of adolescents never had a hard time speaking or understanding a doctor or other health care provider because they spoke different languages. In contrast to the USA where the majority of the adolescents and health providers speak English, UAE has a more diverse population and a wide variety of different cultural groups. Although language barrier is not considered a significant problem among the residents of Dubai as the majority of people living and studying in Dubai speak English which is the language used by non Arabs and Arabs to communicate regardless of the

nationality some difficulties may arise. Language was shown to have a substantial influence on the quality of the doctor patient relationship and the effectiveness of their communication (Ferguson and Candib 2002). In order to provide the best preventive services, communication with adolescents should be optimal in order to counsel them on their health and wellbeing and provide them with the necessary information that can help them in improving their habits. Effective communication with patients has shown improvement in outcome measures such as patient satisfaction and adherence to treatment (Ferguson and Candib 2002).

Findings of the study also showed that 60% of adolescents reported that doctors or other health care providers always explained things in a way they could understand. This suggests a lack of proper information delivery between some adolescents and their health care providers. Health information should be given to patients regardless of their age in a clear simple manner that can be easily understood.

Further findings showed that 71.9% of adolescents were always or most of the time shown respect by their doctor or health care provider. Findings of the YAHCS Study in Snohomish County (2000) showed that 82.2% of adolescents reported that the doctors or other health providers always showed respect for what they had to say. It should be taken into account that in Dubai the health care providers constitute a wide variety of individuals belonging to different ethnicities and cultural groups. This may lead to miscommunication or misunderstanding between them and the adolescent population. Health care providers may deal differently with youths belonging to their ethnic group as communication may be easier and effective rather than youths from different ethnic or cultural group and in some cases might be interpreted by adolescents as not showing them respect. However, showing adolescents respect can transform the medical encounter and make adolescents respect and trust their health care provider resulting in better health outcomes. Health care providers should be respectful and non judgmental towards adolescents and make them feel independent and involved in their own health decisions. This could greatly influence the medical visit and lead to better outcomes.

The adolescents in the study were asked to report on the availability of medical care and their health status. About sixteen percent of adolescents reported that they had a serious health problem in the last twelve months that went untreated. Compared to the

YAHCS study results in 2000, only 9.5% reported that they had an untreated serious health problem. It should be taken into account that the seriousness of the health problem is a subjective matter from the point of view of adolescents. These serious health problems might have been undetected by their health care providers or misdiagnosed. Although errors can occur in Medicine and physicians often fail to diagnose some serious diseases, this can have an impact on future interactions with the health care system and might affect the doctor patient relationship. In the case of adolescents, they might lose trust and faith in doctors or health care providers as well as the overall health system. As a result, their access to care may be affected as well as their adherence to follow the recommendations of their health providers on issues related to improving their health.

The general health of the sampled adolescents was good with 17% reporting having a specific health problem. These problems varied and included several conditions that were mostly controllable and treatable. The most common problem reported was asthma which is a common health problem in the UAE and Dubai in particular. Although no studies published on the prevalence of asthma in Dubai, a study conducted in Al Ain city in 2009, found that the prevalence of asthma is increasing among adolescents and adults with a prevalence rate of 13% (Alsowaidi et al. 2009). Diabetes was the second common problem among the sampled adolescents, which is also a common health problem in the UAE where a high prevalence of diabetes was reported and is increasing (Saadi et al. 2007). Taking into account the common problems that affect adolescents, health authorities can tailor preventive programs specific for the control of these problems and measures to decrease complications. This includes diabetes which is known to have severe complications if not controlled. Educating affected adolescents on the proper management and control can help them improve the progress of the disease and limit its complications later in life.

