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Adolescents in Arab countries: Health statistics and social context

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INTRODUCTION

In recent years, international organizations and researchers have paid increased attention to the health of adolescents, recognizing that the current generation of young people is the world's largest ever. Although youth is commonly regarded as a healthy period in life, more than 1.4 million adolescents (aged 10-19) are estimated to die each year (97% of these deaths occur in low and middle-income countries), and an even greater number suffer from illnesses.[1,2] Adolescence coincides with major changes that affect the determinants of adult health, and many adult health conditions are related to factors that develop during adolescence.[3] The World Health Organization (WHO) estimates that nearly two-thirds of premature deaths, and one-third of the burden of disease in adulthood, are associated with conditions or behaviors that began in youth[4].

Global health and development goals and policies on adolescents build on reports that highlight the major causes of death and ill-health among adolescents around the world. These include maternal conditions (accounting for 15% of adolescent female deaths globally), traffic accidents and violence (14% and 12% respectively of adolescent male deaths), HIV and tuberculosis (11% of adolescent deaths), and mental health conditions (thought to occur among 20% of young people). The risk factors for DALYs (disability-adjusted life years) among adolescents at the global level include alcohol, unsafe sex, iron deficiency, lack of contraception, and illicit drug use[4].

In this paper, we examine the extent to which these causes of ill-health at the global level apply to adolescents in the Arab world, and we explore whether some of the differences reflect the particular historical, socioeconomic, and cultural conditions of the region. Reviewing the evidence on the health of adolescents in countries of the Arab region is especially relevant given that countries in the region have seen large increases in the number of young people at a time of dramatic social, economic and political change. The paper is split into three parts. The first part reviews the basic demographic and epidemiological evidence to draw out the main causes of death and disability among adolescents in the region. In the second part, we focus on four major causes of ill-health among adolescents, namely: weight/nutrition, injuries and violence, tobacco and alcohol, and mental health issues. The third part of the paper provides a discussion of the health of adolescents in the context of the major socioeconomic and cultural factors that shape their lives—in particular the mismatch between education and employment opportunities, the changing construction of gender, and their implications for adolescents' perspectives on their future.

PART 1. BASIC DEMOGRAPHIC AND EPIDEMIOLOGIC EVIDENCE

1.1. The "youth bulge" and changing family formation patterns

In addition to important commonalities in language, culture, religion, and geography, the 22 countries in the Arab League[a] share some demographic characteristics related to population increase, age

[a]The main focus of the paper is on the Arab region, comprised of countries that are members of the Arab League. We occasionally refer to the MENA region, as defined in the Burden of Disease project, and to the Eastern Mediterranean region (EMRO), as defined by the World Health Organization, which are largely similar, but not exactly identical, groupings of countries. See Appendix for the lists of countries included under each of these.

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structure and marriage patterns. Over the past 40 years, the population living in Arab countries has nearly tripled, climbing from around 128 million in 1970 to an estimated 359 million in 2010.[5] The age structure of the population is still "young" relative to other parts of the world. More than half (54%) are still under age 25, compared with an estimated 48% for developing countries and 29% for developed countries. While the "youth bulge" as a proportion of the population appears to have peaked around 2005,[6] the continued population growth has resulted in an unprecedented number of young people in the region. These numbers are expected to continue to grow from a 2010 estimated 121 million children and 71 million young people (aged 15-24) to a projected combined total of 217 million children and youth by 2050.[5] Countries with the youngest populations include the Occupied Palestinian Territory, Somalia, and Yemen, all of which had an estimated median age of 17-18 years in 2010.

Many adolescents in the region will experience a life trajectory with regard to family formation that is markedly different than their parents and grandparents. Rashad and colleagues note that while universal marriage and early marriage for girls were once the norm in much of the region, the average age at marriage has increased considerably for both women and men in many Arab countries over a relatively short period of time. For example, that in 1975, a majority (57%) of girls aged 15-19 in the United Arab Emirates had already married, but twenty years later (by about 1995) that figure had dropped to 8%. Large declines have occurred in many other Arab countries, such as in Libya (from 40% to 1%) and Kuwait (38% to 5%).

Economic barriers have contributed to the rising age of marriage in some Arab countries. The high cost of marriage combined with economic stagnation, housing shortages and high unemployment among young people has forced many to delay marriage in some settings.[7] Even in rich countries of the Gulf and peninsula, economic barriers to marriage have become severe enough that governments in Bahrain, Qatar, Saudi Arabia, and the United Arab Emirates have begun to provide economic incentives to young people who wish to marry. In all countries of the region, many young men have to wait for years before they are able to save enough to marry. In addition to marrying later, rising numbers of Arab women are not marrying at all, which poses challenges given women's traditional roles as wives and mothers.

There is, in fact a marked contrast between those countries where early marriage has virtually disappeared, and those, mostly lower income countries, where early marriage persists (see Figure 1).

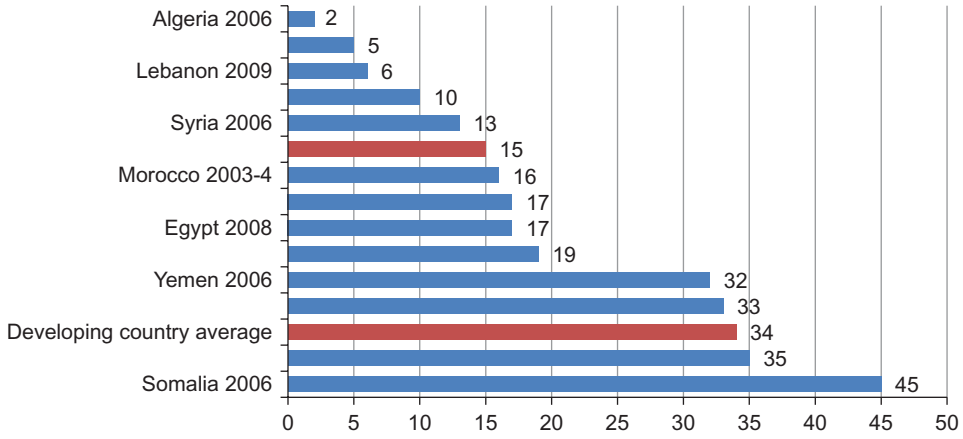

Figure 1. Percentage of women aged 20–24 married/in union before the age of 18. Sources: National surveys between 2003-2009.[8,46,94]

UNFPA estimates that about 15% of girls marry before age 18 across the Arab region as a whole, with much higher rates in Mauritania, Somalia, Sudan, and Yemen, as well as in parts of Egypt and among Palestinians living in Gaza.[8] The persistence of child marriage has been highlighted by international attention to cases of young girls who sought divorce after being forced to marry much older men, including an 8 year old girl from Saudi Arabia who sought to divorce a man in his 50s after being forced to marry by her father in order to pay off a debt,[9] and a 10 year old girl from Yemen who sought to divorce an abusive husband three times her age[10].

