



## THE RISING INCREASE IN OBESITY AND ITS IMPACT ON THE YOUTH OF THE UNITED ARAB EMIRATES

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### ABSTRACT

*Obesity, one of leading preventable causes of death worldwide, has seen an increase in those mortality numbers in adults and children. Authorities consider it to be one of the most public health issues of the 21<sup>st</sup> century. Obesity carries with it a stigma which is more prevalence in modern society; particularly in the western world. In contrast, during different times in history, obesity was widely viewed as a symbol of wealth and fertility. Today, in some parts of the world, it is still considered a sign of wealth and a positive reproductive symbol. Despite this evidence, in 2013, the American Medical Association classified obesity as a disease.*

*Obesity is a medical condition, in which excess body fat accumulates and may often have an adverse effect on the health of an individual. People are considered obese when their body mass index (BMI), a measurement calculated by BMI exceeds 30 (Kg/m<sup>2</sup>), where BMI is the ratio of the weight (in kilograms) to the square of the height (in meters). Obesity often leads to a reduced life expectancy and increased health problems. Before the 20th century, obesity was rare, however, in 1997; the World Health Organization (WHO) formally recognized obesity as a global epidemic. WHO predicted that by 2015, there could be over 2.3 billion overweight and almost 700 million obese individuals. Furthermore, the World Health Organization (WHO) also predicted that obesity could soon replace the more traditional public health concerns. While the concern for malnutrition and infectious diseases continues to exist, obesity could become the most significant cause of poor health in the global world.*

**KEYWORDS:** active lifestyle, diabetes, foods, high-calorie, metabolic syndrome, obesity.

**Trends of Overweight and Obesity in the United Arab Emirates:** In the United Arab Emirates (UAE), obesity has become a significant problem. Research has shown that over 60% of Emirati nationals are overweight, and this figure is expected to rise. According to one recent study published by a BMC Public Health journal, [*BMC Public Health journal, 2012*] the UAE ranks as the fifth obese nation in the world. Additionally, according to Forbes, 68.3% of citizens of the UAE have an unhealthy body weight. The growing health issue is extremely worrisome to the Emirati health of-

officials, particularly when obesity, a leading cause of death, is preventable.

Over the past four decades, the UAE has gone through a profound and rapid socio-economic transition. This medical revolution has led to fundamental changes in the lifestyle, dietary habits, and physical activity pattern of the population. It is similar in some ways to the modernization processes that occurred in the western world, but happening in a much shorter time.

There are several causes of obesity in the UAE: diet, lifestyle, and education. The fact is that young Emiratis eat more high-carbohydrate. High-caloric, and high-fat food and some of their traditional foods are also very oily. Due to an increase in the affluence in the area; with more spending money, these foods are more available and eaten more often than in the past. Lifestyle is a second leading cause of

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obesity [Musaiger, A. O, 2011]. Still, one of the main causes of this problem is clearly a lack of education and awareness. The casual attitude toward food in this society often leads to over-consumption. Parents do not teach positive eating habits to children, and many just lack the knowledge about proper nutrition or a balanced diet. One other influential factor is advertising. Children are often the targets of the advertising industry's barrage of overloading the airwaves of high-calorie foods, high-fat snacks, and sugary drinks. The goal of these ads is to influence people to buy these high-calorie foods, and most often the appeal works.

One of the more significant predictors of this problem is the lack of energy balance. Energy balance means that energy 'IN' equals energy 'OUT.' The issue of becoming overweight and in many cases, obese, occurs on a daily basis when more calories are consumed than are utilized. Another factor is living in an environment that is conducive to an inactive lifestyle. The environment, be it physical or otherwise, fails to promote healthy living. It lacks access to affordable and healthy food sources and the educational and informational tools that should target and educate the population on the impact of eating habits and life-style choices [Hajat, C, et al., 2012].

**The Influence of Cultural and Traditional Values:** Habitually, the population in the UAE is physically inactive. One reason for this excessive inactivity relates to the number of hours they spend in front of their televisions (TV) and computers; whether to engage in professional duties, school-work, or leisure activities. It is a fact that the two or more hours of daily TV viewing time has been directly linked to overweight and obesity. Moreover, inactivity in the UAE is also due to the over-reliance on the automobile, as opposed to the other option; walking. Additionally, the physical demands of work and in the home, have declined because of the availability of new technology and modern conveniences.

