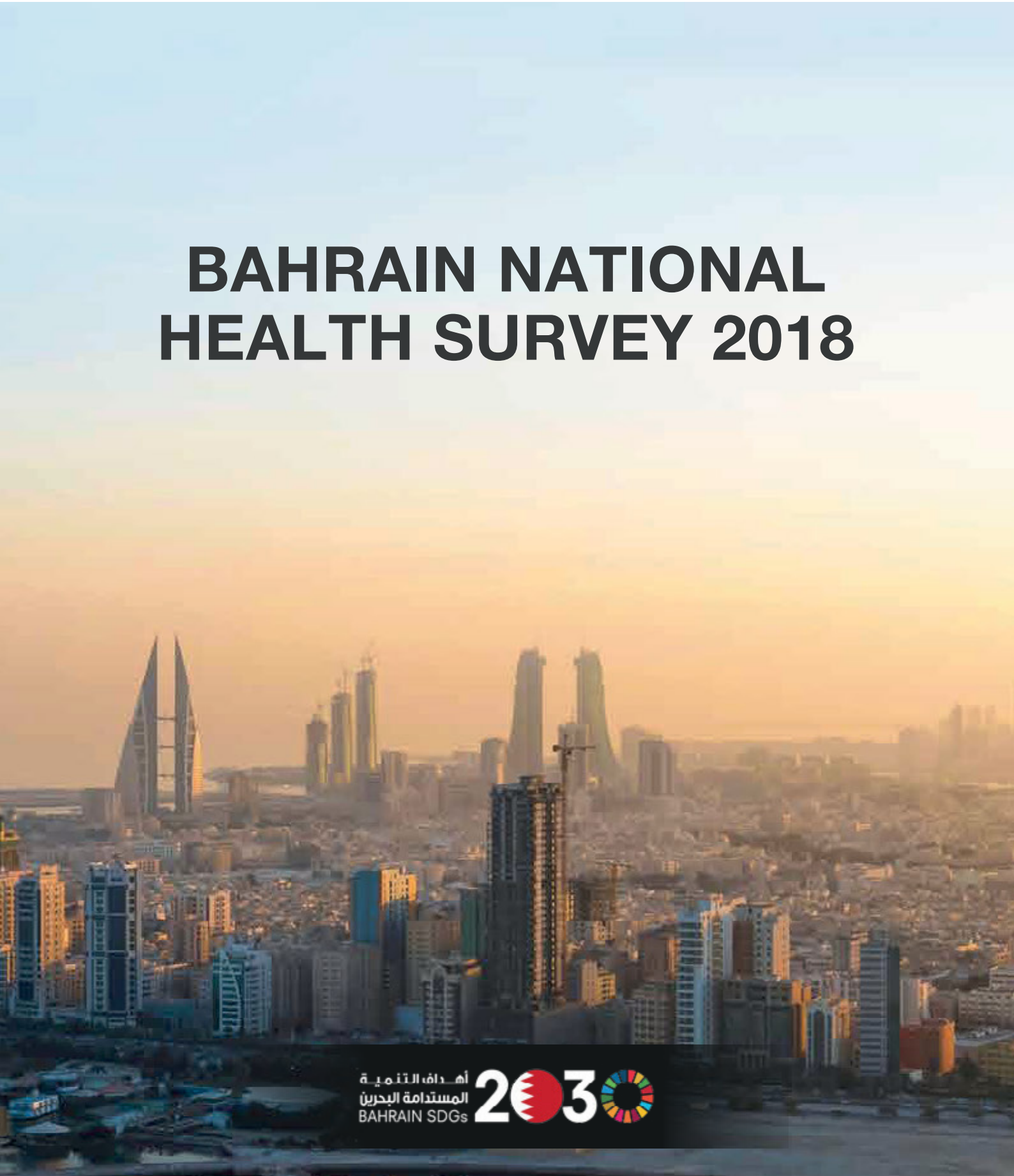
KINGDOM OF BAHRAIN
Ministry of Health

World Health Organization

INFORMATION & eGOVERNMENT AUTHORITY

BAHRAIN NATIONAL HEALTH SURVEY 2018



His Royal Highness Prince Khalifa Bin Salman Al Khalifa

The Prime Minister

His Majesty King Hamad Bin Isa Al Khalifa

The King of The Kingdom of Bahrain

His Royal Highness Prince Salman Bin Hamad Al Khalifa

The Crown Prince, Deputy Supreme Commander and First Deputy Prime Minister

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

FORWARD

H.E Mrs. Faeqa bint Saeed Al Saleh

Minister of Health
Kingdom of Bahrain

The National Health Survey is one of main projects carried-out by Ministry of Health as it provides reliable, realistic health data that is capable of being compared to priority health issues and utilized as an integrated part with the health information systems.

Moreover, the survey also aims at studying the health status of the Bahraini society, determining its characteristics and to recognize whether or not the current health system is achieving the desired objectives, in addition to providing a health database that will be of use to decision-makers when developing sound health policies and programs that would benefit the public.

Such strategic project comes in line with Government Action Plan as it contributes in enhancing the health information system, determining the Kingdom's health priorities and in providing comprehensive information on the population's health status to assist decision-makers in monitoring the integrated health system image.

Furthermore, it also contributes to setting future strategies related to health expenses and insurance, human resources of the health sector, in addition to program management, monitoring and evaluation.

This remarkable work would not be achieved without the sustainable efforts exerted by all survey teams; thanks to them all.

I would also like to thank the World Health Organization (WHO) for its great and continuous support to the survey teams.

Mr. Mohammed Ali Al Qaed

Chief Executive,
Information & eGovernment Authority
Kingdom of Bahrain

Jointly initiated by the Information & eGovernment Authority (iGA) and the Ministry of Health (MOH), 2018 saw the Kingdom of Bahrain conduct the largest health field survey since 2000. Following the format of the World Health Organization's (WHO) World Health Survey, the National Health Survey employed a standardized individual and household questionnaire to explore the spread of non-communicable diseases (NCDs) such as cardiovascular diseases, high blood pressure, diabetes, and obesity. The survey exposed unhealthy lifestyles and habits widespread among the Kingdom's population, including smoking, lack of physical activity, and unhealthy eating.

This extensive and in-depth study formulated evidence-based recommendations to improve public health policies, combat non-communicable and chronic diseases, and obtain reliable data to better understand the environmental, social and behavioral factors that have led to their prevalence. The survey was also designed to generate reliable national Key Performance Indicators, which can be compared against international benchmarks to better assess the health of the population and improve the Kingdom's healthcare system.

The survey delved also into public perception, providing insight into the burdens of living with these diseases, as well as treatment financing issues and health system responsiveness. The results will lead to more appropriate solutions and improved programs and policies, significantly preventing health threats and combating NCDs in the community. We hope that it will also be useful in developing a framework for health policy interventions and instigating further research.

I would like to thank the Minister of Health, Her Excellency Faeqa bint Saeed Al Saleh, for her leadership and continued support of the study, and hope the findings will be useful in enhancing medical services and healthcare. I would also like to congratulate the iGA and MOH teams, whose professionalism was indispensable to the successful completion of the survey. The experience gained from this collaboration will contribute substantially to the country's ability to conduct large standardized surveys of this nature. The study was also supported by the analytical expertise of the WHO regional office in Cairo, to whom I would also like to express my sincerest gratitude.

PREFACE

With the increasing demand for accurate and valid data and health information to facilitate monitoring of the progress toward Sustainable Development Goals (SDGs) and Universal Health Coverage within the impact of WHO General Program of Work (GPW13) to help three-billion population become healthier, protected from emergency and covered by quality health services, health information and statistics office at WHO regional office of Eastern Mediterranean Region (EMRO) is working closely with member states to improve data sources and quality of data for better planning, reducing inequalities and monitoring public health program effectiveness. In this regar, a set of 75 monitoring indicators have been updated by EMRO and adopted by Bahrain to monitor population health status and risk factors of diseases, burden of disease, and household expenditure on health, health service coverage and quality of services. Almost two-third of monitoring indicators depend on population health examination and measurement surveys. The last household health examination survey was implemented in Bahrain in 2007, to assess risk factors and burden of non-communicable disease; therefore, it was a mandate to update data and health information through planning for a new round of household health examination survey, the work was planned and started in 2018.

World Health Survey, the newly updated version, has been used for data collection in Bahrain National Health Survey 2018, to provide updated health data on population of Bahrain (Bahraini and non-Bahraini); as a component of household module with information on: socioeconomic characteristics; education, marital status, occupation, household expenditure in general and on health. Another module was used to collect information on individuals of age (18+) to provide data on general health and wellbeing, prevalence of non-communicable disease, injuries and risk factors, health service coverage and health care utilization, with a special section on female in reproductive age group including reproductive and maternal health care services.