The study found that the average mean of seven, on a scale from zero to ten, was reported by adolescents as a rating for the health care they received in the last twelve months. The aim of asking adolescents to rate their health care is to evaluate the effectiveness of health care in catering to the needs of adolescents for future quality improvement purposes. Several factors could have influenced the responses of adolescents including their personal experience with physicians, nurses or school health staff, the quality of the health care setting that adolescents access and the outcome of the care they

received. Adolescents' satisfaction with health care and health care providers is associated with intention to adhere to their follow-up appointments (Freed et al. 1998). Health care provider behaviors also play a role in adolescents' satisfaction with health care (Freed et al. 1998). It was also found that adolescents' satisfaction with health care increases their adherence to medical treatment (Mah et al. 2006). Improving the delivery of health care to adolescents is important in order to create adolescent friendly service, leading to better adolescent health in Dubai.

Finally, the findings of the study suggest that some preventive health services that were evaluated in this study are not optimally delivered to adolescents and to the level required. Screening for risky behavior including smoking and drug use as well as counseling on health issues are not performed as much as needed. Safety issues regarding seat belt use and wearing a helmet were the least to be discussed with adolescents although road traffic injuries are a major concern in the UAE. Provision of preventive health services is required by all physicians and health care professionals dealing directly with adolescents whether in hospitals, community health centers or school based clinics. However, the majority of adolescents access secondary hospital care or private doctors' office where preventive health services are not always provided. Furthermore, the study implies that more care and attention should be given to health care providers' communication skills during their consultation with adolescents in order to improve the outcome of the visit. Language barrier between adolescents and health care providers was also reported in the study and might have influenced adolescents experience with the health care they receive.

CHAPTER 6
CONCLUSIONS AND RECOMMENDATIONS

This section presents the overall study conclusions and the implications of the study findings. It also presents strategies to improve the delivery of preventive health services that can be taken into consideration. Implications for future research are also discussed in order to fill the gaps that were identified in this study.

6.1 Summary of the study

This study aimed to assess the provision of some preventive health services to adolescents in Dubai. The study expected to find out to what extent do health care providers counsel adolescents on some health promotion topics such as weight, healthy diet, physical activity and some risk reduction topics such as smoking, drug use and injury prevention. It further measured adolescent health care utilization and their health awareness on common health issues including healthy diet, exercise and risks of smoking and drug use. In addition, it evaluated the adolescents' experience with their health care providers in terms of helpfulness and the providers' communication skills.

The study was carried out in the Emirate of Dubai in the United Arab Emirates. Data was collected through a self administered questionnaire that was adapted from the Young Adult Health Care Survey in the United States (Klein and Peck 2001) , which is a tool developed to measure how well the health care system provides adolescents with recommended preventive care. Eleven schools were included in the study with a sample of seven hundred thirty adolescents and a response rate of seventy one percent.

6.2 Study conclusions

The study findings showed that not all adolescents had routine well health visits in the last twelve months. The study also showed that the majority of adolescents accessed hospitals and doctors' office or clinic for their medical care. Primary health care clinics were underutilized by the adolescents in the study. This is an indication that improvements should be made regarding increasing adolescents' utilization of the primary health care centers which are the most suitable settings for providing preventive health services.

The study has established that the rate of counseling on some health issues is low. Adolescents reported that their health care providers did not always talk to them about healthy diet, weight, exercise, helmet use and drug use. Discussion of health providers with adolescents regarding smoking cigarettes, and ways to quit smoking among those who smoked was also not sufficient. The rate of counseling on seat belt use when driving or riding a car was also low. This implies that adolescents are not receiving sufficient health promotion and counseling about risks and risky behavior according to their own reports.

The study shows that the health awareness of adolescent on benefits of healthy diet and physical activity, smoking and substance abuse were good. Health awareness on safety such as seat belt use or violence prevention ranked the lowest.

The study also shows that not all adolescents think that the staffs working in a doctor office or clinic were helpful as they should be. Half of the adolescents only reported that their doctor or health care provider listened carefully to them most of the time. The majority of adolescents did not have a hard time speaking with or understanding doctors or health care providers because of speaking different languages. Furthermore, more than half of the adolescents reported that their doctors or health providers explained things in a way they can understand most of the time. The majority of adolescents reported that their health care providers showed respect for what they had to say most of the time.