At an early age, inactivity is reflected in the lack of physical education classes in the schools. Therefore, people who are ordinarily inactive are more likely to gain weight since they do not spend the calories they consume. Another significant contributing factor is the family history and genetic makeup. Studies of identical twins, which have actually

been raised apart, show that genes have a strong influence on the weight of that person. Obesity tends to run in families. The chances of becoming overweight are higher if one or both of parents are overweight. Several other related factors include medical status, psychological factors, age, pregnancy, the lack of sleep, and cultural influences.

In general, cultural values represent an important variable, particularly in the home. This is illustrated in households where children observe the poor eating habits that their parents model. Children are likely to learn and adopt these attitudes and behaviors during early childhood and during the developmental phases that follow. Unhealthy eating tends to run in families and therefore, where obesity runs in the family, these environmental factors are also at play. Nevertheless, obesity is, primarily, the result of an over-consumption and an infrequent participation in physical activities.

The accumulation of fat is a gradual process that slowly leads to obesity. However, in a limited number of cases, the causes can primarily be attributed to genetics, medical factors, and, or psychiatric illness. At a societal level, the causes and rising rate of obesity are associated with a lifestyle that is based on an easy access to palatable food. Additionally, an increased sedentary way of life, one that relies on automobiles and mechanized manufacturing can also act as a contributing factor. This trend applies to both the developed and developing countries, and particularly the nations that are in economic transition. One such nation is the United Arab Emirates (UAE) [Al Junaibi, A., et al., 2013b].

#### **Determinants and Prevalence of Childhood Obesity**

In the UAE, childhood obesity continues to grow in prevalence among the adolescent population. During childhood, obesity should be regarded as a chronic medical condition that is likely to require long-term treatment. The prevalence of the conditions of overweight and obesity in the UAE is significantly high among children and adolescents. Studies indicate that age, gender, the lack of dairy consumption, and elevated parental BMI, (excluding self-reported exercise or family income), are some of the independent determinants of childhood obesity in this population group [Al Junaibi, A., et al., 2013a]. Childhood obesity can be a reliable indicator of weight-related health problems in later life. This fact supports the view that learned

unhealthy lifestyle choices continue into adulthood [Musaiger, A. O. et al., 2013a].

The health consequences of obesity fall under two broad categories: those attributable to the effects of increased fat mass (such as osteoarthritis, obstructive sleep apnea, social stigmatization) and those due to the increased number of fat cells (diabetes, cancer, cardiovascular disease, non-alcoholic fatty liver disease). Increases in body fat alter the body's response to insulin, potentially leading to insulin resistance. Increased fat also creates a pro-inflammatory state and a pro-thrombotic state [WHO, 2013a]. Furthermore, overweight and obese people have an increased incidence of coronary heart disease and an increase in the risk of developing high blood pressure. Obesity often increases the risk of heart disease because of its adverse effect on blood lipid levels. These levels increase in obese patients and, in turn, increase the triglyceride levels and decrease high-density lipoprotein; which is also known as HDL or "good cholesterol." People with an excessive amount of body fat have higher levels of triglycerides and low-density lipoprotein; also known as LDL or "bad cholesterol" as well as lower levels of HDL cholesterol in the blood. This recipe creates the optimal conditions for developing heart disease; one of the main causes of early death.

Obesity adversely impacts existing endocrine and metabolic disorders. In the UAE, one of the major and more prevalent diseases is the metabolic syndrome [SCAD, 2011]. Metabolic syndrome is one of the fastest growing obesity-related health concerns in the country. It is characterized by a cluster of health problems, including obesity, hypertension, abnormal lipid levels, and high blood sugar [HAAD, 2010]. According to the CDC, this metabolic syndrome affects almost one quarter, 22 % of the Arabian population; an estimated 47 million people. Obesity has an adverse effect on lipid levels in the blood, which often leads to the development of a condition known as dyslipidemia. Separately, thyroid hormones drive metabolism, which is why it is often assumed that there is a direct link between obesity, the thyroid gland, and its related thyroid conditions. This should also include the conditions of Cushing's syndrome and polycystic ovarian syndrome (PCOS).

