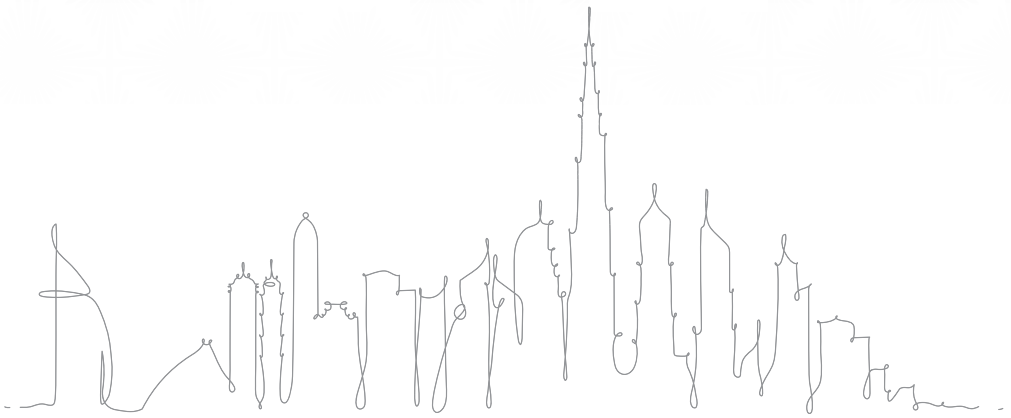
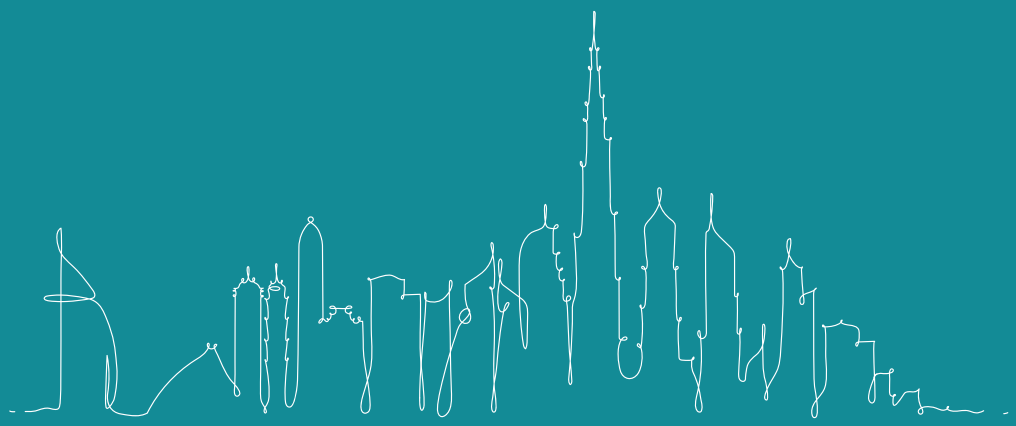
حكومة دبي
GOVERNMENT OF DUBAI

هيئة الصحة بدبي
DUBAI HEALTH AUTHORITY

Dubai Household Health Survey

2019





Forward, from the DG

This report presents the findings of the 2019 Dubai Household Health Survey (DHHS). The survey is the third health survey to be carried out by the DHA. It has been carried out in collaboration with Dubai Statistics Center. It provides data that reflects the health situation in the Emirate for all members of the society for better decision making at the policy level.

Currently, Dubai's health status indicators compare well with those of many developed countries. It has achieved a dramatic transformation in its healthcare system over a short span of time. The emirate has achieved remarkable success in evolving policies and plans for controlling or eradicating major communicable diseases with a great success.

I am pleased to welcome this valuable report and to thank the survey's steering committee led by Data Analysis Research & Studies Department team for their hard work in conducting the survey and preparing this report. In addition, thanks to all our internal partners and external stakeholders, whose contribution was fundamental to this project.

Most importantly, I would also like to thank the 9,630 individuals who gave their time to participate in the survey. The information they have provided is invaluable in developing and monitoring healthcare system in the Emirate.

HE / Humaid Mohammed Obaid Alqahtami

Director of Dubai Health Authority

Preface

The importance of reliable and comparable information has increased significantly in today's world. Nowadays, surveys are one of the most effective ways of collecting representative quantitative data. In Dubai and in the World, important experiences were obtained in the field of studying the population. The policies and plans at the DHA have always depended upon evidence generated based on locally conducted research and surveys. As part of this endeavor, DHA actively supported the conduction of the DHHS for the year 2019. The survey's design and methodology were adapted from those used in the World Health Organization's World Health Surveys (WHS).

This DHHS 2019 comes after 5 years of the previously carried out survey at 2014, during which many health related and epidemiological relevant transformations and transitions had been witnessed so far. Many of the Dubai Plan 2021 indicators that track progress towards the UAE-nationals outcomes have relevance to health. The DHHS being the official source for measuring progress towards many of the Dubai Plan 2021 health Indicators.

Dubai's rapid socioeconomic development coupled with demographic trends over the past 3 decades reflects positively on many health indicators, most notably on the increase in life expectancy at birth. However, such achievements may be overshadowed by the dramatic rise of chronic diseases, including cardiovascular disease, diabetes and other obesity-associated syndromes which are costly to treat. If the achievements in the health status accomplished over the past decades are to continue, there must be concerted efforts and coordinated policies with greater emphasis on proven, cost-effective primary prevention services that focus on lifestyle and behavior change.

I would like to present my appreciation to every one who has participated in this survey without their participation, this survey could not have been carried out. Last but not least, I express my gratitude to our DHA staff, who actualized the survey by contributing to all stages of the survey with their endeavors and knowledge, their contributions to making the survey reach the standards.

Ms. Fatema Abbas

CEO of Strategy and corporate development Sector

Acknowledgments

The Data Analysis, Research and Studies Dept., Strategy and Corporate Development Sector at DHA would like to avail this opportunity to extend its deepest esteem to all partners, stakeholders experts , volunteers and individuals enrolled in each single effort to make this survey successful.

Firstly, we would like to covey sincere thanks and gratitude to the 9630 individuals across Dubai for giving up their time to participate in the 2017 survey and for welcoming our interviewers into their home.

We would also like to express gratitude for those colleagues from Dubai statistics center who contributed to the survey and this report. In particular: the interviewers and the nursing staff from DHA who worked hardly on the project. The success of the survey is in large part down to the commitment and professionalism they apply to their work every day. We would also like to express our thanks to the laboratory staff at Nad Alhamar Heath Center. Thanks are introduced to Dubai household survey committee and technical committee that carried out all data analysis to obtain the results.

A special gratitude to our internal partners (Directorate of Public Health & Protection, Dubai Funding Corporate, Strategy and Governance department and Dubai Diabetic Committee), whose contribution was fundamental to this project). Special thanks and deep gratitude go to technical and administrative staff at Dubai Statistics Centre (DSC) for their extensive follow up, high commitment and enthusiasm to make it successful. Starting with planning and preparation phase, developing questionnaires, training for data collectors, fieldwork, data auditing, the DSC staff shared all their expertise with the DHA survey steering committee.

Furthermore, we would like to acknowledge with much appreciation the crucial role of the professional staff at Data Analysis Research & Study Dep. for their both technical and logistical follow up at all the phases, particularly analysis and report writing and presentation efforts.

Finally, yet importantly, many thanks go to his highness, the Director General of the DHA for investing his full efforts in supporting the team in achieving the goal.

Mr. Khaled Al Jallaf

Director of the Data Analysis, Research and Studies Dept.

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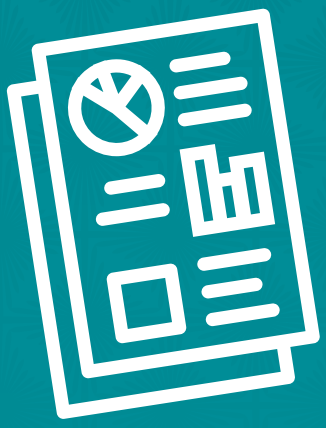
List of abbreviations

NCDs	Non-Communicable Diseases
WHO	World Health Organization
DHA	Dubai Health Authority
DSC	Dubai Statistics Center
BMI	Body Mass Index
CVD	Cardio-vascular disease
DM	Diabetes mellitus
DHHS	Dubai Household Health Survey
WC	Waist Circumferences
SD	Standard Deviation
OOP	Out-of-Pocket
PHQ-9	Patient Depression Question-naire
SBP	Systolic Blood Pressure
DBP	Diastolic Blood Pressure
AED	Arab Emirates Dirham (Official Currency of UAE)
HbA1C	Glycosylated Hemoglobin
PSU	Primary sampling unit



Summary of Findings

Summary of Findings:

The Dubai House Hold Survey 2019 report, presents a very important and extensive base-line information on population health status through collecting data from a UAE-national representative sample of the population. It specifically highlighted the major preventable risk factors for Non-Communicable Diseases (NCDs); including smoking, lack of physical activity, inadequate intake of fruits and vegetables, and alcohol intake. Besides, the main NCDs including, hypertension and diabetes were also emphasized on.

Characteristics of the respondents:

The socio-demographic characteristics of the respondents showed that a total of 9,630 house-hold members were selected. Out of them, 2,533 individuals were selected to be interviewed during the survey. Amongst the household members, 55.8% were Non-UAE-nationals (5,371 individuals), with the remaining 44.2% were UAE-UAE-nationals (4,259 individuals). The children in the age group of (5-17) years constituted 18% of the sample (1,741). The highest percentage of the sample (46.3%) lied within the age group 25-44 years (4,461). As for the gender distribution of the surveyed samples, females (4,689) constituted 48.7%, with the remaining 51.3% were males (4,941).
Concerning the marital status of the surveyed respondents, the available data showed that 60% were currently married, 34.5% were single, 3.2% were separated or divorced and 2.3% were widowed. Regarding, the educational status of the surveyed respondents, the data revealed that almost one-third of the sample (35.1%) have secondary education or equivalent, wit 32.2% of them have university level of education or higher. In regards to working status, the current data revealed that 70.4% of the survey respondents are currently working, 21.6% never worked and 8% were not working currently.

Self-reported NCDs and treatment needs

DHHS 2019 data summarized the number of respondents in need of specific health interventions (need) and how many of these respondents actually received the care that they need in terms of coverage of morbidity (coverage). In terms of need, 11.6% of respondents reported they were diagnosed with diabetes mellitus, yet, only 89.9% of them were on diabetes treatments. In addition, only 8.4% of the surveyed adults were hypertensive patients, with 90.4% of them were on medications. The percentage in need for hypertensive services were more likely to be UAE-nationals (17.3%) than non-UAE-nationals (7.8%).

Only small proportion of the interviewed adults (2.1%) reported suffering from angina during the last 12 months, nevertheless a minor percentage of them (0.1%) reported that they already took medication for that. As for the self-reported stroke attacks, very few respondents self-reported (0.2%) a history of stroke during the last year, but only 28.1% of them were on medications.

The DHHS, 2019 data shows quite high percentage of the adult respondents self-reported asthma. Whereas, almost one third of interviewee (32.6%) reported having asthma during the last 12 months, yet 23.9% of them were on medications. Asthma self-reporting was more among UAE-nationals (42.2%), compared to Non-emirates and (28.4%). The percent of them covered with the treatment needs was also higher in UAE-nationals than non-UAE-nationals (59.1%& 19.8%, respectively).

Moreover, the results revealed that the osteoarthritis self-reporting among the respondents was clearly high (16.8%), out of which 24.3% were on medications. Surprisingly, almost half of the surveyed adult UAE-nationals self-reported osteoarthritis (49.0%), versus 12.9% of Non-nationals. Self-reported depression among respondents was extremely low (0.4%), with only one fifth of them (21.1%) were on medications.

The survey data revealed that self-reported oral health issues during the last 12 months by respondents was (8.1%), while those who received oral health treatment were 75.8% out of them. UAE-nationals self-reported a higher (20.8%) oral health issues than non-UAE-nationals (7.3%).

Very low rate of road traffic accidents was self-reported by the participants (0.6%), of which 75.8% had received treatment. UAE-nationals showed more self-reported traffic accidents (0.9%), versus (0.5%) of Non-UAE-nationals. Survey data also showed that self-reporting of injuries rather than traffic accidents was 1.6% of the total respondents, 66.6% of them had received medications.

Risk Factors and Health Behavior:

Concerning the risk factors for the self-reported NCDs, data has been collected on four major risk factors; use of tobacco, alcohol consumption, healthy eating and physical activity.
Survey data revealed that tobacco use (smoking) is relatively high among the adult respondents, with 15.8% were currently smoking and 2.2% are ex-smokers. Of the current smokers, 11.5% stated that they smoked every day, whilst 4.3% said that they smoke, but not on daily basis. Among the current smokers, UAE-nationals smokers were 14.3% compared to 16% of Non-UAE-nationals. Females reported current smoking in a much lesser parentage than males (7.9% and 20.9%, respectively).

The survey data showed that only one in five of the adults surveyed (19.9%) took sufficient exercise over the course of a typical week. The percentage of males who attained the target of sufficient exercise was similar to females. Obviously, the youngest age group (18- 24) were the most to attain the target compared to other groups. UAE-nationals respondents who reported doing sufficient exercise (23.6%) over the course of a typical week is slightly more than that of Non-nationals (19.4%).

The data from DHHS 2019 showed that more than one third of respondents (36.1%) reported eating sufficient fruits and vegetables on a typical day, with the vast majority of the surveyed adults stating that they do not eat five servings per day. The healthy eating habit seems to be affected largely by age, whereas only 29.7% of the younger r0espondents reported eating, compared to almost half (45.9%) of the elder age group (60+). No sound differences were detected either by gender or by Nationality among the respondents in eating sufficient fruits and vegetables on a typical day. However, non-UAE-nationals (36.3%) consumed slightly more sufficient amount of fruits and vegetables than UAE-nationals (36.1%).

The data also showed that about one-fifth (20.6%) of the respondents reported that they ever consumed alcohol. Among them, males (22.3%) were more likely to report ever drinking compared to females (16.1%). The burden of alcohol drinking is almost endured by non-UAE-nationals, whereas 21.9% of them were ever drinkers compared to only 1% of the UAE-nationals. Means, only 8.7% of them were frequent drinkers (either daily/ weekly/ monthly).

Measurements and Chronic conditions

Adult weight disorders, including obesity (BMI of 25 kg/m² or greater) prevalence reached 62.1% among the sampled population of DHHS 2019. Two in each ten of the adult population in Dubai are considered obese (20.8%), with the largest proportion of them (41.3%) were overweight. Generally, 35.8% of adults were in the healthy weight category. It was clear that UAE-nationals tend to be more obese than non-UAE-nationals, where four of each ten UAE-nationals considered obese (39.9%), compared to only 18.2% of non-UAE-nationals. Males (19.2%) were less likely to be obese than females (23.3%).

Looking at the prevalence of overweight status, it is clear that prevalence is higher among males (45.5%) than females (34.4%). In addition, four in ten of the adults surveyed (39%) have central obesity (raised waist circumference). The proportion of men aged 18 and over (26.7%) with a raised waist circumference was significantly lower than that for women (58.8%). Also, UAE-nationals who had central obesity due to abnormal waist circumferences were significantly more than non-UAE-nationals (58.1% and 30.3%, respectively).

As for the prevalence of diabetes among the sampled adults, data shows that 13.7% were diabetics and 16.2% were pre-diabetics. The majority of the sample (86.3%) were non-diabetics, though 70.1% of them have normal blood glucose levels. Overall, 2.1% of the respondents did not know they were diabetics (newly diagnosed) as they were diagnosed with the blood sample test during the survey, while 11.5% of them self-reported the disease.

Variations by gender were also obvious, as more males self-reported diabetes, and the disease was more prevalent currently in males (15.5%) than in females (12.1%). In addition, almost double percent of the pre-diabetics were males (20.5%) than being females (11.9%).

The burden of diabetes was borne more by UAE-nationals (19.3%) than non-UAE-nationals (12.4%). In addition, more UAE-nationals (17.1%) were detected to have prediabetes state than non-UAE-nationals (12%) Regarding the prevalence of hypertension, results show that 32.5% of the adult individuals surveyed in Dubai have hypertension. Amongst them, 24.1% did not know they do have the condition (potential undiagnosed hypertension) and was diagnosed by the survey. In addition, 32.8% of the surveyed adults were pre-hypertensive. Variations by gender were obvious, as hypertension was more prevalent currently in males (38.3%) than in females (16.7%).

The burden of hypertension was slightly higher among non-UAE-nationals (33%) than UAE-nationals (25.2 %). Hypertension increased considerably by age, from 22.9% among respondents in the (18-24) age group to 56.5% among those in the (60+) age group.

Self-Rating of Health status:

The majority of respondents rated their health as either good or very good (94.8%), with 59.7% and 35.1% of participants falling in these two categories, respectively. Males were much more likely to rate their health as good or very good than females, with 95.3% in the top two categories, compared with 93.6% of females. Non-UAE-nationals respondents were also more likely to rate their health as good or very good (95.2%) than UAE-nationals (89.1%). DHHS 2019 revealed that almost one third only of the survey interviewee reported conducting periodic medical checkups (34.3%). Which was slightly higher in UAE-nationals (36.1%) than Non-nationals of Emirate (34.0%).

Mental Health:

According to the Dubai Household Health Survey (2019), prevalence of depressive disorders among adults aged 18 and over was 2.1%, this varies between 2.3% for females and 2% for males.

Healthcare expenditure:

Total out-of-pocket (OOP) expenditure by service type was summed up to Total Out-of-pocket (OOP) spending was 1,534.8 Million AED. Out of this number, OOP spend on outpatient care accounted for 31.9% of the total spend, inpatient constituted up to 44.8% of the total spend, while health related equipment, devices and material accounted for the remaining 23.3%.

For all the types of health spending, OOP spending by males is considerably higher than that of females and that of non-UAE-nationals is higher than that of UAE-nationals.

Introduction | 1

Chapter one

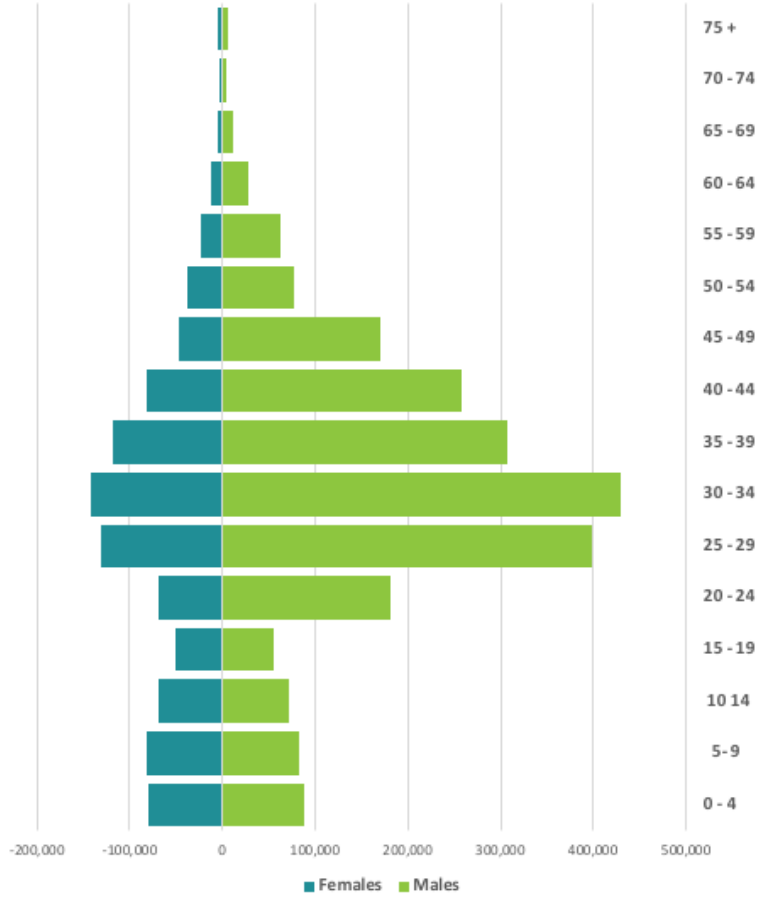
1.1 Geography of the Emirate of Dubai

Dubai is the largest and most populous city in the United Arab Emirates (UAE). Dubai is one of seven emirates that make up the United Arab Emirates, and it is the second largest by area, measuring 4,114 square kilometers, and coming second only to Abu Dhabi, Dubai is a global city and business hub of the Middle East. Situated on the Arabian Gulf coast of the UAE and is roughly at sea level (16 m or 52 ft. above). Dubai shares borders with Abu Dhabi in the south, Sharjah in the northeast, and the Sultanate of Oman in the southeast. The Arabian Gulf borders the western coast of the emirate. Dubai covers an area of 1,588 sq. mi (4,110 km2), which represents a significant expansion beyond its initial 1,500 sq. mi (3,900 km2) designation due to land reclamation from the sea.

1.2 Dubai population characteristics

In terms of population, Dubai has an estimated population of 3,192,275 by the end of 2018. This makes it the most populated emirate in the UAE. Dubai's ratio of males to females is skewed, with approximately 70% of the population being males as of its unique chrematistic business environment. In addition, it has 58.3% of its population at the young productive age group of 25- 44 years, accounting for the largest demographic group. Based on the personal characteristics of Dubai population, the survey sample was selected to ensure that the results are correct and with high degree of accuracy

Figure 1.1 Dubai Population Pyramid by gender, 2018



Source: Dubai Statistics center-*Annual estimated population

Table 1.1

Population by gender and age groups for the Emirate of Dubai, 2018

Age Groups	Males	Females	Total
0 - 4	88,918	80,134	169,052
5 - 9	82,387	81,343	163,730
10 - 14	71,636	68,314	139,950
15 - 19	56,116	50,313	106,429
20 - 24	180,704	69,058	249,762
25 - 29	398,162	131,496	529,658
30 - 34	430,363	142,099	572,462
35 - 39	307,216	118,535	425,751
40 - 44	258,607	81,676	340,283
45 - 49	170,899	47,307	218,206
50 - 54	77,713	37,176	114,889
55 - 59	61,904	23,605	85,509
60 - 64	27,040	12,665	39,705
65 - 69	12,368	5,657	18,025
70 - 74	4,166	4,015	8,181
75 +	5,191	5,492	10,683
Total	2,233,390	958,885	3,192,275

Source: Dubai Statistics center-*Annual estimated population

1.3 The importance of Health Surveys

Health surveys are an important mean of providing high quality data about health indicators in various aspects, related to sociodemographic and health variables for families and individuals. The results of the health surveys shall be utilized for planning, development, decision making and comparison with the best practices at global. Health surveys also gain great importance to empower, update and expand health information systems, to enable accounting, the rates of demographic and health indicators used by the state as an integral part with its health systems Informatics. They are aiming to create a set of quality indicators and strategic reports, which contribute to building the capacity of the health system and improving its performance. Recent global trends and successful health organizations are extensively investing health surveys outcomes, as a scientific method, it recognize as a basic premise to support the health security of the population, and it is a key part of the policy, principles and practices of the health organizations that emphasize Society and its members as a center of development Such goals, shall lead to a healthier and happier society.

1.4 frequency of health survey

National health systems usually are adopting fixed years interval for conducting health surveys, which is the time periods between the previous and the subsequent health survey, based on various criteria, such as the sufficient time for a change in health and social indicators among individuals and population, the occurrence of profound epidemiological, health and social transformations that allow the change in the level of KPIs. The successful health systems are mandated to measure and address changing in the health and sickness trends cautiously happen for many reasons, e.g. achieving sustainability of the health databases, supporting policy development, making effective decisions, applying powerful interventions bridging gaps and solving existing problems encountered by health system.

The extent of survey logistics and work force efforts required to implement comprehensive health surveys is also taken into account to decide on survey frequency. Taking in consideration the financial costs available for such surveys is another important factor. Therefore, the methodology followed by the Dubai Health Authority to approve the periodicity of the health surveys has been determined by DHA health and technical experts, and it has been agreed on Carrying out these surveys every five years as a sufficient period for the variables changes to be measured.

1.5 Socioeconomic indicators

Currently, Dubai's health Status indicators compare well with those of many developed countries. Thanks to considerable economic and social development and progress in health care over the years, the Emirate has achieved a life expectancy of over 79 years (which is the highest among the neighboring countries). This has been achieved despite a relatively large share of population under age 15 years (15%). The health indicators show a remarkable reduction in mortality, especially childhood mortality. The emirate is recognized

internationally as one of the few countries in this region with successful experience in health development. It has achieved a dramatic transformation in its healthcare system over a remarkably short span of time. The emirate seems to have achieved remarkable success in evolving policies and plans for controlling or eradicating major communicable diseases with a great success

- There has been a substantial improvement in children mortality rates in the emirate. The infant mortality rates dropped from 80 deaths/1000 live births in 1970 to 5/1000 live births in 2018. Same drop rate was experienced by the under 5 mortality rate from 110/1000 to 7/1000 live births in 2018.
- The health sector accounted for 1% of Dubai's GDP in 2017. The share of the Government of Dubai of current expenditure on healthcare is about 33%..
- The total expenditure for healthcare in the UAE was 3.2% of the GDP.
- Healthcare services indicators show that Dubai has a well-developed healthcare infrastructure and that this is constantly improving in terms of the density of physicians and nurses and hospital beds (the density of physicians in Dubai reached 3 per 1,000 people in 2018).
- In 2013, a health insurance system has been established in Dubai concerning comprehensive health insurance. This law also stipulates that health insurance is mandatory for all residents in Dubai, and requires that the employer/sponsor bears the cost of workers' health insurance and that workers bear the cost of the insurance of their families.

1.6 About the Dubai Health Authority.

His Highness Sheikh Mohammad Bin Rashid Al Maktoum, UAE Vice President, Prime Minister and Ruler of Dubai created the Dubai Health Authority (DHA) in June 2007. As the strategic health authority for the Emirate of Dubai, the DHA is empowered to set policies and strategies for health in the Emirate and to assure the application of those policies and strategies.

1.7 About the Dubai Household Health Survey.

The Dubai Household Health Survey (DHHS), 2019 is the largest and most comprehensive survey of health and healthcare issues ever carried out in the Emirate of Dubai. The survey, is one of the series, is the 3rd. DHHS. It provides a statistically accurate and representative picture of key health and healthcare variables across all of the Dubai population. Surveyors randomly selected around 2496 households across the Emirate of Dubai and visited them personally to obtain detailed information on issues from household health expenditure and access to health services to exercise levels, dietary habits, lifestyle diseases and use of medicines. The survey – which had a response rate of 91.6%, also included questions on injuries, mental health and physical capabilities and

Survey Methodology

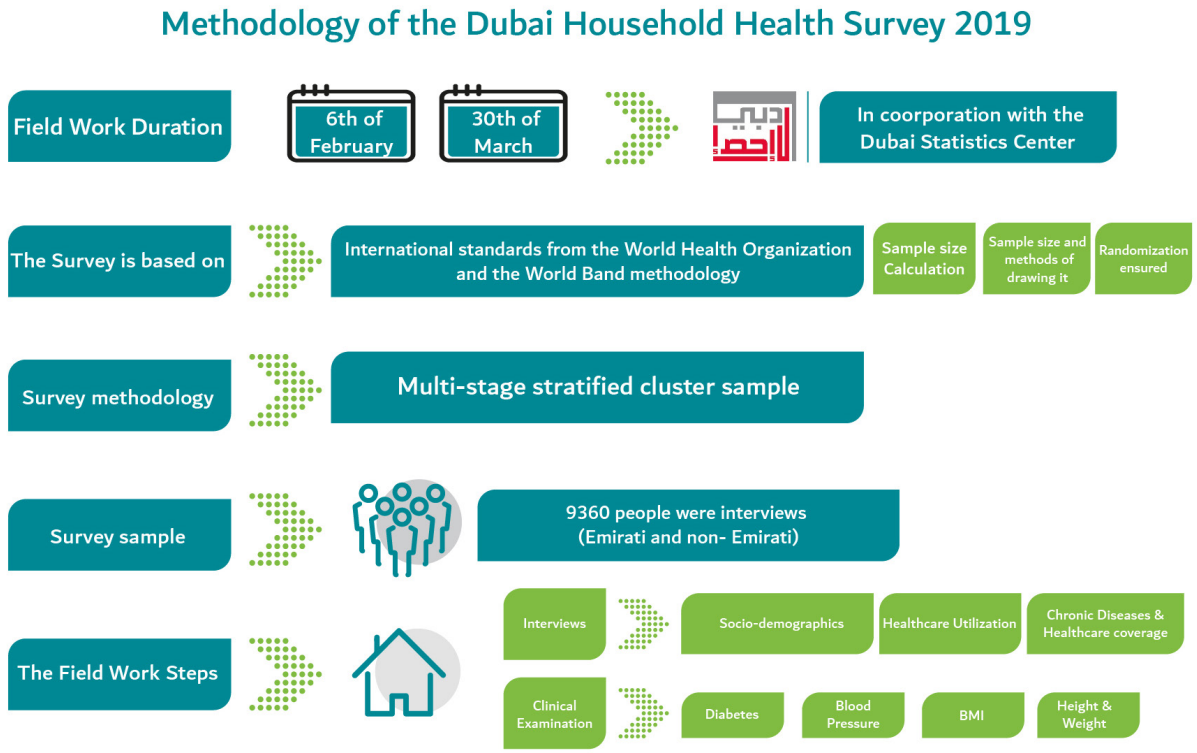
2

Chapter Two

a detailed module on people's use of and satisfaction with inpatients and outpatients health services in the Emirate. The Survey was designed and led by DHA's Data Analysis, Research and Studies department drawing on in-house expertise from senior staff with experience at the World Health Organization. The survey was implemented in close collaboration with the Dubai Statistics Center. The design and methodology of the survey were adapted from those used in the World Bank's Living Standards Measurement Surveys (LSMS) and the World Health Organization's World Health Surveys (WHS).