This study further inquired about adolescents' general health. Only few reported ever having a serious health problem that went untreated. Moreover, few adolescents reported having a specific health problem. Adolescents were asked to rate the health care they have received during the last twelve months, in order to evaluate the health care provided to this age group from their point of view. The average response was seven on a scale from zero to ten where zero is the worst health care possible and ten being the best health care possible.

It is clear from the study findings that some adolescent preventive services are not optimally delivered to adolescents in Dubai. Several barriers could be the reason behind as was mentioned previously this and may include time constraints, clinicians training, skills and attitudes. It was also evident from the study that counseling on risky behaviors ranked the lowest compared to other health issues.

In summary findings from this study suggest the need to improve the delivery of adolescents' preventive health services on some health issues common among adolescents in Dubai. Efforts are required to improve adolescents' utilization of preventive services and improve the quality of care issues related to the health provider and adolescent relationship. Health authorities and policy makers in Dubai and the UAE should consider the need for national guidelines and programs regarding preventive health services for adolescents. Training clinicians and health providers on dealing with adolescents on skills required for optimal delivery of preventive health services is essential.

6.3 Limitations of the study

This study has addressed an important public health issue related to adolescents' health. However, several limitations of the study need to be highlighted. First, time constraints were a limitation and a difficulty in this study as the time to finish the study was limited as well as the data collection period which took place in the month of April 2010 which was near the end of the academic year for some schools and many senior high school students were not available and as a result many questionnaires were not returned decreasing the response rate. Another limitation is the difficulty accessing some English private schools that were not cooperative and did not reply or agree to conduct the study at their school and as a result the schools sample included one English private school only. A further limitation is the unavailability of previous published research that addressed the same topic in the UAE or other Arabic countries. Most of the research found was conducted in the USA where the population characteristics are different from the population in Dubai and adolescents' related health issues differ in some aspects.

Despite the mentioned limitations, the findings of the study are useful in emphasizing the status of adolescent preventive health services in Dubai and providing a basis for future research in this area.

6.4 Study Recommendations

Several recommendations need to be considered in order to increase the delivery of preventive health services to adolescents and to improve the health of today's adolescents and tomorrow's adults. Most health conditions during adolescence are preventable,

however, when they occur they can have an overwhelming effect on the lives of adolescents, their families and the community they belong to. A broad prevention approach is required and should involve all the groups that are part of and influence adolescents' lives. These include policy makers schools, the media, families and health care professional.

6.4.1 Recommendations for policy makers

There is a need for the Dubai Government and Dubai Health Authority to increase the efforts in order to establish adolescent friendly centers and adolescent friendly health services. It is hoped that findings from this study could help in providing a realistic image of the current situation in preventive health services and help in advocating for the health needs of adolescents in order to convince health care decision makers to invest in the health of adolescents.

- **Establishing adolescent friendly health services**

Adolescent-friendly clinics can be established as a part of the primary health care center or part of a hospital. These clinics can provide adolescents with comprehensive, interdisciplinary and age appropriate services in an adolescent friendly setting where adolescents' health needs can be addressed properly. Preventive health services could be provided extensively in these clinics and on a routine basis for all adolescents. Collaboration with other primary and community health centers and hospitals should also be taken into consideration in order to facilitate the referral of adolescent patients between these settings. Several countries, including the USA, have well established adolescent clinics for their adolescent clients. Lessons could be learnt from other health systems that have successful well established adolescent friendly services and can serve as a model to the current health system in Dubai

It is important for adolescent advocates to persuade health decision makers realistically on the importance of adolescent-friendly services that provide preventive health services for adolescents. Governments and health authorities may not be willing to invest in these preventive services because of the long standing financial benefits associated with these kinds of services.