Cushing's syndrome is a condition in which the

body's adrenal glands make too much of the cortisol hormone. Cushing's syndrome also can develop if a person takes high doses of certain medicines, such as prednisone, for long periods of time. People who have Cushing's syndrome gain weight, have upper-body obesity, a rounded face, fat around the neck, and thin arms and legs.

PCOS is a condition that affects about 5–10 percent of women of childbearing age in the UAE. Women who have PCOS are often obese, have excess hair growth, and have reproductive problems and other health issues. These problems are caused by high levels of hormones called androgens. According to World Health Organization, twenty-six percent of Arabic women have medical issues with hormones. Other obesity-related health conditions include colon cancer, reproduction/sexually issues, type-2 diabetes, and childhood obesity. When complications occur, they are either directly caused by obesity or indirectly related to its mechanisms. In short, the common denominators are poor diet and a sedentary lifestyle [Baglar, R., 2013].

As for children, those who are overweight and/or suffer from obesity are a significant public health problem. These encompass an increased risk of eating disorders; including eating attitudes, weight concerns, dieting, binge eating, anorexia, and bulimia. In some Emirati States, obesity is found in nearly 40% of children. It is estimated that one-third of the children born in every 2000 will develop obesity-related diabetes. Besides the adverse psychological effects, childhood obesity causes physiological issues such as liver, lung, heart, and musculoskeletal complications. Unfortunately, many people in the general population do not consider childhood obesity to be a problem beyond its aesthetic dimensions [Al Junaibi, A., et al., 2013b].

The chronic diseases and conditions associated with obesity and the fact that obesity is complicated to treat make the preventative actions extremely important. A primary reason that prevention of obesity is so vital in children is that the possibility of obese children becoming obese adults is thought to increase from about 20 percent at four years of age to 80 percent by adolescence. The more extended time that babies are breastfed, the less likely they are to become overweight as they grow older. Breastfed babies are 15 to 25 percent less likely to become overweight. For those who



are breastfed for six months or longer, the likelihood is 20 to 40 percent less.

Although, the degree of the link between obesity and certain conditions varies, it has been determined that one of the strongest is the link to type 2 diabetes. The pancreas produces insulin to control the body's blood sugar. Consuming too much sugary food and drink can result in high insulin levels until the body becomes resistant to insulin which leads to diabetes. More than 80% of people with Type 2 diabetes, the most common form of the disease, are obese or overweight. Excess body fat underlies 64% of the cases of diabetes in men and 77% of the cases in women. Data from the Center for Disease Control and Prevention [CDC, 2008] and the National Health and Nutrition Examination Survey III, state that two-thirds of adult men and women in the UAE, diagnosed with Type 2 diabetes have a body mass index (BMI) of 27, or higher. This is classified as overweight and unhealthy. Obesity management is an important step in the prevention and control of chronic non-communicable diseases. Diseases such as cardiovascular disease, diabetes, hypertension, and certain cancers contribute to 60% of the overall morbidity and mortality rate in most Arab countries [Musaiger, A. O., et al., 2013b].

**Gender Differences in Obesity and Overweight During The Childhood and Adolescent Period in the United Arab Emirates and other Arab Countries:** The proportion of adolescents who are overweight or obese is rapidly increasing worldwide. Adolescence is a vulnerable period for the development of obesity and also appears to be a critical period for establishing the risk factors for some chronic diseases in adulthood. Studies have revealed that the prevalence of overweight and obesity among adolescents in Arab countries ranges from 18% to 44%. In general, being overweight has been found to be more prevalent than obesity in both boys and girls. However, the prevalence of obesity by gender at the adolescent stage (10–18 years) does not indicate the same trend. According to Figure 1, in the UAE, obesity is more prevalent than overweight in boys, and the percentage of overweight and obesity is higher in boys than girls. In countries such as Bahrain, Egypt, Algeria, and Qatar, the prevalence of being overweight is higher among girls than boys. Obesity is also higher among

adolescent girls than boys in Bahrain, and Egypt.