WHO supported the conduct of the survey through provision of technical advice and monitoring field activity. The report has been prepared by WHO to present and interpret the survey findings and to use as a source of evidence for decision makers in the Ministry of Health, and all stakeholders, for planning and monitoring the progress toward ambitious health targets. The report is based on the analysis output provided by the MOH to the WHO as it is described in the methodology section. We would like to congratulate the kingdom of Bahrain for its forward step with this milestone study.

Dr Arash Rashidian
Director, Information Evidence and Research
World Health Organization, Regional Office for the Eastern Mediterranean

Dr Ibrahim EL-Ziq
Desk Officer Bahrain and Kuwait

World Health Organization, Regional Office for the Eastern Mediterranean

ACKNOWLEDGMENT

Bahrain National Health Survey 2018, was designed, costed, payed for and implemented in the Kingdom of Bahrain, jointly by the Ministry of Health and the Information & eGovernment Authority. Data management and analysis was conducted by the data analysts of the General Directorate of Statistics & Population Registry in Bahrain, with technical guidance from WHO/EMRO. Special thanks to Dr. Maryam Alhajiri, Dr. Najat Mohammed Abulfateh Ali, Dr. Wafaa Elsharbati, Dr. Ghada Abdullatif AlZayani, from the Ministry of Health, and Dr. Nabeel Bin Shams, Abdulrahim Alabbasi, Omar Abdulrahim Al-Kooheji from the Information and eGovernment Authority (iGA) in the Kingdom of Bahrain, for hosting and facilitating the national workshops to discuss data analysis plan and survey results.

WHO provided technical guidance at stages of survey field implementation including; reviewing survey methodology, questionnaire and developing indicators list matching global targets for monitoring progress toward SDGs targets and UHC, in addition to developing survey supervisory visits checklist and survey data analysis plan. Technical support was under the supervision of Dr. Arash Rashidian, Director of Information, Evidence and Research, WHO Regional Office for the Eastern Mediterranean. On the country level of technical support, field work review, survey data analysis and report preparation and finalization were done by Dr. Eman Abdelkareem Ali, Health Information and Statistics, WHO EMRO, with the contribution of Dr. Mervat Rady, WHO consultant for report compilation. Special thanks also to Dr Ibrahim El-Ziq, WHO Representative in Saudi Arabia and Desk Officer for Bahrain and Kuwait.

LIST OF ABBREVIATIONS

ART: Anti-Retroviral Therapy

BMI: Body Mass Index

BNHS: Bahrain National Health Survey

DAS: Disability Assessment Schedule

GCC: Gulf Cooperation Council

GSBPM: Generic Statistical Business Process Model

HDL: High-Density Lipoprotein

IGA: Information & eGovernment Authority

IFG: Impaired Fasting Glucose

LDL: Low-Density Lipoprotein

MOH: Ministry of Health

NHS: National Health Survey

PMTCT: Prevention of Mother–to-Child transmission

Q: Quintile

QOL: Quality of Life

SDGs: Sustainable Development Goals

SE: Standard Error

SPSS: Statistical Package for Social Sciences

UNESCO: United Nations Educational Scientific and Cultural Organization

VLDL: Very Low-Density Lipoprotein

WHO: World Health Organization

WHS: World Health Survey

WHR: Waist-Hip Ratio

WT: Weight

EXECUTIVE SUMMARY

The Ministry of Health (MOH) and the Information & eGovernment Authority jointly conducted a National Health Survey (NHS) during the period from August 2017 to April 2019 to track the health and risk factors, as well as lifestyle practices of Bahrain residents. Results of this survey will enable the government, health providers and stakeholders to measure progress and determine where to focus resources so that health outcomes can be improved, health disparities reduced, and the community can become healthier. The survey will also provide reliable, realistic health data that is capable of being compared to priority health issues and utilized as an integrated part with the health information systems.

Responsible Entities

The survey was conducted jointly by the Ministry of Health and the Information & eGovernment Authority.

Targeted Population

The survey was targeting Bahraini and Non-Bahraini households in all the Kingdom governorates with different socio-demographic characteristics.

Objectives

The main objective of the health survey is to strengthen the health information system and identify the health priorities of the Kingdom. It aims to provide comprehensive information on the health status of the population in order to assist policy makers in monitoring the integrated picture of the health system in terms of three main components: disease burden and risk factors, health financing and health system response, in order to contribute to the development of future expenditure strategies, health insurance and human resources for the health sector. It also aims to establish a set of qualitative quality guides and strategic reports. Added to that, is to develop an integrated database on population health by providing data on a wide range of health indicators that are not fully available through administrative records, such as indicators for the health status of the population, common risk factors and prevalence of diseases and reproductive health care. Finally, the health information covered by the survey included those on SDGs, particularly those related to good health and well-being, which will contribute to the development of sound and appropriate future strategies, program management, monitoring and evaluation.

Location of interviews and examinations

The interviews and the completion of the questionnaires were taken in the selected households' premises and another visit was arranged in the morning for blood collection while the individual was fasting.

METHODOLOGY

The NHS consists of two stages: (i) Household interview and (ii) Health examination. The survey gathered vital information on bio-markers and physical measurements for participants.

The survey involved 3020 respondents (aged 18 years and above) out of 3700 randomly selected households in the household interview. Every selected household in Bahrain was interviewed for a Household Questionnaire and an Individual Questionnaire (any family member who is above 18 years old was picked out randomly from the household).

The estimated sample size was 3700 for private households. Information available from the previous surveys and objectives to be achieved in this survey contributed in determining the sample size which was estimated using the probability formula to determine stratified random sample. It was also taken into consideration that the error should not exceed 5% with a confidence level of 90%. However, data was collected during the field work from 3020 households giving a response rate about 82%.

Selecting and weighting respondents

The 3,020 interviews were conducted between February and Augest-2018. In order to be compared geographically, the county was divided into four strata, based on the four Bahraini governorates. Households were selected systematically, and the head of the household was dialed and asked to participate in the survey. The heads of the households were allowed to answer for others with regard to the socio-demographic characteristics of the family and housing. One adult member aged 18 & or above was randomly selected from each household for individual health questionnaire.

As is common with field surveys, some populations were given more weights by design. To ensure the survey results reflected the characteristics of the county, appropriate weighting was used for each sampling unit. The demographic profile of the survey was adjusted to be similar to the actual population, based on the most recent Bahrain actual data. In short, the answers from those groups underrepresented in the sample count more when totaling responses and calculating averages to accurately represent all residents.

The survey questions

The IGA, MOH and WHO partners jointly determined the questions that were asked. The survey approach, methodology, and questions were modeled based on WHO World Health Survey methodology using new survey version adapted during Tunis HES in 2016 after doing some modifications. This allows results from national studies to be more effectively compared to Bahrain results. Some questions were added, and others were deleted in order for the questionnaire to be tailored to the Bahrain culture, social and Islamic religion aspects.

Anthropometric measurements and all the lab investigations followed the standard procedures and cutoff points developed by WHO, including height, weight, waist and hip circumferences, blood pressure, fasting blood glucose and blood lipids.

RESULTS

The survey results revealed that Kingdom of Bahrain is, on average, a healthy country, but significant health challenges persist, especially among elderly, those with lower levels of income and education, as well as health outcomes related to everyday choices such as smoking, diet, and exercise.

Housing characteristics

The housing facilities in Bahrain are expected to be with high standard with almost all people having access to improved housing and source of sanitation. Results show that overall, 99.9% of households have durable cement wall, 99.8% have hard floor material and 97.8% have sewer connection with negligible differences between Bahraini and non-Bahraini houses.

The main source of drinking water among Bahraini citizens is the water from purification system (45.8%) followed by bottled water (26.3%), while the purchased sweet water (62.6%) followed by the bottled one (29.5%) are the main sources among the non-Bahraini.

1- RESPONDENT'S CHARACTERISTICS (n=3020)

Nearly 68% of respondents to individual health questionnaire are Bahraini, and 32.3% are non-Bahraini. Overall, 10% of participants are under the age of 30 years, and 40% percent of respondents are in the age of 30-44 years. The mean age among the Bahraini responders was 47.51 years (SE=0.30), while it was 41.16 years (SE=0.33) among the non-Bahraini. Overall, male respondents represent 57.7 % while it was 53.1% among Bahraini and 67.3% among non-Bahraini. About 9% have never married, 82.3% are currently married, and 8.8% are widowed or separated/divorced. Overall, 11.7% of respondents are with no education with almost same percentage with secondary school education (11%). Nearly half of the non-Bahraini respondents are with university education or more compared with only 27.2% among Bahraini. The median monthly household is 800 BD (900 BD among Bahraini vs 554 BD among non-Bahraini). The main financial source used by households to pay for any and all health expenditure was current income (85.3%) followed by savings (13.7%).