2.1 Introduction:

Dubai household health survey 2019 was carried out during the period of 6th of February to 30th of March-2019. It covered different part of emirate of Dubai (selected clusters in selected geographical areas in Dubai including Hatta district). According to the methodology demonstrated in the diagram no (1).



2.2 Survey General Aims:

The Dubai Health Survey 2019 aims to provide detailed data related to the health status of Emirati families residing in the Emirate of Dubai during the past year, with an assessment of their health status through examinations carried out by the research team free of charge during the data collection period. Which was used to estimate many of the targeted health indicators and standards in the emirate, as of the following:

The objectives of the survey are to:

a. The survey is a means of providing reliable, comparable, real health data and information at a relatively low cost, to compare the information provided by the routine available health information systems.

b. Build the evidence base necessary for policy-makers to monitor if health systems are achieving the desired goals, and to assess if additional investment in health is achieving the desired outcomes.

c. Providing decision makers with documented and organized information that helps them to approve and develop health strategies, policies and programs in line with the reality of the health situation in the emirate.

d. Establishing and developing a database on the health status of the residents of the Emirate of Dubai, which includes many descriptive and quantitative data related to the health status of the Emirate.

2.3 Survey Sample

2.3.1. Target population for the DHHS 2019

The target groups in this survey are the population in the Emirate of Dubai residing in households (UAE-nationals and non-UAE-nationals families, as well as collective households), and those residing in labor camps). It has been decided that the data will be collected from a family member of (18+) years old including elderlies (60+). Data related to children from (0-17) years was collected from the household heads. For the purpose of this report, Emirati population are referred to as UAE-nationals, while the expatriates population are referred to as non-UAE-nationals.

2.3.2. Sample Framework

The sample framework is defined as a list of units from which the survey sample is collected. The model framework for sampling is the latest framework encompassing all the units of the phenomenon or the community of the study. The most recent framework for the target population is the household framework provided by the household census. The third phase of this inventory was completed in the first half of 2018 and included 90% of the total households in Dubai. The remaining 10% of households that not covered by the Census were enumerated based on the DEWA subscriber list. The Emirate of Dubai is divided into 9 main Districts covering the whole area of the emirate.

The DSC made an update for the families that included about 50% of the total residential units provided by the aforementioned inventory, in the form of clusters each is of the size of 100 residential units based on the inventory data. The results of the update process were used to design the sample population residing in families. Regarding the sample of labor camps, the framework of labor camps that has been updated in 2017 was used. In order to make use of this framework to design the survey sample, it was divided into three layers:

- **First Layer:** It included the planning areas that are expected to have +40% of the population from citizens, and it has been fully updated.
- **Second Layer:** It included a third of the other areas, which have been randomly selected. This new framework is updated and suitable for collection of the families' sample.

- **Third Layer:** Labor camps, with each camp representing a counting unit (cluster) of the size of 50.

The cluster sampling method is appropriate for this type of framework, to reduce the cost of fieldwork compared to the direct sampling of households from the frame, which leads to increase in the cost of fieldwork and supervision of field researchers. As a result, the clusters were settled as Primary Sampling Units (PSUs) in each stratum, each of which ranged in size from (100-200) households. It was arranged in a geographical sequence within each PSU and within each of the nine districts using GIS and GPS. Families were reached by withdrawing a specified number of initial units in each stratum as a first stage, and a specific number of households were withdrawn from each enumeration unit in the second stage. Therefore, the survey sample is a two-stage stratified cluster sample.

2.2.3. Sample Size

The key goal of this survey is to estimate ratio for many indicators. In such cases, the sample size is estimated depending on the contrast ratio, the degree of expected confidence in the data, and the tolerated margin of error according to the law of simple random sample size, without repetition of the following ratio estimation:

Whereas:

- n is the sample size;
- t is the value corresponding to the confidence rate in the normal distribution table;
- p is the ratio of the studied phenomenon;
- q = 1 – p -e is the error margins; N is the population size.

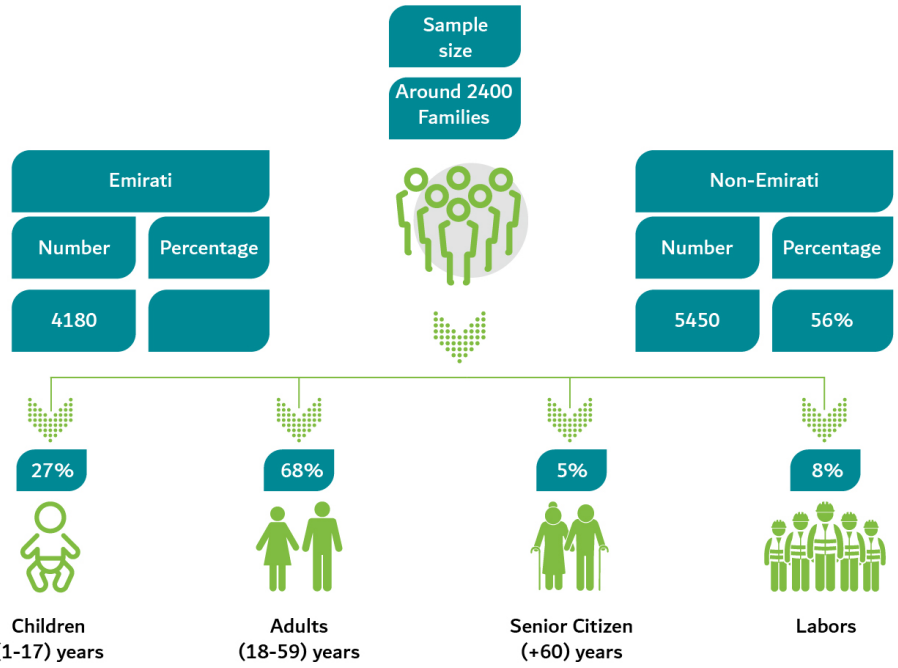
It should be noted that the ratio for in the previous relationship is usually small and can be disregarded if it is less than 5%, while the previous relationship devolves to the random sample size with the following repetition:

The general principle for estimating the sample size in the case of comparative indicators is based on estimates of these indicators from previous surveys, the sample size estimation for all or some of these indicators, and the adoption of the larger sample size. Since the latest available estimates are from the previous survey of 2014, taking into account that these estimates are old, another method was resorted to for estimating the sample size, which depends on the contrast ratio which is maximum when the ratio is , so , which means contrast is equal to 0.25, which is bigger than any other expected contrast ratio, which means that the sample size for this contrast is maximum too, according to a specific degree of confidence and a margin of error. It follows that the expected error of this size is maximum too.

The sample size calculated in the previous relationship expresses the number of individuals targeted in the survey, given the consideration that the family is the final statistical unit for target groups in this survey, the

sample size of individuals should be transferred to families by dividing the sample size of individuals by the ratio of the target group (r) of the total population to get the total population. According to the diagram, no (2) that demonstrating sample general frame used for the survey.

Target Population (Precent Distribution)



Given the fact that the survey targeted the whole population, (r) is equal to one, (the calculated sample size accordingly would be enough for adults and children, and for that reason there have been no estimations of the sample size for each, because that will lead to enlarging the size of the sample. By dividing the total population by average family size (x) we get the desired sample size of families. On the other hand, because the sample is a cluster one, the sample size must be enlarged to cover the impact of internal consistency (Design Effect) between cluster units (d), and the sample size is enlarged normally by a coefficient of (1.5) in most of the surveys of this kind, according to the internationals practices.

To calculate the sample size for this survey, the followings were adopted based on the data provided by the 2014 DHHS. Using the previously mentioned equations to calculate the sample size, and in view of the available human and financial resources and the time required to carry out this survey, while taking a prevalence of diabetes of 18.5% among UAE-Nationals and 11% among non-UAE nationals. In addition, a confidence level of 95% and a margin of error of 17% from the prevalence of diabetes patients were adopted. The proportion of UAE-Nationals within the sample was over-sampled, and this was corrected by weighting.

According to Dubai Statistical Center, the total population of Dubai at the end of 2018 was 3,192,275. The original sample was composed of 876 UAE-Nationals families, 1,320 expatriate and collective families, and 300 from the labour campuses. Based on all of the previous assumptions, and a response rate of 91.6%, the total sample size summed up to 2,496 families, with 9,630 individuals.

Table 2.1:

Sampling Details of household survey 2019 Dubai

Strata	Number of Clusters	Size of the cluster	Sample size
UAE-Nationals	73	12	876
Non UAE-Nationals	74	12	888
Collective	36	12	432
Labor groups	25	12	300
Total	208		2496

2.2.4 Sampling Units Selection:

Overall, 100 clusters were selected in each layer, so that the total number of families in these clusters is no less than the sample size for each layer. In light of this, the number of families in each layer was collected with proportionate possibilities with size in two phases:

Phase 1 Primary: Sampling Units (PSUs) assignment.

Phase 2 Sampling: 12 families randomly selected (in addition to 4 replacement families) from the clusters assigned at the first phase from each layer.

With regard to sampling individuals from labor camps in order to reduce the impact of the design effect and to ensure the widest spread of the sample, it has been decided to randomly select 10 workers from each cluster in the labor camps. Clusters were selected according to the simple random method.

2.3. Survey Design:

A multistage, stratified, cluster survey was identified as an adequate sampling technique for conducting the survey. Houses were visited to obtain detailed information on the different health-related issues. A random of samples were drawn on a daily basis from the households in all regions to ensure the accuracy of data collected by researchers. The design and methodology of the survey were adapted from those used in the World Bank's Living Standards Measurement Surveys (LSMS) and the World Health Organization's World Health Surveys (WHS).

Statistical analysis of DHHS data:

By utilizing SPSS 21 and Stata 12 software, simple and compound frequency distribution tables were created with further adequate charts for more illustration.

2.4. Diagnostic Criteria & Definitions

a. Smoking: Participants were classified according to their smoking status into; current daily, current occasional, ex- and non-smokers. Smokers were classified according to tobacco types as cigarette (manufactured and hand rolled), shisha (water pipe) or other types (cigar or pipe) smokers. For calculation of prevalence rates of each type, the participant was counted in each type he / she currently smokes or used to smoke.
Age at start of smoking was either directly obtained or derived from the questions on duration of smoking and date of birth. Average number of cigarettes smoked daily was calculated for daily smokers only.

b. Vegetables and Fruits Intake: Responses were classified into daily intake, less than daily intake and no intake.

c. Physical Activity: Adults physical activity was measured into three situations:
- Physical activity at work,
- Physical activity at leisure time.

Further, the intensity of physical activity was classified into:
- Vigorous-intensity activity: activities such as lifting heavy weights and labor works for at least 10 minutes continuously,
- Moderate-intensity activity: activities such as fast walking and lifting light weights for at least 10 minutes continuously,
- Low-intensity activity: those not included in the previous categories.

d. Obesity: BMI is defined for children in the same way as it is for adults: weight (kg)/square of height (m2). For analyzing the BMI among adults, the WHO definition was considered whereas readings less than 25 were considered normal or low, reading between 25 and < 30 were considered overweight, and readings ≥30 as obese. In this classification women who stated they were pregnant at the time of the interview, were excluded from the analysis.

For the childhood obesity, BMI is defined for children in the same way as it is for adults: weight (kg)/square of height (m2). The Internationals Obesity Task Force concluded that BMI is a reasonable measure of adiposity in children, and it is the key measure of overweight and obesity for children used in this survey.
The classification of children's BMI used in this survey, set out below, has been derived from BMI percentiles of the WHO 1990 reference curves (referred to as the regional BMI percentiles classification); these have been used in each DHHS to date.

The BMI percentiles classification has been shown to be reasonably sensitive (i.e. not classifying obese children as non-obese) and specific (i.e. not classifying non-obese children as obese). The growth references classify Body Mass Index (BMI) based on age and gender as described below:

- Thinness is BMI less than -1 standard deviation below the WHO Growth Reference median.
- Normal weight is BMI between -2 and +1 standard deviation from the WHO Growth Reference median.

- Overweight is BMI greater than 1 standard deviation above the WHO Growth Reference median.
- Obesity is BMI greater than 2 standard deviations above the WHO Growth Reference median.

e. Other anthropometric measures (Abdominal obesity & Waist to hip ratio):

- Central/ abdominal obesity or raised WC: is defined as more than 102 cm for men and more than 88 cm for women.
- Waist-to-hip ratio (WHR): is defines as the ratio of the circumference of the waist to that of the hips. The WHO states that abdominal obesity is defined as a waist-hip ratio above 0.90 for males and above 0.85 for females.

f. Hypertension: According to WHO classification for blood pressure measurement, individuals with systolic blood pressure (SBP) ≥140 mmHg or diastolic blood pressure (DBP) ≥90 mmHg are considered hypertensive. The estimated prevalence of hypertension was derived by adding up the prevalence of self-reported hypertension and that of subjects found to have high average reading of systolic or diastolic pressure.

g. Hyperglycemia & Diabetes: The respondent was considered diabetic if HbA1c result was shown as 6.5% or above. Prediabetes was diagnosed if HbA1C was between 5.7% to 6.4 % inclusive. Normoglycemia (non-diabetic) was considered if HbA1c <5.7 %.

The estimated prevalence of diabetes was derived by adding up the prevalence of self-reported diabetes and that of newly discovered Diabetes based on HbA1C results (newly diagnosed).

2.5. Survey Management:

2.5.1 Survey Staff:

The survey was organized, managed and conducted through the following teams; The Survey official committee, the Survey Technical Team, field supervisors, 75 qualified interviewers, 25 well trained nurses and other laboratory technicians.

2.5.2 Survey Training Phase:

Well-trained data collectors and nurses were enrolled for data collection under direct supervision of the technical team from both the Dubai Statistics Center and Dubai Health Authority. A professional number of training sessions were conducted over one-week duration by about 15 trainers, supervisors and statisticians. In addition, technical training for the nurses has been conducted on blood sampling techniques and proper anthropometric measurements techniques for blood pressure, height, weight, hip and waist circumference. Training using certain techniques in order to make personal interviews, how to deal with household heads, privacy issues were available as well.

The training included the following main modules; general idea about the survey and its' objectives, survey management process and responsibilities of different categories of survey staff, detail explanation of the content

of the questionnaire, interview skills, field data entry on the provided tablets' software and finally methods used to encourage participation.

2.5.3. The Fieldwork Phase:

The survey was prepared for and undertaken during the period from 6th of February until end of March 2019, followed by data cleaning, validation and examination.

Data were aggregated centrally and SPSS data sheet was created by Dubai Statistics Center. Data was analyzed using SPSS 21 software.

2.5.4. Data Cleaning and Validation:

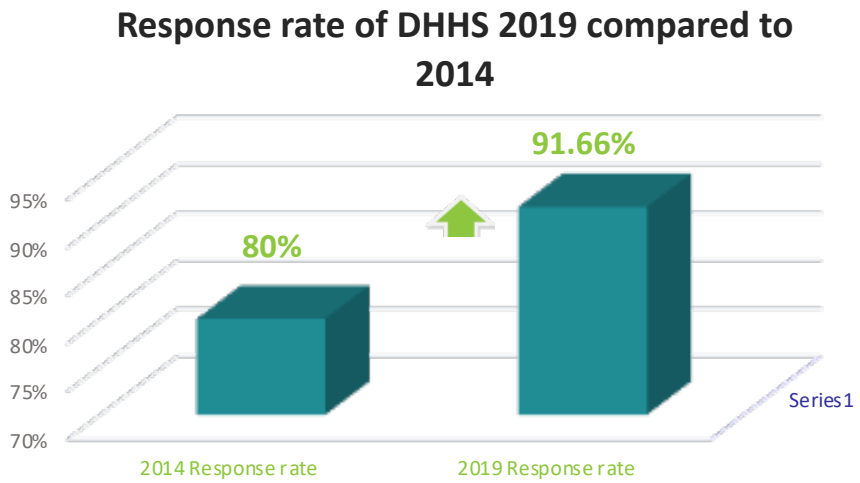
Questionnaires of completed interviews were checked by the field supervisors, for incompleteness and missing information. The completed ones were then sent for double checking, coding and cross-item verification.

Variable item verification and classification: For each variable, odd readings in frequency analyses were rechecked against the original data in the data collection forms and corrected accordingly, before variable being classified and used in final analysis.

2.6. Survey Response Rate:

The selected household was visited for three times under different circumstances until it is found and interviewed. For households who were not available after three visits, or could not be reached (e.g. wrong address) were replaced, if possible, by randomly choosing one of the two close travelling on either side of the original household. This process was done by the field worker after consulting his field supervisor. Households whom were found but refused to participate were not replaced. The DHHS 2019 revealed that the response rate was 91.6% among the total identified sample size. This figure is much higher than that (DHSS) of 2014 which showed only 80% of total allocated survey sample size (Figure 1). The total numbers of households addressed within the current survey were 2200 households, accounting for a total number of 9630 individuals interviewed.

Figure 2.1: Response rate of DHHS 2019 compared to that of 2014



2.7. Survey steps in brief:

1. Project planning and management covering preparation of the project proposal, budget allocation and formation of survey committees, etc.

2. Development, pretesting, finalization, and translation of survey instruments including, programs and other documents such as forms manuals, etc.

3. Sample design, selection of Primary Sampling Units (PSUs), household mapping and listing, and sample

3. Sample design, selection of Primary Sampling Units (PSUs), household mapping and listing, and sample
household selection.

4. Recruitment of project staff and researchers.

5. Procurement and distribution of supplies and equipment.

6. Training of personnel on all aspects of the survey.

7. Prepare fieldwork implementation protocols and streamline other field arrangements to minimize non-sampling errors.

8. Development of data management and quality check procedures.

9. Analysis and production of tables and figures.

10. Dissemination of survey results

11. Release of publications and data sets for public use through various websites

2.8. Limitations of the survey:

The main limitation of DHHS was that the information collected on a self-reported chronic health problems and health difficulties from individuals interviewed and hence subjected to some form of bias. The vignettes in this survey were intended to solve some responsiveness problems as morbidity and health state valuation, but the survey analysis did not use the vignettes to adjust differential responses between groups. Also, the questionnaire being long and detailed, taking approximately on an average 2 hours and 15 minutes to administer could have caused fatigue and hence altered responses among subjects / interviewers. Besides, some issues related to social stigma as divorce, alcohol drinking, smoking in females and younger adults seem to give a high reporting bias and need to be investigated in a different way.

Socio-demographic Characteristics

Chapter Three

3

Chapter 3: Socio-demographic characteristics

Regarding the Socio-demographic profile of the participants in DHHS 2019, results revealed the following findings:

Percent distribution of surveyed participants according to age groups, gender and Nationality was showed in Table 3.1 Age distribution of the sample reflects the current demographic trends in Dubai. Accordingly, the highest percentage of participants was for those in the age group of 25- 44 years (46.3%), followed by children and teenagers in the age of 0-17 years (18.1%).

The mean age of the surveyed population was 30.2 years. Figure 3.1 illustrates that this parentage was almost similar for both males and females (30.1 yrs. & 30.4 yrs., respectively). However, the mean age of UAE-Nationals was 28 years compared to 32.5 yrs. for Non-nationals.
A more detailed distribution of the participants by age groups, gender and Nationality was shown in Figures 3.1 –3.3. Males and females were eventually distributed within all the age groups.

Some differences according to Nationality distribution was evident as in the age group of 25 – 44, whereas 72.6% were Non-UAE-Nationals compared with 27.4% UAE-Nationals. For the children from 0 to 17 years, the reverse was noted as 70.3% of the sample was UAE-Nationals, compared to 29.7% Non-UAE-Nationals.

Nationality:

Figure 2: revealed that 44.2% of the total surveyed participants were UAE-Nationals, compared to 55.8% were Non-UAE-Nationals residents of different UAE-Nationals. Non-UAE-Nationals to UAE-Nationals ratio was 1.26. Proportion of UAE-Nationals was over-sampled, and this was corrected by weighting.

Table 3.1

Percent distribution of household population by age groups, gender and Nationality, DHHS, 2019.

Age Groups (yrs.)	Females			Males			Nationality		Number of Respondents (%)
	UAE nationals	Non UAE nationals	Total	UAE nationals	Non UAE nationals	Total	Total UAE nationals	Total Non UAE nationals	
0- 4	32.0	17.1	49.1	33.1	17.8	50.9	65.0	35.0	632 (6.6)
5 - 17	35.6	14.2	49.8	34.8	15.4	50.2	70.4	29.6	1741 (18.1)
18 - 24	25.6	22.1	47.7	26.9	25.4	52.3	52.5	47.5	1026 (10.7)
25 -44	14.4	34.5	48.9	13.0	38.1	51.1	27.4	72.6	4461 (46.3)
45 - 59	21.9	24.6	46.5	18.9	34.6	53.5	40.8	59.2	1294 (13.4)
60+	37.0	13.2	50.2	33.4	16.4	49.8	70.4	29.6	476 (4.9)
Total Number	2186	2503	4689	2073	2868	4941	4259	5371	9630
%	46.6	53.4	100.0	42.0	58.0	100.0	44.2	55.8	100

*Proportion of UAE-Nationals was over sampled, and this was corrected by weighting.

Figure 3.1 Age- gender pyramid for the surveyed sample

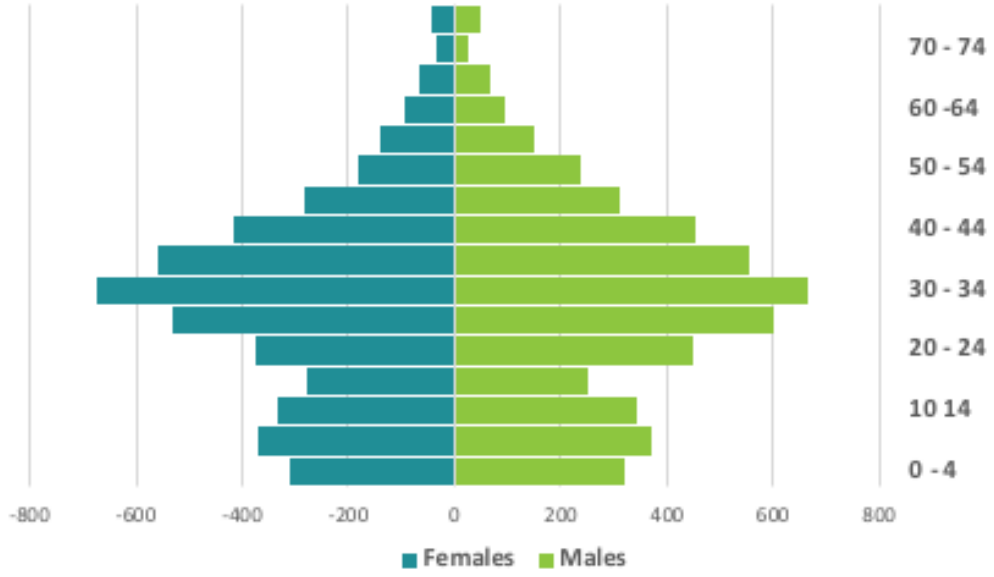


Figure 3.2 Age- gender pyramid for the UAE-nationals respoendents

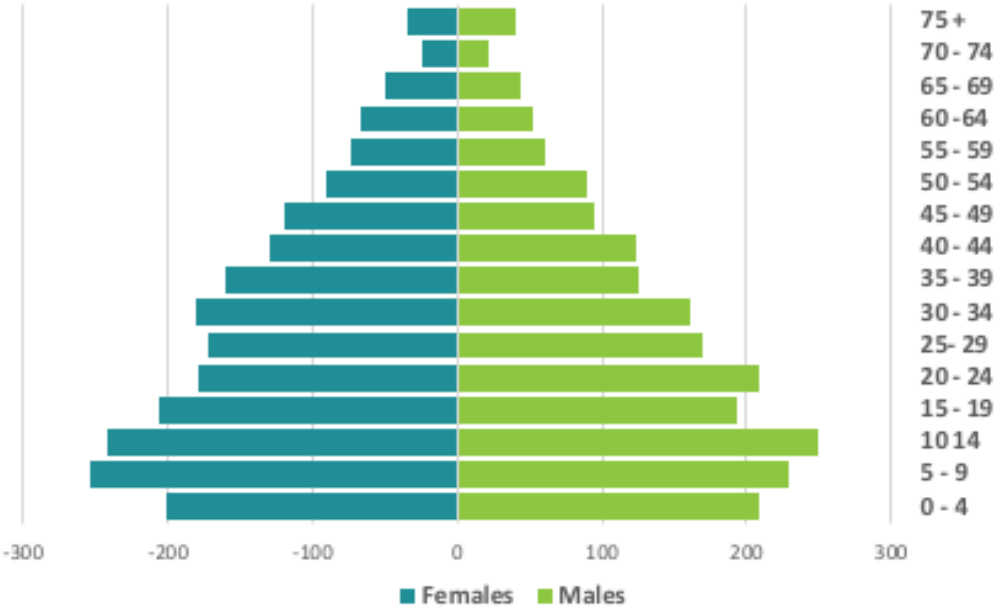


Figure 3.3 Age- gender pyramid for the Non-nationals respoendents

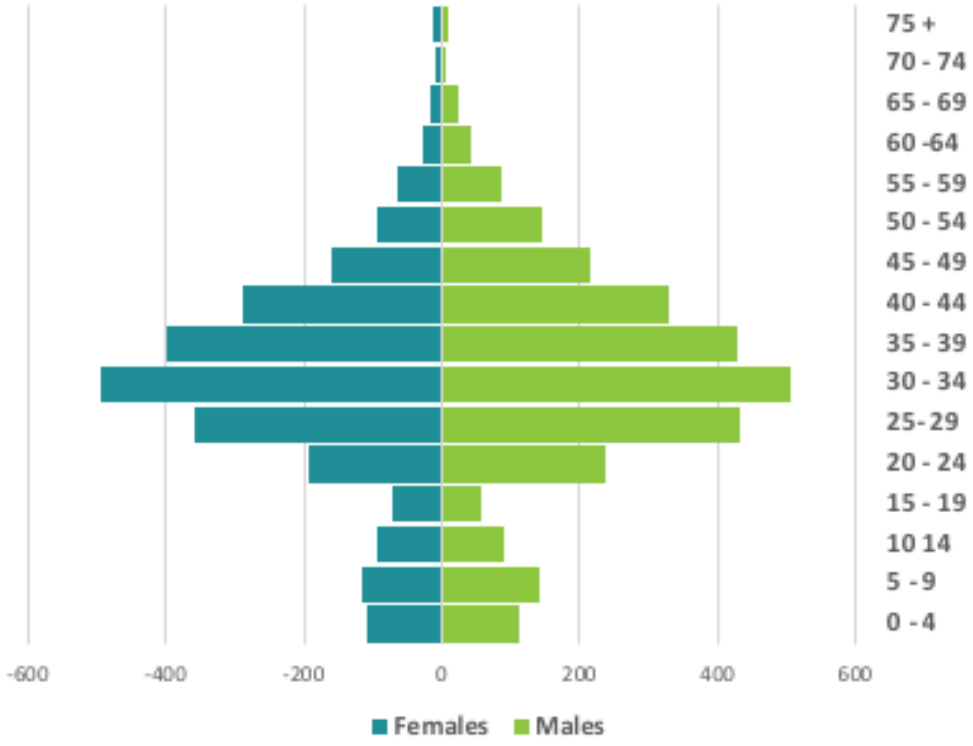


Figure 3.4 Percent distribution of the surveyed sample by nationality

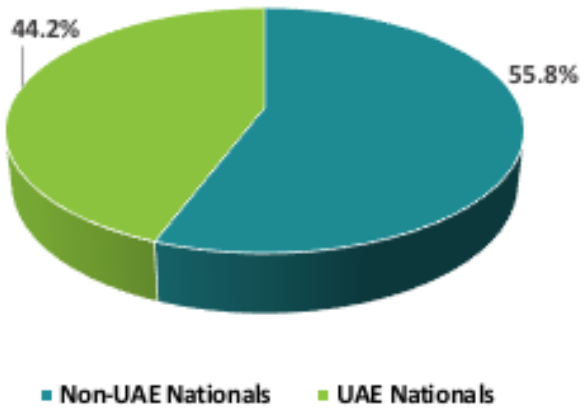
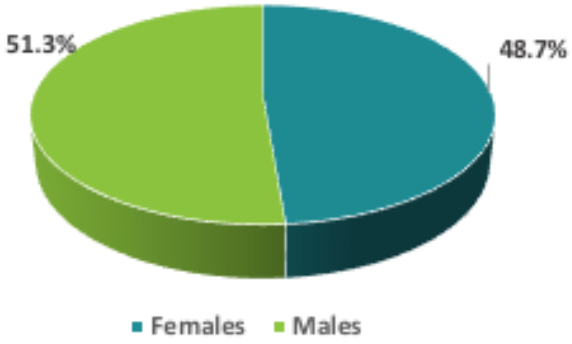


Figure 3.5 Percent distribution of the surveyed sample by gender



Gender Distribution:

The total number of respondents in the survey reached 9,630 individuals. Of this total, the percentage of male respondents was 51.3%, compared to the percentage of female participants by 48.7%. Therefore, the gender ratio (male ratio ÷ female ratio) × 100 among the population of the Emirate of Dubai is 105.33%. Which indicates that there are 105 males in the community for every 100 females, in other words it can be said that the number of males in the Emirati society is greater than the number of females and by up to 5.33% among the target groups in the study.