In addition to experiencing a violation of their human rights, girls who marry before they complete their adolescence are at increased risks of adverse reproductive health outcomes; ending early child

marriage has therefore become a priority for policy makers focused on the rights and wellbeing of girls.[11] Evidence suggests that it may be decreasing in high prevalence settings. For example, a 2006 survey in Yemen found that while 15.6% of young women aged 25-29 had married before age 15, this percentage dropped to 3.6% among girls age 15-19.[12]

While some traditional marriage and fertility patterns remain—high total fertility rates above the world average (4.0 children per woman) in a handful of countries (Comoros, Iraq, Mauritania, Somalia, Sudan, and Yemen), and frequent marriage to cousins or other relatives in many areas (with rates ranging from 8-49%)[7]—the situation is changing rapidly. Cousin marriage is declining in countries such as Jordan, Lebanon, and Palestine,[13] and average family size and total fertility rates have fallen rapidly over the past 40 years in the region, including by half or more in 15 of 22 countries.[5]

In addition to raising questions about women's traditional roles, the rising age at marriage in the Arab world represents a shift in the notion of adolescence in the region, particularly for young women. Whereas traditional family building patterns meant that young people, especially girls, often moved directly from childhood to adulthood, via marriage and childbearing, the rising age at marriage has led to a longer phase of adolescence in between childhood and adulthood for both sexes. Given religious values that require delaying sexual activity until marriage, the rising age at marriage poses a complicated situation for young people, and raises questions about the extent to which they comply with norms about sexual behavior, and the health risks they face depending on how they negotiate these norms. We examine this question below.

1.2. The burden of disease among adolescents in MENA countries

Compilations of data by the Burden of Disease project make it possible to examine recent statistics on the causes of death and DALYs (disability adjusted life years) in countries of the Arab world.[14] Figure 1 presents the main causes of death among adolescents in the MENA region compared with global statistics. Causes are included in the graph if they contribute 5% or more of deaths among either age group. Among the top causes in MENA countries that contribute around 15% or more to mortality are cardiovascular / circulatory diseases and transport injuries; their contribution to mortality is considerably higher in MENA than at the global level. Unintentional injuries contribute to mortality in a way similar to the global level. The fourth set of causes, related to diarrhea and other infections, are part of the unfinished agenda of communicable disease; they persist in the poorer countries of the MENA region and are lower in MENA than globally. The percentage of deaths caused by cancer and diabetes is higher in MENA than globally.

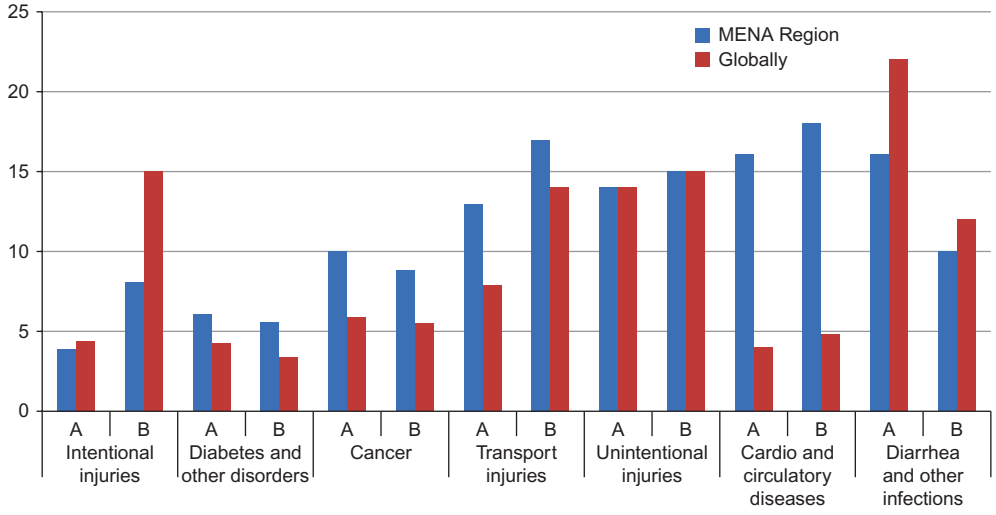

Figure 2. Major causes of death among adolescents 10-14 years (A) and 15-19 years (B) in MENA countries (percent)*. *Excludes causes that contribute <5% of deaths, including maternal, war and disaster, musculoskeletal, mental and behavioral, HIV/AIDS &tuberculosis, cirrhosis, digestive diseases, nutritional deficiencies, chronic respiratory diseases, NTD and malaria. Source: Institute for Heath Metrics and Evaluation Research, Global Burden of Diseases, Injuries, and Risk Factors Study 2010.[14]

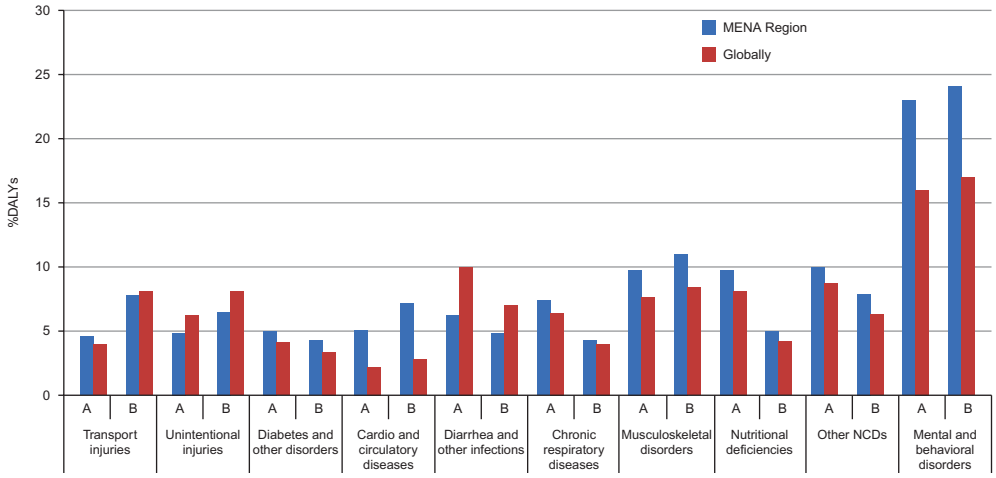

Figure 3. Main causes of DALYs (disability-adjusted life years) among adolescents 10-14 (A) and 15-19 (B) in MENA countries (percent of DALYs)*. *Excludes causes that contribute < 5 % of DALYs, including: maternal, war & disaster, cirrhosis, HIV/AIDS &tuberculosis, digestive diseases, intentional injuries, neonatal disorders, NTD & malaria, cancer, neurological disorders and other communicable diseases. Source: Global Burden of Diseases, Injuries, and Risk Factors Study 2010.[14]

Figure 2 presents the main causes of DALYs (disability-adjusted life years), which take into account the number of years lost to both premature mortality and to disability. Causes are included in the graph if they contribute 5% or more of DALYS among either age group. The available data show the importance of mental and behavioral disorders, which contribute to nearly 25% of DALYs in the MENA region, considerably higher than their contribution at the global level. The contributions of musculoskeletal disorders, nutritional deficiencies, transport injuries, chronic respiratory diseases, cardiovascular/circulatory disorders, and diabetes to DALYs, are also higher in MENA than at the global level, while the percentages of diarrhea/infections and unintentional injuries are lower. Among those causes that make a much lower contribution to DALYs in MENA than globally are maternal causes, HIV, tuberculosis, and intentional injuries.