Work status of respondents

Overall, 71.5 % of the respondents have ever worked, among them 71.1% are currently working in the last 7 days before starting the survey. Reasons to stop working reported by respondents are mainly, retirement (59%), homemaker/family-related (17.1%), vacation and sick leaves (7.2%), while 5.4% reported that they can't find a job. Overall, respondents who have currently worked are employed by private sector (51.8%), which is more than the public sector (40.9 %), 4.5% are self-employed, and only 1.7 % is employed by joint sector. For the added benefits received besides the current payment in cash or in kind, overall, 38.3 % received pension, 34.1% received medical benefits, 17.9 % received cash benefits and 7.3% received food or provisions.

2- HEALTH STATUS OF THE RESPONDENTS

The National Health Survey collected information on eight domains of health, while overall general health ratings were also investigated, encompassing all domains. The eight domains of health that were investigated in the survey are: mobility, self-care, pain and discomfort, cognition, interpersonal activities, sleep and energy, affect and vision.

General health rating

The majority of respondents rated their health as either very good or good, with 39.2% and 48.1% in these categories respectively. About 11% of the respondents rated their health as moderate, while only 2.1% stated that their health was either bad or very bad. Non-Bahraini respondents were more likely to rate their health as good to very good (94.8%) than the Bahraini nationals (83.8%). Males, also, were much more likely to rate themselves as healthy than females, with 90.2% of the males are in the very good to good categories, compared with 83.4% of females.

Difficulty in work or household activities

Survey results show that about 72% of the overall respondents reported that they had no difficulties with work or household activities, which is higher among non-Bahraini (87.6%) compared to Bahraini (64.1%). Only 16.4% had mild difficulties, where the Bahraini respondents reported higher percentage (20.1%) than the non-Bahraini (8.8%). Therefore, there are about 12% of people who reported that they had from moderate to severe and extreme severe difficulties with these aspects of life which is four times higher among Bahraini (15.8%) than non-Bahraini (3.6%). Almost 79% of males stated that they have no difficulty, which is 17% higher than the percentage reported by females (62%). The highest percentage of no difficulty was observed in the age group 18-29 years in both Bahraini and non-Bahraini, which has gradually decreased in the higher age groups.

Mobility

The vast majority of respondents (81.4%) stated that they did not have any difficulties with moving around. The percentage of people who stated that they had mild difficulty was 11.3%, while the percentage with moderate, severe or extreme difficulty was reported by only 5%, 2% and 0.4 percent respectively. The differences between population subgroups was as that for the general health rating, with males, non-Bahraini nationals and the younger aged having the highest percentage of individuals reporting that they had no difficulty with moving around.
As with the difficulty in moving around, fewer people stated that they had difficulties with vigorous activities; however, 73.1% of the respondents stated that they had no difficulty with vigorous activities. The percentage of respondents who said that they had mild difficulties was 14.1%, moderate difficulties was 6.7%, severe difficulties was 3.8%, while 2.2% stated that they had extreme difficulty or could not do vigorous activities.

Self-care

Self-care was examined through asking about a wide range of activities such as washing and dressing which include a large amount of dexterity and upper and lower body movement, maintaining the general appearance and staying by yourself for a few days. In all these aspects, the vast majority (≥ 90%) of the respondents said that they had no difficulty with this regard, with the proportion of people with severe or extreme difficulties increasing as age increases. The highest percent of extremely severe difficulty in doing these activities was among age group 80+ years. The percent of no difficulty was higher among non-Bahraini, males and younger age groups.

Pain and bodily discomfort

Almost two-thirds of the respondents reported that they had no aches and pains in the 30 days before the survey (77.7%), while 20.1% reported that they suffered from mild pain. The percentage of those who suffered from moderate bodily aches and pains was 8.9%. In addition, more than 4.3% of the respondents stated that they had severe aches and pains. The non-Bahraini males were less likely to suffer than Bahraini nationals and females. With regard to age, the results show that the percentage of not suffering has gradually decreased with the increase in age.

Cognition

Almost 90% of those surveyed stated that they had no difficulty at all with concentrating or remembering things, with 6.9% mentioned that they had mild difficulties doing these actions. The categories from “none” to “mild” was more among non-Bahraini, males and higher age groups. The same results were reported for learning a new task such as learning how to get to a new place, learning a new game, recipe, names, routes, and skills. Overall, 91.4% of respondents replied that there had no problem in this domain, and the percentage was higher among non-Bahraini (98.5%) compared to 88.1% among Bahraini, and among males than in females in both nationalities. Age is inversely related with learning a new task.

Interpersonal activities

There was a high percentage of respondents who stated that they had no difficulty with personal relationships or community participation during the 30 days prior to the survey. About 95% stated that they had no problems, with 5% reported from mild to extreme severe difficulties.

When respondents were asked whether they had difficulties in dealing with conflicts and tensions during the 30 days prior to the survey, overall, 91% stated that they did not have any difficulties with dealing with conflicts and tensions, while 5.4% stated that they had mild difficulties with this aspect of interpersonal activities. There is 9% more among non-Bahraini respondents who had no difficulty than Bahraini and 5% more among males compared to females who had no difficulty. The percentage of respondents in the different difficulty categories over the younger age groups (18–59 years) did not vary as much as seen in other domains of health.

Overall, 94.6 % of respondents reported that they did not have any difficulties with making new friends or maintaining current friendship, while 3.2% stated that they had mild difficulties with this aspect of interpersonal activities. Few respondents (0.2%) reported extreme difficulties, and 1.6% and 0.4% percent stated moderate and severe problems, respectively. As observed in other domains, non-Bahraini suffered less (1.5%) collectively than Bahraini (7.3%) from this difficulty

In general, 94.4% of participants mentioned that they did not have any difficulties in dealing with strangers, while 3.9% stated that they had mild difficulties with this aspect of interpersonal activities. The differences between the two nationality status groups were observed, with Bahraini reporting more difficulties than non-Bahraini.

Sleep and Energy

Quality of sleeping, feeling rested and refreshed are important for good health. The results indicated that 83.5% of respondents did not have any difficulty associated with sleeping which is lower than the one reported in all the previous health states. Almost 9.2% of the individuals interviewed reported mild difficulties, while 4.9% stated that they had moderate difficulties. Only 2.3% reported severe problems and less than 1% reported extreme severe difficulty. Females were less likely to report that they had no difficulties with sleep than males. The percentage of Bahraini respondents having no difficulty was 83.6% among those in the age group 18-29 years. This percentage decreased to 63.4% among those in the age group 70-79 years and dropped more to 41.9% among those aged 80 and above. Among the non-Bahraini, the percentage dropped from 95.8% at age 18-29 to 70.8% at age 70-79 years old. The highest percentage of extreme severe sleep difficulty was reported among the Bahraini age group 18-29, although it is minimal (0.05%).

Affect

About 82% of respondents do not have any problems of feeling sad, low or depressed in the last 30 days. The proportion of respondents being sad or depressed is 11% in mild, 4.6% in moderate, and 2.6% in severe levels of depression. Only about three-quarters (75.4%) of Bahraini stated that they never felt sad or low, compared with 86.3% of non-Bahraini. A higher percentage of Bahraini were seen in each of the difficulty categories than non-Bahraini.

There also was a large difference between males and females, with females more likely to feel depressed than males. 86.3% of males and 75.4% of females do not have any sad feeling or depression. There was some evidence that the proportion of respondents who felt low or depressed at least of mild degree was higher for older adults of age 70 years and above.

Vision

With regard to the use of eyeglasses or contact lenses to see far away, 28% of respondents said that they are using either of them which are more in Bahraini (30.1%) compared to the non-Bahraini, and more in males than females in both nationalities. For the use of eyeglasses or contact lenses to see up-close, 30% of respondents gave positive answers, which also more among Bahraini (31.8%) than non-Bahraini (26.3%) and among males than females.

The results for how difficult the respondents find seeing and recognizing a person or an object across the road, 82.6% of respondents stated that they had no difficulty in seeing someone across the road, while 11.7% stated that they had mild difficulty and 3.8% had moderate difficulty. With regard to seeing an object at arm's length, 81.9% reported no difficulty, 13% reported mild difficulty, 3.8% reported moderate difficulty, while 1.1% and 0.2% reported severe and extreme severe difficulties respectively. Once again, the highest percentages of those who reported some sort of difficulty were mainly among females and Bahraini nationals, and were more common as age increased.

3- FUNCTION ASSESSMENT (DIFFICULTIES/LIMITATIONS)

The WHO Disability Assessment Schedule (WHO-DAS) has been developed to assess the activity limitations and participation restrictions experienced by an individual irrespective of medical diagnosis. Respondents were asked to state the level of difficulty experienced taking into consideration how they usually do the activity, including the use of any assistive devices and/or the help of a person. The domains included in the instrument were: understanding and communicating, getting around, self-care, getting along with people, life activities, and participation in society. The respondents were asked to answer the following questions about the degree of difficulty in performing certain tasks in the last 30 days. The responses to these items were recorded on a scale of 1 to 5, with "1" indicating "no difficulty" and "5" indicating "extreme difficulty". These scores were combined using established methods to produce a WHO-DAS score, ranging from 0 to 100 (categories as very low/low/moderate/high/very high). The lower the score is, the healthier the individual. The mean WHO-DAS score for all respondents was 26.17, indicating that the average level of disability among respondents was low, which means good health in this domain.