Educational Status:

Percent distribution of surveyed participants according to educational status was showed in Table 3.2. The survey data revealed that, only 8.3% were with no education (Illiterate or just read &write), and this percentage was slightly higher percentage among Non-UAE-Nationals (8.6%) compared to 7.8% of UAE-Nationals. The largest proportion was that of the secondary or equivalent (35.1%), followed by the university and or more education (32.2%). Those who earned their university or post-graduate degrees were almost equal between males and females (33.4%. for males, compared to 31% of females). At the same time, there were higher proportion of Non-UAE-Nationals earners of the higher education than UAE-Nationals (34.9% & 27.8%, respectively). The age differentials with education was logic, with the highest proportion of those in the age groups 25- 44 & 45-59 yrs. are holding university degrees and above (38% & 35%, respectively).

Work Status:

Percent distribution of surveyed participants according to age groups, gender and Nationality was showed in Table 3.3. The survey data revealed that 70.4% of the participants were actively enrolled in work at the period of survey, while 8% were currently not working at the time of conducting this survey. Higher percentage of Non-UAE-Nationals (84.6%) were among the current workers compared to UAE-Nationals (47.1%). Overall, the currently not- working were more of UAE-Nationals (16.6%) compared to 2.8% Non-UAE-Nationals. Never workers group (21.6%) includes students and housewives. Among those who never worked, 78.2% were females (housewives) versus 21.8% males. At the same time, among the currently not working participants Non-UAE-Nationals greatly outnumbered UAE-Nationals (78.6% & 21.4%, respectively). As expected, males (83%) were more to be current workers than females (57%).

Marital Status:

Table 3.4 shows the distribution of the survey participants according to marital status. Data shows that 60% of the participants were currently married, 3.2% were divorced or separated, 43.5% never married (single), and only 2.3% were widowed. It needs to be mentioned that there is some social stigma attached to divorce especially among females, if any, might result in underreporting of the event. Surprisingly, among the survey sample, the currently married group were more of non-Emeriti (66.4%), compared to 49/5% of UAE-Nationals. For never married category, higher proportion (41.5%) were among UAE-Nationals than non-Emeriti (30.3%). Females (4.9%) were more likely to report divorce than males (1.5%).

Table 3.2

Distribution of household population by educational status and background characteristics, DHHS, 2019.

Age	Illiterate or just read & write	Primary completed	Preparatory completed	Secondary completed or equivalent	University and more	No. of respondents
5 - 17	0.3	6.1	76.1	17.5	0.0	326
18 - 24	4.5	7.4	14.2	55.9	18.0	1026
25 -44	6.2	7.6	13.6	34.6	38.0	4461
45 - 59	9.8	9.0	14.8	31.4	35.0	1294
60+	37.6	9.9	12.0	17.4	23.1	476
Gender						
Female	10.7	10.5	15.5	32.3	31.0	3676
Male	6.0	5.5	17.5	37.7	33.3	3907
Nationality						
Nationals	7.8	4.6	17.2	42.8	27.8	2873
Non-Nationals	8.5	10.0	16.1	30.8	34.9	4710
Total	8.30%	16.50%	7.90%	35.10%	32.20%	7583

Fig. 3.6 Distribution of the sample by education and Nationality

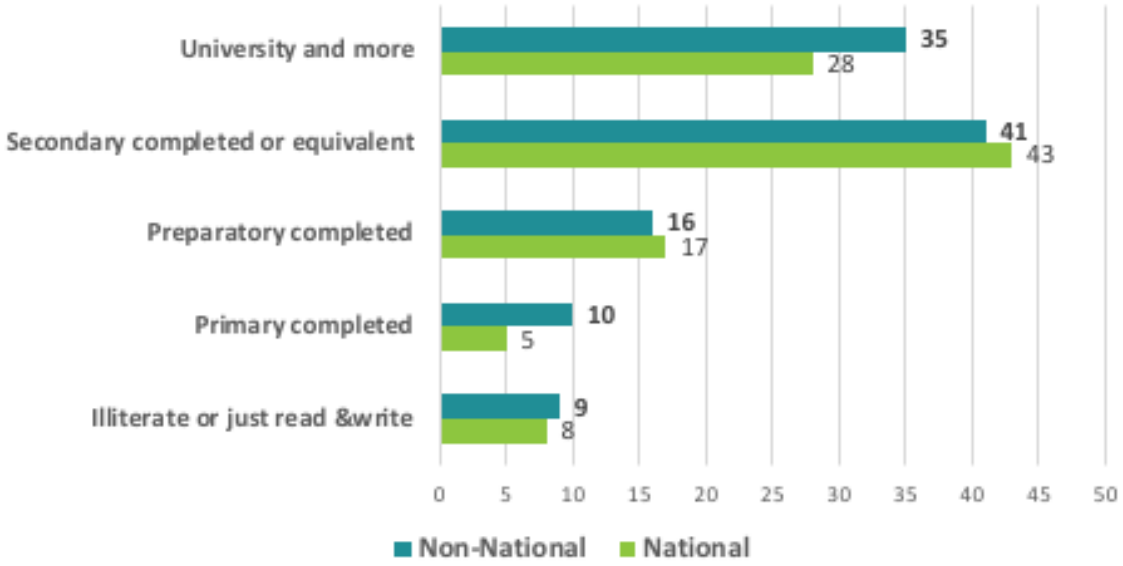


Fig. 3.7 Distribution of the sample by education and gender

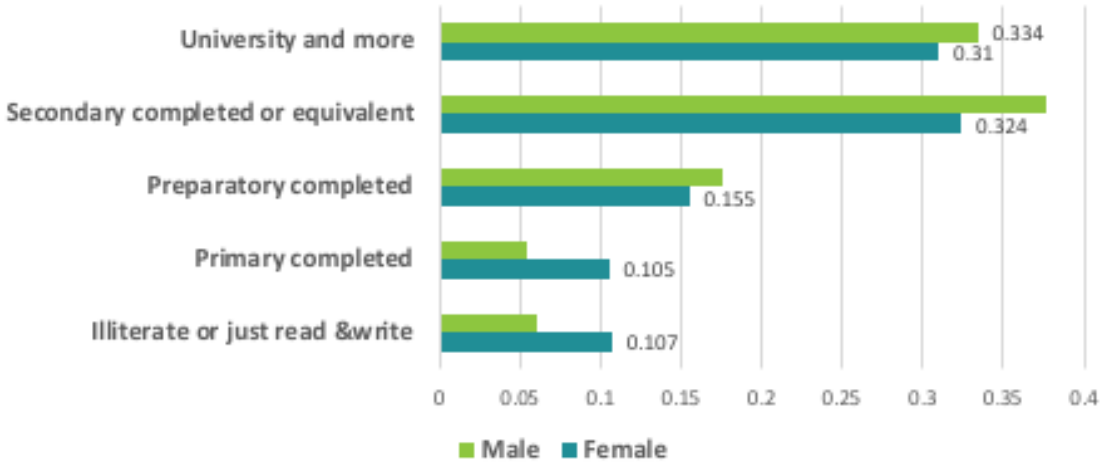


Table 3.3
Distribution of household population by working status and background characteristics, DHHS, 2019.

Age	Currently working	Never worked	Currently not-working	No. of respondents
5 - 17	0.6	99.4	0.0	326
18 - 24	52.7	39.8	7.5	1026
25 -44	84.4	11.8	3.8	4461
45 - 59	70.9	20.8	8.3	1294
60+	22.9	23.5	53.6	476
Gender				
Female	57.0	34.9	8.1	3676
Male	83.0	9.1	7.9	3907
Nationality				
Nationals	47.1	36.3	16.6	2873
Non-Nationals	84.6	12.7	2.8	4710
Total	70.4%	8.0%	21.6%	7583

Fig. 3.8 Percent distribution of the sample by work status and gender

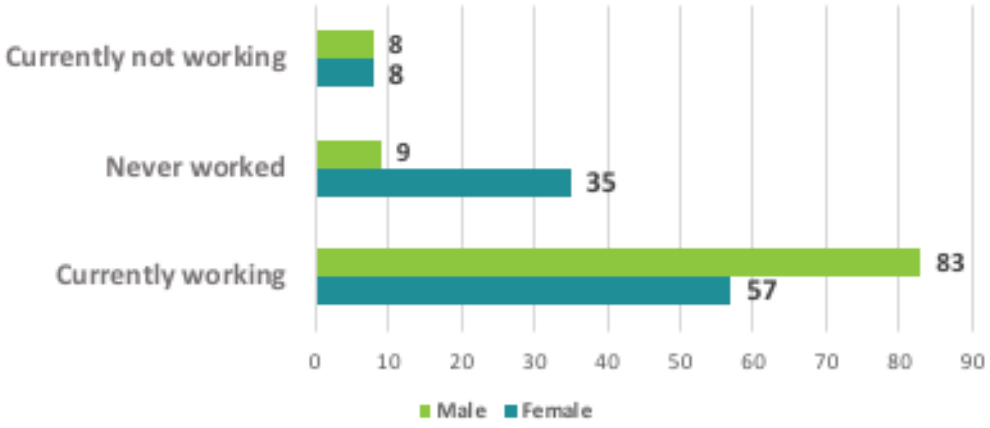


Fig. 3.9 Percent distribution of the sample by work status and nationality

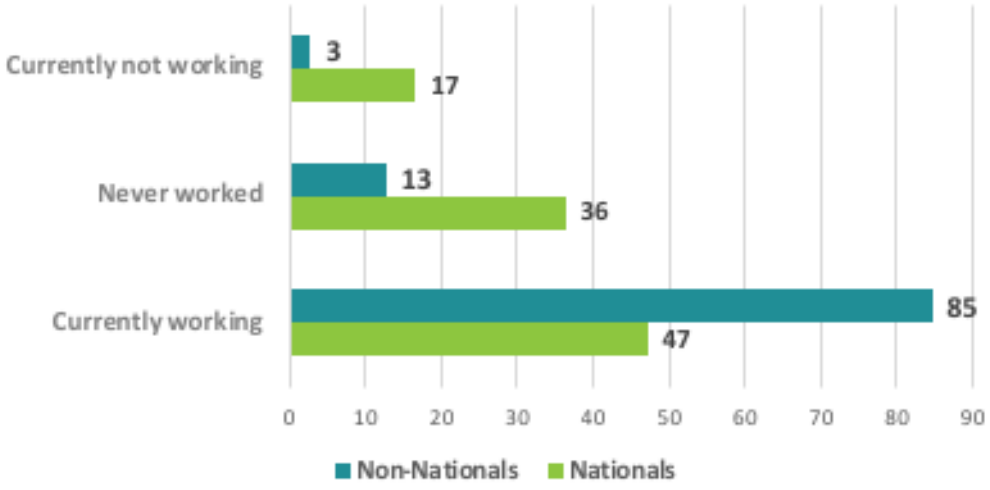


Table 3.4

Distribution of household population by marital status and background characteristics, DHHS, 2019.

Age	Single	Currently Married	Separated/ divorced	Widowed	No. of respondents
5 - 17	99.1	0.9	0.0	0.0	326
18 - 24	87.0	12.4	0.6	0.0	1026
25 -44	29.5	66.9	3.1	0.5	4461
45 - 59	6.0	84.7	5.3	4.1	1294
60+	2.1	71.6	5.5	20.8	476
Gender					
Female	34.7	55.9	4.9	4.5	3676
Male	34.3	63.9	1.5	0.3	3907
Nationality					
Nationals	41.5	49.5	5.0	4.0	2873
Non-Nationals	30.3	66.4	2.0	1.3	4710
Total	34.5	60.0	3.2	2.3	7583

Fig. 3.10 Distribution of the sample by marital status and gender

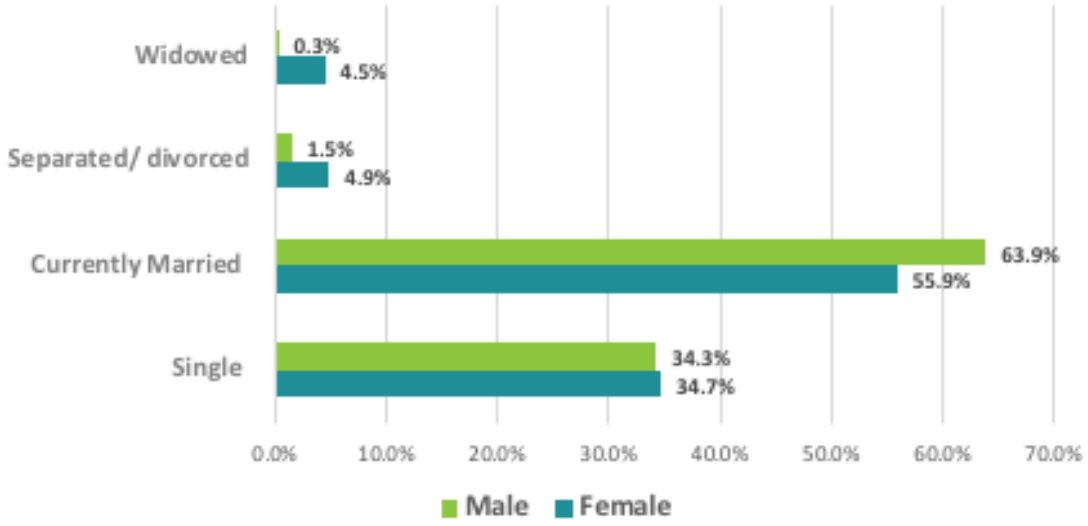
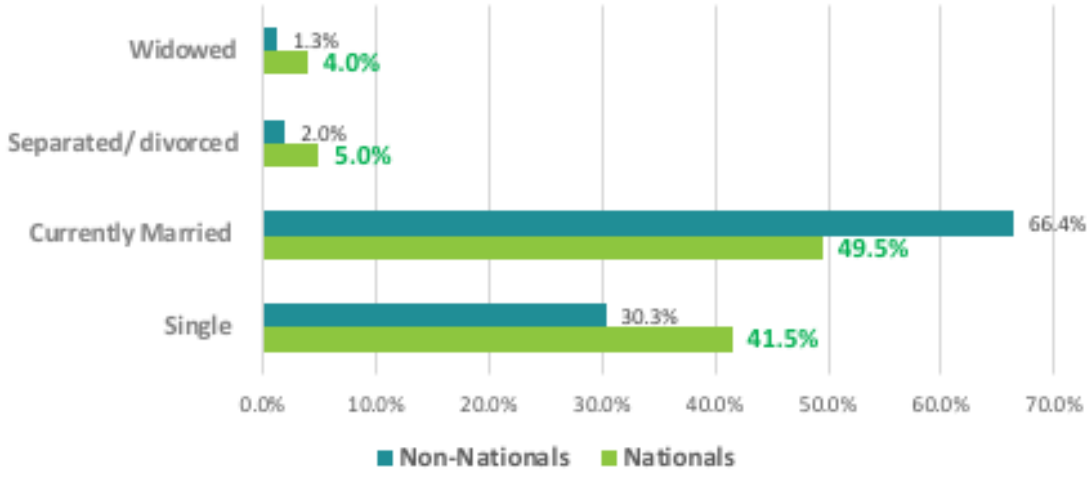
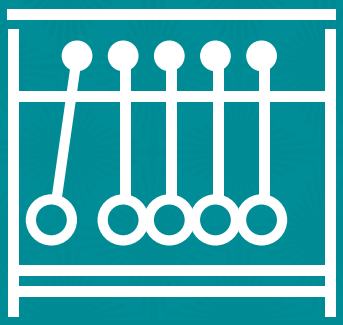


Fig. 3.11 Distribution of the sample by marital status and nationality





Risk Factors and Health Behaviours

4

Chapter Four

4.1 Tobacco use

The risks associated with tobacco use are well known. Cigarette smoking is the most prevalent form of tobacco consumption, accounting for 85% of all tobacco consumed worldwide. Consumption of tobacco is increasing worldwide, although this hides disparity seen more in less developed countries. However, it's thought that the estimate from the World Health Survey is an underestimate of the true prevalence of smoking amongst the population.

All forms of tobacco consumption are harmful to health, whether the tobacco is smoked or chewed. It is estimated that worldwide tobacco is responsible for more than one in ten adult deaths, with the main illnesses associated with its use being lung cancer (as well as other cancers), vascular disease (including heart disease and strokes), and chronic lung diseases (World Bank, 1999). It needs to be mentioned that there is some social stigma attached to smoking especially among females, if any, might result in underreporting of the event.
The percentage of adults reporting regular or irregular smoking is shown in Table 4.1. Overall, 15.8% of the surveyed sample were current smokers, among them 11.5% were regular smokers; whilst 4.3% were irregular smokers (they were not smoke daily).

Table 4.1 also shows the percentage of smokers across the selected background characteristics. It was clear that women smoke much less than men, with 20.9% of men are currently smoking compared to only 7.9% of women. It is still thought that this figure may underestimate the true prevalence of smoking among women. This is likely to be due to smoking being socially undesirable so respondents to the survey were reticent about admitting this habit to the interviewer. Current smoking differs with age, but it was highest among the smokers over the age of 60 (17.5%).

There was a slight difference in the prevalence of smoking between UAE-Nationals (14.3%) and Non-nationals (16%), as shown by Fig. 4.1.

The mean age when they start smoking is also displayed in Table 4.l. It was 21.3 years for the overall smokers. Variations in the mean age when started smoking is quite interesting. Results by age might suggest future pattern in which younger respondents (18-24) are more likely to have started smoking at younger age than older respondents of 60+ (21.6) years VS. 25.5) years, respectively). No true difference at the age when to start smoking by either Nationality or gender was observed.

Figure 4.2 shows the average years of smoking among the sample. Overall, an average of 12.0 years was reported among the ever-smokers. As expected, the average years increase with age. However, it was much higher among UAE-Nationals (17.5) than Non-UAE-Nationals (11.7).
Figure 4.3 shows the percent of participants who reported exposure to passive smoking by gender. A considerable

percentage of participants reported exposure to passive smoking (13.2%). This percent was slightly higher among males as they used to hang out with their counterparts than that of females (14.3%& 10.4%, respectively).

Figure 4.4 shows the percent of participants who reported noticing cigarettes adds by gender. It reveals that among the ever smokers, only 5.7% mentioned that they had noticed a cigarette adds. This percent was slightly higher among males (6.2%) than females (4.3%).

4.2 Nutrition (Dietary Habits)

Knowledge of the dietary habits of a population is vital for targeted planning and implementation of nutritional health policies and programs. The adequate consumption of fruit and vegetables is one way to reduce the risk of cardiovascular disease and certain cancers (WHO, 2003). WHO recommends that an adequate intake of fruit and vegetables is five or more servings in a typical day, with an intake of less than this amount is classified as insufficient. Five servings should equate to about 400 g of fruit and vegetables (WHO, 2003). Table 4.2 shows the percentage of respondents who reported sufficient and insufficient fruit and vegetable intake. Almost one third of (36.1%) respondents reported that they ate sufficient fruits and vegetables on a typical day, with the vast majority of surveyed population stating that they do not eat five servings per day. The healthy eating habit seems to be affected largely by age, whereas only 29.7% of the younger respondents reported eating sufficient amount of fruits and vegetables, compared to almost half (45.9%) of the elder age group (60+). No sound differences were detected either by gender or by Nationality among the respondents in eating sufficient fruits and vegetables on a typical day. However, Non-UAE-Nationals (36.3%) consumed slightly more sufficient amount of fruits and vegetables than UAE-Nationals (36.1%), as explained in Figure 4.5.

Figure 4.6 shows the percent of participants who reported always/ most of the times having breakfast by Nationality and gender. It reveals that 86.1% of the participants surveyed reported they always/ most of the times get their breakfast. The figure also illustrates that slightly higher parentage of males (87.3%) than females (83%) used to have their breakfast. In addition, Non-UAE-Nationals were more to always/ most of the times have their breakfast than UAE-Nationals (86.7% & 77.2%, respectively).

Figure 4.7 shows the percentage of adult participants who reported eating healthy always/ most of the times by gender. Overall, 62.4% of the adults participated in the survey reported eating healthy food always/ most of the times. Females (78.3%) were more likely to report healthy eating than males (56.5%).

Table 4.3 reveals the percentage of those who ever eat less fruit and vegetables or feel hungry due to a shortness of money, during the last 12 months. The results reveals that 12.4% of the adult surveyed ate less fruit and vegetables almost every month/ every month, because they could not afford enough food during the 12 months preceding the survey.

There is a little difference in the percentages of respondents who ate less or felt hungry due to shortage of money by gender, while there is a marked difference by Nationality status (5.1% of UAE-Nationals versus 12.9% of Non-nationals). By age, seems that older age group (5.4%) were less to report such compared to 12.3% of younger age group of 18-24 years.

4.3 Physical Activities

Exercise and physical activity have a clear protective effect against ischemic heart disease, strokes, type-2 diabetes and certain cancers. Evidence also suggests that exercise has positive effects on hypertension, osteoporosis, osteoarthritis and mental and psychological health. Globally, lack of physical activity is estimated to cause 1.9 million deaths a year (WHO, 2010). The DHHS asks questions about physical activity at both work and at home, including vigorous and moderate intensity exercise. Exercise also includes lifting, cleaning, cooking and washing that cause small or large increases in breathing or heart rate. Furthermore, cycling to and from places for at least 10 minutes is included. The number of days that this exercise is conducted is noted, coupled with the length of time that these activities take place for. From this information the amount of exercise per week is calculated and categorized into sufficient or insufficient, with those reporting more than 150 minutes of exercise a week being classified as sufficient as per the WHO recommendations of at least 30 minutes of regular, moderate intensity physical effort for at least five days a week, totaling 150 minutes. The results for this analysis are shown in Table 4.2 for all respondents and by subgroups.

The results indicate that only one in five of respondents (19.9%) took sufficient exercise over the course of a typical week. The percentage of males who attained the target of sufficient exercise was similar to that of females. Obviously, the youngest age group (18- 24) were the most to achieve the target compared to other groups. Figure 4.8 shows that the percentage of UAE-Nationals (23.6%) respondents who reported doing sufficient exercise over the course of a typical week is slightly more than that of Non-nationals (19.4%).
The percentage of respondents who reported having physical exercise awareness by Nationality is shown in Figure 4.9. Generally, 42.2% of the surveyed adults reported having physical exercise awareness by Nationality. This percentage was somewhat higher in UAE-Nationals (60.3%) compared to Non-nationals (41%)

4.4 Alcohol consumption

Alcohol consumption has strong relationship with cardiovascular disease and is a strong risk for hepatic cirrhosis and motor vehicle accidents. It has also been constantly and positively associated with cancers such as breast cancer (WHO, 2004). It is very difficult to obtain the exact statistics regarding the consumption of alcohol because it varies from culture to culture and from society to society due to social stigma. So, in order to avoid such difficulties, the survey has collected information on the amount of alcohol consumed by an individual in the past 12 months. For the sake of analysis, we classified alcohol consumption into two categories frequent

drinkers who had alcoholic drinks either daily/weekly or once per month and occasional drinkers who had had alcoholic drinks on occasions (less than once per month between each drink). It needs to be mentioned that social stigma attached to drinking, if any, might result in underreporting of the event.

Table 4.4 presents the percent of adults aged 18 and above who consume alcohol. It presents the proportion of respondents who are frequent and infrequent alcohol consumers. Overall, 79.4 percent of respondents reported that they never had alcoholic drinks. About one fifth (20.6%) of the respondents are frequent/infrequent heavy drinkers. Among them, males (22.3%) were more likely to report ever drinking compared to females (16.1%).

The percentage of ever drinkers shows little variation by age of the respondents, however, it is the least among the elder age group of 60+ (12.8%) and highest among the age group 45- 59 years (23.3%). The prevalence of alcohol consumption is almost endured by Non-UAE-Nationals, whereas 21.9% of them were ever intake alcohol compared to only 1% of the UAE-Nationals. The table also illustrates that among the ever drinkers, 99.2% of the UAE-Nationals and 90.8% of Non-UAE-Nationals drinks occasionally (less than once per month).

Means that, only 8.7% of them were frequent drinkers (either daily/ weekly/ monthly). Males were more likely to report frequent drinking than females (10.4% & 4.0%, respectively), and UAE-Nationals (0.8%) were rarely to be frequent alcohol consumers compared to 9.2% of Non-UAE-Nationals.

Table 4.1

Distribution of respondents by prevalence of smoking and average age when starts smoking, according to background characteristics, DHHS, 2019.

Age	Current Smokers	Ex- Smokers	Never Smokers	Mean age when starts smoking	No. of respondents
18 - 24	12.9	0.9	86.2	21.6	224
25 -44	17.4	2.4	80.2	21.3	1341
45 - 59	11.2	2.5	86.3	20.5	434
60+	17.5	1.7	80.9	25.5	246
Gender					
Female	7.9	1.3	90.8	22.8	962
Male	20.9	2.5	76.6	21.2	1283
Nationality					
Nationals	14.3	2.7	83.0	19.5	844
Non-Nationals	16.0	2.2	81.8	21.4	1401
Total	**15.8**	**2.2**	**82.0**	**21.3**	**2245**

* All figures in table were weighted as percentage while total number of population Unweighted.

Table 4.2

Percent distribution of respondents by prevalence of sufficient intake of fruit and vegetables and sufficient physical activity, according to background characteristics, DHHS, 2019.

	Physical Activity		Fruits & vegetables intake		
Age	Sufficient	Insufficient	Sufficient	Insufficient	No. of respondents
18 - 24	23.2	76.8	29.7	70.3	224
25 -44	19.2	80.8	34.4	65.6	1341
45 - 59	22.9	77.1	42.5	57.5	434
60+	13.3	86.7	45.9	54.1	246
Gender					
Female	20.4	79.6	36.2	63.8	962
Male	19.7	80.3	36	64	1283
Nationality					
Nationals	23.6	76.4	36.1	65.4	844
Non-Nationals	19.4	80.6	36.3	63.7	1401
Total	19.9	80.1	36.1	63.9	2245

*All figures in table were weighted as percentage while total number of population Unweighted.