Taken together, these data underscore the fact that for most of the region, the epidemiological transition has already taken place, and the burden of disease has largely shifted away from communicable and maternal causes, towards non-communicable chronic causes. These results also highlight three health problems for adolescents in the region, which we discuss in this paper. First, the contributions of cardiovascular/circulatory diseases and diabetes to ill-health are considerably higher than the global average, which is consistent with the high risks among adults in the region. The fact that they are already manifested in unfavorable statistics on the health of Arab adolescents represents an alarming pattern. Another cause of ill-health among adolescents which is also considerably higher than the global average, is the high percentage of deaths due to transport injuries, which raises questions about road safety and driving among adolescents. Injuries, intentional and unintentional, also figure prominently in the region, part of a cluster of eminently preventable causes of ill-health. A third major cause of ill-health is the burden of mental and behavioral problems among adolescents in MENA, also higher than the global average.

We discuss each of these problems below, paying special attention to weight and nutrition factors among adolescents (which are related to both cardiovascular diseases and diabetes), to injuries and violence, and to mental health. Although not highlighted in the BOD data, the high level of smoking, particularly among boys in some countries, represents a key health risk for adolescents in the Arab world. We review the evidence on this risk factor as well.

PART 2. THE MAIN HEALTH RISKS AMONG ADOLESCENTS IN ARAB COUNTRIES

2.1. Malnutrition, overweight and obesity

Nutritional status can play a critical role in the risk, progression and outcome of acute and chronic diseases. Under-nutrition and overweight have implications for the incidence of infectious and non-communicable diseases, for mortality, and for the healthy growth, development and productivity of individuals and populations.[15] The nutrition situation in the Arab region shows a continuing burden of

under-nutrition and micronutrient deficiencies, particularly in low-income countries such as Djibouti and Yemen; in countries experiencing humanitarian crises such as Iraq, Somalia, and Sudan; and, alternatively, in specific population subgroups in affluent countries such as member countries of the Gulf Cooperation Council.[16–19] At the same time, overweight and obesity are growing problems among young people in many parts of the Arab region,[20–22] sometimes occurring alongside under-nutrition among different socioeconomic groups in the same country.[23]

Differences in the prevalence of overweight in countries of the region reflect the different stages of the nutrition transition—the process whereby economic factors, including the mechanization of labor and the greater availability of food, result in the abandonment of traditional diets, increased consumption of sugars and fats, reduced consumption of cereals and fruits, and reduced physical activity.[24,25] Countries in the early stages of the transition have lower percentages of overweight and obesity, but higher nutritional deficiencies, while those at the other end of the continuum show high levels of overweight and obesity. Most countries of the region are in the intermediate phases, with a double burden of both over- and under-nutrition. The link between poor diet and overweight/obesity among adolescents is illustrated in a 2006 study among 239 adolescents (age 13-18) selected by cluster sampling from schools in Jeddah, Saudi Arabia, which found that an association between overweight and inadequate diet, including higher than recommended consumption of carbohydrates and fats, and lower than recommended intake of calcium, iron and zinc.[26]

Levels of overweight and obesity among adolescents vary greatly in the region, as a function of these factors. A comparative study in urban sites in seven Arab countries (Jordan, Kuwait, Libya, Palestine, Syria and the UAE) found that the percentages of male adolescents (age 15-18) who were overweight or obese were lowest in Algiers City, Algeria (13.4%) and highest in Kuwait City, Kuwait (60.4%), while the percentage of female adolescents who were overweight or obese ranged from 16% in Al-Khalil, Palestine to 41.4% in Kuwait City, Kuwait.[27] Figure 4 illustrates the variability in estimates of the percentages overweight or obese from different countries in the region. Though the figures are not strictly comparable because they come from different studies, they indicate that in most countries, there is a serious problem with overweight and obesity among adolescents. The increasing prevalence of overweight combined with low levels of physical activity have been shown to lead to early development of indicators of the Metabolic Syndrome (MetS) in adolescents in the region.[28]

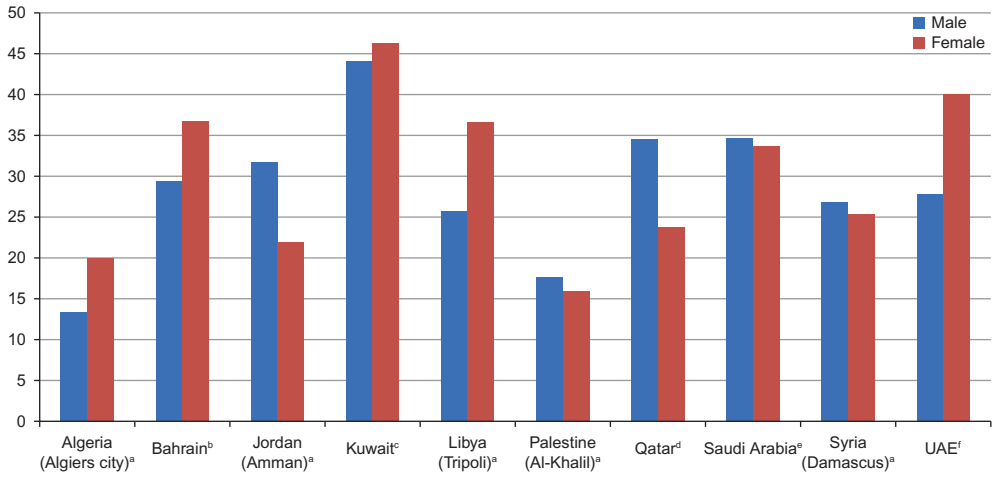

Figure 4. Percent of boys and girls aged 15-18 who are overweight or obese in different Arab countries. Sources of data for graph: [a]Estimates based on 2010-2011 data on adolescents aged 15-18. Overweight and obesity measured based on International Obesity Task Force (IOTF) cut offs.[27] [b]Estimates based on 2008 data on adolescents aged 10-18; definitions of overweight and obesity not available.[22] [c]Estimates based on 2006 data on adolescents aged 10-14. Definitions of overweight and obesity are based on CDC cutoffs. Earlier data on adolescents age 10-19 indicate a prevalence of overweight or obesity of 42.2% and 41.6% in males and females respectively in 2004.[22] This contrasts with data from Musaiger[27] which found a prevalence of overweight or obesity of 60.4% among males and 41.4 % among females in Kuwait city using IOTF cut offs. [d]Estimates based on 2004 data on adolescents aged 10-18, with overweight and obesity defined based on IOTF cutoffs.[22] [e]El Mouzan et al.[20] using 2005 Saudi reference data on adolescents aged 13-18. Definitions of overweight and obesity were based on WHO/EMRO[95] cutoffs. Earlier data for 1998 show a prevalence of overweight or obesity of 5.8% and 20.3% among male and female adolescents aged 12-18, respectively, using IOTF cutoffs.[22]