Females had about 3% higher mean WHODAS score than males (28.02 for females compared to 24.81 for males). Bahraini nationals also had a higher score than non-Bahraini (27.64 for Bahraini compared to 23.08 for non-Bahraini). As expected, there was an increase in the average score with rising in age. WHO-DAS average score of 23.13 was reported among those in the age group 18-29 years, while it was 31.69 for those at the age group 60-69 years, then it peaks at 61.95 among those with age 80 years and above, reflecting that this is the most affected group. Wealth index slightly affected the WHO-DAS score. The Q1 (Lowest) group had a mean score of 27.84 while those in Q5 (Highest) group had a mean score of 25.74 (i.e. healthier).

However, the current marital status affected the WHO-DAS score, with the highest means among divorced and widowed individuals (30.07 and 38.58, respectively) and the lowest among group being never married (24.13).

4- RISK FACTORS AND HEALTH BEHAVIOURS

Data have been collected on three major risk factors; use of tobacco, nutrition, and categories of physical activities because of their detrimental effects on health.

Use of Tobacco

Overall, 15% of respondents stated that they smoked every day, whilst 3.9% said that they smoke but not on daily basis, and 78.1% reported never smoking at all. Bahraini current smokers (22.3%) are 10% higher than non-Bahraini (12.2%), but non-Bahraini are higher by 12.3% in the category of never smoke (86.2%) compared to Bahraini (73.9%). Women smoke much less than men, with 23.5% of men smoking every day compared to only 3.3% of women. Regular smoking also decreased with age, especially for smokers over the age of 60. The percentage of current daily smokers among the age group 18-29 years is 17.2% compared to 11.3% among the age group 60-69 years. There was a difference in the prevalence of smoking between Bahraini (17.8%) and non- Bahraini (9.5%). The mean age of starting smoking among the daily users was 21.35 years, which is bigger among non-Bahraini (23.8), females (28.4), oldest age group (46.2), and those above secondary school education (25), compared to Bahraini (20.7), males (20.6), youngest age group (17.6) and those with primary and below education (22.3) who started smoking earlier in age.
The total prevalence of shisha smoking among Bahraini (28%) is nearly double the prevalence among non-Bahraini (13.6), while the other types such as pipe, cigars and cheroots are common to be used by non-Bahraini (86.4%) than Bahraini (72%). Unfortunately, shisha smoking was more prevalent among females than males in both nationalities, while the reverse was observed in the other types. The highest percentage of shisha use was observed among young age group (18-29 years), then among above 70 years in both nationalities. Shisha is highly prevalent among university graduates and above and among respondents at Q2 wealth quintile in Bahrain, while the other types are more prevalent among respondents with primary and blow education and among respondents at the lowest quintile (Q1).

Nutrition

Almost one in seven respondents (15%) reported that they ate sufficient fruits and vegetables on a typical day, with the vast majority stating that they do not eat five servings per day, which is more among non-Bahraini (16.8%) than Bahraini (14.1%). By sex, 86.2% of male respondents compared to 83.4% of female respondents reported that they didn't eat sufficient fruits and vegetables on a typical day. Percentage of sufficient intake gradually increased by age. Sufficient use was higher among respondents in rich quintiles Q4 & Q5 (32.8%) compared to poor quintiles Q1 & Q2 (27.7%).

The results also revealed that 1.2% of respondents felt hungry, because they couldn't afford enough food during the 12 months preceding the survey. There is a marked difference in the percentages of respondents who felt hungry by nationality, sex, educational level and wealth quintiles, being higher among Bahraini, females, lower educational level and among those at Q1.

Among those who did not eat for a whole day due to lack of money, the results show that 0.9% of respondents gave positive answer, with no great difference according to nationality, sex and age. The great difference was observed between educational levels of the respondents being higher among primary and below education (4.1%) compared to 0% among university graduates and above.

Physical activity

Bahraini respondents who reported doing sufficient exercise over the course of a typical week were slightly more than non-Bahraini , with 49.1% for Bahraini respondents and 48.1% of the non-Bahraini. The percentage of males who attained the target was higher than females. Age and educational level had little effects on doing sufficient physical activity. Wealth had an obvious effect on doing sufficient physical activity as the percentage increased with increasing in wealth quintiles, from 42% in Q1 to 57.2% in Q5.

5- SELF REPORTED MORBIDITY AND SCREENING COVERAGE

For the non-communicable diseases: Data were gathered in the survey regarding the prevalence and coverage of a range of non-communicable diseases, including angina, stroke, bronchial asthma, depression, diabetes, hypertension, oral health problems, road traffic accidents, injuries and vision problems.

Stroke

Results show that the percentage of overall respondents who stated that they had been formally diagnosed suffering from stroke is 0.7%, which is reported only by Bahraini respondents (1.1%) while no one from non-Bahraini stated that they suffered in the past two weeks. The main burden of this condition fell on men and the elderly. The prevalence was zero among age group 18-29 years, while it was 2.8%, 5.6% and 10.8% among age groups 60-, 70- and 80+, respectively. Percentage of respondents who reported having received a diagnosis of stroke did not change much with educational level and wealth quintiles.

Angina

Results show that the percentage of respondents who stated that they had been formally diagnosed suffering from angina (need) in the last two weeks was 1.8% in the population which is four times more among Bahraini (2.4%) compared to non-Bahraini (0.8%). Males were more sufferers than females among Bahraini (2.9% for males versus 1.7 % for females), while the sufferers among non-Bahraini were only males (1.2%) with no reported case among females.

The effect of education and wealth is clear on this ailment, as there was decreasing trend in the prevalence with increasing in education and increasing trend in the prevalence with increasing in wealth quintiles.

Bronchial asthma

Results show that the percentage of respondents who stated that they had been formally diagnosed suffering from bronchial asthma (need) was 4% being more than double among Bahraini (5%) than non-Bahraini (2.1%). With regard to the effect of age, results show increasing in the trend with aging. The highest prevalence was observed among respondents with primary and below education (6.4%), while the lowest was among university graduates and above (3.9%).

Depression

Results show that the percentage of respondents who stated that they had been formally diagnosed suffering from depression (need) is 12.7%. Depression is more prevalent among Bahraini (16.9%) than non-Bahraini (4.7%) and among females (15.1%) than males (10.9%). The depression need is the highest (24.3%) among the respondents in the age group (80 years and above) among Bahraini. Depression prevalence gradually increased with the increase in quantities, being the minimum in Q1 (12.9%) and the maximum in Q5 (20.8%).

Hypertension

The percentage of respondents who stated that they had been formally diagnosed from hypertension (need) is 12.1% (17.5% among Bahraini and 6.8% among non-Bahraini). Again, the main burden of this condition fell on men. 13.3% of men compared to 10.1% of women respondents indicated having received a diagnosis of hypertension. 89% of the self-reported hypertensive population received medication in the last two weeks, with only 36.9% of the cases were under control .The controlled hypertension is higher among non-Bahraini, males, middle age group, and university graduates. While the uncontrolled hypertension was 61%, with highest among Bahraini, males, age group (70 years and above), and among those with primary and below education and in Q4 wealth quintile.

Diabetes

The percentage of respondents who stated that they had been formally diagnosed suffering from Diabetes (need) is 10.8%. The percentage of self-reported diabetes among Bahraini respondents was 15.4% and the prevalence among non-Bahraini was 6.9%. There also was a high association between reported prevalence of diabetes and age, with an increase between each successive age group in both nationalities. 93.7% of the self-reported diabetic cases received medication in the last two weeks, with only 24.9% of the cases were under control, while uncontrolled cases were 41% .

Road Traffic Accidents (RTAs)

The Bahraini National Health Survey collected information on the need road traffic accidents and other bodily injuries during the 12 months prior to the survey. The other bodily injuries are those injuries due to other causes other than road accidents.

The percentage of respondents who had had road traffic accidents was 1.8%, mainly among Bahraini (2.3%) compared to non-Bahraini (0.8%) in the last 12 months. Age was also associated with road traffic accidents. Excluding the oldest age group which had the highest prevalence (11.8%), the youngest age group affected more (2.9%) than the other age groups. 2% of males stated that they had been injured this way, in comparison with only 1.5% of females.

For injuries due to other accidents rather than RTAs, the survey shows that 1.8% of respondents stated that this had occurred to them. These injuries were more among Bahraini (2.5%), females (2.1%), respondents at age 70-79 years (5.9%), among those with primary and below education and in Q4 (3.2%), compared to non-Bahraini (1.2%), males (2.0%), respondents at age 45-59 years (1.2%), university graduates (1.5%) and in Q1 (1.5%).

For the communicable diseases: Participants in the NHS were asked about the need of some communicable diseases during the last 12 months prior to the survey.