Fig 4.1 Percentage of adult participants who reported current smoking by nationality

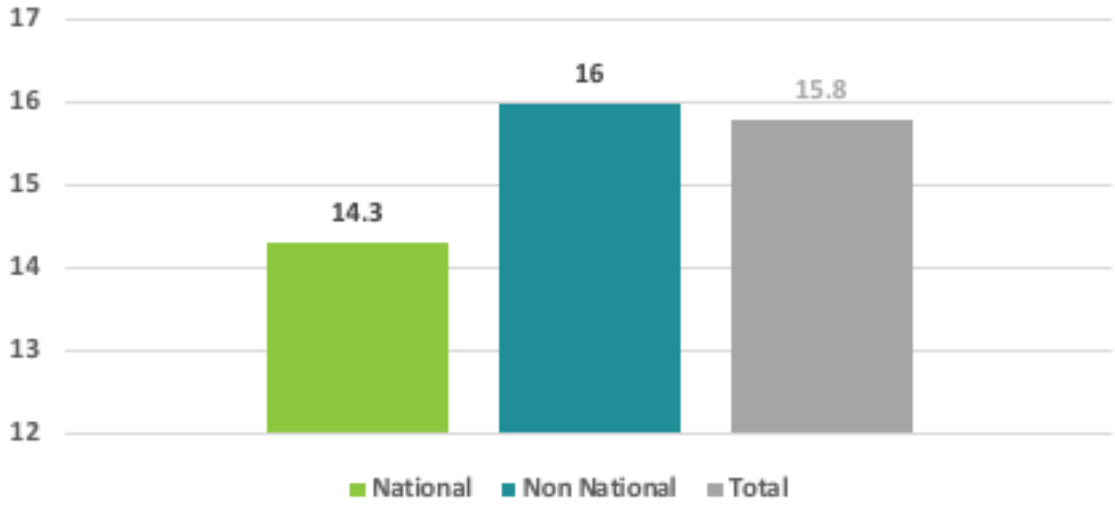


Fig. 4.2 Mean years of smoking reported by the adult participants according to nationality

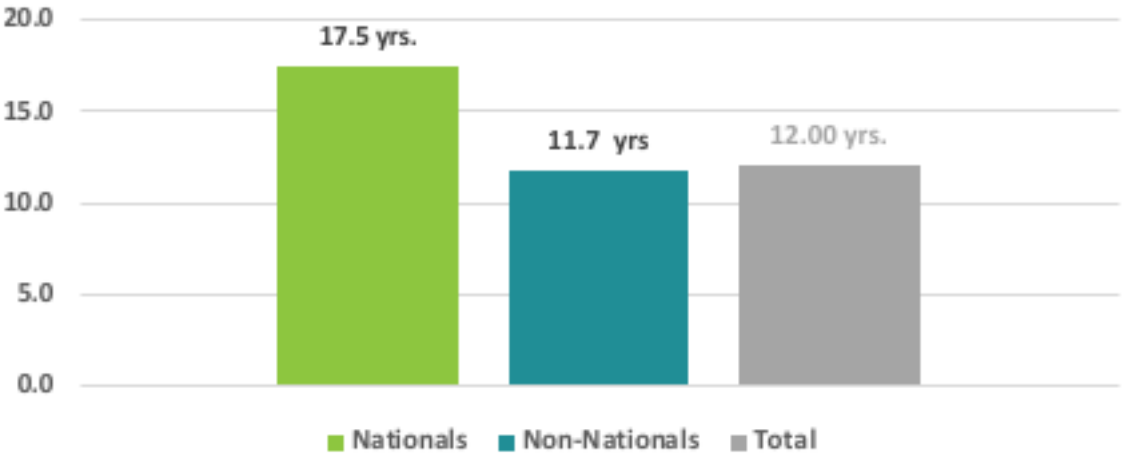


Fig 4.3 Percentage of adult participants who reported exposure to passive smoking

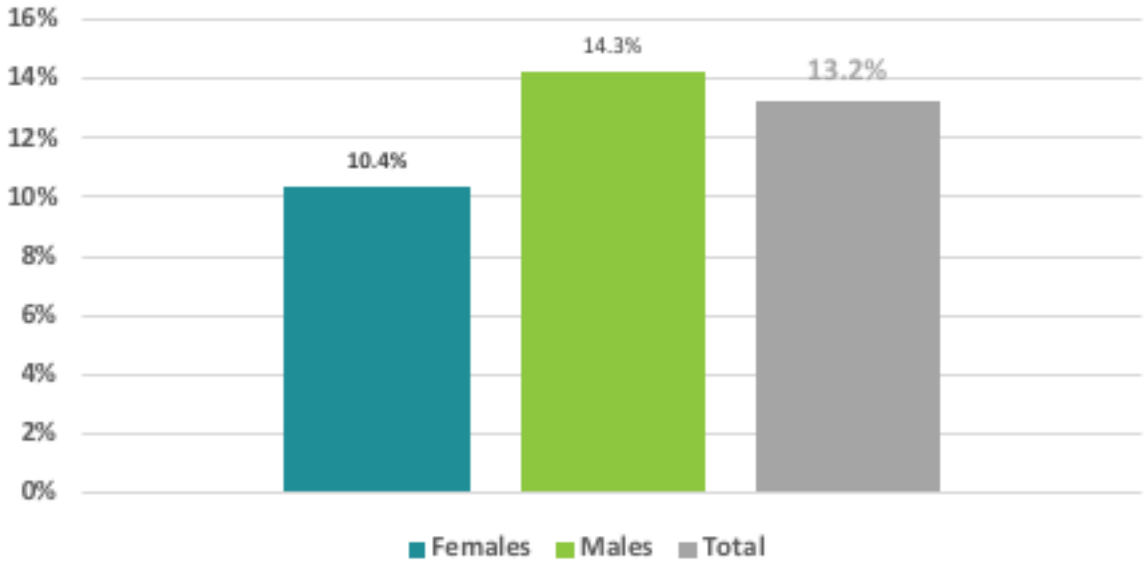


Fig. 4.4 Percent of adult participants who reported noticing cigarettes adds by gender

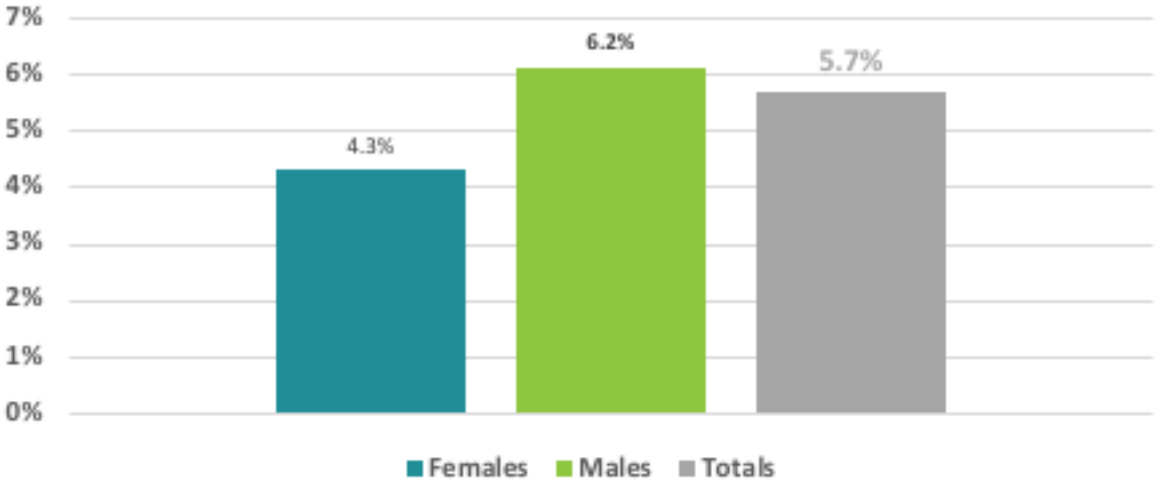


Fig. 4.5 Percent of adult participants who reported eating sufficient fruits & vegetables by natioanlity

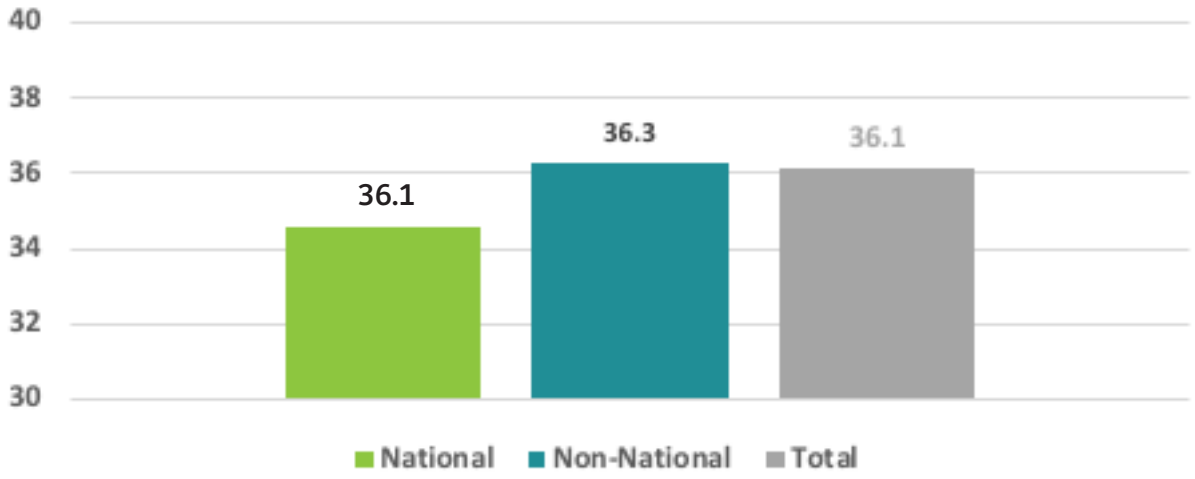


Fig 4.6 Percent of adult participants who reported having breakfast always/ most of the time

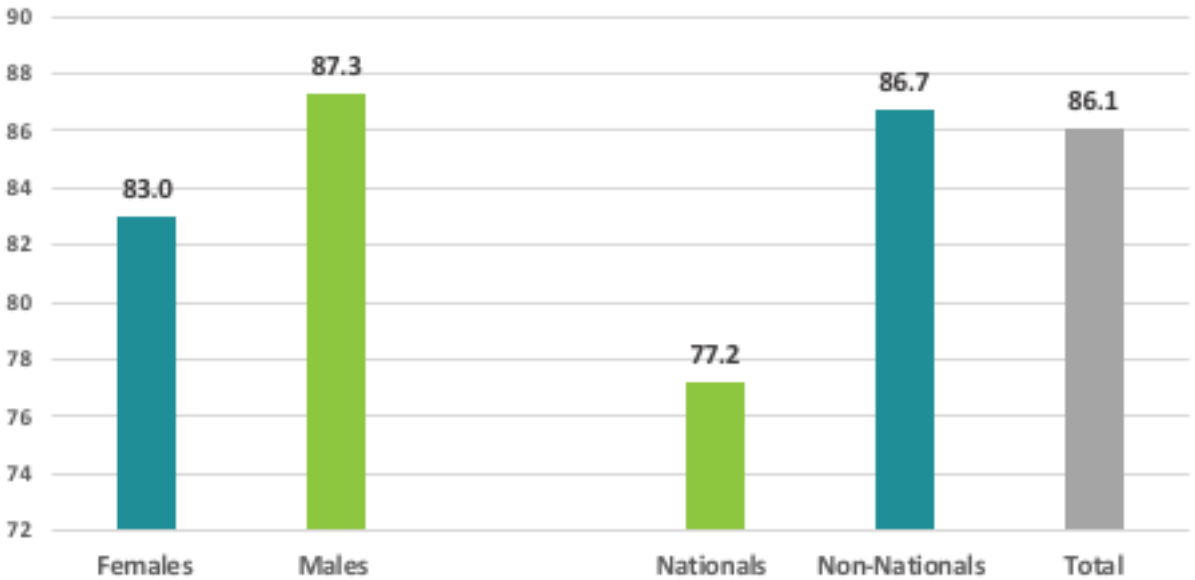


Fig. 4.7 Percentage of adult participants who reported eating healthy always/ most of the time by gender

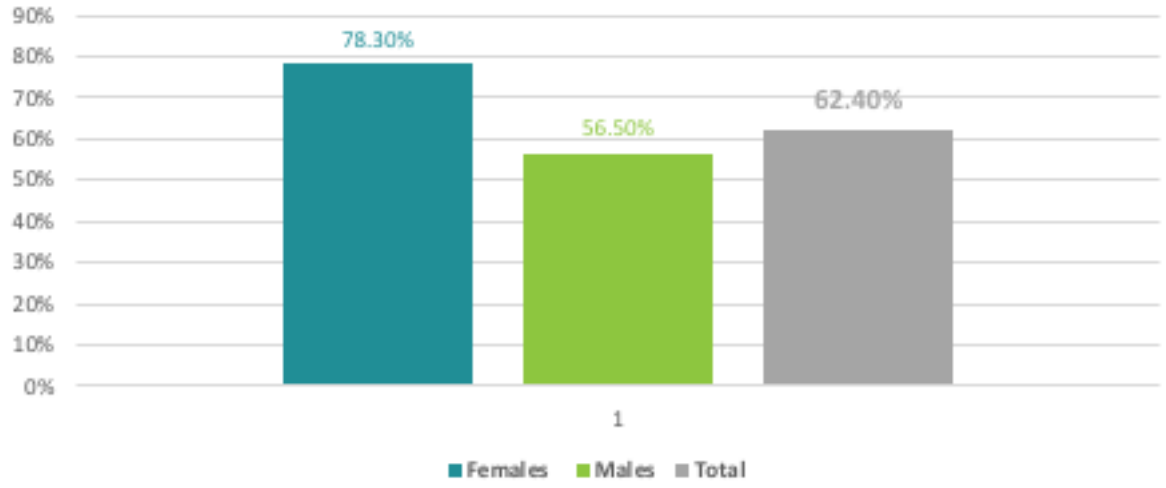


Fig. 4.8 Percent of adult participants who reported having sufficient physical activity by nationality

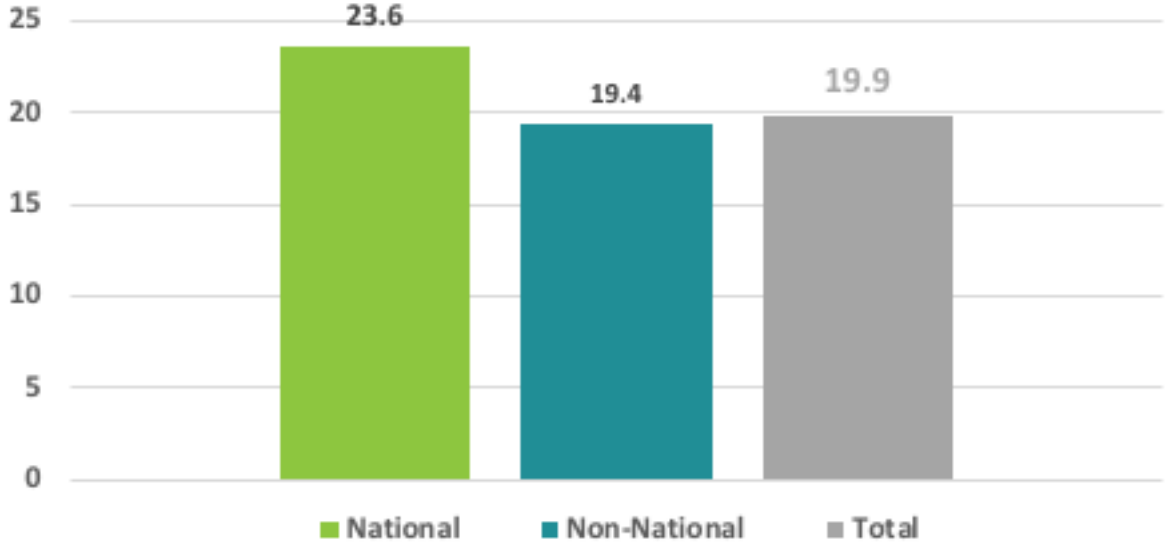


Fig 4.9 Percentage of participants who reported having physical exercise awareness by nationality

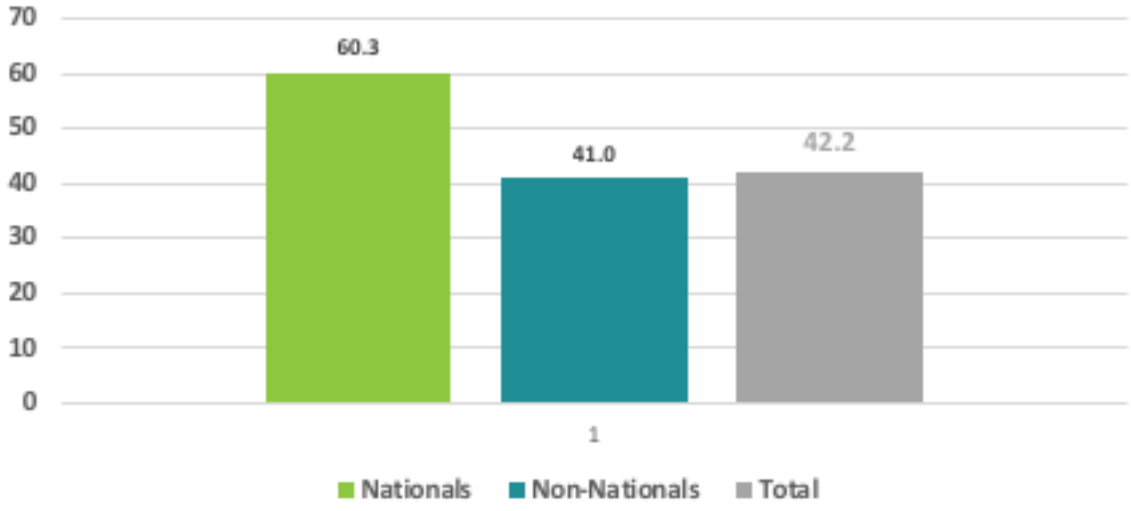


Fig 4.10 Percentage of adult participants who reported ever alcohol consumption & Frequent drinkers

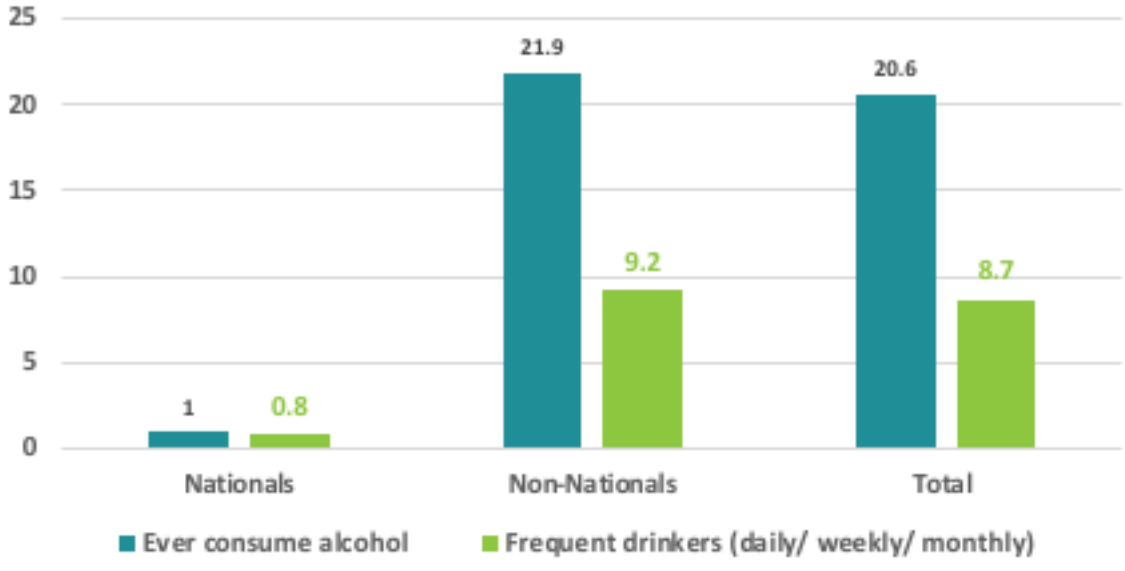
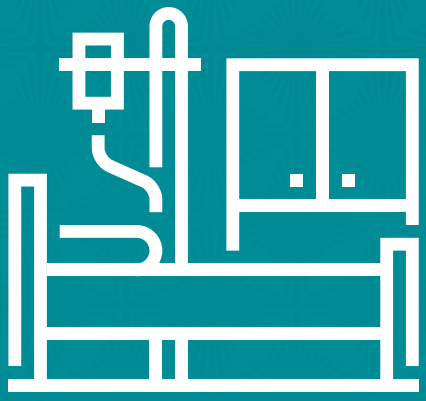


Table 4.3 Percentage of those who ever eat less fruit and vegetables or feel hungry due to a shortness of money, during the last 12 months, according to background characteristics, DHHS, 2019.				
Age	Never	One or some months, but not every month	Almost every month/ Every month	No. of respondents
18 - 24	77.0	10.7	12.3	224
25 -44	77.3	9.7	13.0	1341
45 - 59	80.7	7.3	12.0	434
60+	89.5	5.1	5.4	246
Gender				
Female	83.2	6.1	10.7	962
Male	76.6	10.3	13.1	1283
Nationality				
Nationals	89.6	5.2	5.1	844
Non-Nationals	77.6	9.5	12.9	1401
Total	78.4	9.2	12.4	2245

*All figures in table were weighted as percentage while total number of population Unweighted.

Table 4.4 Percentages of alcohol consumption and frequent alcohol drinkers (daily/ weekly/ monthly) amongst them, according to background characteristics, DHHS, 2019.			
Age	**Ever drinks alcohol**	**Frequent drinkers (daily/ weekly/ monthly)**	**No. of respondents**
18 - 24	17.6	10.9	224
25 -44	20.9	7.7	1341
45 - 59	23.3	11.6	434
60+	12.8	5.9	246
Gender			
Female	16.1	4.0	962
Male	22.3	10.4	1283
Nationality			
Nationals	1.0	0.8	844
Non-Nationals	21.9	9.2	1401
Total	20.6	8.7	2245

*All figures in table were weighted as percentage while total number of population Unweighted.



Self-reported Morbidity & Treatment Coverage

5

Chapter Five

The morbidity pattern of a population is considered as a proxy measure to understand their health status. Measures of self-reported morbidity are directly linked to the health status of any given population. One of the important critiques of the self-reported measure is the reporting bias. Factors such as levels of educational attainment, media exposure, economic status, caste, custom etc. contribute to self-reported bias. However, in the absence of availability of adequate information on morbidity based on medical diagnosis, self-reported morbidity prevalence gives an insight to understand the morbidity profile of the population.

To enable the assessment of whether the delivery of healthcare services is reaching those in need the morbidity profile of the population is needed, alongside whether those in need are actually receiving care to alleviate their illness. Information on the effective coverage of critical health interventions is becoming a cornerstone in the assessment of health services provision.

This chapter therefore summarizes the number of respondents in need of specific health interventions and how many of these respondents actually received the care that they need in terms of coverage of morbidity. The term health coverage is defined as a probability of receiving a health intervention conditional on the presence of a health care need. Accordingly, this chapter will present data about the prevalence and coverage of certain chronic conditions in adults aged 18 or over. First, they were asked whether they had been diagnosed with a specific illness. If so, further questions were asked regarding their treatment and whether they were on current medication for the illness.

5. Non-Communicable Diseases

The incidence of non-communicable diseases (NCDs) is rising globally, with its attendant morbidity and mortality. NCDs (particularly cardiovascular disease, diabetes and cancers) were responsible for 38 million (68%) of the world's 56 million deaths in 2012.5 Studies have shown that early detection and timely intervention can prevent further morbidity and ultimately prolong life. Additionally, some risk factors for these diseases, when identified, can be modified, thus preventing their onset and progression. Developing countries are currently witnessing an epidemic transition from communicable diseases to non-communicable diseases. Many individuals in these countries are caught in this 'epidemic transition of illnesses' as a result of lifestyle changes.

5.1. Self-reported non-communicable conditions (Cardiac Angina, Stroke and Asthma)

The prevalence of the need (percentage of total respondents indicating having received a formal diagnosis of angina, stroke or Asthma) and the prevalence of the coverage (percentage of respondents with a self-reported condition -for angina, stroke or asthma- indicating that they have received treatment or screening in the last two weeks) is displayed in Table 5.1.

The percentage of respondents who stated that they had been formally diagnosed suffering from angina (need) is 2.1 percent in the population and the coverage percentage is 1 percent from amongst those in need.
The main burden of this condition fell on men and Non-UAE-Nationals. Three percent of men compared to none of women respondents indicated having received a diagnosis of angina. Unfortunately, few percentage males (0.1%) who self-reported they suffered from angina indicated that they have received treatment or screening for the condition in the last 2 weeks.

Percentage of total respondents indicated that they were diagnosed of angina was higher among Non-UAE-Nationals (2.4%) compared to UAE-Nationals (0.8%). Overall, the total coverage for the condition was not exceeding 0.1% within any group. As for the difference with age, it was higher among the age groups 60+ (2.8%) compared with 2.0% among the age group 25-44 years.

The percentage of respondents who stated that they had been formally diagnosed suffering from Stroke (need) is 0.2% and the total coverage percentage is 28.1%.

No clear difference between men and women respondents indicated having received a diagnosis of stroke. However, variation in coverage is astounding were the percentage of women (75.5%) who received treatment or screening greatly more than that of men (15.3%).

In addition, the percentage of UAE-Nationals (0.7%) also outnumbered that of Non-UAE-Nationals (0.1%). Surprisingly, all the UAE-Nationals (100%) received treatment coverage compared to 1.2% of Non-UAE-Nationals.

The percentage of respondent s who stated that they had been formally diagnosed suffering from bronchial asthma (need) is 32.6% percent and the total coverage percentage is only 23.9% percent.
The main burden of this condition fell on women and the younger age groups. Women almost doubled men (42.2%, 28.9%, respectively) in indicating having received a diagnosis of bronchial asthma. Nearly all the diagnosed of males and females received Asthma treatment. For the age differentials, nearly three quarters of surveyed at age 18 to 24 (71.5%) indicated having received a diagnosis of bronchial asthma compared with 13.4% of those in age 60+.

5. 2 Self-reported non-communicable conditions (diabetes, hypertension)

The prevalence of the need (percentage of total respondents indicating having received a formal diagnosis of diabetes, hypertension) and the prevalence of the coverage (percentage of respondents with a self-reported condition -for diabetes, hypertension - indicating that they have received treatment or screening in the last two weeks) is displayed in Table 5.2.

The percentage of respondents who stated that they had been formally diagnosed suffering from diabetes (need) is 11.6% in the population and the coverage percentage is 89.9% from amongst those in need. The main burden of self-reported diabetes fell on older age (2.9% of the aged 18- 25 yrs. compare to 41.5% among older age 60+) and UAE-Nationals. Among the surveyed sample UAE-Nationals were more likely to indicate having received a diagnosis of diabetes (16.1%) compared with 10.5% of Non-nationals.

This percent was also higher in men (13.3%) than that of women respondents (9.9%). Almost the majority of who self-reported they suffered from diabetes indicated that they have received treatment or screening for the condition in the last 2 weeks (95.7% and 89% for UAE-Nationals and Non-UAE-Nationals, respectively).

In addition, the percentage of respondents who stated that they had been formally diagnosed suffering from hypertension (need) is 7.6% in the population and the coverage for hypertension treatment is 77.1% from amongst those in need. The peak of hypertensive patients was seen among the older age. Whereas, 33.6% the surveyed older age (60+) self-reported diagnosis of hypertension compared with 2.8% for the age group 18-24 years. Almost all the older age (99.5%) of who self-reported they suffered from diabetes indicated that they have received treatment or screening for the condition in the last 2 weeks.

UAE-Nationals who mentioned self-reported hypertension also outnumbered that of Non-UAE-Nationals (15.3%, 6.3%, respectively). However, the majority of both mentioned receiving treatment coverage (90.4% and 75.2% for UAE-Nationals and Non-UAE-Nationals, respectively).

5.3 Self-reported non-communicable conditions (Osteo- Arthritis, Depression and Cataract)

The prevalence of the need (percentage of total respondents indicating having received a formal diagnosis of Osteo-arthritis, Depression and Cataract) and the prevalence of the coverage (percentage of respondents with a self-reported condition-Osteo-arthritis, Depression and Cataract -indicating that they have received treatment or screening in the last two weeks) is displayed in Table 5.3.

The percentage of people who reported having osteoarthritis was only 16.8%, but their coverage for the condition was 24.3%. Surprisingly, half of the UAE-Nationals (49.0%) surveyed self-reported they are suffering from osteoarthritis and the burden of this disease greatly outnumbered all other self- reported conditions among UAE-Nationals. The condition was reported more by females than males (22.7% vs. 14%, respectively). No big difference by age were detected for osteoarthritis.