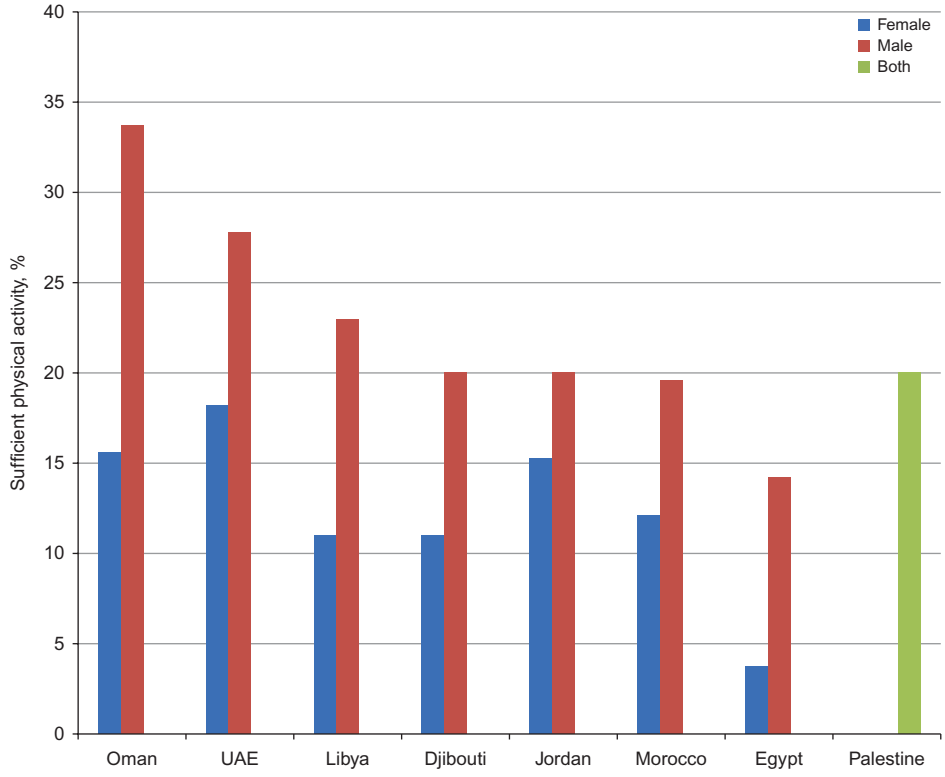

Figure 5. Percentage of adolescents who engage in a sufficient amount of physical activity (at least 60 minutes per day on at least 5 days per week) in Arab countries. Source: GSHS (Global School Health Survey), 2003-2007, EMRO region. Data from Djibouti, Egypt, Jordan, Libya, Morocco, Oman, and the United Arab Emirates refer to adolescents aged 13-15 and were extracted from Guthold *et al.*[96] The figure on Palestine is for female and male adolescents aged 12 to 18.[97]

Many studies have documented low levels of physical activity among adolescents in Arab settings, particularly among girls. Figure 5 summarizes statistics from studies that have measured physical activity in comparable ways. It shows that the percentages of adolescents who are sufficiently active ranges from a high of one-third for boys in Oman, to less than 5% for girls in Egypt, with most at about 20% for boys and around 10-15% for girls. Similarly striking low levels and gender differences are found in other countries. A study in Al-Ahsa city in Saudi Arabia found that 49% percent of males and 5% of females are physically active for ≥60 minutes per day every day.[29] The multi-country Arab Teens Lifestyle Study found that almost half of the adolescent boys and about three-quarters of the girls aged 14-19 in both Saudi Arabia and Kuwait did not meet daily physical activity guidelines.[30,31]

Comparative surveys about sitting time (see Figure 6) indicate that between one-quarter and more than one-third of adolescents aged 13-15 spend more than 3 hours a day sitting—watching TV, playing computer games, talking with friends or doing other sedentary activities. A study on the number of

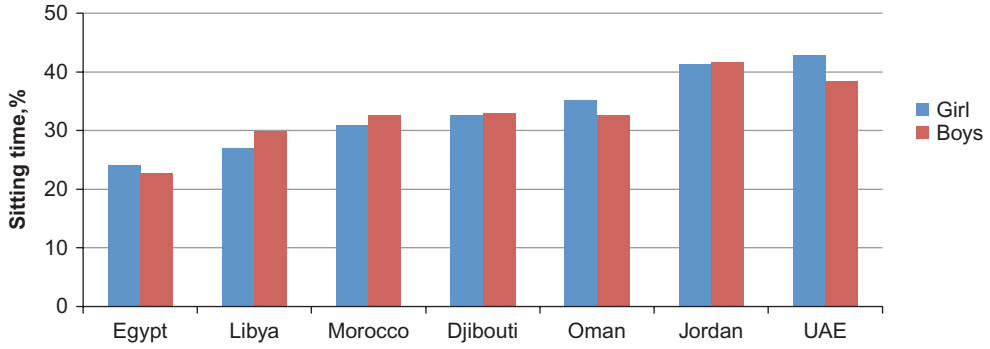

Figure 6. Percentage of boys and girls spending 3 or more hours per day sitting. Source: Guthold *et al.*[96]

hours Saudi adolescents aged 14-19 spend sitting, watching TV and playing computer games every day found a mean of 5.27 hrs/day among males and 6.6 hrs/day among females.[30] Another study among adolescents from Al-Ahsa, Saudi Arabia, found that male adolescents (aged 15-17) spent 4.99 hours/day on sedentary activity, while females (aged 15-17) spent 5.78 hours/day.[29]

2.2. Transport injuries and violence

Traffic related injury and mortality are serious public health problems among young people in the Arab region, especially among males.[32] As presented earlier in Figure 2, according to the Global Burden of Disease data, traffic injuries are the second leading cause of death among adolescent males age 15-19 in the MENA region. A 2002 WHO analysis found that among low and middle-income countries in six world regions, the Eastern Mediterranean region (EMRO) had the second highest traffic injury mortality rate (26.4 per 100,000 population); and among high-income countries, the EMRO region had the highest rate (19 per 100,00—compared to 11 per 100,000 in Europe for example).[33] When these rates were disaggregated by sex and age, males aged 15-29 years had the highest traffic injury mortality rate of any region in the world (38.4 per 100,000 for high income EMRO countries, and 34.2 for low income countries). In low income EMRO countries, the mortality rate among young men aged 15-29 was three times higher among men than women (38.4 per 100,000 compared with 10.4, respectively), and in high income countries, it was five times higher for young men compared with young women (38.4 and 7.4, respectively).