- **Strengthening the role of school health services in providing preventive services for adolescents**

School health services are an important component in the delivery of preventive health care services. These services need to be adolescent friendly and provide a wide range of preventive health services in a convenient and accessible setting. Adolescents spend most of their time in school and as a result counseling and screening services could be provided regularly and intensively. School health services should be more involved in issues related to unhealthy behaviors such as eating unhealthy diet, physical inactivity and smoking cigarettes. Forces need to be joined by the school health department and the school administration and policies regarding regular monitoring and screening for unhealthy and risky behavior should be initiated. The current situation in Dubai school health services in regards to preventive health services involves health education on common health issues and immunization. Although screening for smoking and height and weight examination take place, there are still no firm interventions that take place to reduce the risky behavior. Recommendations on healthy diet are given to schools and most schools do not sell chocolates and carbonated beverages in their cafeterias, however efforts to provide appealing healthy food to adolescents is rarely provided. This results in students purchasing their snacks outside the school premises and bringing them to schools.

Furthermore, The Dubai Health Authority should strengthen the role of the school health department and provide them with updated tools for the delivery of preventive health services. School administration need to cooperate with the school health department and provide them with the appropriate setting and hours to carry out preventive health services.

6.4.2 Recommendations for practitioners and health care providers

- **Improving health care providers' communication skills**

According to the study findings, adolescents' satisfaction with their health care providers communication skills need to be improved. Health care professionals dealing with adolescents need to be more aware and skillful in the concepts of adolescent health in order to effectively gain rapport with adolescents and provide them with the necessary screening and health promotion services.

Efforts need to be considered by Dubai Health Authority to provide these health care professionals with appropriate training in communication skills to be more competent when dealing with adolescent consultation issues. Adolescents need further skills in order to deal with them effectively as they are considered a challenging group to health care providers. Workshops on improving doctors' communication skills are regularly performed in Dubai. However, these courses teach communication skills in general and no emphasis is made on dealing with adolescents' communication issues which are needed to be considered.

- **Increase the delivery of preventive services that focus on safety and injury prevention**

The study found that counseling on safety issues was the least performed by health care providers and it is well known that road traffic accidents are the second leading cause of death in the UAE. More emphasis should be made on the provision of safety tips such as wearing seat belts and helmets and the risks of careless driving. Involving other organization such as Dubai Police and The Road and Traffic authority is needed in order to increase adolescents' awareness on the risks of unsafe and risky driving behaviors. These safety measures could help in improving the driving habits of tomorrow's adults and help in reducing the fatalities related to road traffic accidents. It is necessary to change the behavior of future drivers through media campaigns and health education early on.

6.4.3 Recommendations for future research

The study addressed an important public health issue by focusing on adolescents' preventive health services provided in the Emirate of Dubai. The Dubai Health Authority is continuously improving its services in order to keep up with the fast growing community in Dubai in order to provide its citizens the best updated health care available. However, many challenges arise and one of the challenges that face health care providers is the delivery of preventive services in addition to the curative services which constitute the majority of the health care services. In the recent years preventive services has gained an importance among health care professionals in Dubai and people are recently becoming more aware of its importance.

More research is required in the field of delivery of preventive services to adolescents in Dubai. Because of the major health concerns among adolescents in the UAE such as obesity and smoking, investing in reducing these health risks can prevent adult morbidity and mortality in the coming years. This should be demonstrated by a valid and reliable measure that can provide accurate information on the impact of these health concerns on the long run.

Further research is needed in the following areas:

1. Conducting and collecting baseline data on the current health situation of adolescents in Dubai.
2. Implementing a health promoting program in schools in Dubai and measuring its effectiveness and applicability among adolescents in order to design a strategy to improve adolescents' health.
3. Explore the barriers that prevent health care professionals from providing adolescents with the required preventive health services.