For self-reported cases of depression, its need was 0.4% among the surveyed population and 21.1% of them only were covered for the chronic condition treatment. The self-reported diagnosis for Depression increases with age (0.1% among 18-24 yrs. Vs. 0.6% among the older age population). A similar proportion of both

UAE-Nationals than no-UAE-Nationals (0.4% vs. 0.5%, respectively). The self-reported having a diagnosis of depression condition was reported by higher percentage of males (0.53%) than females (0.3%).
The percentage of people who had a diagenesis of cataract was 1.7%, and their coverage for the condition was 14.7%. Undouble, the distribution of respondents who reported having cataract differed between groups of population (17.4% among the older age group, compared with 3.0% of 45-59 yrs. group. Cataract was reported by a similar percentage of males and females (1.7% of males vs. 1.1% of females), and reported more by UAE-Nationals (4%) than Non-UAE-Nationals (1.5%). The coverage was highest among the older age (59.5%) and the UAE-Nationals (54.2%).

5.4 Self-reported conditions (oral health, road traffic accidents and injuries)

The prevalence of the need (percentage of total respondents indicating having received a formal diagnosis of oral health, road traffic accidents and injuries) and the prevalence of the coverage (percentage of respondents with a self-reported condition- oral health, road traffic accidents and injuries - indicating that they have received treatment or screening in the last two weeks) is displayed in Table 5.4.

Oral health problems are prevalent in all ages; however, older age self-reported more of them (17.9% vs. 8.0%) than youngest adults (18-24 years). In addition, females tend to report more oral health issues than males (11.2% vs 6.9%). In addition, it's reported more in UAE-Nationals (20.8%) vs. Non-nationals (7.3%).

The percentage of adults who had had a road traffic accident was only 0.6%, but their coverage for the condition was 78.7%. The distribution of respondents who reported having road traffic accidents differed between groups of population. It was reported more by males than females (0.7% of males vs. 0.3% of females), and more by UAE-Nationals (0.9%) than Non-UAE-Nationals (0.5%). The peak age group for these accidents was 45- 59 years (1.9%).

For injuries due to other reasons than traffic accidents, 1.6% of the surveyed sample sated that this had occurred to them and the coverage was 66.6%. However, the need and coverage differences between all subgroups of the population were small.

Table 5.1 Percent distribution of participants by self-reported non-communicable conditions (Angina, Stroke, and Asthma) according to background characteristics, DHHS 2019.							
	Angina		Stroke		Asthma		
Age	*Need	^Coverage	*Need	^Coverage	*Need	^Coverage	Total
18 - 24	0.0	0.0	0.0	0.0	71.5	18.8	224
25 -44	3.1	0.0	0.2	3.9	46.9	27.7	1498
45 - 59	0.0	0.0	0.0	100.0	4.7	8.2	465
60+	2.1	1.1	0.9	100.0	13.4	31.5	346
Gender							
Female	0	0	0.1	75.5	46.8	44.6	1030
Male	3.1	0.1	0.2	15.3	22.8	17.3	1503
Nationality							
Nationals	0.8	1.0	0.7	100.0	42.2	59.1	885
Non-Nationals	2.4	0.0	0.1	1.2	28.9	19.8	1648
Total	2.1	0.1	0.2	28.1	32.6	23.9	2533

* Percentage of total respondents indicating having received a formal diagnosis of Angina, Stroke, and Asthma

^ Percentage of respondents with a self-reported condition -for Angina, Stroke, and Asthma- indicating that they have received treatment or screening in the last two weeks

Fig. 5.1 Distribution of self-reported NCDs (Angina, Stoke and Asthma) by according to background characteristics

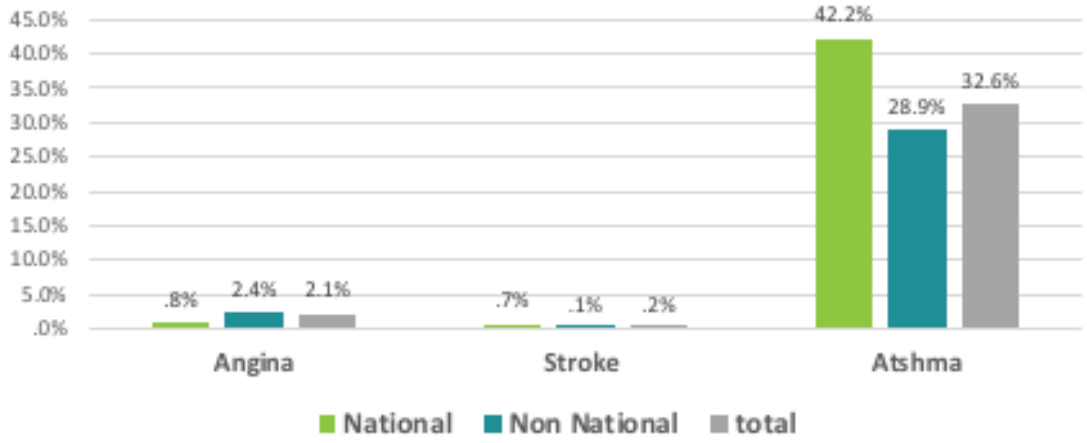


Fig. 5.2 Distribution of self-reported NCDs (Diabetes and hypertension) by according to background characteristics.

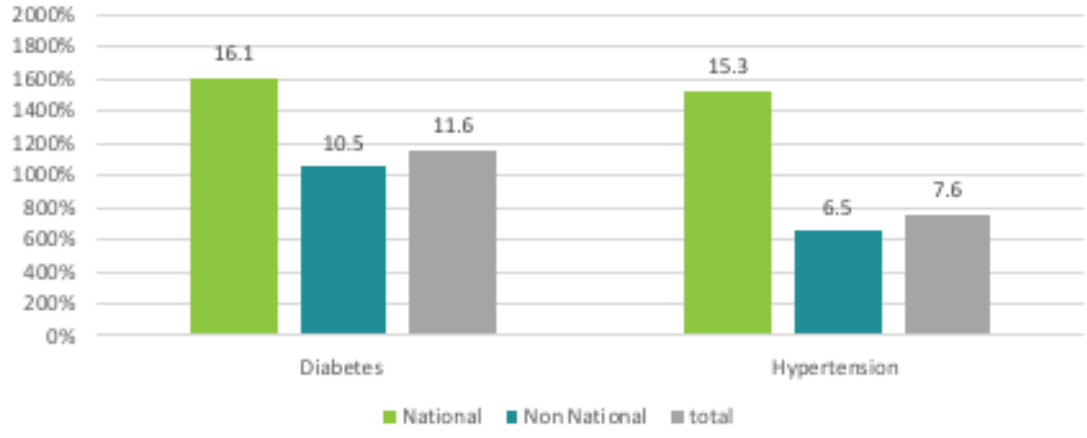


Table (5.2)
Percent distribution of participants by self-reported non-communicable conditions (Diabetes & hypertension) according to background characteristics, DHHS 2019.

	Diabetes		Hypertension		
Age	*Need	^Coverage	*Need	^Coverage	Total
18 - 24	2.9	4.5	2.8	26.8	224
25 -44	6.1	3.8	3.0	63.6	1498
45 - 59	19.9	21.8	18.7	84.1	465
60+	41.5	34.4	33.6	99.5	346
Gender					
Female	9.9	6.4	6.8	97.1	1030
Male	13.3	9.2	8.1	71.9	1503
Nationality					
Nationals	16.1	17.3	15.3	90.4	885
Non-Nationals	10.5	7.8	6.5	75.2	1648
Total	11.6	89.9	8.4	77.1	2533

* Percentage of total respondents indicating having received a formal diagnosis of Angina, Stroke, and Asthma

^ Percentage of respondents with a self-reported condition -for Angina, Stroke, and Asthma- indicating that they have received treatment or screening in the last two weeks.

Table 5.3

Distribution of participants by self-reported Osteo-arthritis, depression and cataract, according to background characteristics, DHHS 2019.

	Osteoarthritis		Depression		Cataract		
Age	*Need	^Coverage	*Need	^Coverage	*Need	^Coverage	Total
18 - 24	29.4	8.2	0.10	0.0	0.0	0.0	224
25 -44	13.6	21.6	0.4	24.2	0.6	0.9	1498
45 - 59	18.1	24.7	0.6	11.5	3.0	28.1	465
60+	32.1	47.0	0.7	35.1	17.4	59.5	346
Gender							
Female	22.70	37.7	0.30	43.20	1.10	10.90	1030
Male	14.00	19.60	0.53	13.40	1.80	15.50	1503
Nationality							
Nationals	49.0	59.6	0.5	76.7	4.0	54.2	885
Non-Nationals	12.9	19.6	0.4	14.1	1.5	12.2	1648
Total	16.8	24.3	0.4	21.1	1.7	14.7	2533

* Percentage of total respondents indicating having received a formal diagnosis of osteo-arthritis, depression and cataract

^ percentage of respondents with a self-reported condition -for osteo-arthritis, depression and cataract - indicating that they have received treatment or screening in the last two weeks.

Fig. 5.3 Distribution of self-reported NCDs (Osttoarthritis, depression and catarct) by according to background characteristics

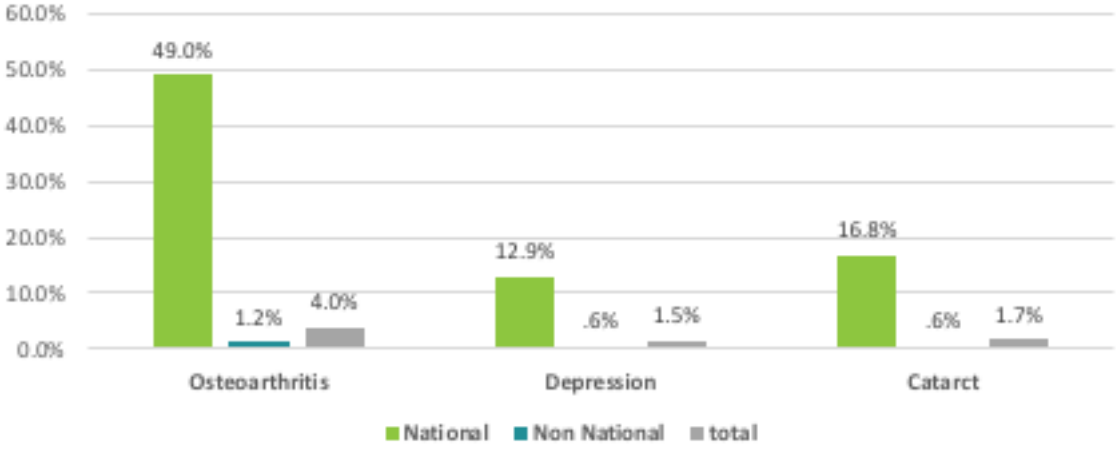


Fig. 5.4 Distribution of self-reported NCDs (Road traffic accidents & other injuries) by according to background characteristics

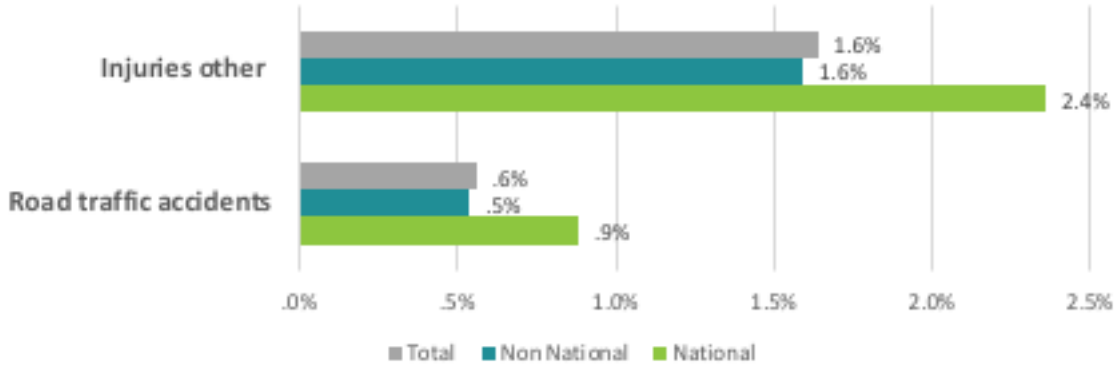


Table 5.4

Percent distribution of participants by self-reported oral health, road traffic accidents and injuries, according to background characteristics, DHHS 2019.

	Oral Health		Road traffic accidents		Other injuries		
Age	*Need	^Coverage	Need	Coverage	Need	Coverage	Total
18 - 24	8.0	53.4	0.1	0.0	2.9	66.1	224
25 -44	7.4	79.0	0.3	46.3	1.8	65.1	1498
45 - 59	8.6	71.4	1.9	100.0	.2	87.9	465
60+	17.9	89.9	0.1	100.0	2.3	78.0	346
Gender							
Female	11.2	82.4	0.3	92.9	1.4	86.5	1030
Male	6.9	71.8	0.7	76.5	1.7	60.9	1503
Nationality							
Nationals	20.8	92.1	0.9	77.5	2.4	65.4	885
Non-Nationals	7.3	72.7	0.5	78.8	1.6	66.8	1648
Total	8.1	75.8	0.6	78.7	1.6	66.6	2533

* Percentage of total respondents indicating having received a formal diagnosis of oral health, road traffic accidents and injuries.

^ Percentage of respondents with a self-reported condition -for oral health, road traffic accidents and injuries - indicating that they have received treatment or screening in the last two weeks.

Health Status | 6

Chapter Six

The DHHS 2019 collected information on eight domains of health, while overall general health rating was also investigated encompassing all domains. They were all investigated through two questions on the questionnaire. A composite scale on all the eight domains will be shown in this section. Respondent were asked to rate the amount of difficulty that they had with each aspect of health on a 5-point scale, from none (no difficulty), mild, moderate, severe, and extreme. The rating was obtained for 30 days prior to the survey.

6.1 General health rating

Respondents were asked to rate their health on the day of the interview from very good to bad. Table shows the percentages. Table 6.1 shows the percentages of individuals who rated themselves in the different categories, broken down by selected demographic characteristics.

The majority of respondents rated their health as either good or very good (94.8%), with 59.7% and 35.1% of participants falling in these two categories, respectively. Males were much more likely to rate their health as good or very good than females, with 95.3% in the top two categories, compared with 93.6% of females. Non-UAE-Nationals respondents were also more likely to rate their health as good or very good (95.2%) than UAE-Nationals (89.0%). As expected, there is a relationship between age and self-rated health status, with the highest percentage of those who said their health was very good in the youngest age group (97.6%), and the lowest in the older age groups (81.0%).

Figure 6.1 shows the distribution of the general health rating by Nationality. It reveals that 94.8% of the surveyed population rated their health as good or very good.

6.2. Difficulty with work or household activities

A further aspect regarding difficulties with work or household activities was investigated. The respondents were asked to rate their difficulties on a scale from no difficulty (none) to extreme difficulty with work or household activities. The results of the combined scale are shown in Table 6.2. Surprisingly, most of the sample (94.0%) stated that they had no difficulties with work or household activities, while only 1% had severe or extreme difficulties with the stated aspects of health. Again, males were more likely to report that they had no difficulty (73.3%), compared with 26.7% of females. Surprisingly, almost all Non-UAE-Nationals (94.2%) reported no difficult, compared to 3.6% only of UAE-Nationals, as illustrated in more details in Figure 6.2. The distribution of adults reporting difficulties by the type of difficulty was illustrated in Fig. 6.3. Overall, 3.6% of the participants reported having mild or moderate difficulties with seeing. Next to it in frequency, comes difficulty with walking that was reported by 2.2% of adults surveyed.

6.3. Having periodic health check-ups

Figure 6.4 shows the percent of participants who reported having periodic annual health check-ups. Overall, about one third of the surveyed population (34.3%) reported having periodic health check-ups. This percentage was slightly higher in UAE-Nationals (36.1%) than in Non-nationals (34.0%).

Table 6.1

Percentage distribution of participants by their rated health status, according to background characteristics, DHHS, 2019.

Age	Very good	Good	Average	Bad	Very bad	No. of respondents
18 - 24	72.7	24.9	2.4	0.0	0.0	1026
25 -44	62.6	32.8	4.2	0.4	0.0	1341
45 - 59	47.9	46.3	5.4	0.1	0.3	434
60+	30.3	50.7	16.6	2.4	0.0	246
Gender						
Female	51.6	42.1	5.7	0.3	0.3	962
Male	62.7	32.6	4.3	0.4	0.0	1283
Nationality						
Nationals	52.5	36.6	9.7	1.0	0.2	844
Non-Nationals	60.2	35.0	4.4	0.3	0.1	1401
Total	59.7	35.1	4.7	0.4	0.1	2245

Table 6.2

Percent distribution of the participants by reported difficulty with work or household activities in the last 30 days, according to background characteristics, DHHS 2019.

Age	None	Mild	Moderate	Severe	extreme/ cannot	Number of respondents
18 - 24	9.0	15.9	0.0	1.0	0.0	1026
25 -44	65.9	37.4	33.4	34.2	21.1	1341
45 - 59	15.8	32.7	23.0	32.2	0.0	434
60+	1.0	22.5	43.6	32.6	78.9	246
Gender						
Female	24.6	33.8	40.1	42.8	22.2	962
Male	71.2	70.4	59.9	57.2	77.8	1283
Nationality						
Nationals	3.6	11.2	15.4	31.7	71.3	844
Non-Nationals	92.2	93.0	84.6	68.3	28.7	1401
Total	47.9	52.1	50.0	50.0	50.0	2245

In this table: The percentages were obtained through a special equation that does not apply to 100%.

Fig. 6.1 Percent distribution of surveyed population by their rated health status, according to background characteristics

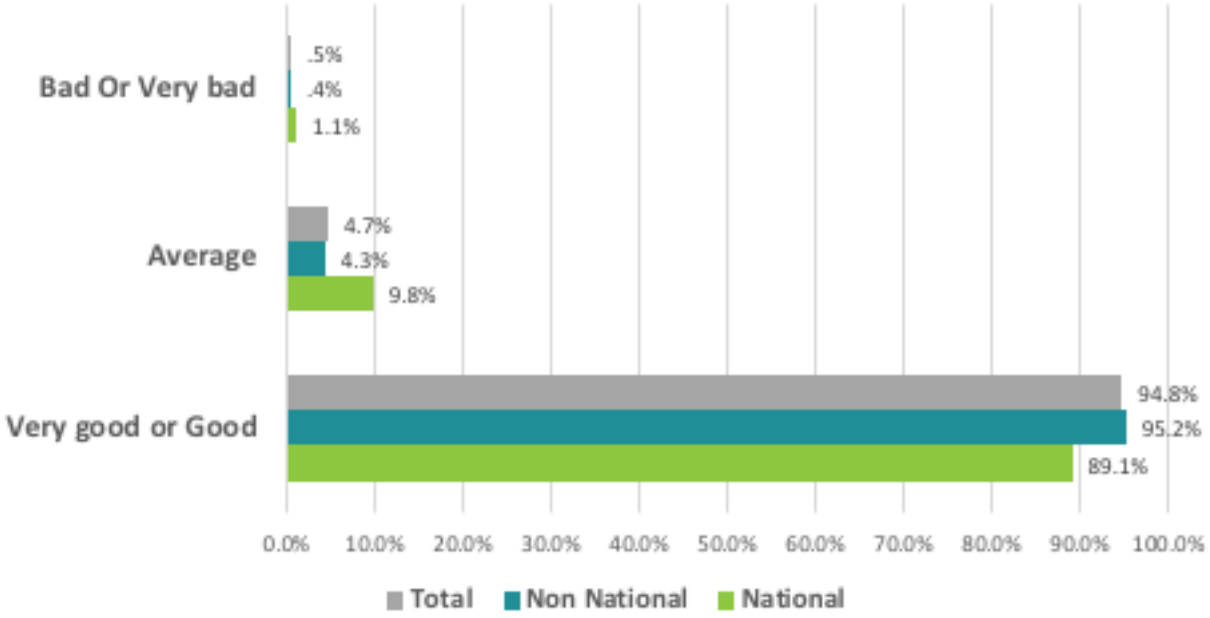


Fig 6.2 Percent distribution of surveyed population by difficulty with work or household activities in the last 30 days by nationality

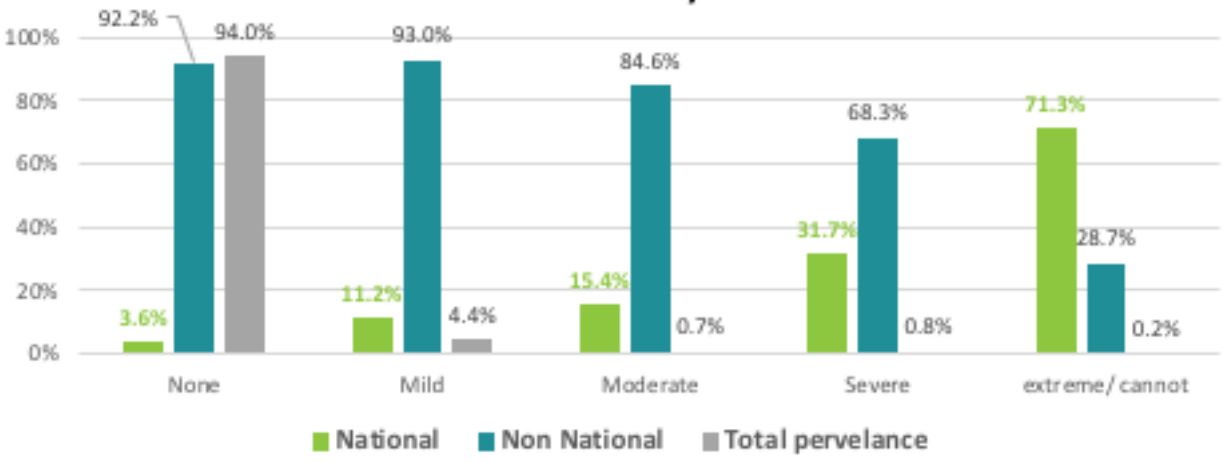


Fig. 6.3 Percent distribution of adult participants by reported type of difficulties

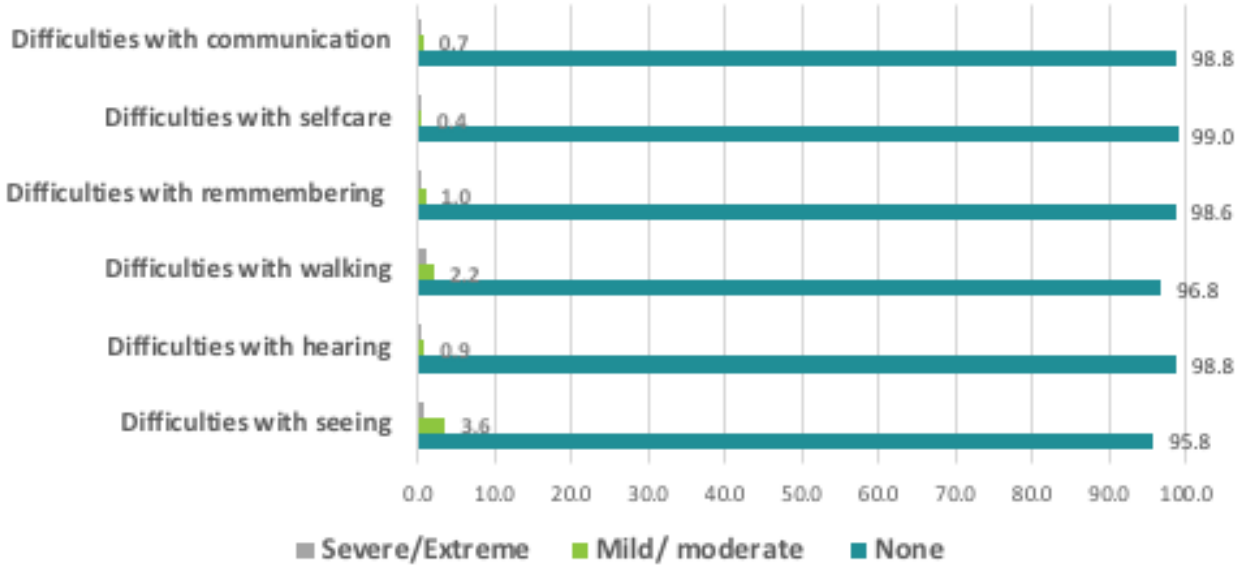
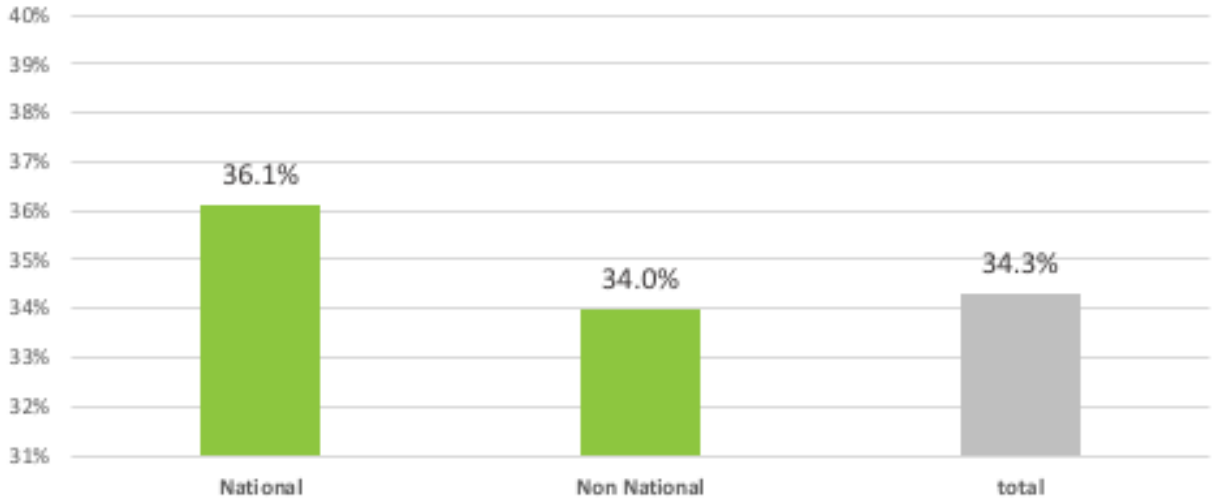


Fig. 6.4 Percent of adults reported having periodic health check-ups



Medical Measurements and Chronic conditions

7

Chapter Seven

7.1 Overweight and Obesity

7.1.1 Introduction

Worldwide, 39% of adults aged 18 and over across the world were overweight, with 13% considered obese. Globally, there are more people who are obese than are underweight. Raised BMI is a major risk factor for non-communicable diseases such as cardiovascular disease, diabetes, musculoskeletal disorders and various of cancers. Obesity has been found to be the second biggest preventable cause of cancer. Childhood obesity is associated with a higher chance of adult obesity as well as premature death, disability, diabetes, cardiovascular disease, osteoarthritis and cancers.

7.1.2 Definitions

The anthropometric measures presented in this chapter focus on measurements relevant to adult and child obesity. Height, weight and waist were measured during the field visits.

Height and weight are used to calculate the Body Mass Index (BMI), which is defined as weight (kg)/square of height (m2). Based on their BMI, adult participants were classified into the following groups based on the WHO classification:

BMI (kg/m2) Description

- Less than 18.5 Underweight
- 18.5 to less than 25 Normal
- 25 to less than 30 Overweight, excluding obese
- 30 + Obese.

Child BMI Classification

BMI is defined for children in the same way as it is for adults. Growth assessment for children describes the nutritional status based on WHO Growth references 2007 for age group 5-19 years. The classification of children's BMI used in this survey, set out below, has been derived from BMI percentiles of the WHO 1990 reference curves (referred to as the regional BMI percentiles classification); these have been used in each DHHS to date. It was recommended that these reference curves and thresholds should be used for population analysis. The 85th/ 95th percentile cut-off points are commonly accepted thresholds used to analyze overweight and obesity in children.

The growth references classify Body Mass Index (BMI) based on age and gender as described below:

- Thinness is BMI less than -1 standard deviation below the WHO Growth Reference median.
- Normal weight is BMI between -2 and +1 standard deviation from the WHO Growth Reference median.
- Overweight is BMI greater than 1 standard deviation above the WHO Growth Reference median.
- Obesity is BMI greater than 2 standard deviations above the WHO Growth Reference median.

Raised Waist Circumference (WC)

BMI has some limitations and does not, for example, distinguish between mass due to body fat and mass due to muscular physique. Nor does it take account of the distribution of fat in the body. It has therefore been suggested that waist circumference (WC) or central obesity measure may be a better means of identifying those with a health risk than BMI. According to UAE-Nationals Institutes of Health (USA), central obesity or raised WC is defined as more than 102 cm for men and more than 88 cm for women.