Country-specific data illustrates the severity of the problem. An analysis of head injury data from a trauma center database in Riyadh, Saudi Arabia, (2001-2009) found that motor vehicle accidents were the leading cause of head trauma—accounting for three-fourths of cases among high school students.[34]

Research from a number of Arab countries suggests that high rates of traffic injuries reflect large proportions of drivers—particularly young males—who are unfamiliar with the local driving rules, lack basic driving skills, drive without a license, speed, and/or violate other traffic laws. This research includes studies covering adolescents and young adults from Oman,[35,36] Saudi Arabia.[37,38] Studies in a number of Arab countries have also documented low rates of seat belts and/or child restraints, including in Kuwait[39] and the United Arab Emirates.[40]

2.3. Tobacco, alcohol and other risk behaviors

As highlighted in the 2012 UNICEF "Report card on adolescents," risk behaviors that account for a large proportion of premature deaths and disease among adults—including using tobacco, alcohol and drugs—are often established in adolescence. Evidence suggests that large proportions of adults addicted to tobacco first began using tobacco in adolescence, a time in life when judgment and decision-making skills are still developing and when young people are particularly vulnerable to peer pressure and the need to fit in. Tobacco smoking among adolescents can lead to long-term addiction, contributing to diseases such as lung cancer and chronic respiratory infections in adulthood.[2]

Increasing use of tobacco among young people, including cigarette smoking and the water pipe, has been documented in numerous Arab countries.[41–45] Surveys from the region have found that between 11% and 34% of 13-15 year-old Arab boys report having used some form of tobacco in the past 30 days, depending on the country.[46] Tobacco use by girls of the same age tends to be much lower, but is still substantial in some settings. Based on data from the WHO/CDC Global Youth Tobacco Surveys (2000-2010), the average estimated rates of use of tobacco in any form among adolescents age 13-15 in the MENA region as a whole were 21% for boys and 10% for girls, a rate that is higher than the average estimates rates for developing countries.[2]

Figure 7 shows the percentages of cigarette smoking among 13-15 year olds, with rates of 15% or higher among boys in Bahrain, Kuwait, Syria, and Tunisia, and rates 10-15% among boys in Iraq, Lebanon, Qatar, Saudi Arabia, Sudan, and the UAE. Other studies have found higher rates for waterpipe use, especially for boys. A study among male and female high school students aged 16-18 in Riyadh, Saudi Arabia found that about one-third (33%) had tried the water-pipe; rates were higher among boys compared with girls.[47] Saade and colleagues[48] report the results of the 2005 Global Youth Tobacco Survey in Lebanon, showing that while 10% of students aged 13-15 reported smoking cigarettes, the current use of any tobacco product (including cigarettes and the waterpipe) was 60%, with rates higher among males. Moreover, 80% of students lived in a household where others smoked, a figure that is

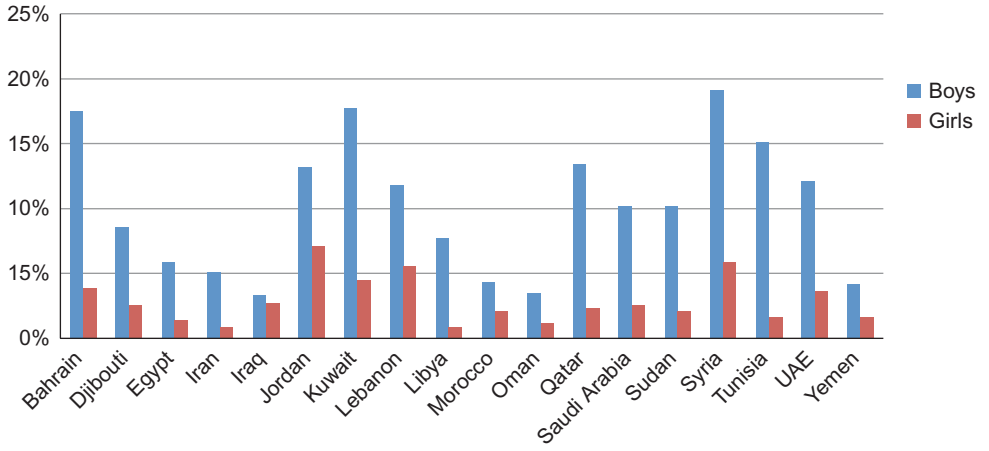

Figure 7. Percentage of students (age 13-15) currently smoking cigarettes. Source: Global Tobacco School Survey 2002-2008.[95]

consistent with other high estimates of second hand smoke.[48] A systematic review on rates of waterpipe smoking found that 9-16% of school students in the Gulf countries are smokers, as are 25% in Lebanon.[49] These rates appear to be increasing in some settings. For example, Chaaya and colleagues found that 43% of university students in Beirut reported ever having smoked waterpipe, compared with rates of 30% four years earlier.[50] Some researchers argue that without additional public health measures to curb tobacco use among youth, future generations of adults in the Arab region will experience mounting tobacco-related morbidity and mortality.[45]

Although tobacco use is the most frequent, evidence suggests that Arab young people engage in a range of other risky behaviors, including alcohol and drug use. School based student health surveys carried out in Arab countries have investigated risk behaviors such as use of alcohol, peer pressure to take illicit drugs, driving without a license, and speeding while driving. Typical of these studies was a nationally representative sample of adolescents in secondary school in Oman.[35,51] That study found that 5 % of students were current smokers, 4% had consumed alcohol (at least once), 5% had taken illicit drugs, 33% had driven without a license, and 34% were likely to speed. Male gender and low self-esteem were the strongest predictors of risk behaviors. Similarly, a number of studies among university students have examined alcohol consumption and abuse in Lebanon,[52–54] including a recent study that found that a substantial percentage of students (16%) aged 17 and older reported harmful alcohol consumption based on questions about alcohol dependence and binge drinking.[55]

2.4. Mental health issues and links to violence

Data on mental health in the Arab region are limited, but available research suggests that substantial minorities of young people experience mental health symptoms. The Global Burden of Disease project estimated that mental health and behavioral problems account for 23% of DALYs among those aged 10-14 and 24% among those aged 15-19 (see Figure 3 above). These percentages are higher than global estimates. A more detailed analysis of the data indicates that the main mental health problems are depression, anxiety and behavioral problems (Figure 8).