Tuberculosis (TB)

The data shows that the percentage of respondents reported that they were screened and diagnosed by a doctor as having TB in the last 12 months is 0.7%, being higher among non-Bahraini (1.1%) compared to Bahraini (0.5%). The burden of this condition fell more on women, in the overall population (0.6% in men and 0.9% in women) and in both Bahraini (0.3% in men and 0.8% in women) and non-Bahraini (1.1% in men and 1.2% in women). It was more common among middle age group and those in Q5 wealth quintile.

Oral health

The results show that 12.8% of respondents had oral health problems in the last 12 months. The main burden of this condition fell more on women. There were slight variations in the oral health problems need due to age. An increase was observed in the percentage of oral health problems need with the increase in wealth. The need among Q1 (Lowest) was 10.6%, while it was 16.9% among Q5 (Highest).

Another important dimension of the oral health is the number of participants with all the natural teeth lost. The results show that the prevalence of this need among Bahraini was 4.6%, while it was 1.6% among non-Bahraini, giving an overall prevalence of 3.6%. As expected, this burden fell more on women than on men (15.3% vs. 10.9% respectively). The prevalence of this condition increased with age and wealth quintiles, while it gradually decreased with the increase in the educational level.

Women health care and screening

The Bahraini National Health Survey collected information on the screening of cervical cancer by asking female respondents aged 18-69 if they have received a pap smear test during pelvic examination in the last 3 years.

Survey data show that 56.2 % of the female respondents received vaginal examination during the last three years, and the Bahraini females reported more examination (56.8%) than non-Bahraini females (43.7%). The highest percentage of examination was among females at age 30-59 years (average = 61.7%) and the least percentage was among elderly females (70+) with average percentage equal to 27.1%.

Cervical cancer

Among women who received vaginal examination, 90.7% received a Pap smear test during pelvic examination in the last 3 years, mainly among Bahraini. Data also show that the proportion of women screened for cervical cancer increased with the increase in income. The percentage was 96.5% in Q5 (Highest) and 86.3% in Q1 (Lowest). There was minimal variation on female percentage who did cancer screening between different educational levels.

Breast cancer examination

Survey results show that among women aged above 29 years who were asked if they have received a mammography test during the last 3 years, more than 50% said that they had never had a mammography; and among those who did, 48.6% were Bahraini compared to only 29.6% non-Bahraini. There was evidence that the percentage screened in the previous three years increased as age rose till 69 years, then started to decrease once again. Wealth was also related to the percentage of women who had had mammography, and the proportion of women screened for breast cancer increased with income. It was 37.5% among women in Q1 (Lowest) and 60.4% among those in Q5 (Highest).

Antenatal care and mother to child transmission of HIV

Results show that 100% of the targeted women attended one or more antenatal visits to a health care professional during their last pregnancy. During an antenatal visit a mother should have certain checks and tests carried out to ensure that the pregnancy is going according to plan. These include blood pressure measurements, blood and urine analysis, ultrasound and HIV testing. The expectant mother was also informed about the signs of pregnancy complications.

With regard to blood pressure examination, the results revealed that all Bahraini women and 97.4% of non-Bahraini women had their blood pressure checked during the antenatal visits, with no valuable differences with regard to age, educational level and wealth.
For blood analysis, results show that 98.9% of the targeted women performed blood analysis during pregnancy; 99.4% among Bahraini and 97.8% among non-Bahraini. The difference in percentages between subgroups was minimal.
For urine analysis, the results show that 99.2% of the targeted women performed urine analysis during pregnancy; 98.8%% among Bahraini and 100 % among non-Bahraini. The difference in percentages between age subgroups was minimal. The lowest percentage were observed among women with primary and below education (92.9%) and in Q3 (96.3%).
Similar to urine analysis, for 99.2% of the targeted women performed ultrasound examination, with minimal difference between subgroups.
Counseling for signs of pregnancy complications was lower than the previous checks and tests. Only 85.5% of the targeted women reported that they received this service, which was lower among women at age 30-44 years (83.2%), university graduates (84.4%) and in Q4 and Q5 (80.1% and 81.1% respectively).
Results show that 44.9% of the targeted women had been counseled and 43% only tested for HIV. As expected, more non-Bahraini women were counseled and tested for HIV. Low percentages of providing these services were observed among women at age 45-59 years (33.9% counseled and tested for HIV), women with primary and below education (nearly 28% counseled and tested for HIV), women in Q1 (34.5% counseled) and in Q5 (28.1% tested) compared to the other subgroups.

Birth delivery care

100% of women in Bahrain reported having received assistance with birth delivery from a health care professional (doctor, nurse or midwife) during their last birth. Generally, percentage of mothers who received assistance was slightly higher among Bahraini women (93.7%) compared to non–Bahraini (68.2%).This quite difference reflects the difference in the use of other non-professional personnel which is much higher among non-Bahraini compared to Bahraini women, such as receiving assistance from traditional birth attendants (29.2% among non-Bahraini versus 10.6% among Bahraini) and use of relatives and friends (1.4% by non-Bahraini versus none among Bahraini).

95.8% of mothers who reported their location of birth gave birth in a maternity house or a hospital. No women gave birth at home. Hospitals were used mainly by non-Bahraini, where 97.1% of their births took place compared to 95.1% of Bahraini mothers. Hospital and maternity house were used more by the Q4 (100%), women at age 18-29 years (97.4%) and among women with educational level above secondary to university (100%).

6- MEDICAL MEASUREMENTS AND LABORATORY INVESTIGATIONS

Nutritional status:

Body Mass Index (BMI)

In general, 25.6% of the respondents were within the normal BMI range (22.1% among Bahraini and 32.4% among non-Bahraini). However, the results indicate that among Bahraini citizens, 1.9% of the respondents are underweight, about one-third of the respondents are overweight and 42.8% are obese, while the corresponding percentages among non-Bahraini are 2.1%, 39.8% and 25.7%. Combining overweight and obese percentages show that the Bahraini nationals suffer more from overweight to obese than the non-Bahraini (76% versus 65.5%). Underweight was highest among Bahraini respondents who are 80 years old and above. The highest percentage of obesity was reported among the lowest (41.2%) and the highest (40.5%) educational levels. In addition, respondents in Q3 to Q5 wealth quintiles were higher than Q1 & Q2 wealth quintiles to be obese.

Waist to hip ratio

Waist to hip Ratio (WHR), which is used as an indicator of central obesity and also to measure the health risks (such as cardiac risk) for a person, was reported. Results from Bahrain National Health Survey reveal that three quarters of the population had an abnormal WHR indicating central obesity. Abnormal WHR is more prevalent among non-Bahraini (82.2%) compared to Bahraini (71.7%). Overall, central obesity is more by 11% among males (80.0%) than among females (68.6%). The percentage of respondents who have abnormal WHR gradually increased with the increase in age groups (from 60.4% at age 18-29 years to 92.7% at age 80+ years). It was also higher among people with primary and below educational level respondents and those in Q4 wealth quintile compared to the relevant groups.

Blood pressure

The newly diagnosed cases by blood pressure measurements (21.8%), in addition to self-reported hypertension, have summed to give the overall prevalence of hypertension. The overall prevalence of hypertension in the Bahrain population is equal to 33.6%. Overall hypertension is more common among Bahraini nationals (40.4%) than non-Bahraini (27.5%), and among males than females (38.7% versus 26%, respectively). As expected, population in the older age groups, 60 years and above, have the highest prevalence of hypertension (more than 70%). The prevalence of overall hypertension prevalence is highest among those with primary and below education (54.3%), and those in Q5 (40.4%).

Prevalence of diabetes

The newly diagnosed diabetic cases by blood glucose measurements (4.7%), in addition to self-reported diabetes, have summed to give the overall prevalence of diabetes. The overall prevalence of diabetes in the Bahrain population is equal to 15%. Similar to hypertension, it is higher among Bahraini nationals (18.4%) than non-Bahraini (14%), and among males (17,1%) than females (10.7%). The percentage of respondents who are diabetic is highest among people with primary and below education (31.1%), those at age 60 years and above (more than 50%) and those in Q5 (19.5%).

Prevalence of Cholesterolemia

The survey results indicated that about 31% of the population had a high level of cholesterol, being lower among Bahraini (29.4%) compared to non-Bahraini (35.8%), and among females (27.8%) compared to males (33.5%). The highest levels of cholesterol have been observed among those in the age group 45-59 years (40.6%), those with educational level above secondary to university (35.8%) and in the lowest wealth quintile (35%).

High-density lipoprotein (HDL)

Lipoprotein analysis for Bahrain population indicated that 35.5% of the population have a high level of HDL indicating low risk of developing heart diseases, while 64.5% have a low HDL and thus are at higher risk. Results also revealed that, in general, males are more likely to have low HDL than females. Unfortunately, the highest percentage of low HDL cholesterol was reported among participants in the younger age groups (64.5% at age 18-29 years and 67.3% at age 30-44 years). No significant variation was observed between different educational levels.