APPENDIX A: QUESTIONNAIRE (ENGLISH VERSION)

Personal Background

1. How old are you?

1 ☐ 14 years old
2 ☐ 15 years old
3 ☐ 16 years old
4 ☐ 17years old
5 ☐ 18 years old or older

2. Are you a male or female?

1 ☐ Male
2 ☐ Female

3. What grade are you in now?

1 ☐ 10th grade
2 ☐ 11th grade
3 ☐ 12th grade

4. What is the main language spoken at home?

1 ☐ Arabic
2 ☐ English
3 ☐ Persian
4 ☐ French
5 ☐ Other (*Please Specify*)_____

5. What are your average grades in school?

1 ☐ (90 – 100)
2 ☐ (80 - 89)
3 ☐ (70 – 79)
4 ☐ (60 - 69)
5 ☐ (59 or below)

Health Care Utilization

6. When was the last time you went to a doctor or other health care provider for regular or routine care?

I did not go to a doctor or clinic for a regular check-up	1
0-6 months ago	2
7-12 months ago	3
13-24 months ago	4
more than 2 years ago	5

7. Where do you go usually for medical care?

Doctor's office or clinic	1
School Nurse	2
Primary/Community Health Center	3
Hospital	4
Hospital emergency room	5
No one usual place	6

Health and safety

8. In the last 12 months did a doctor or health provider talk to you about any of the following?

Weight	Yes	No
Healthy eating or diet	Yes	No
Physical activity or exercise	Yes	No
Using a helmet when riding a bicycle or motor bike	Yes	No
Drug use	Yes	No

9. In the last 12 months, did you and a doctor or other health provider talk about cigarettes or smoking?

1 ☐ Yes
2 ☐ No (go to question 11)

10. How helpful was this discussion in understanding the risks of cigarettes or smoking to your health?

Not at all helpful	1
Somewhat helpful	2
Helpful	3
Very helpful	4
Not sure	5

11. In the last 12 months, have you ever smoked cigarettes?

1 ☐ Yes
2 ☐ No (go to question 15)

12. How many cigaretters do you smoke?

1 ☐ Less than 10 cigarettes
2 ☐ 10-20 cigarettes
3 ☐ more than 20 cigarettes

13. In the last 12 months, did you and a doctor or other health provider talk about how and why to quit smoking (such as setting a date to quit)?

1 ☐ Yes
2 ☐ No (go to question 15)
3 ☐ No, because I did not tell my doctor or health provider that I have smoked cigarettes (go to question 15)

14. How helpful were your discussions in quitting smoking?

Not at all helpful	1
Somewhat helpful	2
Helpful	3
Very helpful	4
Not sure	5

15. How often do you wear a seat belt when riding or driving in a car?

Never	1
Rarely	2
Sometimes	3
Most of the time	4
Always	5

16. In the last 12 months, did you and a doctor or other health provider talk about the importance of wearing a seat belt?

1 ☐ Yes
2 ☐ No

Health Information

17. In the last 12 months, did you see or hear information that provided safety tips for you ? (such as seat belt use or violence prevention)

1 ☐ Yes
2 ☐ No

18. In the last 12 months, did you see or hear information about the benefits of healthy diet, physical activity or exercise?

1 ☐ Yes
2 ☐ No

19. In the last 12 months did you see or hear information about the risks of smoking or other substance abuse?

1 ☐ Yes
2 ☐ No

Your Health Care in the last 12 months

20. In the last 12 months, how often were office staff at a doctor's office or clinic as helpful as you thought they should be?

Never	1
Rarely	2
Sometimes	3
Most of the time	4
Always	5

21. In the last 12 months, how often did doctors or other health providers listen carefully to you?

Never	1
Rarely	2
Sometimes	3
Most of the time	4
Always	5

22. In the last 12 months, how often did you have a hard time speaking with or understanding a doctor or other health provider because you spoke different languages?

Never	1
Rarely	2
Sometimes	3
Most of the time	4
Always	5

23. In the last 12 months, how often did doctors or other health providers explain things in a way that you could understand?