7.2 Prevalence of Overweight & Obesity

Table 7.1 shows the distribution of BMI among the adult surveyed population, by background characteristics. Adult overweight, including obesity (BMI of 25 kg/m² or greater) prevalence reached 62.1% among the sampled population of DHHS 2019. It illustrates that two in every ten of the adult participants in this DHHS considered obese (20.8%), with the largest proportion of the population were overweight (41.3%). Only, 35.8% of adults were in the healthy weight category.

The mean BMI for the sampled adults (18+) was 27.3, with marginal difference between women (27.2) and men (27.3). The mean weight 75.1 kg, while the mean height was 168.8 cm.

Distribution by age groups shows that prevalence of overweight and obesity increases by age, with almost one third of the youth in the age group 18- 24 years tends to be either obese or overweight, compared to 77.3% of the older age group of 60+. The highest percentage of obesity was noted at the age 45- 59 yrs. (as illustrated in Figure 7.1).

As illustrated in Figure 7.2 underweight was only found among 2.1% of the sample, with slightly higher percentage in females than in males. Normal weight was also higher in females (39.5%) compared to males (33.6%). Males (19.2%) were less likely to be obese than females (23.3%), but they have a higher prevalence of overweight (45.5% males vs. 34.4%, females).

There was clear differences in the prevalence of obesity by Nationality, whereas UAE-Nationals (39.9%) tend to be more obese than Non-nationals (8.2%), as illustrated in Figure 7.3.

Child Growth Assessment

The DHHS 2019 measured the weight and height for children from 5 to less than 18 years by a trained nurse. The calculated BMI for age and gender was charted against WHO criteria for thinness, normal weight, overweight and obesity. The survey revealed that normal weight was 56.1% in the surveyed children. Boys (52.7%) were slightly lower than girls (59.2%) in having normal weight category. The percentage of children found to be overweight was 21.6%, with 18.7% of boys being overweight compared to 24.6% of girls Obesity was 17.3% among the studied child population, with obesity in boys being 22.2% compared to only 12.9% in girls (as shown in Figure 7.4).. In terms of nationality there was no significant differences between UAE-nationals and non-UAE-nationals across the different weight categories, as illusterated in Figure 7.5.

Fig. 7.1 Body Mass Index among the surveyed adults by age groups

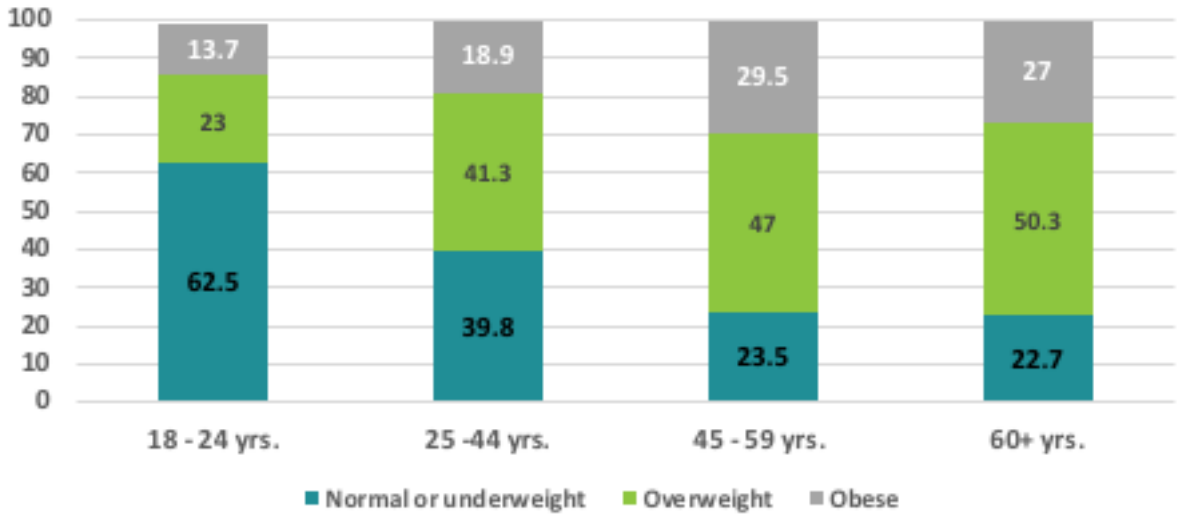


Fig. 7.2 Body Mass Index among the surveyed adults by gender

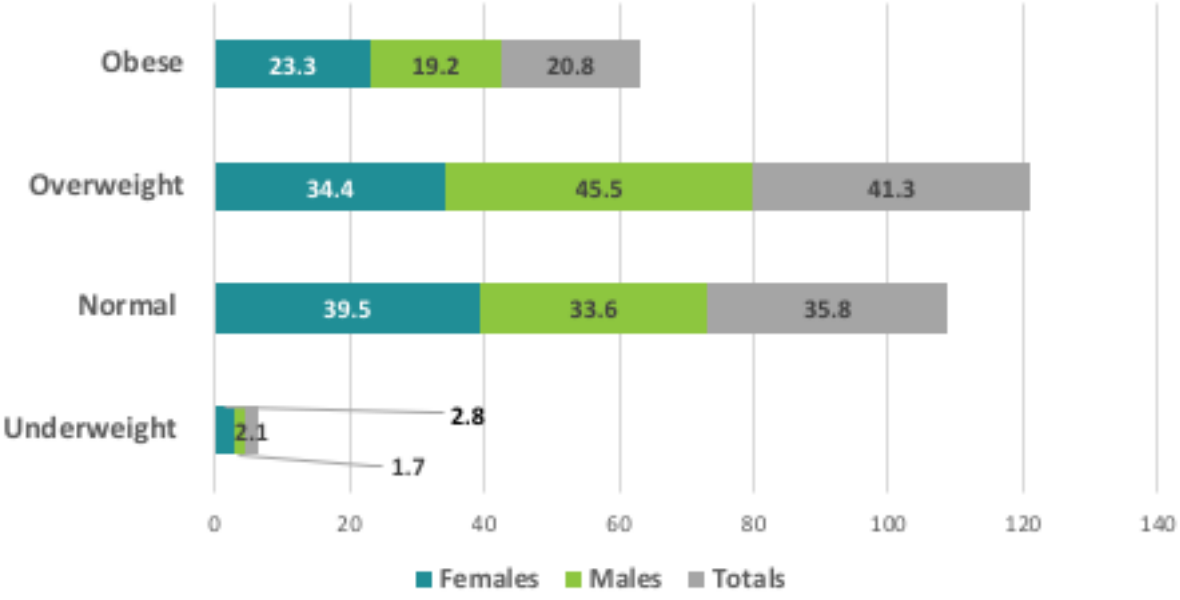


Fig. 7.3 Body Mass Index among the surveyed adults by nationality

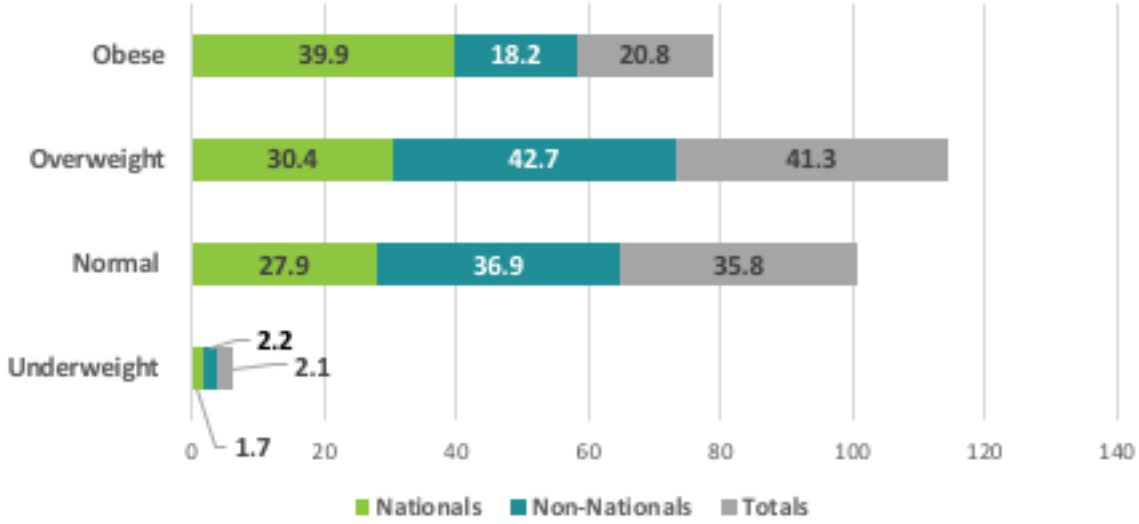


Table 7.1

Percent distribution of distribution of BMI among the adult population, according to background characteristics, DHHS 2019.

Age	Underweight	Normal	Overweight	Obese	Number of respondents
18 - 24	5.5	57.3	23.4	13.8	224
25 -44	2.3	37.5	41.3	18.9	1341
45 - 59	0.0	23.5	47.0	29.5	434
60+	1.6	21.1	50.3	27.0	246
Gender					
Female	2.8	39.5	34.4	23.3	962
Male	1.7	33.6	45.5	19.2	1283
Nationality					
Nationals	1.8	27.9	30.4	39.9	844
Non-Nationals	2.2	36.9	42.7	18.2	1401
Total	2.1	35.8	41.3	20.8	2245

Figure 7.4 BMI classification among children aged 5-17 years by gender

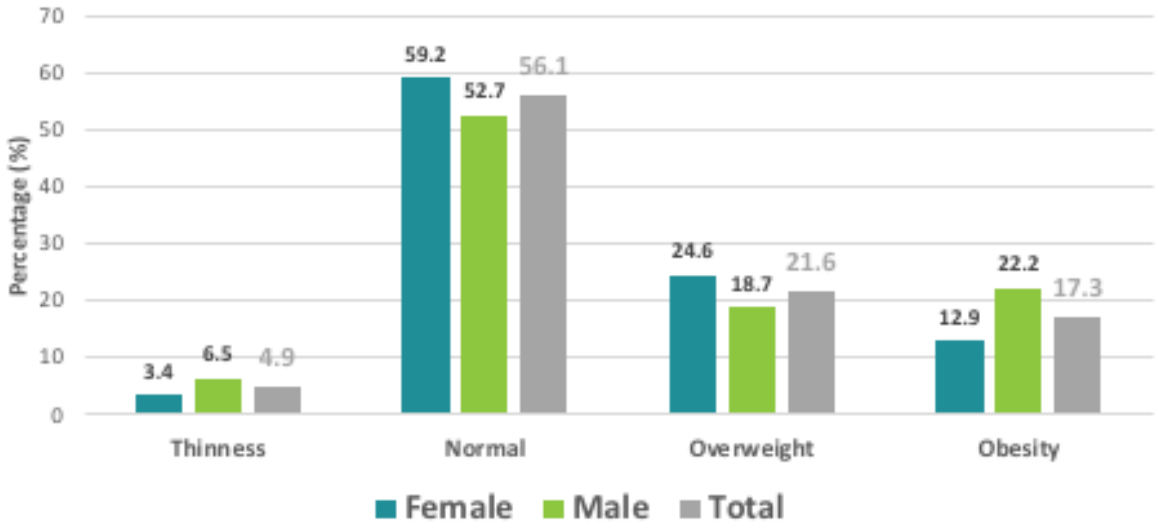
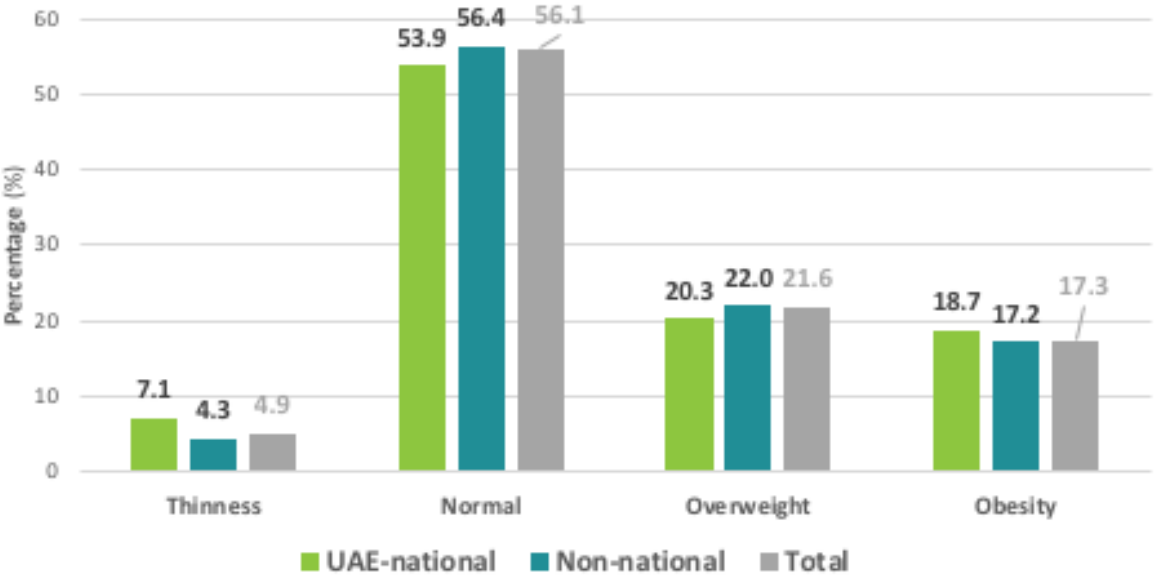


Figure 7.5 BMI classification among children aged 5-17 years by nationality



Central Obesity (increased Waist Circumferences (WC) & Waist to Hip Ratio (WHR))

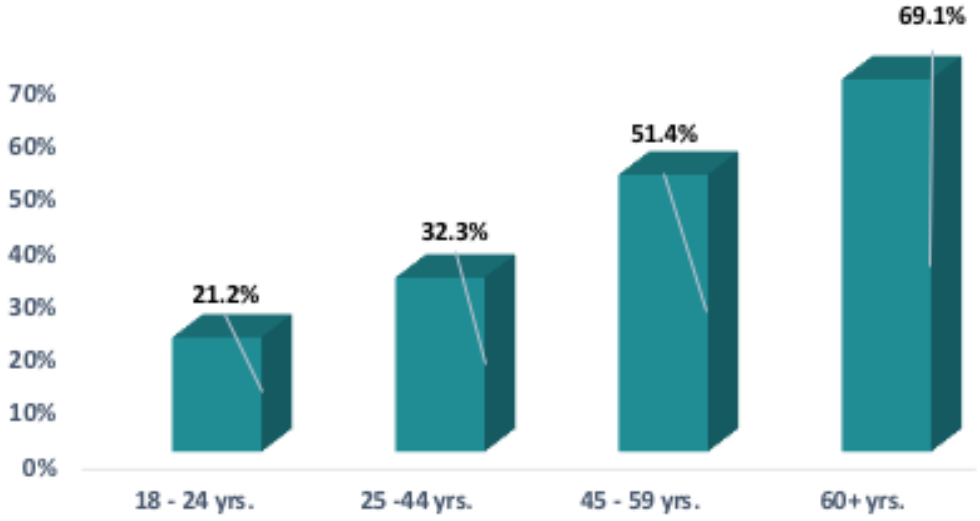
1- Central Obesity and Mean WC

The mean waist circumference for adult women was 91.2 cm compared to 94.1 cm for men (18+). Moreover, the mean hip circumference was 104 cm for females compared to 100.7 for males.

The proportion of adult men and women with abdominal/ central obesity (waist circumference of ≥102cm for men and ≥88 cm for women) is illustrated in Figure 7.6. This shows direct relationship between age and increased central obesity, as 21.2% of the youth surveyed had central obesity and this percentage increased gradually up to 69.1% among the older age group (60+).

Figure 7.7 shows the difference in central obesity by gender and nationality. It reveals that almost four in ten of the adults surveyed (39%) have central obesity (as measured by waist circumference). The proportion of men aged 18 and over with a raised waist circumference (26.7%) was significantly lower than women (58.8%). In addition, UAE-Nationals who had a central obesity (58.1%) due to raised waist circumferences were significantly more than Non-UAE-Nationals (30.3%).

Fig 7.6 Distribution of central obesity (waist circumference) among the sampled adults by age groups



2-Waist-to-hip ratio (WHR)

Another measure for overweight and obesity is the waist-to-hip ratio (WHR). It is defined as the ratio of the circumference of the waist to that of the hips. Research shows that people with "apple-shaped" bodies (more weight around the waist) face more health risks than those with "pear-shaped" bodies (more weight around the hips). The WHO states that Central/ abdominal obesity is defined as a waist-hip ratio above 0.90 for males and above 0.85 for females.

Fig. 7.7. Distribution of central obesity (waist circumference) among the sampled adults by nationality and gender

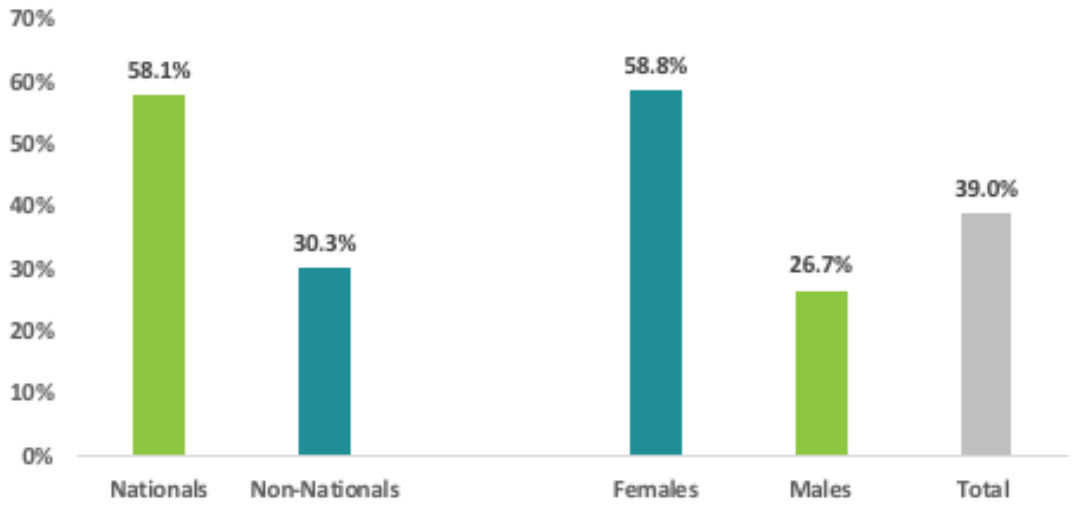


Fig. 7.8 Central obesity (waist-to-hip ratio) by age groups among the sampled adult population

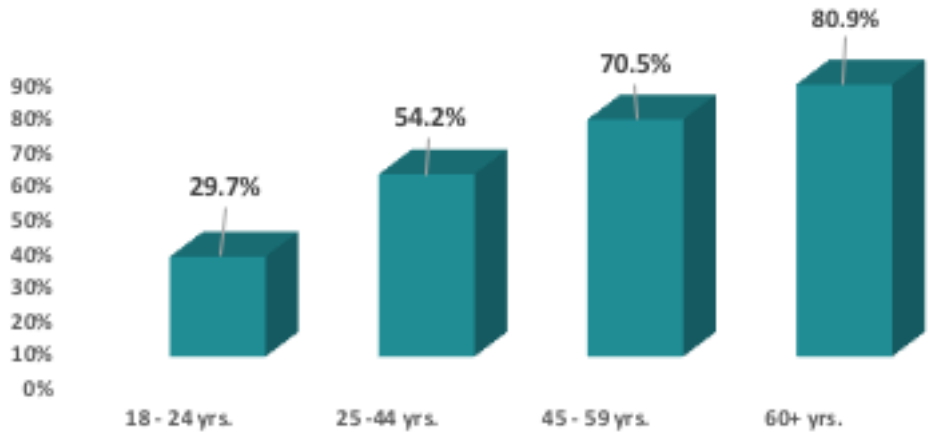
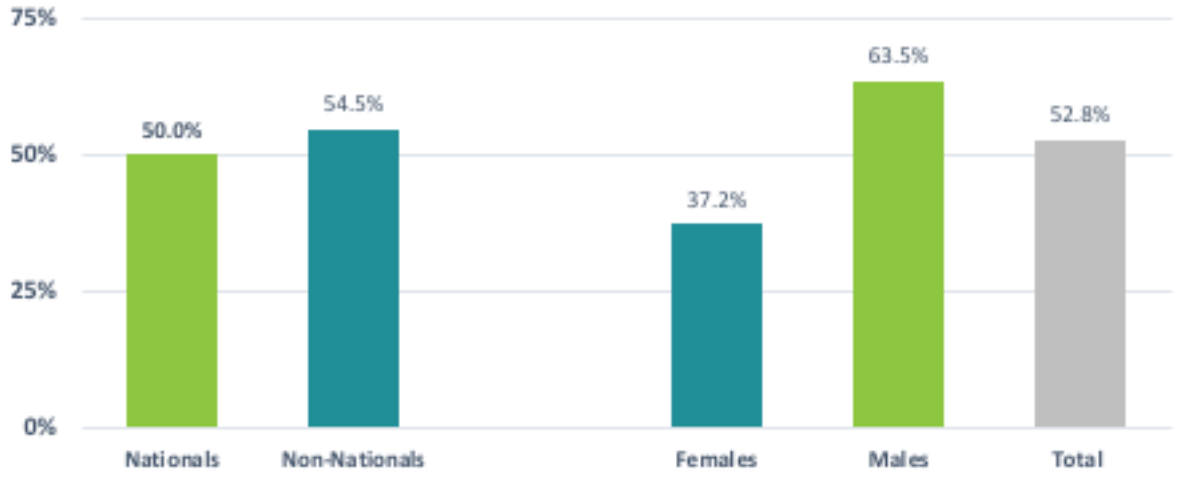


Fig. 7.9 Central obesity (waist-to-hip ratio) by nationality and gender among adult participants



Among the sampled adults, half of them (52.8%) had abdominal obesity (by waist-to-hip ratio). This percentage increases gradually by age starting from 29.7% among the age group 18-24 yrs. up to 80.9% in the eldest age group (Figure 7.8). This raised waist to hip ratio was almost similar in UAE-Nationals (50.0%) and Non-nationals (54.5%), however, males were much more likely to have abnormal waist-to-hip ratio than females (63.5% of men, compared with 37.2% of women), as shown in Figure 7.9.

7.3 Prevalence of Diabetes Mellitus

The rising burden of NCDs has been an increasing public health concern globally. In 2005, the World Health Organization (WHO) estimated that 61% of deaths (35 million) and 49% of the global burden of disease were attributable to NCDs (especially diabetes and hypertension). If current trends continue, by 2030 chronic diseases will account for 70% of total global deaths and 56% of the global disease burden. The health care system of UAE in general and Dubai in particular faces formidable challenges in its efforts to prevent chronic diseases from eroding the achievements of the past decades. Several studies over past 2 decades have documented the distribution of risk factors associated with NCDs along with the increase in lifestyle-related NCDs which have emerged as new health challenges to the UAE.

The estimated prevalence of diabetes within the surveyed adults was derived by adding up the prevalence of self-reported diabetes and that of newly discovered Diabetes based on HbA1C results (newly diagnosed).

Table 7.2 presents the prevalence of diabetes mellitus among the respondents (self-reported and measured), according to background characteristics. It illustrates that 13.7% are diabetics and 16.2% are pre-diabetics indicating that almost 30% of the population has diabetes or pre-diabetes. The table also reveals that 2.1% of the respondents did not know they were diabetics (newly diagnosed) as they were diagnosed with the

blood sample test, (HbA1c) while 11.6% of them self-reported they have the disease. Diabetes increased considerably by age from less than 2.9% among respondents in the 18-24 age group to 43.7% among those in the 60+ age group.

Table 7.2

Percent distribution of adult participants by prevalence of diabetes mellitus (self-reported and measured), according to background characteristics, DHHS 2019.

Age	Self reported	Newly diagnosed	# Total diabetes	^ Pre-Diabetes	*Normal	Number of respondents
18 - 24	2.9	0	2.9	5.4	91.7	224
25 -44	6.1	2.4	8.5	13	78.5	1341
45 - 59	19.9	2	21.9	21.8	56.3	434
60+	41.5	2.2	43.7	36.4	19.9	246
Gender						
Female	9.9	2.2	12.1	11.9	76	962
Male	13.3	2.2	15.5	20.5	64	1283
Nationality						
Nationals	16.1	3.2	19.3	12	68.7	844
Non-Nationals	10.5	1.9	12.4	17.1	70.5	1401
Total	11.6	2.1	13.7	16.2	70.1	2245

Diabetes was diagnosed if HbA1c result was shown as 6.5% or above.

^ Prediabetes was diagnosed if HbA1C was between 5.7% to 6.4 %.

* Normal (non-diabetic) was considered if HbA1c <5.7 %.

Variations by gender were also obvious, as more males self-reported diabetes and diabetes was more prevalent currently in males (15.5%) than in females (12.1%). In addition, details in Figure 7.10 shows that almost double percentage of pre-diabetics were males (20.5%) than being females (11.9%).

The burden of diabetes was borne more by UAE-Nationals (19.3%) than Non-UAE-Nationals (12.4%). On the other hand, more Non-UAE-Nationals (17.1%) were detected to have prediabetes state than UAE-Nationals (12%), as shown in Figures 7.11 & 7.12.