Low-density lipoprotein (LDL)

Almost 22% of the Bahrain population suffered from high level of LDL cholesterol (≥ 3.4 mg/dl) and thus are at higher risk of developing cardiovascular diseases. High level of LDL was more prevalent among non-Bahraini (25.5%) compared to Bahraini (20.9%) and among males (26.8%) compared to females (15.2%). High percentage of the population having high LDL was also reported among those with educational level above secondary to university (24.5%).

Triglycerides

About 42% of the Bahrain population had a high level of triglycerides with remarkable variations by background characteristics. Males were more by 18.1% than females to have high triglycerides, and non-Bahraini nationals were higher by 9.6% than Bahraini.

By age, the percentage of respondents with high triglycerides was the highest among those at age 30-79 years, ranged from 45% to 53.5%. There is no clear relation between high level of triglycerides and wealth quintiles.

7- HEALTH SERVICE UTILIZATION

- The National Health Survey collected information about the responsiveness of the health system in terms of being able to meet the population requirements for health care.
- Almost 95.3% of the respondents reported that they needed health care (whether received or not) which was higher among Bahraini (97.6%) compared to non-Bahraini (90.4%). Females were more likely than males to report that they needed health care (97.2% compared to 93.9%, respectively). Thinking about last time of need, among those who needed health care, 2.1% of Bahraini and 0.8% of non-Bahraini did not get their needs, giving overall percentage of 1.7% of unmet needs. Males not having their needs met were little more than females (1.7% vs. 1.6%, respectively). Unmet needs of health care gradually decreased with the increase in age.
- The main reasons of last time the participants were hospitalized was also reported. Generally, acute conditions such as diarrhea, fever, flue cough were the most common reasons for hospitalization in most of subgroups followed by mouth, teeth and swallowing problems. However, diabetes and general pain were the most common reported reasons among participants at age 80 years and above, by 4.8% for each cause. General pain and nutritional deficiency were also reported among participants at age 18-29 years old. Diabetes, general pain and hypertension (0.3% each) were reported as main reasons for hospitalization among participants with low education level following mouth problems (0.5%). Hypertension was also reported at the participants in Q5 (0.4%) following acute conditions (0.5%).

8- WELL BEING AND QUALITY OF LIFE

Results revealed that, on average, quality of life in Bahrain is very good, lying in the highest fifth of the QOL scale (83.9%). Some variations by the selected characteristics were observed. The Bahraini nationals reported slightly higher percentage (84.5%) than non-Bahraini (83.1%) indicating that the majority of the respondents are satisfied with their life.

Differentials are remarkable by age, marital status, wealth quintiles and educational levels, but such variation was not observed by sex (82.1% for females versus 83.1% for males). Results revealed that never married respondents are the most likely to be satisfied with various aspects of quality of life (82.2%). The QOL percentage decreased by age from 84.7% among respondents at age 18-29 years to 79% among respondents at age 60-69 years, before dropping to its lowest level of 69.7% among those aged 80 years and above.

With regard to being able to control important things in life, 29 % of the respondents had never felt unable to control important things in their life, 40.1% were almost never controlling important things in their life and 26.9% reported they did that “sometimes”. Only 0.6% and 3.2% were very often and fairly often unable to control important things in their lives, respectively.

Results of respondents’ personal opinion about their inability to cope with all things show that the majority of the respondents (64%) are likely to report that they never or almost never felt unable to cope with all things that had to be done. Only 3.4% of the respondents reported that they fairly often or very often felt unable to cope with all things that had to be done, while 30% mentioned that sometimes they were unable to deal with all things that had to be done. Males were more likely than females to report that they never felt unable to cope with all things that had to be done.

In general, four of every five of the respondents stated that their overall quality of life is good or very good. Only 1% reported that their lives are very bad or bad. This means that the vast majority of respondents are satisfied with their lives. However, rating QOL as bad to very bad was common at age 80 years and above (9.1%), divorced (6.5%), persons in Q1 (3.2%) and those with the lowest educational level (5.2%).

Almost none of the respondents reported that they are unhappy or very unhappy with their lives (0.5% and 0.1%, respectively), with the highest percentage reported among divorced respondents (5.1%). On the other hand, 86.2% of the respondents stated that they are either happy or very happy. It is also worth noting that 13.2% reported that they are neither happy or unhappy. Males were more likely to mention that they are very happy with their lives than females (26.5% versus 23.4%).

CONCLUSION

The NHS 2018 provides the most detailed data collected about how health status, health behaviors, prevalence of common diseases and needs vary across different demographic groups in the Kingdom. The survey partners will use the survey data to work together to update information, conduct studies, and ensure resources are focused where greatest needs meet greatest opportunities to improve the health of all residents in the kingdom.

1. INTRODUCTION

The World Health Survey (WHS) was initiated by WHO 2002-2004 in partnership with 70 countries to generate information on the health of adult populations and health systems. WHS is a data collection platform using standard survey procedures and instruments for general population surveys to gather comparable data across its member states.

Since in-depth understanding on these issues pertaining to Bahraini citizens was necessary for health policies, hence the Ministry of Health in collaboration with Information & eGovernment Authority strongly backed conducting a National Health Survey which was undertaken in 2018 in line with this World Health Survey.

The results of this survey will describe the health situation in Bahrain, identify gaps and it will also present an overview on the health system organization.

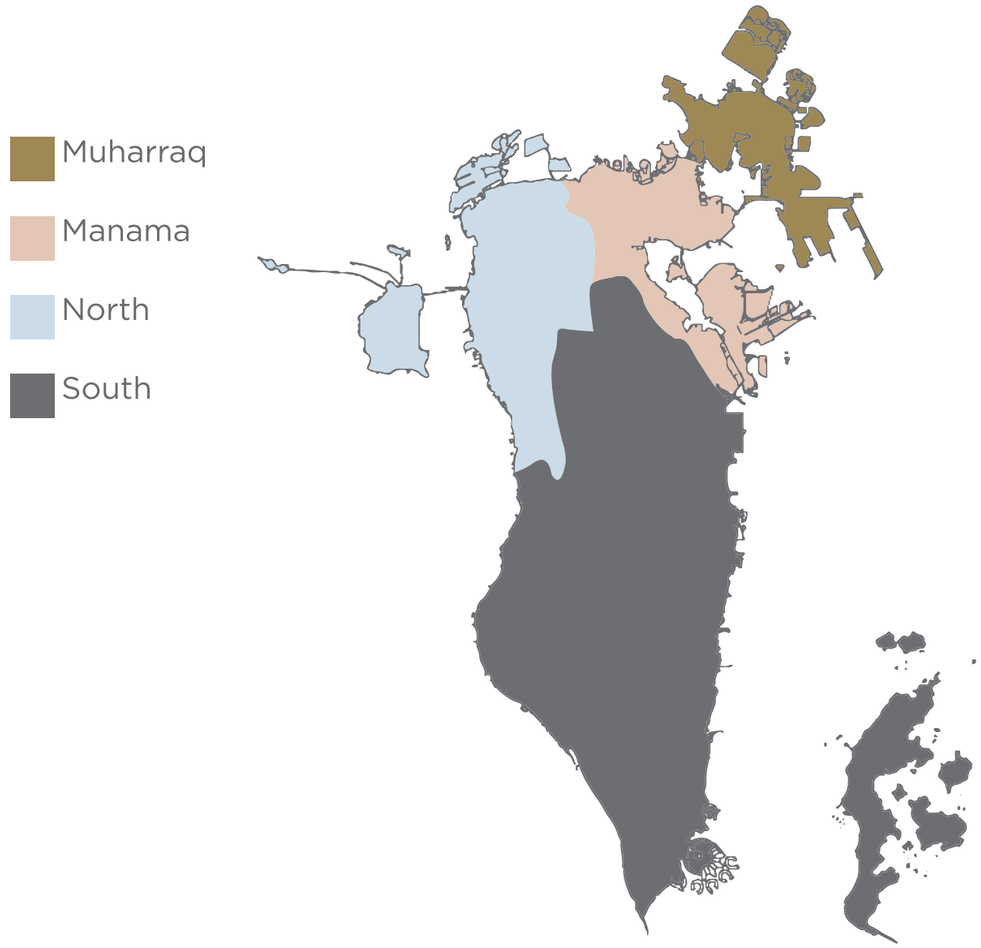
The culmination of all the efforts undertaken has resulted in this report which reflects the hard work and devotion of the research team, their colleagues at the central and regional level and all the field workers.

1.1 Geography

The Kingdom of Bahrain is an archipelago of 33 islands in the middle of the western coast of the Arabian Gulf on the eastern side of the Arabian Peninsula with its capital Manama. It is connected with Saudi Arabia by the King Fahd Causeway on the western side and it is located between latitudes 25 ° 32 ° and 20 ° 26 ° north and 20 ° 50 ° and 50 ° 50 ° east. The total area of Bahrain is 778.4 km2 according to 2015 data, and it consists of four governorates: Capital, Muharraq, Northern and Southern governorates.