There are scattered data on the prevalence of mental health problems among the adolescent population in the region. For example, a school-based study in Saudi Arabia among 1,552 boys and girls in Abha city, southwestern Saudi Arabia, screened adolescents for mental health conditions using an Arabic validated version of SCL-90-R. The estimated overall prevalence of mental health disorders was 16%, including symptoms of anxiety and obsessive-compulsive disorders.[56] A national study of 8, 129 Jordanian youth found that 66% reported experiencing sadness, 49% loss of joy, and 43% loss of hope; among male youth, depressive symptoms were associated with a higher likelihood of risk behaviors, such as alcohol use and smoking.[57] The Global School Health Survey in Lebanon found that 16% of Lebanese adolescents had thought of suicide.[58]

A considerable part of the literature on mental health in Arab countries reports on the association of mental health with exposure to violence. For example, a school-based study from Kuwait investigated

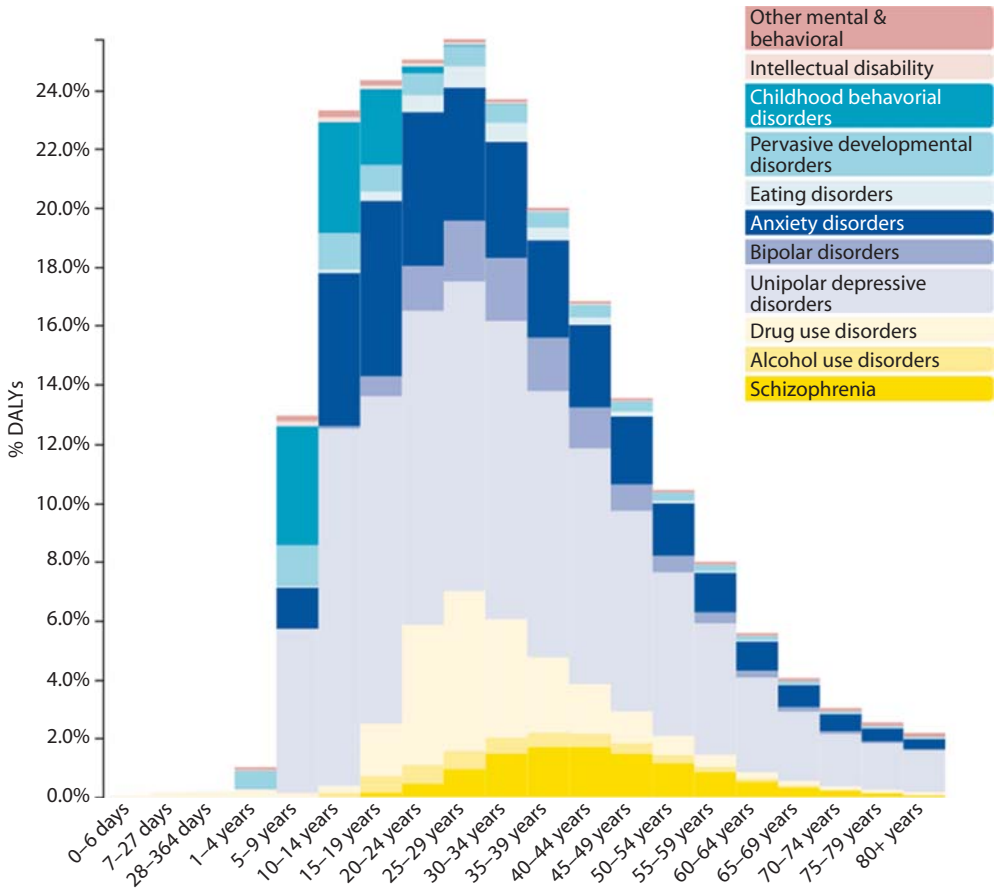

Figure 8. **Percent of DALYS attributed to mental and behavioral causes in MENA countries. Source: Global Burden of Diseases, Injuries, and Risk Factors Study 2010.[14]**

exposure to physical, sexual and psychological abuse among 4,467 high school students and found small but substantial prevalence levels—both lifetime and in the past year. The study found an association between exposure to abuse and a host of social and mental health consequences, including higher scores on anxiety and depression evaluations.[59] Similarly, a large, national, population-based survey in Jordan found higher levels of depressive symptoms among females than males, and among youth exposed to violence compared with those who were not.[57]

Similar to adolescents in other parts of the world, young people in the Arab region often experience physical violence and bullying. Global school-based student health surveys have asked adolescents age 13-15 in many Arab countries about their recent experiences of being physically attacked, participating in physical fights, and experiencing bullying. In most of these surveys, large percentages of adolescents report having been physically attacked by someone in the past year, including nearly two-thirds of boys and between one-third to more than half of girls in countries such as Djibouti, Egypt, and Tunisia. In most countries, even larger proportions of adolescents report having been in a physical fight in the past years, with boys reporting higher levels of fighting than girls.[2] A global analysis of these data from 27 countries around the world found that the eight countries from the Eastern Mediterranean region included in the study had the highest mean prevalence of any fighting (46.7%) as well as the highest mean prevalence of frequent fighting (5.1%), compared with three other regions and the United States.[60] Adolescents also report high levels of bullying in these surveys, including between one to two-thirds of students in Egypt, Libya, Morocco, and Tunisia, with boys typically reporting more peer victimization than girls.[61]

Some forms of violence are specifically directed at women, including so-called honor killings. The evidence on this practice is scarce, but a literature review suggests that it persists in several countries,[62] with one study from Alexandria, Egypt, reporting that in 47% of cases where women were killed, the homicide was perpetrated by a relative after the woman had been raped.[63] More importantly

perhaps, social norms supporting the acceptability of violence against women remain deeply entrenched in many parts of the region, among adolescents as well as older adults. A study among 856 ninth grade students in Amman, Jordan, found that about 40% of boys and 20% of girls believed that killing a daughter, sister, or wife who has dishonored the family could be justified.[64] Similarly, widespread acceptance of wife-beating has been reported by girls aged 15-19 in national surveys in all Arab countries where this question has been studied, with percentages ranging from 50% in Egypt and Iraq, to around 65% in Algeria and Morocco, to 91% in Jordan.[46] Efforts to provide legal protections against violence have recently taken place in the region, including initiatives to strengthen laws against honor killing in Jordan.[65]

A growing body of research has examined the links between mental health and societal violence, including armed conflict and civil unrest and displacement, among children and adolescents in the region. Numerous studies have documented the mental health burden (and interventions to address this burden) on young people affected by armed conflict in settings such as Iraq, Lebanon, and Palestine.[66–70] For example, on the basis of a systematic review on the mental health of children and adolescents in areas of armed conflict in the Middle East,[67] estimated that the prevalence of post-traumatic stress disorder (PTDS) in children and adolescents was 23–70% in Palestine and 10–30% in Iraq.