Never	1
Rarely	2
Sometimes	3
Most of the time	4
Always	5

24. In the last 12 months, how often did doctors or other health providers show respect for what you had to say?

Never	1
Rarely	2
Sometimes	3
Most of the time	4
Always	5

25. In the last 12 months, have you ever had a serious health problem that went untreated?

1 ☐ Yes
2 ☐ No

26. Do you currently have any specific health problem(s)?

1 ☐ Yes (please specify:_____)
2 ☐ No

27. We want to know your rating of all health care in the last 12 months from all doctors or other health providers. Use any number from 0 to 10, where 0 is the worst health care possible and 10 is the best health care possible. How would you rate all of your health care? **Circle one**

Worst health care possible best health care possible

0 1 2 3 4 5 6 7 8 9 10

Thank you very much for answering this questionnaire ☺

APPENDIX B: QUESTIONNAIRE (ARABIC VERSION)

التقييم الكمي لبعض الخدمات الصحية الوقائية المقدمة
للمراهقين في دبي في عام 2010

البيانات الشخصية

1 - ما هو عمرك؟

14 عام		1
15 عام		2
16 عام		3
17 عام		4
18 عام		5

2 - ذكر أم أنثى؟

ذكر		1
أنثى		2

3 - في أي صف أنت؟

الصف العاشر		1
الصف الحادي عشر		2
الصف الثاني عشر		3

4 - ما هي اللغة الأساسية التي تتحدثها في المنزل؟

العربية		1
الإنجليزية		2
الفارسية		3
الفرنسية		4
غير ذلك (يرجى تحديد اللغة) ----------		5

5 - ما هو متوسط الدرجات التي تحصل عليها في المدرسة؟

(100 – 90)		1
(89 – 80)		2
(79 – 70)		3
(69 – 60)		4
(59 أو أقل)		5

استخدام الرعاية الصحية

6 - متى كانت المرة الأخيرة التي ذهبت فيها إلى الطبيب أو إلى مقدم الرعاية الصحية لإجراء الفحص المعتاد أو الروتيني ؟

1	لم أذهب إلى الطبيب أو العيادة لإجراء الفحص المعتاد
2	خلال الأشهر الست الماضية
3	منذ 7 – 12 شهر
4	منذ 13 – 24 شهر
5	منذ أكثر من عامين

7 - أين تذهب عادة للحصول على الرعاية الصحية؟

1	مكتب الطبيب أو عيادته
2	ممرضة المدرسة
3	مركز الرعاية الصحية الاولية
4	المستشفى
5	غرفة الطوارئ بالمستشفى
6	ليس هناك مكان معتاد واحد

الصحة والسلامة

8 - على مدار 12 شهراً الماضية هل تحدث إليك الطبيب أو مقدم الرعاية الصحية عن أي مما يلي؟

الوزن	نعم	لا
الطعام الصحي أو النظام الغذائي	نعم	لا
النشاط الرياضي أو ممارسة الرياضة	نعم	لا
استخدام الخوذة عند ركوب الدراجة أو الدراجة البخارية	نعم	لا
اضرار المخدرات	نعم	لا

9 - على مدار 12 شهراً الماضية هل تحدث إليك الطبيب أو مقدم الرعاية الصحية عن السجائر أو التدخين؟

نعم		1
لا (اذهب إلى السؤال 11)		2

10 -إلى أي مدى ساعدتك تلك المناقشات على فهم المخاطر الحقيقية المتعلقة بالسجائر أو التدخين على الصحة؟

1	لم تكن مفيدة على الإطلاق
2	مفيدة إلى حد ما
3	مفيدة
4	مفيدة للغاية
5	لست متأكدًا

11 -على مدار 12 شهراً الماضية، هل دخنت السجائر ؟

1		نعم
2		لا (اذهب إلى السؤال 15)

12 -ما هو عدد السجائر التي دخنتها؟

1		أقل من 10 سجائر
2		10 – 20 سيجارة
3		أكثر من 20 سيجارة

13 -على مدار 12 شهراً الماضية، هل تحدثت مع الطبيب أو مع مقدم الرعاية الصحية عن كيفية الإقلاع عن التدخين وأسباب ذلك (مثل تحديد موعد للإقلاع عن التدخين على سبيل المثال)؟

1		نعم
2		لا (اذهب إلى السؤال 15)
3		لا، لأنني لم أخبر طبيبي أو مقدم الرعاية الصحية الخاص بي أنني قمت بتدخين السجائر