The climate of the Kingdom of Bahrain is warm in summer and mild in winter, and temperatures between December and February are dropping to an average of 19 degrees Celsius, and cool winds blow on Bahrain from the north. The average temperature from June to August is 35.6 degrees Celsius with high humidity, while the average rainfall is about 62 millimeters according to 2016 data.

Figure I-1: Kingdom of Bahrain map



1.2 Socio-economic indicators

Bahrain gained independence from Britain in 1971 and was declared an independent state. In 2002, after a public referendum on the National Action Charter, Kingdom of Bahrain became the country's name. The 2018 population was 1.503 million of which 690(000s) are citizens. The population of its capital governorate reaches 562(000s) . Results of 2018 population also revealed that the percentage of Bahraini represents 46%.

The sex ratio for the total population is 1.7 male/female and the highest sex ratio is present at age group 25-54 years being 2.3 male/female. Bahrain is considered to have a young population where about 19.8% of the population are under fifteen years and 32.4% are under 25 years, whereas only 2.8% are 65 years old and above. The annual average population growth rate (2010-2018) is 2.5%. The total fertility rate was estimated in 2017 to be 2.5 child/woman and the birth rate equals to 13.7 births/1000 population. The pyramid is widest at the age groups 25-34. Figure 1.2 shows the population pyramid of Bahrain.

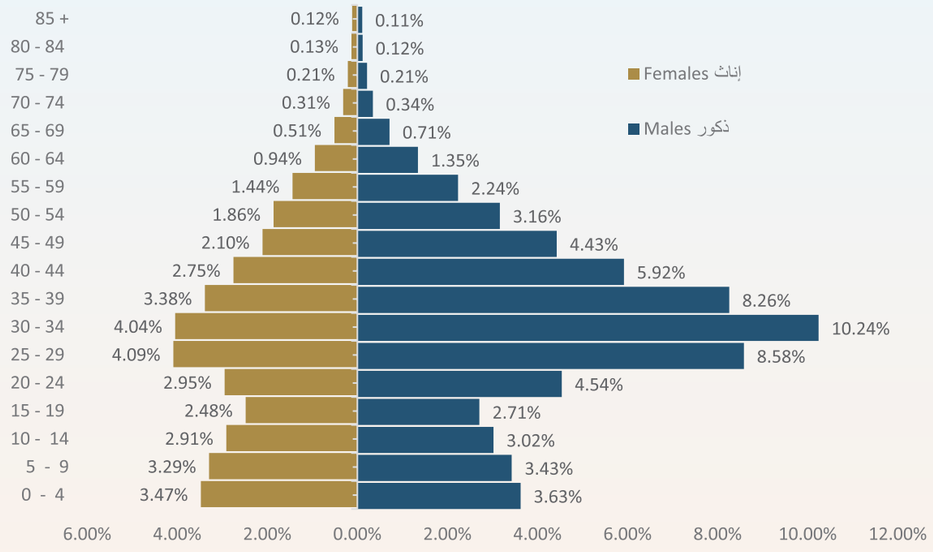


Figure I-2 Bahrain population pyramid-2018

The Kingdom of Bahrain is one of the founding members of the Gulf Cooperation Council, as well as a member of the United Nations, the League of Arab States, the Non-Aligned Movement and the Organization of Islamic Cooperation. In 2012, Bahrain ranked 48th in the world in the impact of sustainable development, recognized by the World Bank as a stable economy and high-income countries.

The first oil well was discovered in Bahrain in 1932 and is considered the first well to be discovered in the region. Since the late 20th century, Bahrain has sought to diversify its economy to become less oil-dependent by investing in several sectors, including banking, tourism and industry. Manama, the capital, is the home to many large financial structures, including Bahrain World Trade Center, Bahrain Financial Harbor and the Bahrain Bay. The Bahrain Citadel (the port and capital of the ancient land of Delmon) and Bahrain's pearl fishing have been announced UNESCO World Heritage Sites in 2005 and 2012, respectively. Bahrain has entered the sporting history by embracing a Formula 1 Grand Prix station each year, where Bahrain International Circuit in Sakhir is considered one of the best and most advanced circuits.

1.3 Health profile of the Kingdom of Bahrain

The high quality of health system in Bahrain was reflected in the health status of the population and main health indicators:

The Crude Death Rate (CDR) equals 2.8 deaths per 1000 population (2017 est.).
The infant mortality rate (IMR) reached a very low level and similar to developed countries where it is estimated to be 5.9 per 1000 live births.
Under five mortality rate is 7.3 per 1000 live births.
Life expectancy at birth is high being 78.1 years.
Maternal mortality rate is 15 deaths/100,000 live births (2015 est.).
Heath expenditures are ideal being 5% of GDP (2014).1, 2

1.4 Health system in the Kingdom of Bahrain

The Kingdom of Bahrain is one of the developed countries in health system, through the availability of many health institutions and health care for both public and private, which are distributed in various regions of the country by 100% so that the burden of access to health services is not a concern for citizens and residents. The Ministry of Health is the ministry which is responsible for public health in Bahrain.

The Kingdom of Bahrain is one of the first countries in the region to open a regular hospital, the American Mission Hospital, which was opened in 1893 as the first dispensary to open in Bahrain and the region. While the first local medical complex, Salmaniya Medical Complex, was founded in 1956. The Kingdom of Bahrain also began using the global health care system in 1960.

"The provision of comprehensive health care to all citizens and residents" is the main policy adopted by Bahrain with excellent implementation by the Ministry of Health through preventive and curative programs at all levels, including primary health care, secondary health care and tertiary clinical care. The Ministry of Health has assumed responsibility for the implementation of this policy in all technical and material fields, coordination with the ministries in the Kingdom, cooperation with the private sector in the field of health locally and internationally, as well as members of the Bahraini society.

The number of employees in the Ministry of Health reached about 8,859 employees in various facilities and services. Based on the policy of Bahrain and for raising the competencies of its employees, the Ministry is proceeding at a rapid pace in the field of training and qualifying national manpower. The Faculty of Health Sciences, established in 1976, has contributed greatly to this trend. In general, the health system in the Kingdom of Bahrain is available through:

Primary health care

The Ministry of Health provides advanced healthcare services through 28 health centers distributed throughout the Kingdom of Bahrain. These centers provide many preventive and curative health services through their clinics, which are equipped with highly qualified medical staff and free of charge for citizens and a symbolic number for residents.

Secondary care

The public and private hospitals in the Kingdom of Bahrain are among the most modern hospitals in the region, having a large number of specialties, specialists, and experienced people in the field of health care. This care is provided through Salmaniya Medical Complex, as well as maternity hospitals scattered throughout the country, a psychiatric hospital and a hospital for the elderly. Beside the Ministry of Health hospitals there is the military hospital of the Bahrain Defense Force and King Hamad University Hospital, as well as a large number of private hospitals and clinics.

The Salmaniya Medical Complex is an integrated medical services complex offering health care by all its departments to all citizens and residents alike and to all governorates of the Kingdom of Bahrain, including emergency and secondary health care. The total number of suites is about 50 suites with approximately 1000 beds. The suites are distributed in the hospital according to the field of specialization, as well as the beds, and are classified according to sex, age of patients, health condition and type of illness. According to the statistics of 2007, the outpatient clinics in the complex received more than forty-nine thousand patients transferred from the health centers for examination and treatment. In addition, more than 45,000 patients were admitted to the complex for medical and nursing care in the specialized and advanced suites of the complex.

The Department of Accidents and Emergency has received more than three hundred thousand cases to receive emergency treatment and care. More than twenty thousand surgeries have been performed, including a large proportion of complex and precise operations, which have used sophisticated devices such as surgical endoscopes and others.

Health improvement strategy

The Ministry of Health has developed a national strategy to improve health of all the population, to achieve comprehensive development, enhance its developmental role and to improve its services to ensure the delivery of high-quality services. It contains six main objectives:

- Strategic objective I: to preserve the health of the population through health promotion and prevention.
- Strategic objective II: Integration of services in the health system within the Ministry of Health and with other governmental and private institutions.
- Strategic objective III: Quality First.
- Strategic objective IV: Access to health care for all.
- Strategic objective V: Strengthening the role of the Ministry of Health in policy development and governance.
- Strategic objective VI: Sustainability of health services.

2. METHODOLOGY

In order to improve the health of the individual and society and in the context of the growth of health care in the Kingdom of Bahrain through the provision of integrated health services and updated health data documented and approved, the Ministry of Health in cooperation with the Information & eGovernment Authority implemented the National Health Survey project between February 2018 and May 2019. The survey was certified by World Health Organization (WHO) and was implemented in more than 70 countries, including the GCC countries.

The National Health Survey (NHS) 2018 is one of the primary surveys in providing data to reflect the health situation in the Kingdom for all members of the society, both citizens and expatriates. This project comes as part of a policy to establish an information base about health reality in the Kingdom on one hand and to strengthen periodic and continuous statistical partnership and coordination between the Ministry of Health and the General Directorate of Statistics in the Information & eGovernment Authority, the sole and official body authorized to produce and support statistical data.