A disordered eating attitude (EA) among adolescents in Arab countries is quite high, especially among female adolescents. Furthermore, obesity is strongly associated with disordered EA among adolescents in all these Arab countries. Parents may play a critical role in the prevalence of disordered EA [Musaiger, O. A., et al., 2013b]. Girls with eating disorders feel more criticized, less accepted, and feel less close to their parents than boys. During adolescence, both boys and girls become more influenced by friends and peers. Lower peer acceptance, criticism, and teasing may lead to a feeling of a poor body image among adolescents. It was found that females who were teased about their weight, body image, and appearance were more likely to diet and had a higher negative body image. Additionally, women who were teased about their weight during childhood became more dissatisfied with their body image during adulthood than women who did not experience teasing in childhood. The differences in disordered EA among countries and between genders could be attributed to many factors such as cultural background, family environment, parents' education, exposure to Western media, ethnicity, and socio-economic status.

Although there are cultural similarities among Arab countries, UAE, Kuwait, and Jordan, are considered more open to Western culture and its lifestyle than other Arab countries. Moreover, Arab communities are characterized by a higher number of young people, since more than 54% of the popu-

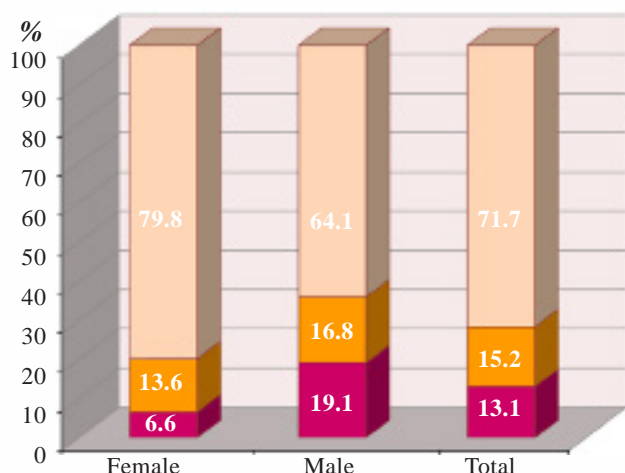


FIGURE 1. Prevalence of obesity and overweight among adolescents in the UAE (2010)

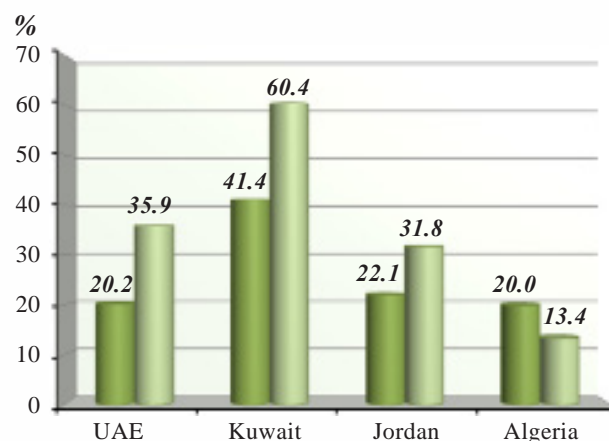
Note: Obese (down columns), Overweight (middle columns) and Other (upper columns)

lations are less than 25 years old. The adolescents and young people seem to be caught between the influence of Western culture on dietary behavior and body size preferences. On the one hand, it encourages thinness and traditional cultural norms that favor customary food habits and normal or plump body size on the other. Studies in some Arab countries showed that heavier women are still more acceptable in some communities than are normal or thin women. There seems to be a cultural preference for plumpness, which is considered a sign of beauty and sexual attraction.

In one study, boys in the Arab nations, who were overweight, were more likely to view themselves as overweight than girls who were overweight. As for parental values, parents of about 27.6% and 39.3% of non-overweight/obese males and female adolescents wanted them to gain weight. Thus, parents may indirectly and unintentionally teach their children to be dissatisfied with their bodies, by modeling an attitude of body dissatisfaction and dieting preference. At home, the parental message had the most substantial influence on body image. In the public arena, it is reported that societies play a significant role in influencing how people should ideally look. Another outcome of this study was that there was a greater concern with body shape and a desire to be thin with females more than with males.

In contrast to the girls, who wanted a lighter body weight, boys preferred a more substantial body weight, especially in the Middle East countries as shown in Figure 2. Studies indicate that adolescent boys are quite concerned about body weight and shape. They wish to increase their body weight rather than lose weight, since it signifies a greater masculinity. It is however, important to note that many adolescent boys may find themselves pursuing a body type that is impossible to obtain. Consequently, it could lead to an eating disorder such as bulimia, or an image disorder known as muscle dysmorphia. Finally, among both the younger children and the adolescents, it is necessary to consider that poor body image is associated with unhealthy weight control behaviors. Thus, it is important to implement measures to manage obesity [Al Junaibi, A., et al., 2013b].