14 -إلى أي مدى ساعدتك تلك المناقشات في الإقلاع عن التدخين؟

1	لم تكن مفيدة على الإطلاق
2	مفيدة إلى حد ما
3	مفيدة
4	مفيدة للغاية
5	لست متأكدًا

15 -هل أنت معتاد على ارتداء حزام الأمان أثناء قيادة السيارة أو ركوبها؟

1	مطلقًا
2	نادرًا
3	أحيانًا
4	معظم الوقت
5	دومًا

16 -على مدار 12 شهراً الماضية، هل تحدثت مع طبيبك أو مع مقدم الرعاية الصحية عن أهمية ارتداء حزام الأمان؟

1		نعم
2		لا

معلومات عن الصحة

17 -على مدار 12 شهراً الماضية، هل رأيت أو سمعت معلومات قدمت لك نصائح عن السلامة؟ (مثل استخدام حزام الأمان أو الوقاية من العنف)

1		نعم
2		لا

18 -على مدار 12 شهراً الماضية، هل رأيت أو سمعت معلومات عن مزايا تناول الطعام الصحي، أو ممارسة النشاط البدني أو الرياضة؟

1		نعم
2		لا

19 -على مدار 12 شهراً الماضية، هل شاهدت أو سمعت معلومات عن مخاطر التدخين أو إدمان أي مادة أخرى؟

1		نعم
2		لا

الرعاية الصحية الخاصة بك على مدار 12 شهراً الماضية

20 -على مدار 12 شهراً الماضية، إلى أي مدى رأيت أن العاملين في مكتب الطبيب أو العيادة يقدمون المساعدة وفق ما يفترض بهم؟

1	مطلقًا
2	نادرًا
3	أحيانًا
4	معظم الوقت
5	دومًا

21 -على مدار 12 شهراً الماضية، إلى أي مدى استمع الأطباء أو مقدمو الرعاية الصحية بانتباه إليك؟

1	مطلقًا
2	نادرًا
3	أحيانًا
4	معظم الوقت
5	دومًا

22 -على مدار 12 شهراً الماضية، هل واجهت صعوبة في التحدث مع الطبيب أو مقدم الرعاية الصحية أو فهمه لأنك تتحدث لغة أخرى؟

1	مطلقًا
2	نادرًا
3	أحيانًا
4	معظم الوقت
5	دومًا

23 -على مدار 12 شهراً الماضية، إلى أي مدى استطاع الأطباء أو مقدمو الرعاية الصحية شرح الأمور لك على نحو تفهمه؟

1	مطلقًا
2	نادرًا
3	أحيانًا
4	معظم الوقت
5	دومًا

24 -على مدار 12 شهراً الماضية، هل أبدى الأطباء أو مقدمو الرعاية الصحية احترامهم لما تقول؟

1	مطلقًا
2	نادرًا
3	أحيانًا
4	معظم الوقت
5	دومًا

25 -على مدار 12 شهراً الماضية، هل واجهت مشاكل صحية حقيقية لم يتم التعاطي معها أو علاجها؟

1		نعم
2		لا

26 -هل تعاني في الوقت الحالي من مشاكل صحية معينة؟

1		نعم (رجاء حدد: ----------)
2		لا

27 -نود أن نعرف تصنيفك لمستوى الرعاية الصحية التي حصلت عليها على مدار 12 شهراً الماضية من كافة الأطباء ومقدمي الرعاية الصحية. استخدم أي رقم من "صفر" إلى "10"، بحيث يكون الرقم صفر هو التصنيف الأسوأ والرقم 10 هو التصنيف الأفضل للرعاية الصحية. كيف تصنف الرعاية الصحية بوجه عام؟ ضع دائرة حول الرقم المناسب في رأيك

أعلى تصنيف للرعاية الصحية أسوأ تصنيف

0 1 2 3 4 5 6 7 8 9 10

☺نشكرك كثيرًا على الإجابة على هذا الاستبيان

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