Fig 7.10 Distribution of diabetes (by diagnaosis status) among adult participants by gender

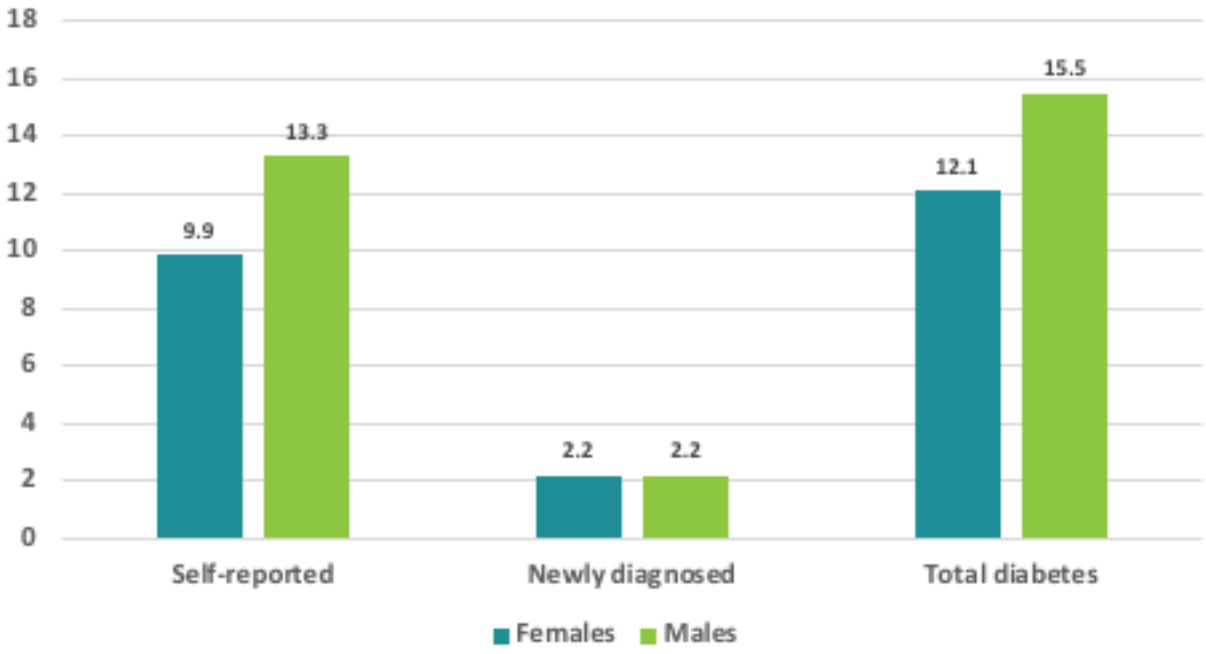


Fig 7.11 Distribution of diabetes (way of diagnaosis) among adult participants by nationality

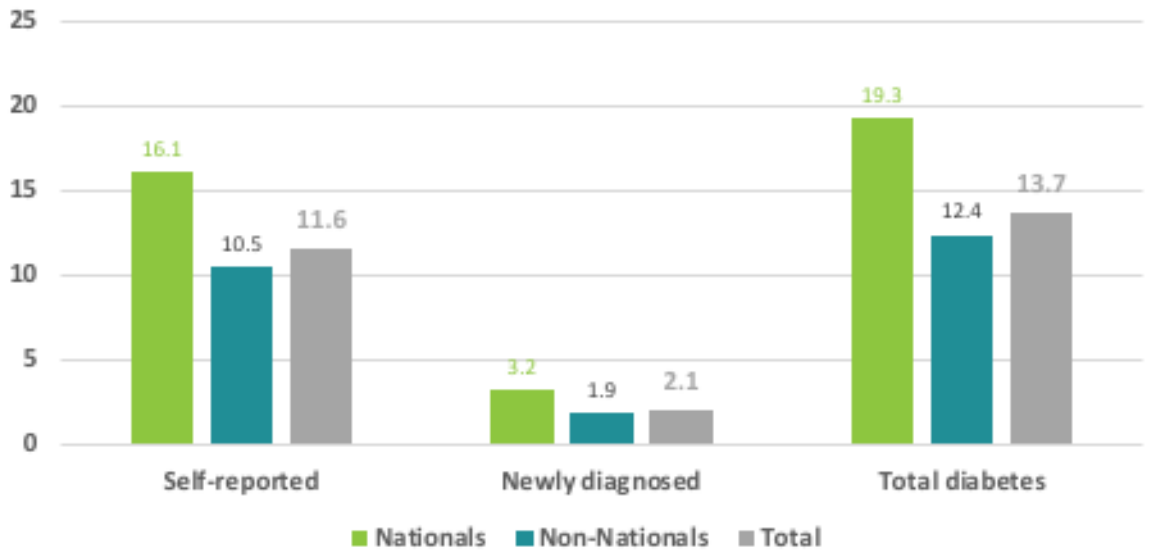
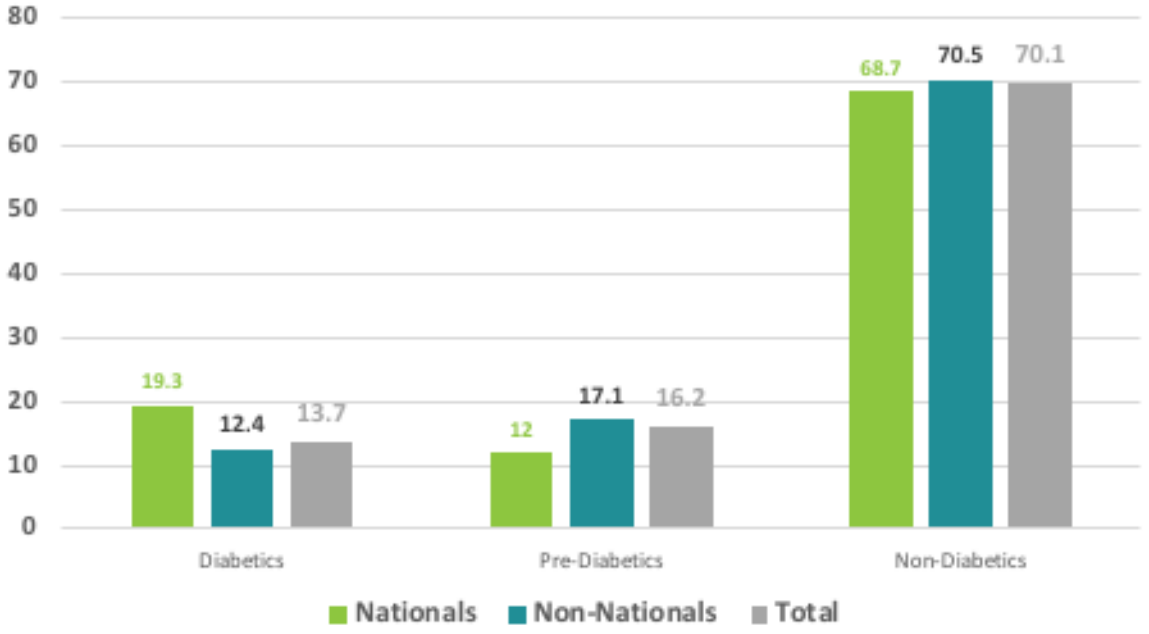


Fig. 7.12 Distribution of adult participants by diabetic status and nationality



7.4 Prevalence of Hypertension

Hypertension is one of the risk factors that contribute to cardiovascular morbidity and mortality. According to the WHO classification, a normal adult has Systolic Blood Pressure (SBP) of less than 120 mmHg and Diastolic Blood Pressure (DBP) of less than 80 mmHg. Higher readings of blood pressure levels are either prehypertension or hypertension. Pre-hypertension (at risk of hypertension) is diagnosed with SPB of 120-139 mmHg or DBP of 80-89 mmHg. While hypertension is SBP of ≥140 mmHg and DBP of ≥90 mmHg.

Some people have hypertension that is undiagnosed and untreated. Diagnosis, and proper treatment of hypertension are needed to decrease the risk of an adverse cardiovascular events.

The 2019 DHHS aimed to identify individuals with potentially undiagnosed hypertension. Participants aged 18 years or above were screened for hypertension by blood pressure measurements using a calibrated sphygmomanometer by trained nurses. Each individual had three blood pressure measurements at two points of time after the first measurement. The mean of the three blood pressure readings was calculated and the participant was labeled potentially undiagnosed hypertension if meeting the definition of hypertension as per the WHO.

Thus, in the DHHS (2019), the prevalence of hypertension was based on either of the following two conditions:

- Self-reported individuals that were previously diagnosed with hypertension.
- Participants that were identified by the survey as potentially (probable) undiagnosed hypertension.

The survey found that the estimated prevalence of hypertension among the adult population of Dubai was 32.5%.. The prevalence varied between males and females, where males (38.3%) had more than double that found in females (16.7%). Generally, UAE-Nationals had a lower prevalence than Non-UAE-Nationals (25.2% and 33%, respectively).

Self-Reported Hypertension and Potentially Undiagnosed Hypertension

The overall percentage of self-reported hypertension was 8.4% of adults aged 18+ years in Dubai. However, the rate varied slightly between males (9.2%) and females (6.4%).

For UAE-Nationals, there was a substantial difference for self-reported hypertension, of which 17.3% would be UAE-Nationals and 7.8% would be Non-UAE-Nationals.

According to the DHHS (2019), 24.1% of adults aged 18+ years surveyed in Dubai were found to have potentially undiagnosed hypertension (29.2% for males and 10.3% for females). However, the potentially undiagnosed hypertension was considerably high among Non-UAE-Nationals (25.1%) compared to UAE-Nationals (7.9%).

Table 7.3

Percent distribution of adult participants by prevalence of hypertension, according to background characteristics, DHHS 2019

	Normal and Prehy-pertension	Hypertension	Number of respondents
Age	BP < 140/90 mmHg	BP > 140/90 mmHg	
18 - 24	77.1	22.9	224
25 -44	72.9	27.1	1,498
45 - 59	47.5	52.5	464
60+	43.5	56.5	346
Gender			
Female	83.3	16.7	1,030
Male	61.7	38.3	1,502
Nationality			
Nationals	74.9	25.2	885
Non-Nationals	67.0	33.0	1,647
Total	67.5	32.5	2,532

Figure 7.13: Prevalence of hypertension among adult participants by gender

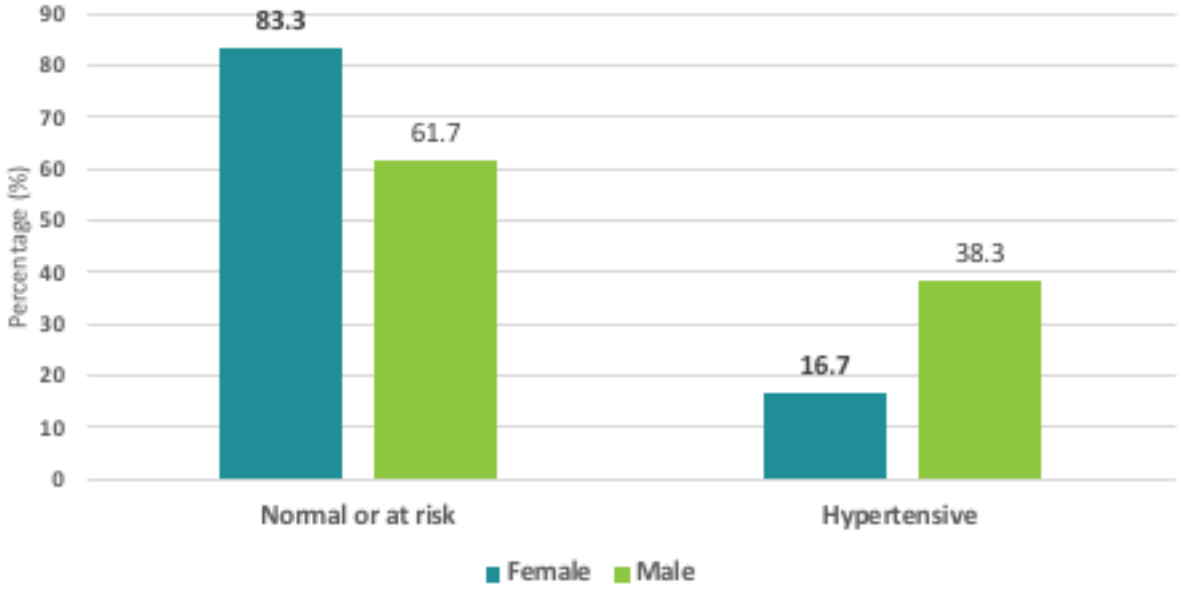


Figure 7.14: Prevalence of hypertension among the adult participants by nationality

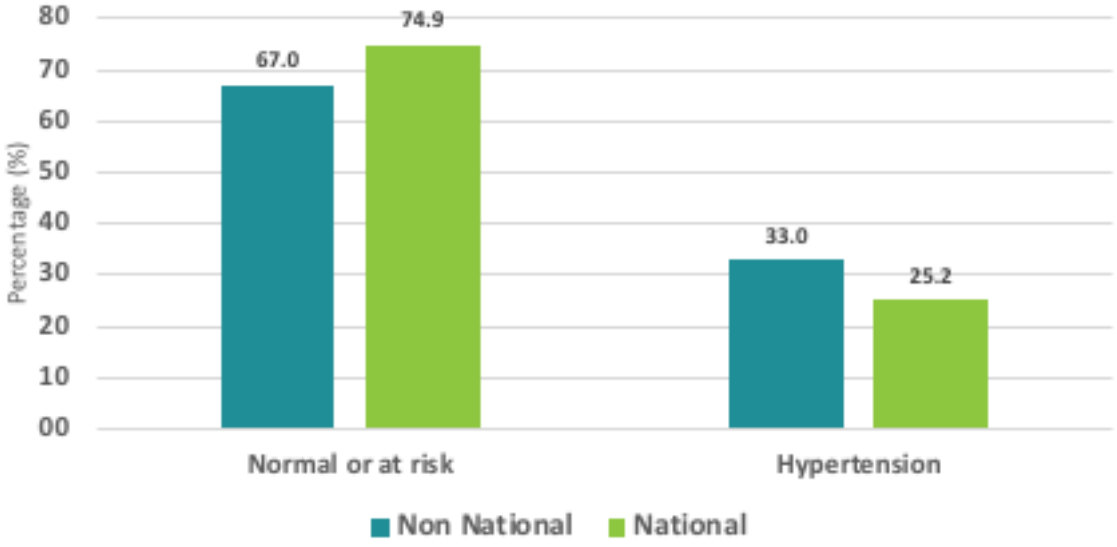
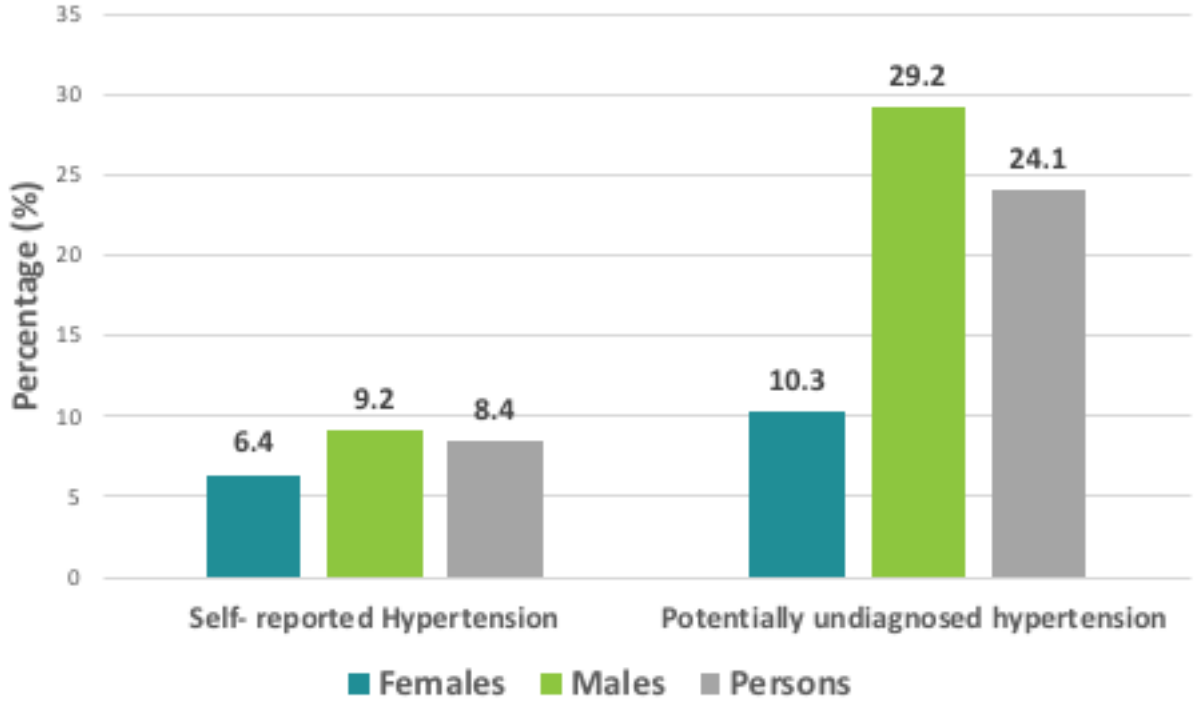


Table 7.4

Percent distribution of adult participants by prevalence of hypertension (self-reported and potentially undiagnosed hypertension), according to background characteristics, DHHS 2019

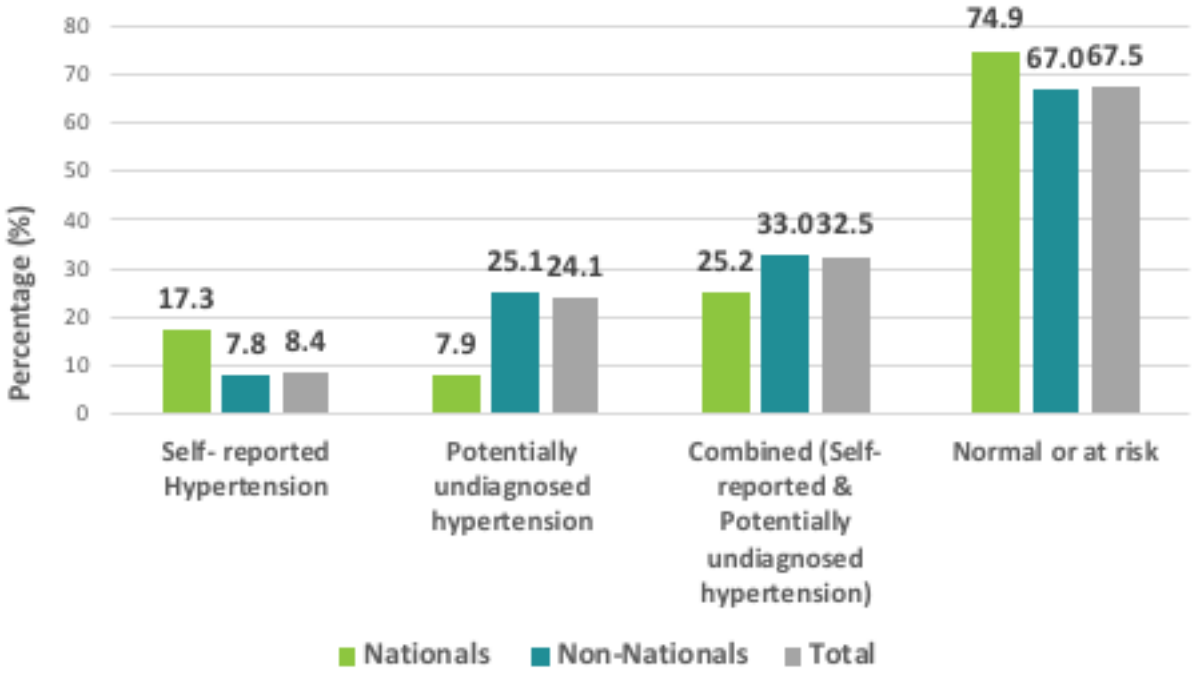
	Self-Reported (diagnosed)	Potential newly diagnosed hypertension	Normal or Pre-hypertensive	Number of respondents
Age	mean BP ≥140/90 mmHg	mean BP ≥140/90 mmHg	mean BP <140/90 mmHg	
18 - 24	4.5	18.4	77.1	224
25 -44	3.8	23.3	72.9	1,498
45 - 59	21.8	30.7	47.5	464
60+	34.4	22.1	43.5	346
Gender				
Female	6.4	10.3	83.3	1,030
Male	9.2	29.2	61.7	1,502
Nationality				
Nationals	17.3	7.9	74.9	885
Non-Nationals	7.8	25.1	67	1,647
Total	8.4	24.1	67.5	2,532

Figure 7.15: Distribution of self-reported and newly diagnosed (potentially undiagnosed) hypertension by gender among adult participants, DHHS 2019



Note: Hypertension is separated into two categories. First, those who are self-reported diagnosed by physician as hypertensive patients and those who are identified by the survey examination as potential undiagnosed hypertension.

Figure 7.16: Distribution of all types of hypertension by nationality among adult participants, DHHS 2019



Note: Hypertension is separated into two categories. First, those who are self-reported diagnosed by physician as hypertensive patients and those who are identified by the survey examination as potential undiagnosed hypertension.

Pre-hypertension and Hypertension:

According to the WHO, Prehypertension was defined as mean SBP from 120 up to 139 mmHg, or DBP from 80 up to 89 mmHg.

The overall percentage of pre-hypertension was 32.8 % among adults aged 18+ years in Dubai. However, it was found that more males were at risk of developing hypertension (pre-hypertensive) than females (35.5% and 25.4%, respectively). There were some variations in prevalence of pre-hypertension with nationality, whereas 33.1% of non-nationals were found to be at risk of developing hypertension, versus 28.4% of UAE-Nationals.

Table 7.5

Percent distribution of adult participants by hypertensive status, according to background characteristics, DHHS 2019

	Normal	Pre-hypertension	Total Hypertension	Number of respondents
Age	<120/80	120/80 ≥X≤140/90	> 140/90	
18 - 24	39.3	37.8	22.9	224
25 -44	37.1	35.8	27.1	1,498
45 - 59	25.9	21.7	52.5	464
60+	24.6	18.9	56.5	346
Gender				
Female	58.0	25.3	16.7	1,030
Male	26.2	35.5	38.3	1,502
Nationality				
Nationals	46.5	28.3	25.2	885
Non-Nationals	34.0	33.0	33.0	1,647
Total	34.8	32.8	32.5	2532

X Pre- hypertension

Figure 7.17: Prevalence of prehypertension and hypertension among adult participants by gender

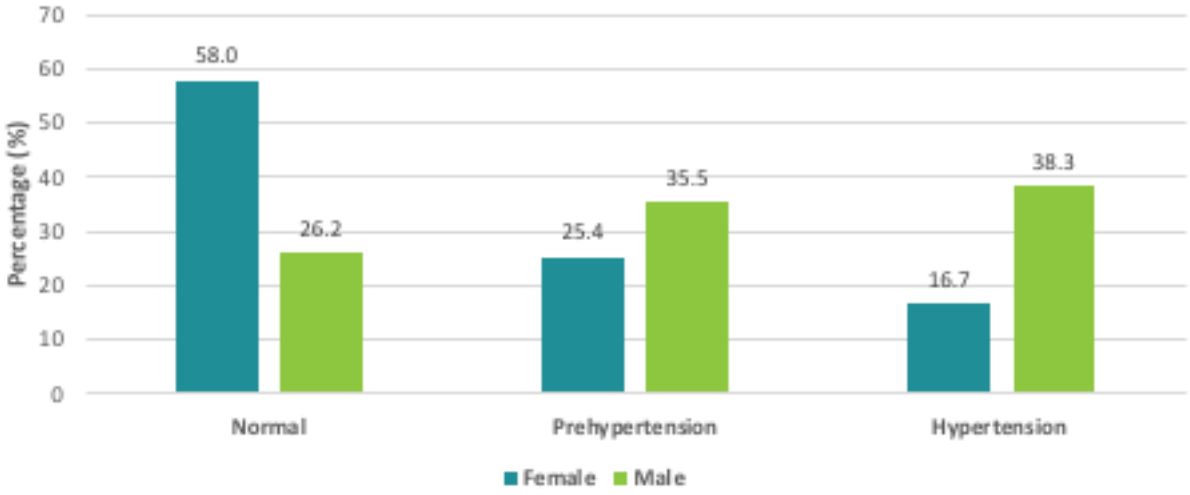
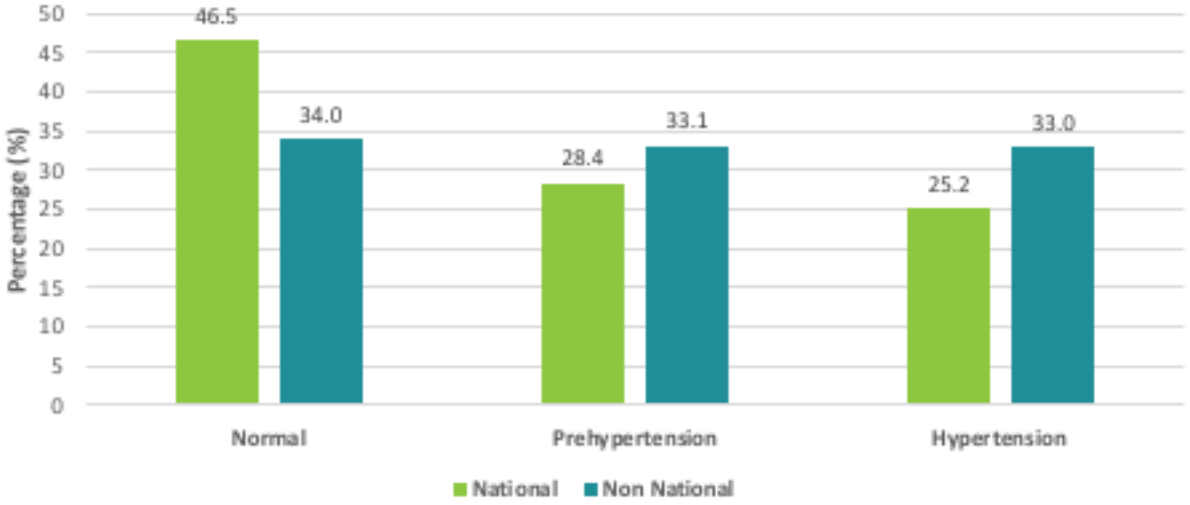


Figure 7.18: Prevalence of prehypertension and hypertension among adult participants by nationality



Mental Health | 8

Chapter Eight

Mental health

Depressive Disorders

Depressive disorders are characterized by sadness, loss of interest or pleasure, feelings of guilt or low self-worth, disturbed sleep or appetite, feelings of tiredness, and poor concentration. Depression (major depressive disorder) is a common and serious medical illness that negatively affects how people feel, the way they think and how they act. Fortunately, it is also treatable.

Depression can be long lasting or recurrent, substantially impairing an individual's ability to function at work or school or cope with daily life. At its most severe, depression can lead to suicide.

Prevalence of depressive disorders was estimated using Patient Depression Questionnaire (PHQ-9), a symptom-screening questionnaire that allows for criteria-based diagnoses of depressive disorders. Taking into account the self- reported (diagnosed) cases of depression, the total prevalence of depression was calculated. The estimated number of adults who were affected by depressive disorder was 54,733 persons aged 18+ years. This number was obtained by applying the depression disorder rate from the 2019 DHHS survey for Dubai (2.134%) to the adult population of Dubai in 2018 (2,564,787).

According to the DHHS (2019), prevalence of depressive disorders among adults aged 18 and over was 2.1%, this varies between 2.3% for females and 2% for males (Fig. 8.2).

Out of all people having depressive disorders, only 19% were diagnosed. While approximately 81% were not realizing that, they were suffering from depressive disorder.

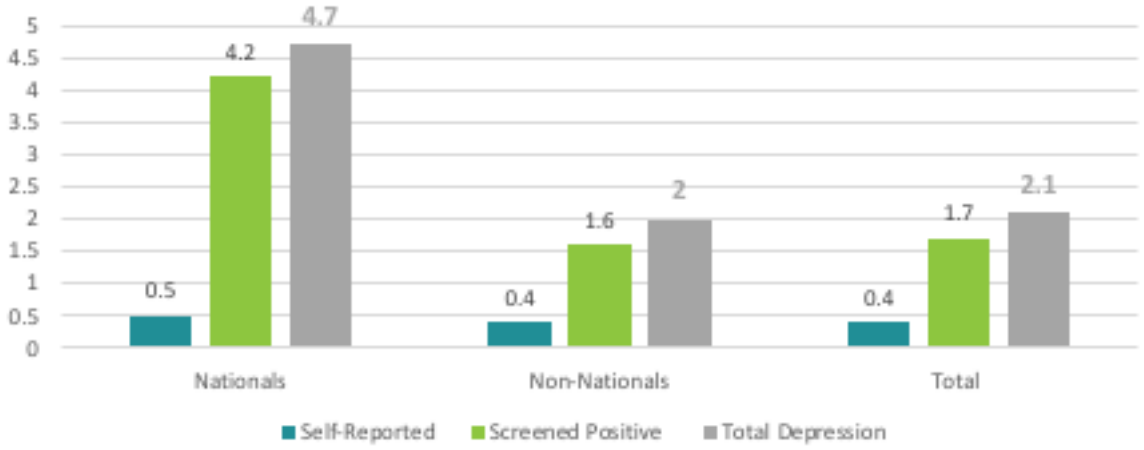
Based on DHHS survey 2019, the prevalence of depressive disorder among UAE-Nationals was twice as more than Non–UAE-Nationals (it was 4.7% for UAE-Nationals compared to 2% for Non–UAE-Nationals), as shown Fig. 8.1.

Further work is required with health care providers in order to identify patients with undiagnosed depressive disorders.

Table 8.1 Percent distribution of depressive disorders among adult population (18+ Years), according to demographic characteristics, DHHS 2019.				
	Clinically Diagnosed	Depressive Disorders by Screening*		Total respondents
Age	Self-Reported	Positive	Negative	
18 - 24	0.10	1.90	98.00	224
25 -44	0.40	1.60	98.00	1498
45 - 59	0.60	1.90	97.50	464
60+	0.70	2.40	96.90	346
Gender				
Female	0.03	2.29	97.68	1030
Male	0.53	1.53	97.94	1502
Nationality				
Nationals	0.50	4.20	95.30	885
Non-Nationals	0.40	1.60	98.00	1647
Total	0.40	1.70	97.90	2532

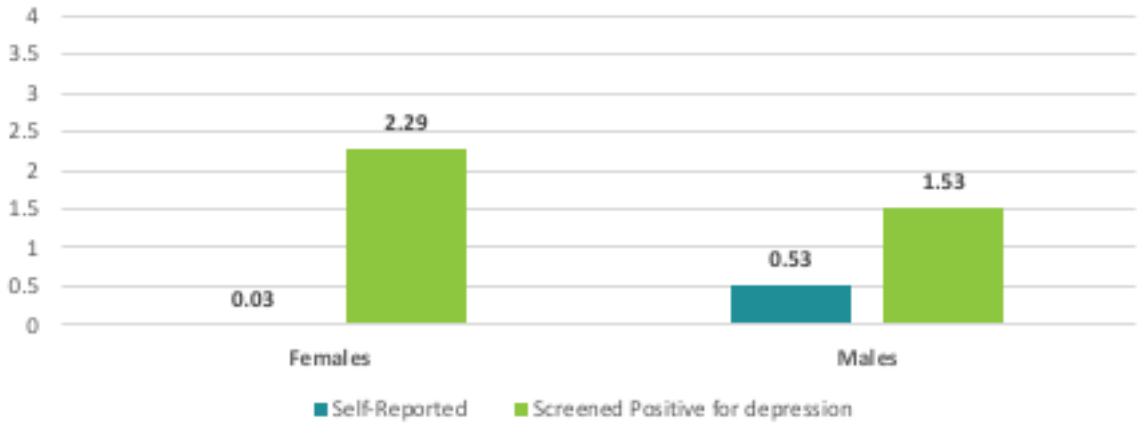
*Screening was done using the Patient Depression Questionnaire (PHQ-9)

Fig. 8.1 Distribution of depressive disorders among adults by nationality

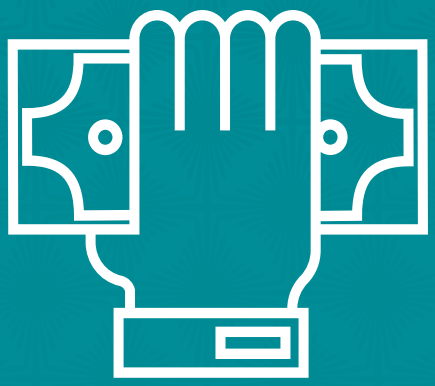


*Screened Negative bar is not shown in above figure

Fig. 8.2 Distribution of depressive disorders among adults by gender



*Screened Negative bar is not shown in above figure



Healthcare Expenditure

Chapter Nine

9

Healthcare expenditure

9.1 Definitions

Out-of-pocket health expenditure (OOP)

Out-of-pocket health spending encompasses the direct outlays of households, including gratuities and payments in-kind, made to health practitioners and suppliers of pharmaceuticals, therapeutic appliances, and other goods and services whose primary intent is to contribute to the restoration or enhancement of the health status of individuals or population groups. This includes household payments to public services, non-profit institutions or non-governmental organizations.