**Strategies to Prevent and Reverse Obesity and Overweight:** The obesity epidemic slowly grows each year, yet efforts to combat obesity, primarily



**FIGURE 2.** Prevalence of obesity/overweight by gender among adolescents in the UAE and other Arab countries (2010)  
**NOTES:** Obese or Overweight Females (Dark columns)  
 Obese or Overweight Males (Light columns)

through prevention, are slowly beginning to gain traction. To realize real progress, though, positive change must come to all parts of society: from governments and schools, businesses and non-profit organizations, neighborhoods, and communities, and individuals and families. People need to change policies and create an environment where the default option is the healthy choice: choosing healthier foods, increasing physical activity, limiting “sit” time, improving sleep, and reducing stress.

One important step is to encourage parental participation. It is a crucial factor in the prevention and management of childhood obesity. Therefore, parental recognition of weight problems is an essential component. Studies show that when considering all parents, 33.8% misclassified their children’s weight status - underestimating (27.4%) or overestimating (6.3%). Misclassification was highest among parents of overweight/obese children (63.5%) and underweight (55.1%) children. To involve parents, however, would require parental recognition of their child’s weight status. Parents should be equipped the ability to recognize and to evaluate a child as overweight and obese. However, several studies in the UAE have reported high levels of parental misperception of their children’s weight. This incorrect perception may lead to an incorrect assessment of children’s eating habits and physical activity levels. In a recent systematic review, it was found that parental misperception is quite common. For example, 62.4% of

overweight/obese children were incorrectly perceived as having normal weight. In some countries, parents neither understand, use, nor even trust the common clinical measures used to identify their children's weight status. Fewer than 50% of parents accurately identified their child's weight status. Apparently, parents resorted to alternative approaches, such as visual assessments and comparisons to extreme cases, in evaluating their children's weight status.

The issues of mistakenly identifying children's weight status may be attributed to the accepted cultural norms within a population or society. Many components play into childhood obesity, some being more crucial than others. The most important of these is ensuring that parents supervise their children at home with both food choices and regular exercise. What children learn at home about eating healthy, exercising and making the right nutritional decisions will eventually affect other aspects of their life. This will have the most significant influence on the choices children make when selecting foods to consume at school, at fast-food restaurants and choosing to be active. Focusing on these issues may, over time, decrease childhood obesity and lead to a healthier society.

Parental perceptions towards children's weight status and its determinants in the Arab world seem to have been largely overlooked. This has happened despite the high prevalence of overweight and obesity in this population. Parents have failed to recognize the weight status of more than 50% of overweight/obese children. This is particularly concerning, especially when the prevalence of childhood obesity in this population is one of the highest in the world. Arguably, some parents may have deliberately chosen to underestimate the weight status of their child to avoid the stigmatization associated with obesity [Al Junaibi, A., *et al.*, 2013b].

Childhood obesity, as it is well documented, is a risk factor for several non-communicable chronic diseases during adulthood. Obese children are at higher risk for heart attacks. Obesity also presents an increased risk of asthma and breathing difficulties. Obese children put too much pressure on the growth plates of their bones which can result in misalignment, pain and early arthritis. The World Health Organization reported that the nutrition transition is observable in all Eastern Mediterra-

nean countries. From a health perspective, the growing level of obesity among children and adolescents is particularly troublesome. Therefore, it is essential for the UAE to concentrate on prevention strategies. Such strategies should focus on younger children, particularly those with a parental history of obesity [WHO, 2013b]. In addition, the consumption of dairy food should be encouraged. Moreover, it is recommended that longitudinal studies be conducted to investigate the trends and the impact of childhood obesity on the prevalence of non-communicable diseases in the UAE. More importantly, it is essential to address the issues impacted by the concept of body image. Body image is a fairly stable belief system. Children, who exhibit higher levels of body dissatisfaction, are likely to practice this belief in adolescence and young adulthood. Consequently, it may result in eating disorders. To address the challenges, and to combat the impact of obesity, the Arab Center for Nutrition prepared a strategy for the region. However, for this plan to succeed, it will need proper and sufficient baseline data on the epidemiology and etiology of obesity among children and adults in this region [Al Junaibi, A., *et al.*, 2013b].