Some evidence suggests that in situations of armed conflict and displacement, adolescents may be even more vulnerable to immediate or long-term depression, anxiety, and PTSD than younger children, though the evidence base is somewhat preliminary. For example, a large study of risk factors for PTSD among adults in four post-conflict settings, including Algeria and occupied Palestinian territory, found that conflict-related trauma after age 12 was associated with an increased risk of PTSD in adulthood, while such trauma before age 12 was not {de Jong, 2001 #956; Reed, 2012 #955}. Reed and colleagues (2012) cites evidence that in many situations of conflict, displacement and family disruption, adolescents are expected to take on adults' responsibilities, and "tend to be exposed to more adverse events" than younger children. Some observers have been critical of the medicalization of distress in situations of conflict, arguing that providing psychological therapies does not address the underlying causes of the trauma, and calling for a broader framework of justice, human rights, and human security.[71]

PART 3. THE SOCIAL CONTEXT OF ADOLESCENT HEALTH

Numerous analyses have shown that the strongest determinants of adolescent health are structural determinants such as poverty and access to education, and that addressing adverse health outcomes among adolescents will require efforts to deal with risk and protective factors at the level of the family, the school and the wider environment.[72] Reviews of the social context of adolescent transitions in Arab countries have highlighted a number of factors that shape this key transition, including poverty and unemployment, political and military conflicts, and changing family environments.[16,73,74] In the remainder of this paper, we focus our attention on the social, economic and political context of adolescence in the region, and we summarize some of the fundamental contradictions that shape the experience of adolescence.

3.1. Mismatch between education and employment opportunities

A first main contradiction emerges from the mismatch between key indicators related to education and employment. The socioeconomic indicators for the region show impressive increases in levels of education and literacy.[75] Estimates suggest that the adult literacy rate in Arab States rose from 55% to 77% between 1990 and 2011, and the youth literacy rate from 74% to 90%.[76]

Unfortunately, just as unprecedented numbers of young people are entering the workforce, the dramatic gains in young people's educational attainment in some Arab countries have not been matched by a similar expansion in job opportunities. An analysis by the International Labour Organization explored the challenges that young people (both male and female) face finding work once they finish their education.[77] They argue that the private sector has remained globally uncompetitive in many parts of the Arab region due to lack of investment, a poor regulatory environment, and widespread nepotism and corruption. As a result of economic stagnation combined with population pressures, youth unemployment in the Arab region is the highest in the world, at 23% compared to a world average of 14%, though rates vary greatly by sub-region[77] *(see Figure 2.10 in the original publication)*. Notably, in contrast to other parts of the world where unemployment tends to be

most severe among the poorest sectors of the population, unemployment in many parts of the Arab region often affects young people across the whole socio-economic spectrum. This has important implications not only for the long-term prospects of young people but also for the stability of political systems in the region.

Authors of the 2013 "Human Development Report" argue that this "mismatch" between education and job opportunities for young people may be an important factor contributing to the political instability in the region and the protests in which many young people have taken part.[78] Specifically they argue:

> . . . recent social upheavals show that a mismatch between education and economic opportunity can lead to alienation and despair, especially among young people. Of the 20 countries with the largest increases in mean years of schooling over 1980 – 2010, 8 were in the Arab States (Figure 4.2). In most of these countries, employment opportunities failed to keep pace with educational attainment. Most countries that were part of the recent unrest in the Arab States are in the lower right quadrant of Figure 4.2, because they had major gains in educational attainment but below-median employment to population ratios.

3.2. Gender indicators: improvements and continuing disparities

Another area where contradictory forces are at play is the changing construction of gender. Young people in the Arab region are living through a time when important questions about the rights, roles and status of women and girls are being raised, and indicators of gender show a rapidly changing and contrasted situation. Girls and women in the region have experienced a dramatic expansion of their social, educational and economic status and opportunities over the past few decades. Gains in literacy and educational attainment have been particularly pronounced for young women. In Arab states in the Middle East, the number of female students has increased by a factor of nearly six since 1990, and their enrolment rate has increased by nearly three times.[77] While in most Arab states more women attend university than men, in some GCC states women outnumber men 2 to 1.[77] In addition, the rising age at marriage has been associated with greater educational and economic opportunity for girls and young women.

Despite such progress, however, girls and young women in the Arab Region continue to face severe gender inequities. Using the indicators of the Global Gender Gap (GGG) index published by the World Economic Forum, the 14 Arab states included in the 2013 report all ranked among the bottom 30 of 136 countries.[79] The GGG ranks countries according to gender-based disparities in the spheres of health, education, economics and politics, specifically those related to a) economic participation and opportunity, b) educational attainment, c) health and survival; and d) political empowerment.[79] Some Arab countries have made impressive strides in education, including in the United Arab Emirates, where the gender gap is now closed; and in Algeria, Bahrain, Jordan, Kuwait, Lebanon, Qatar, Oman and Saudi Arabia, where tertiary education enrolment rates for women now exceed those for men.[79] But the Middle East and North Africa scored lowest of any other region in sub-indices for women's economic participation and opportunity, and political empowerment. Women's labor participation in the Arab region is the lowest of any region in the world, with only 26% in the labor force, compared to a world average of 51%. Arab men's labor force participation, by contrast, is nearly identical to the world average.[77] Thus, the discrepancy between education and employment opportunities, which defines the general context of adolescents' lives, is particularly obvious in the case of women.

In many Arab countries, women and girls face important limitations and inequities with regard to their legal rights.[75] Historically, both civil and penal legislation in the Arab region codified systematic discrimination against women and girls.[65,80] Laws to protect women against intimate partner violence, rape, and honor killings are relatively weak in the region compared to other parts of the world. In many countries, personal status laws limit the rights of women and girls in matters related to marriage, divorce, child custody, inheritance, and decision making within the family. Countries such as Saudi Arabia and Mauritania require that male relatives such as fathers, husbands or even sons retain legal "guardianship" over women, sometimes limiting women's right to decide when and whom to marry, whether to obtain employment, start a business, travel, open a bank account for a child, or even seek medical care without the permission of their male guardian.[81]

The region has witnessed important legal reforms in recent years, however. A 2010 analysis found that 14 out of 17 countries had improved the legal status of women over the previous five years.[65] In 2005, women in Kuwait received the same political rights as men to vote and run for office.

Saudi Arabia recently introduced a new quota for women in parliament raising the percentage of women in parliament from 0% to 20%. Several countries (e.g. Bahrain, Kuwait, and Qatar) rescinded laws requiring a male guardian's permission before women could obtain a passport. Morocco and Algeria passed sweeping changes to their personal status codes that greatly strengthened women's civil rights within the family. And several Arab countries, including Jordan, strengthened laws regarding violence against women and girls.