Typically, health spending includes direct medical costs e.g. consultations, hospital stays, drug acquisition and administration, durable medical goods and diagnostic procedures. In cases of treatment abroad, direct non-medical costs for transportation, accommodation and other expenses where included. Diet and special nutrition as direct non-medical costs were excluded. It is also important to note that OOP spending does not include any private health insurance or government reimbursement or contribution.

The DHHS 2019 captured information regarding household Out-of-pocket health expenditure (OOP) using the household questionnaire. Households were asked to report their OOP spending per individual family member by service type:

1. **Outpatient services**

   Individuals were asked to state the amount of OOP spending on grouped list of outpatient services and treatments, for the last outpatient visit in the last 30 days a the visit before last.

2. **Inpatient services**

   Individuals were asked to state the amount of OOP spending on grouped list of inpatient admission and services during the previous 12 months and the admission before the last.

3. **Health related equipment, devices and material**

   Individuals were asked to state the amount of OOP spending on list of medical devices, equipment's, or medicines purchased without prescription.

9.2 Out-of- Pocket Spending on Healthcare by Service Type

Out-of-pocket (OOP) spending by service type (mean and total spend) on Outpatient services, Inpatient services and health-related equipment, devices and material by background characteristics were illustrated in Tables 9.1 - 9.3.

Total Out-of-pocket (OOP) spending was 1,534.8 Million AED. The OOP spend on outpatient care accounted for 31.9% of the total spend, inpatient constituted up to 44.8% of the total spend, while health related equipment, devices and material accounted for the remaining 23.3 (Figure 9.1).

Outpatient service OOP spend split by gender shows that OOP spending by males was considerably higher than that of females (88.9% and 11.2%, respectively), as illustrated in Figure 9.2. In addition, OOP for outpatient spending by nationality grouping shows that Non-Nationals account for 97.3% of the total spend while Nationals account for 2.7% of the total (Figure 9.3).

The mean individual spending on Outpatient visits in the 30 days prior to the survey was 924 AED. Children in the age group 5 – 17 years accounted for 78.3% of total OOP spend on Outpatient services (Figures 9.4 & 9.5) depict Inpatient service OOP spend split by gender and nationality. It shows that OOP spending by males was considerably higher than that of females (77.7% & 22.3%, respectively). For the nationality grouping, 99% of the total OOP on Inpatient care was spent by Non-nationals and only 1% of the total inpatient spending was by Nationals.

The mean individual spending on Inpatient admissions was 5,043 AED. The 18 – 24 year age group spent the most on average per individual at 11,869 AED.

Other medical service out-of-pocket was split by type of goods, Pharmaceuticals and other medical non-durable goods (Table 9.3) and therapeutic appliances and other medical goods (Table 9.4). The mean individual spending on Pharmaceuticals and other medical non-durable goods was 402 AED. The 60+ age group spent the most on average per individual at 1000 AED.

The mean individual spending on Therapeutic appliances and other medical goods was 1,368 AED. The spent on the children in the age group < 5 was the most on average per individual at 2,911 AED.

Table 9.1

Distribution of OOP health expenditure on Outpatient services, according to background characteristics, DHHS 2019.

Age	*Average Spending AED	Total spending, Million AED	Number of respondents
< 5	271	10.1	2.06%
5 - 17	6354	383.1	78.30%
18 - 24	143	13.5	2.76%
25 -44	294	52.4	10.71%
45 - 59	196	28.7	5.87%
60+	124	1.5	0.31%
Gender			
Female	304	54.4	11.12%
Male	1242	434.9	88.88%
Nationality			
Nationals	590	13.3	2.72%
Non- Nationals	939	476	97.28%
Total	924	489.3	100.00%

* Amount of spending in UAE Dirhams

Table 9.2

Distribution OOP health expenditure on Inpatient, according to background characteristics, DHHS 2019.

Age	*Average Spending AED	Total spending, Million AED	Number of respondents
18 - 24	11,869	233.8	33.99%
25 -44	4,339	413.7	60.14%
45 - 59	2,003	40.0	5.81%
60+	305	0.4	0.06%
Gender			
Female	5,711	153.4	22.30%
Male	4,880	534.5	77.70%
Nationality			
Nationals	2973	6.9	1.00%
Non-Nationals	5079	681	99.00%
Total	5043	687.9	100.00%

* Amount of spending in UAE Dirhams

Table 9.3

Distribution by other OOP health expenditure services - Pharmaceuticals and other medical non-durable goods, according to background characteristics, DHHS 2019

Age	*Average Spending AED	Total spending, Million AED	Number of respondents
< 5	73	1.6	0.60%
5 - 17	111	4.0	1.50%
18 - 24	331	22.1	8.29%
25 -44	504	210	78.80%
45 - 59	269	23.7	8.89%
60+	1000	5.1	1.90%
Gender			
Female	107	18.2	6.83%
Male	535	248.3	93.17%
Nationality			
Nationals	259	6.2	2.33%
Non-Nationals	426	260.3	97.67%
Total	420	266.5	100.00%

* Amount of spending in UAE Dirhams

Table 9.4

Distribution by other OOP health expenditure services - Therapeutic appliances and other medical goods, according to background characteristics, DHHS 2019

Age	*Average Spending AED	Total spending, Million AED	Number of respondents
< 5	2919	5.3	5.82%
5 - 17	1684	11.5	12.62%
18 - 24	705	6.2	6.81%
25 -44	1482	60.2	66.08%
45 - 59	870	77.0	7.68%
60+	1843	0.9	0.99%
Gender			
Female	2036	38.7	42.48%
Male	1101	52.4	57.52%
Nationality			
Nationals	2428	5.0	5.49%
Non-Nationals	1335	86.1	94.51%
Total	1368	91.1	100.0%

* Amount of spending in UAE Dirhams

Fig. 9.1 Percent distribution oftotal OOP health expenditure

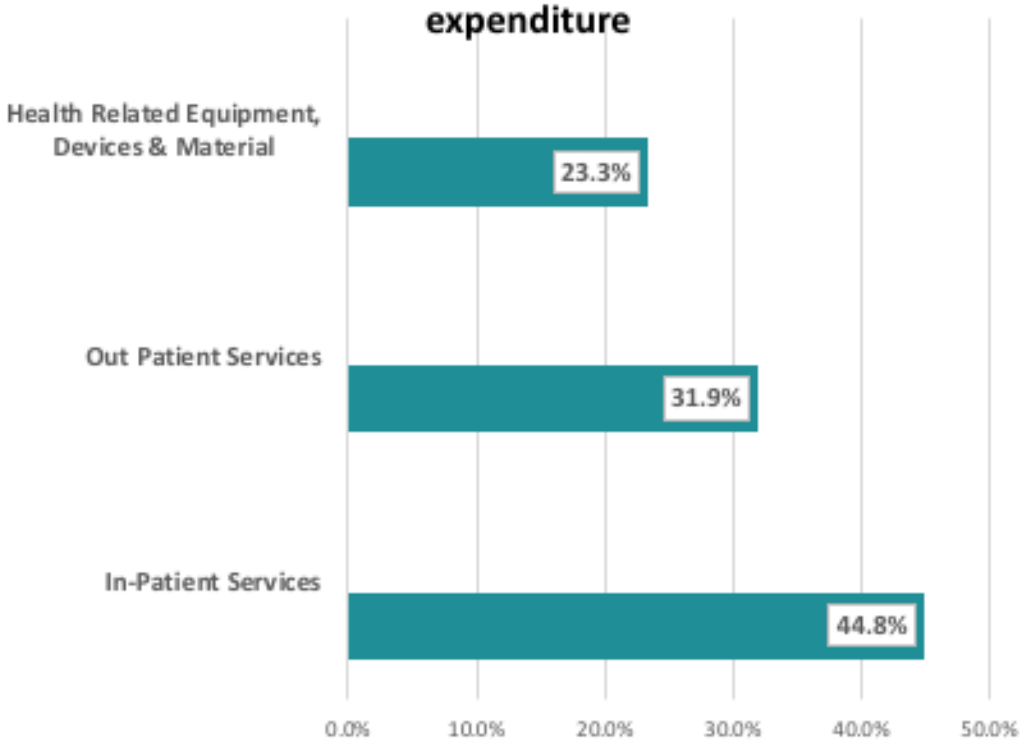


Fig. 9.2 Percent distribution of Outpatient service OOP expenditure by Gender

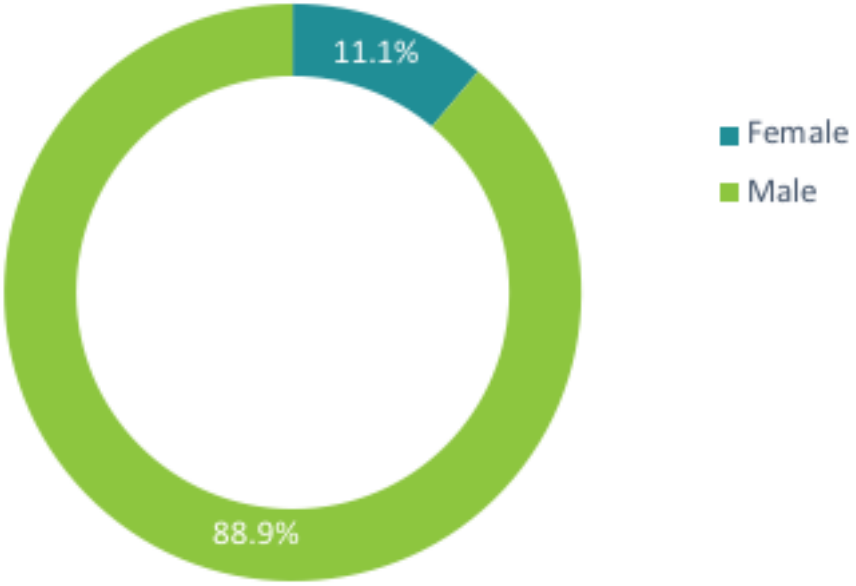


Fig. 9.3 Percent distribution of Outpatient service OOP expenditure by nationality

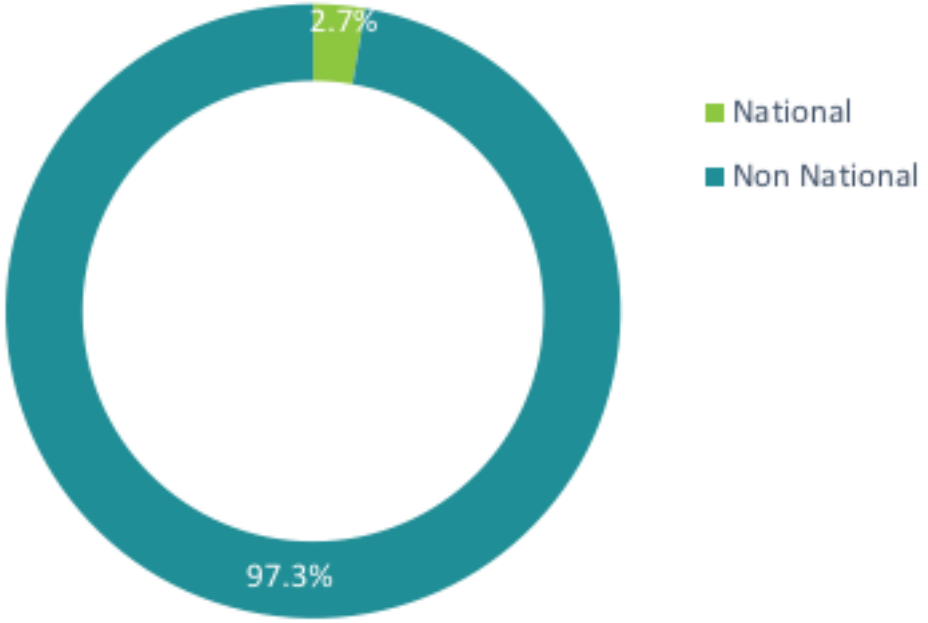


Fig. 9.4 Percent distribution of Inpatient service OOP expenditure by gender

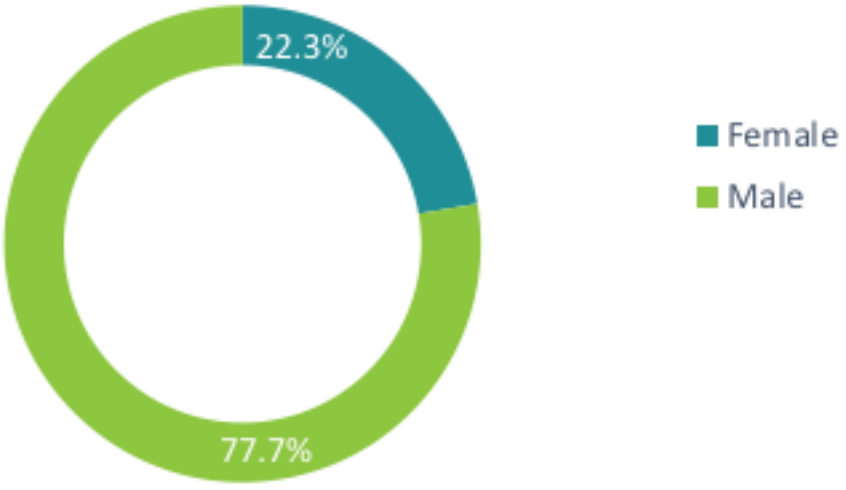


Fig. 9.5 Percent distribution of Outpatient service OOP expenditure by Nationality

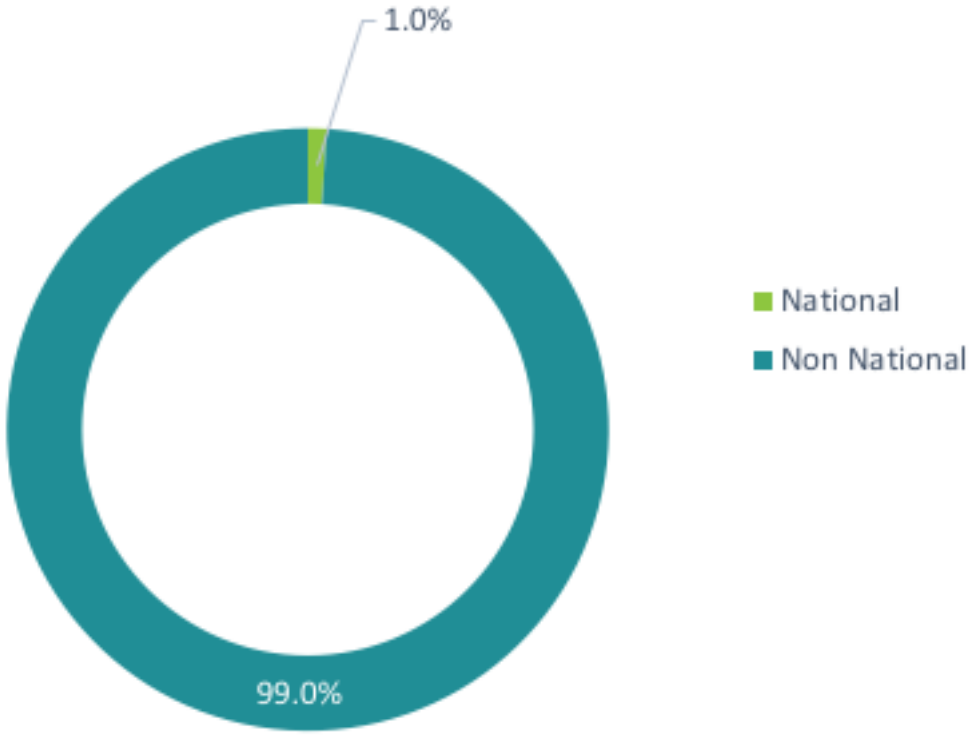


Fig. 9.6 Percent distribution of Other Pharmaceutical and other medical non durable goods, OOP expenditure by Gender

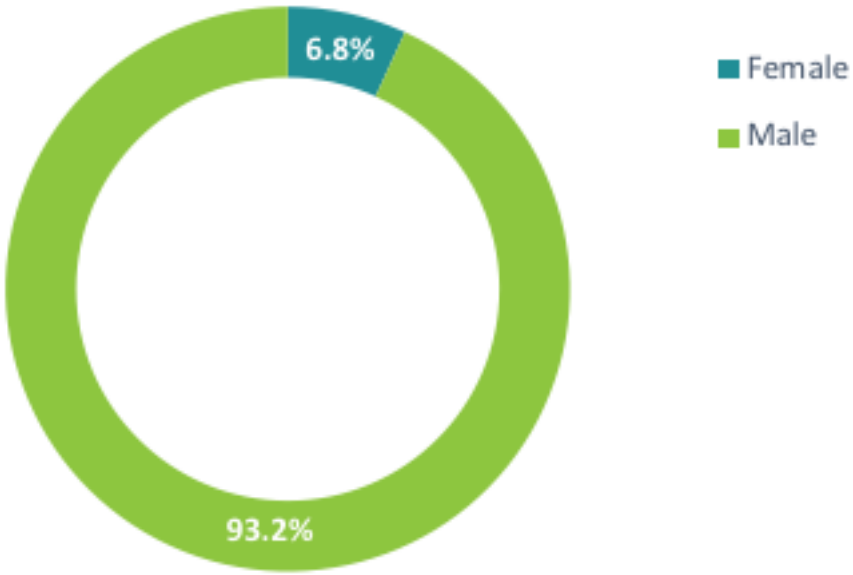
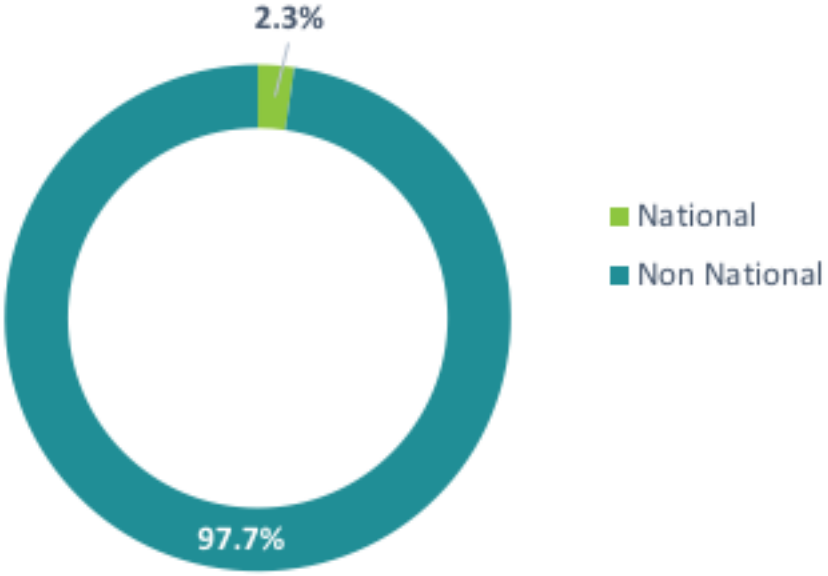
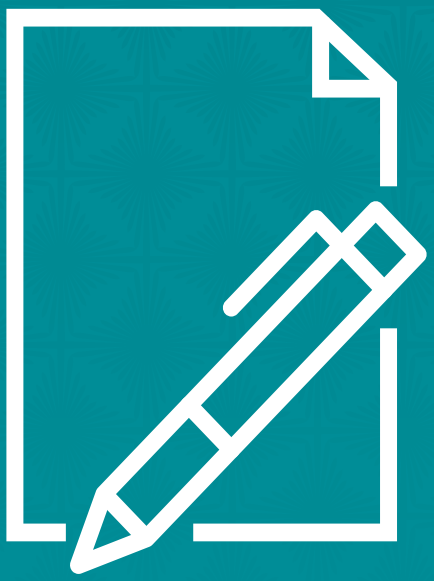


Fig. 9.7 Percent distribution of Other Pharmaceutical and other medical non durable goods, OOP expenditure by Nationality





Conclusions & Recommendations

10

Chapter Ten

10.1 Conclusions

Dubai's rapid socioeconomic development coupled with demographic trends over the past 3 decades reflects positively on many health indicators. However, such achievements may be overshadowed by the dramatic rise of chronic diseases, including cardiovascular disease, diabetes and other obesity-associated syndromes which are costly to treat. If the achievements in the health status accomplished over the past decades are to continue, there must be concerted efforts and coordinated policies with greater emphasis on proven, cost-effective primary prevention services that focus on lifestyle and behavior change.

The DHHS 2019 obtained baseline information on the health status of the population in Dubai from a UAE-nationally representative sample of 9,630 household members. The data has shown important and alarming findings among the respondents, concerning Non-communicable diseases (NCDs), health risky behaviors and other health related areas. The survey highlights the need for an executive plan of action to promote population health status. The following are among the most crucial findings of this DHHS survey:

- For the self-reported morbidities among the sampled population, prevalence figures for chronic conditions such as asthma, depression, cataract, osteoethritis and injuries were obtained by the survey. In particular, the DHHS, 2019 data shows quite high prevalence rate of respondents' self-reported asthma, as almost one third of interviewee (32.6%) reported having asthma during the last 12 months. The survey data also revealed that the osteoarthritis self-reporting among the respondents was clearly high (16.8%), out of which 24.3% were on medications.

- Concerning the self-reported risk factors for the NCDs, data has been collected on four major risk factors; use of tobacco, alcohol consumption, healthy eating and physical activity as below;

a. Survey data revealed that Tobacco use (smoking) is relatively high among respondents, with 15.8% were currently smoking and 2.2% are ex-smokers.

b. The survey data showed that only one in five of respondents (19.9%) took sufficient exercise over the course of a typical week.

c. The data from DHHS 2019 showed that more than one third of respondents (36.1%) reported that they ate sufficient fruits and vegetables on a typical day, with the vast majority of surveyed population stating that they do not eat five servings per day.

d. The data also showed that about one-fifth (20.6%) of the respondents reported that they ever consume alcohol.

- According to the Dubai Household Health Survey DHHS 2019s, data on self-reported and measurement of the most common NCDs was revealed as below:

a. The data revealed that adult overweight, including obesity (BMI of 25 kg/m² or greater) prevalence reached 62.1% among the sampled population of DHHS 2019. Two in each ten of the population in Dubai considered obese (20.8%), with the remaining 42.3% were overweight.

b. For the prevalence of diabetes among the sampled population, data shows that 13.7% are diabetics and 16.2% are pre-diabetics.

c. Results show that 32.5% of the adult individuals surveyed in Dubai have hypertension. At the same time, 24.1% of the participants were currently hypertensive, however they did not know they do have the condition.

- The results indicated that the majority of respondents rated their health as either good or very good (59.7% and 35.1% of participants falling in these two categories, respectively).

- The results of mental health screening revealed that, prevalence of depressive disorders among adults aged 18 and over was 2.1%, this varies between 2.3% for females and 2% for males.

10.2 Recommendations

Based on evidence and findings from DHHS 2019, the following recommendations are proposed:

1- There is a need to priotrize the prevention and control of Non-Communicable Diseases (NCDs) at both the Dubai and the UAE levels, with multi-sectoral governmental as well as societal support, as it is considered an emerging threat to health, social and economic level.

2- Sustainable public awareness campaigns and interventions to reduce the modifiable risk factors for the NCD: specially for unhealthy diet, physical inactivity, exposure to tobacco smoke, alcohol use and others.

3- Ensuring the availability, accessibility, affordability and quality of safe efficacious medicine and basic technologies for screening, diagnosis, treatment and monitoring of common NCDs at the primary healthcare level.

4- Promote wellness clinics (including universal screening interventions) in all health facilities to encourage early detection and screening of NCDs such as hypertension and diabetes and others, as well as to serve as source of information for prevention and promotion efforts.

5- Streamline the health information systems, especially the unified Electronic Medical Records at the Dubai level to guarantee reliable, timely, complete and quality data for more evidence-based practices and decision making regarding the NCDs prevention and control.

6- Enforcing the provision of Tobacco Control Act at the UAE-Nationals level.

7- Adopt a health system approach that focuses on promoting and integrating clinical best practices (behavioural and pharmacological) which help tobacco-dependent consumers increase their chance of quitting successfully;

8- Educate and inform the public about the many health hazards attributed to the use of traditional and non-traditional tobacco products, including e-cigarettes, all other tobacco products.

9- Protecting and enhancing UAE-Nationals regulatory authorities to ban or otherwise prevent the use of traditional and non-traditional tobacco products.

10- Banning the sale of traditional and non-traditional tobacco products in all venues, including through vending machines and the internet.

11- Introduction of legelization on production, packaging and marketing of food and drink to reduce consumption of unhealthy food.

12- Multi-sectorial agreement including the educational and agricultural sectors to enforce policies on healthy diet production and consumption

13- Strengthen the production of UAE-Nationals wise policy for physical activity promotion, focus on the recommended WHO physical toolkit to encourage adoption of active lifestyles and reduce sedentary lifestyles.

14- Building health system performance capacity and sustainably through restructuring, and budgeting re-allocation.

15- Generally, promotes the exchange of information and knowledge, so as to increase awareness of the need to change social norms.

16- Increase sensitization and awareness of the public and private health providers about the importance and appropriate use of health systems outcomes, statistics, and indicators to be invested as input for new programs and projects.

17- Enhancing and maintaining the health system research to identify the current gaps and weaknesses in healthcare.

18- Future research is required to investigate the shortage in healthcare coverage for some services as identified by the survey results.

19- Resource mobilization for new strategic initiatives based on the burden of disease and health needs that had been identified by the survey outcomes.

20- Population-based Mental Health Survey needs to be carried out for a more detailed estimation of the burden of mental health disorders in Dubai.

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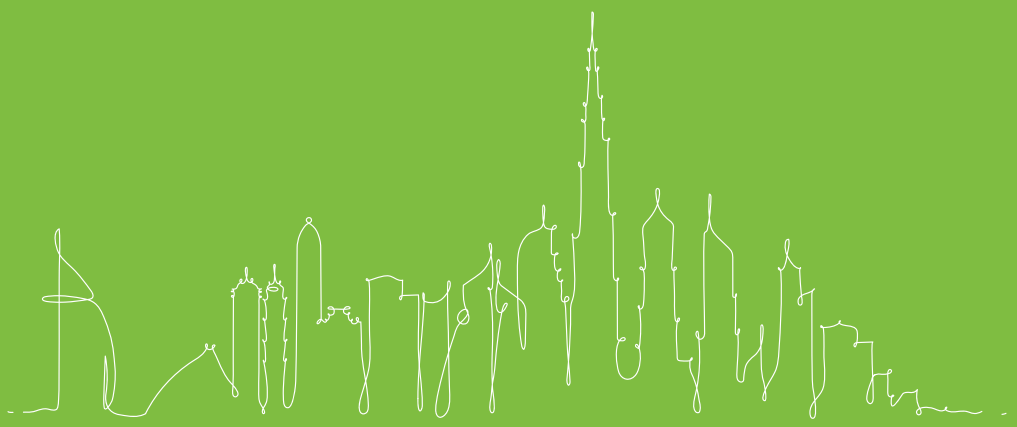

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