#### ***Food impact on the weight of children and adolescents***

In the past, people used to eat healthy, freshly cooked food. Today, however, people, particularly young people, prefer to eat fast food such as hamburgers, fried chicken, shawarma, or pizza. There are many reasons for the popularity of fast food: one of them being the change in lifestyle; long working hours, multiple shifts, or extended school days. However, this change in diet can have some severe effects; many individuals in the UAE are becoming obese and less productive.

The problem is not just the presence of trans-fat in the foods, but that the portion sizes quickly multiply those contents. Most people buy frozen dinners for a quick and easy meal, or to help lose weight. But many of them are laden with hydrogenated oils which means they contain trans-fat in some amount. High Fructose Corn Syrup (HFCS) is an ingredient that did not exist before 1960, but now has a strong appeal to food manufacturers because it is very sweet, inexpensive to make, and easy to store. Sodium, or salt, is a stimulator which can wreak havoc on a body. It causes the body to



not only retain water, but it also increases blood pressure which can lead to coronary complications. Almost all heart patients are put on a low-sodium diet, whether they suffered a heart attack, stroke, or are at risk for one.

Whether people are at risk of becoming obese, are currently overweight, or at a healthy weight,

they can still take steps to prevent unhealthy weight gain and related health problems. Not surprisingly, the actions taken to avoid weight gain are the same as the steps taken to lose weight; daily exercise, a healthy diet, and a long-term commitment to watch what they eat and drink.

## REFERENCES

1. Al Junaibi, A., Abdishaku, A., & Nagelkerke, N. [Parental weight perceptions: A cause for concern in the prevention and management of childhood obesity in the United Arab Emirates]. 2013a. P *Los One* 8 (3).
2. Al Junaibi, A., Abdulle, A., Sabri, S., Hag-Ali, M., & Nagelkerke, N. [The prevalence and potential determinants of obesity among school children and adolescents in Abu Dhabi, United Arab Emirates]. *International Journal of Obesity*. 2013b. 37, 68-74.
3. Baglar, R. ["Oh God, save us from sugar" an ethnographic exploration of diabetes mellitus in the United Arab Emirates]. *Medical Anthropology: Cross-Cultural Studies in Health and Illness*. 2013. 32:2, 109-125.
4. *BMC Public Health Journal*. Retrieved from: <https://bmcpublikealth.biomedcentral.com>. 2012
5. *Center for Disease Control and Prevention*. Retrieved from: <https://www.cdc.gov>. CDC. 2008.
6. Hajat, C., Harrison, O., & Shather, Z. [A profile and approach to chronic disease in Abu Dhabi. *Globalization and Health*]. 2012. 8:18.
7. *Health Authority of Abu Dhabi Statistics Report*. Retrieve from: <http://www.haad.ae/HAAD/LinkClick.aspx?fileticket=c-1GoRRszqc%3d&tabid=349>. 2010.
8. Musaiger, A. O. [Overweight and obesity in eastern Mediterranean region: prevalence and possible causes]. *Journal of Obesity*. 2011. 407237
9. Musaiger, A. O., Al-Mannai, M., Al-Lalla, O., Saghier, S., Halahleh, I., Benhamed, M. M., Kalam, F., & Ali, E. Y. A. [Obesity among adolescents in five Arab countries; related to gender and age]. *Nutricion Hospitalaria*. 2013a. 28(6) 1922-1925.
10. Musaiger, O. A., Zall, bin A. A., & D'Souza, R. [Body weight perception among adolescents in Dubai, United Arab Emirates]. *Nutricion Hospitalaria*. 2013b. 27(6) 1966-1972.
11. *Statistics Centre Abu Dhabi: Statistical Year Book of Abu Dhabi*. Retrieved from: <http://www.scad.ae/SCAD%20Publications/EBOOK%20English%20SYB%202011.pdf>. 2011
12. *World Health Organization*. [Plan of action for the prevention and control of non-communicable disease in the Eastern Mediterranean region]. Retrieved from [www.emro.who.int](http://www.emro.who.int). 2013a.
13. *World Health Organization*. [Action plan for the global strategy for the prevention and control of non-communicable disease]. Geneva. 2008-2013b.