3.3. Reproductive health and sexuality

Thus, the gender situation in the region shows a remarkable contrast between progress and persisting inequalities. Inevitably, such a context defines a complicated situation for relations between the sexes, which, in turn, has implications for reproductive health and sexuality. Despite strong sanctions against sexual activity outside of marriage in the Arab region, evidence suggests that small but significant percentages of young people in the Arab region engage in premarital sex.[82,83] For example, a study conducted among youth (age 15–24) in Jordan found that 7% of college students and 4% of young people within the general population reported having had non-marital sex.[84] In a study from Saudi Arabia, 31% of male college students reported having engaged in premarital sexual relations at least once.[85] Lack of sexual and reproductive health knowledge in that study was notable however; only 51% knew that condom use could prevent sexually transmitted infections (STIs). A 2009 survey from Tunisia among 1,200 unmarried, out-of-school youth aged 15 to 24 found that more than 70% of young men said their friends were having sex outside of marriage, the majority with multiple partners; just over one-fourth of young women reported the same, mainly with a single partner.[86] When asked about their own sexual behavior, one-third of male adolescents (under age 20) reported some sexual activity, as did just under 10% of female adolescents

Unfortunately, premarital sex often occurs in the context of secrecy, lack of knowledge about sex and reproduction, and limited communication with parents. A UNICEF analysis of national data sets from 93 countries found that adolescent girls (age 15-19) in the Middle East and North Africa had the lowest levels of comprehensive knowledge of HIV of any major region of the world (page 29), for example.[2] Typical is a 2009 study from Saudi Arabia among 417 girls/young women age 11-21, which found wide gaps in knowledge about sexual and reproductive health; less than 40% knew that key STIs were sexually-transmitted.[87]

Overall, these findings suggest that young people in the region do not have adequate knowledge about sexual and reproductive health issues generally, or how to protect themselves from important risks. Nor do they have adequate access to reliable sources of information to answer their questions. Comprehensive sexual education is virtually non-existent in most Arab countries, and studies that have explored these issues have found low levels of reported communication with parents about sexual matters.[87]

Women's particular vulnerability to practices that have harmful health consequences for reproductive health and sexuality has received increasing attention. FGM (female genital mutilation) is common in a number of countries. The 2008 WHO estimates a prevalence of 23% among women in Yemen, 71% in Mauritania, 90% in Sudan, 93% in Djibouti, 96% in Egypt, and 98% in Somalia.[16,88] While the health consequences of FGM vary widely from setting to setting according to type and prevalence, its persistence illustrates continuing gender inequality and of the way in which cultural struggles are inscribed on women's bodies.

3.4. Traditional ties and future aspirations: confrontation or convergence?

Young people have played an important role in the political movements that have swept the region in recent years. Researchers have tried to understand how the views, attitudes, aspirations and circumstances of adolescents and young adults influenced these events.[89] Researchers based in Lebanon concluded that on the one hand, Arab youth tend to view traditional institutions such as family and religion as "powerful anchors of their identity and their ability to navigate the future".[90] At the same time, they often express deep concern about "opportunities to make their voices heard, be taken seriously, achieve their full potential, or compete fairly for jobs and other assets."

The tension between traditions, attachment to family, community and country on the one hand; and the lack of reasonable hopes for a decent future in the context of unemployment and the perceived corruption of regimes on the other, creates difficult choices for adolescents. In addition, the context of violence in the region with repeated wars and conflicts underscores the discrepancies between ideals

of peace, development and progress and the realities of injustice and destruction. The dissonance created by these situations is likely to resonate with the difficulties faced by many adolescents. It could contribute to both the higher burden of mental and behavioral problems for this population group and to the attractiveness of emigration for those wanting to seek better conditions elsewhere. The inconsistencies of the situation are reflected in the contrasted attitudes of adolescents, many embracing ideals of democracy and equality, while many others are drawn to extremist groups and fundamentalist religious ideologies calling for a return towards what is perceived to be a religious and cultural tradition.

Observers have noted a potential divide between the younger and older generations in terms of both ideals and modes of communicating them. Increased access to the Internet and social media represent important tools for young people's "expression, organization and mobilization".[90] In Egypt alone, estimates suggest that by 2010 the number of Internet users had increased to over 23 million users, and the number of blogs created by Egyptians to about ten thousand, with about one-fifth focused on political issues – all of which has played an important role in political developments in that country. Surveys from the region support the assertion that social media and Internet usage has risen dramatically, much more so among youth than among older generations. Not only has this phenomenon transformed the lives of young people, but it may have created an additional split between media savvy young people (at least among middle classes) and older generations of leaders who have less computer literacy.

The generation gap in the Arab world has long been recognized, and analyses have highlighted the changing hierarchies in the family and society and their different knowledge bases,[91] while others have argued that beyond these apparent confrontations are greater continuities in behaviors and a convergence in values.[92] Some observers fear that the conditions of adolescence, and in particular the high level of youth unemployment, represent a "public health time bomb waiting to explode," (Lancet[93] editorial, citing Marmot) and have called for greater attention to the social determinants of health for adolescents

CONCLUSION

The burden of ill-health among adolescents in Arab countries is, to a great extent, related to preventable factors that are associated with unhealthy behaviors and outcomes. Chief among those are factors related to unhealthy diets and insufficient physical activity, resulting in poor nutritional status and high body mass index, which are, in turn, associated with cardiovascular disease and diabetes. Next are factors related to unsafe transport, reckless driving, and unintentional injuries. A third cluster of unhealthy behaviors are those related to tobacco and alcohol use. Improving adolescent health requires efforts to both reduce the proximate risks that threaten health and the more distal social factors that shape the life conditions of adolescents and their chances to be healthy. Our analysis has highlighted some of these contradictory forces.

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Appendix

List of countries included in the Arab League, compared to those in the "MENA"* category and in the EMRO category**

Arab League	MENA	EMRO
Algeria	✓	-
Bahrain	✓	✓
Comoros	-	-
Djibouti	-	✓
Egypt	✓	✓
Iraq	✓	✓
Jordan	✓	✓
Kuwait	✓	✓
Lebanon	✓	✓
Libyan Arab Jamahiriya	✓	✓
Mauritania	-	-
Morocco	✓	✓
Oman	✓	✓
Palestine	✓	✓
Qatar	✓	✓
Saudi Arabia	✓	✓
Somalia	-	-
Sudan	-	✓
Syria	✓	✓
Tunisia	✓	✓
United Arab Emirates	✓	✓
Yemen	✓	✓
-	Iran	✓
-	Turkey	-
-	-	Afghanistan
-	-	Pakistan
-	-	South Sudan

* Middle East and North Africa, as used by the Burden of Disease project.
** Eastern Mediterranean region of the World Health Organization.