2.1 History of previous health surveys

Bahrain planned and implemented a health survey in 2013, in line with similar surveys conducted in the GCC countries, based on existing practices and expertise. It also relied on guidelines adopted by the World Health Organization in 2002 in planning the survey. It has been implemented between the Information & eGovernment Authority (formerly the Central Informatics Organization) and the Ministry of Health and under the auspices of the World Health Organization. Although the 2013 health survey was started systematically, it could not be continued due to many constraints, mainly financial, including the great reluctance of researchers, as well as the lack of response by families. The total response was only about 13% of households, which is too low to estimate any indicator.

2.2 Key objectives

This important national survey achieves the goals of the Government's work program and the National Health Strategy, as it contributes to the improvement and development of health services and further strengthens the health information system and priority setting, as well as providing an advanced database for implementing the strategic plan and national action plans, in partnership with all relevant sectors for prevention of diseases, and includes the following main objectives:

1. The main objective of the health survey is to strengthen the health information system and identify the health priorities of the Kingdom.

2. It aims to provide comprehensive information on the health status of the population in order to assist policy makers in monitoring the integrated picture of the health system in terms of three main components: disease burden, health financing and health system response, in order to contribute to the development of future expenditure strategies, health insurance and human resources for the health sector.

3. It aims to establish a set of qualitative guidelines and strategic reports.

4. Added to that, is to develop an integrated database on population health by providing data on a wide range of health indicators that are not fully available through administrative records, such as indicators for the health status of the population, common risk factors, prevalence of diseases and reproductive health care.

5. Contribute to the development of sound and appropriate future strategies, program management, monitoring and evaluation. The health information covered by the survey included those on SDGs, particularly those related to good health and well-being.

2.3 Opportunities and outputs of the survey

Opportunities and challenges	Objectives	Results/outputs
Provide complete health data and indicators	Facilitate the use of information collected in appropriate strategic planning, program management, monitoring and evaluation. Particular emphasis is placed on the use of SDGs and critical outcomes for the poor.	Provide SDG indicators related to health and well-being, which are only available through survey data.
Health indicators are not fully available through administrative records	Provide data on a wide range of health indicators, such as health status assessment, risk factors, disease prevalence, reproductive health care, and the health system response to inpatient and outpatient care.	Developing an integrated health database.
Prevalence of diseases	Develop capacity for policy makers to monitor the response of the health system in terms of three key components: • Burden of disease • Health financing • Response of the health system	Provide reliable and valid information on the health status of the population.
Develop future health strategy		Data provision, which helps plan future strategies for health expenditure, health insurance, and human resources for the health sector.

2.4 National Health Survey framework

- The survey community consists of all private and collective households residing in the Kingdom of Bahrain according to the 2017 database available with IGA. It also relied mainly on Central Population Register (CPR) records and the records of the Ministry of Labor and Social Development and the Ministry of Interior. According to the division of governorates in the Kingdom of Bahrain and the division of health areas at the Ministry of Health, the survey was carried out. The framework of the survey was divided into the following divisions:

- Governorates: Administrative divisions of the Kingdom of Bahrain, which is the general framework of the survey and consists of four provinces - which are the strata:
  - » Capital Governorate
  - » Muharraq Governorate
  - » Northern Governorate
  - » Southern Governorate

- Health areas: These are administrative health divisions, which are divided to facilitate the operational work of survey and periodic monitoring of health district supervisors. It consists of five health areas in each governorate, from survey operational point since survey researchers are from health areas.

2.5 Sampling design

The sampling frame was obtained from the Central Population Registry database in the Information and eGovernment Authority for the year 2017, where all classificatory characteristics of the households and residents are available. A single stage stratified self-weighted sampling scheme was followed in the present survey. The main features of the sampling design are given subsequently.

1. Stratification

Explicit as well as implicit stratification has been carried out on the sampling frame. The stratification processes are as follows:

- Two major strata were created by splitting the sampling frame into Bahraini and Non-Bahraini private households. The sample was allocated to both strata in the ratio of 2:1.
- The frame of both major strata has in turn been explicitly stratified by governorates. The sample of each major stratum was proportionally allocated among its secondary strata, as per the number of households.
- The current survey proposed to include the 300 collective households; however, it was so difficult to obtain reliable data from them, so they have been excluded.

1.1 A household is a group of persons normally living together, who make common provision for food or other essentials for living, and regardless of whether they are in kinship or marriage relationship. It may also consist of a single person who makes provision for his/her own food or other essentials for living. The nationality of the household is determined by the nationality of the head of the household.

1.2 Collective households are Non-Bahraini households, consisting of a group of individuals living in one dwelling, not related to each other and usually do not share living costs such as food and drinks. All the members living in such households are 15 years old or more and of same gender.

1.3 The previous experience of Household Expenditure and Income Survey (HEIS) data was utilized to estimate the coefficient of variation of household income. As a result, the type of housing (villa, apartment, other) was taken into consideration while arranging the data, because the type of house is highly correlated with household income levels.

2. Sample selection

After dividing the sampling frame into the main and secondary strata and after arranging strata mentioned, the samples were drawn independently from each stratum by a systematic random sample. The detailed steps are as follows:

2.1 The frame is divided for all by the address as follows:

- Nationality type (Bahraini and Non-Bahraini)
- Governorates (Capital, Muharraq, Northern, Southern)
- Housing type (villa, flat, other): this was not a stratification variable; arrangement was to ensure proportional number of households)

Hence, there were 2*4*3= 24 sub-frames

2.2 Each sub-frame was sorted by nationality group (Arab, Asian, etc.), by household size and then by address (block, road, building, flat), to have a representative sample of all characteristics.

2.3 Sample was drawn randomly in a systematic style using Epi-Info program in each stratum.

3. Sample size

The estimated sample size was 3700 for private households. 300 collective households were proposed to be surveyed and the sample size totals up to 4000. Information available from the previous surveys and objectives to be achieved in this survey contributed in determining the sample size; it was estimated using the probability formula to determining stratified random sample. The Error was also taken into consideration that should not exceed 5% with a confidence level of 90%. The percentage of non-response in the previous surveys and the available budget was also considered.

3.1 The sample size was calculated using the following assumptions:

- The smallest expected frequency for any indicator to be detected is 5%
- Precision = 2% in each side
- Confidence level is 90% and power is 80%
- Non-response is 20-30%
- There are 8 strata (Bahraini/non-Bahraini for the 4 governorates)

$$(n) \text{ for each stratum} = \frac{(Z^2\ P\ (1\text{-}P)}{d^2}$$

» n /stratum $= \frac{(1.645)2 \times 0.05 \times 0.95)}{(0.02)^2} = 322$

» n = 322 x 8 strata = 2576

» considering 20% non-response: n = 2576 / 0.80 = 3220

» considering 30% non-response: n = 2576/ 0.70 = 3680 (almost 3700)

Additionally, 300 collective households were taken up for the survey. Hence, the assumed total number of households to be surveyed becomes 4000. As mentioned before, the collective households were excluded later during the analysis as they are temporarily present in Bahrain, and most of them reside mixed homes which makes collecting and analyzing the household data impossible. However, data were collected during the field work from 3020 households giving a response rate of about 82%.

4. Selection of individual adult member

Following selection of household addresses, is the selection of the individual, who is to answer the individual questionnaire and take part in the medical examination and blood testing. Below wer e the steps:

4.1 All households selected were mapped with its residing individuals, available in the population registry.

4.2 All household members less than 18 were excluded. In case of Bahraini households, the Non-Bahraini members were excluded as well, such as Non-Bahraini servants living in Bahraini households.

4.3 One adult (> 18 years) member was selected randomly.

4.4 The actual male and female selected individuals depend on the household composition of the members. In case of Bahraini households, proportions come almost equal. In the case of Non-Bahraini households. around 60% are males and 40% are females.

5. Sample size distribution

According to the 2016 Central Population Register, the distribution of private households in the Kingdom of Bahrain is as follows:

Character	Private Bahraini Households	Private Non-Bahraini Households	Collective Households
Number of households	119,953	61,915	27,035
Population	764,492	212,836	446,398

Distribution of sample by household types:

Type of the household	Sampled number
Private Bahraini Households	2,504
Private Non-Bahraini Households	1,196
Collective households	300
Total	**4000**

Distribution of sample by governorates (major strata):

Governorates/ Nationality	Customized samples				
	Capital	Muharraq	Northern	Southern	Total
Private Bahraini Households	672	524	816	492	2504
Private Non-Bahraini Households	704	200	132	160	1196
Collective households	156	48	48	48	300
Total	**1532**	**772**	**996**	**700**	**4000**

Sample distribution by age and sex of selected individuals:

	Bahraini			Non-Bahraini			Total		
Sex/Age	Male	Female	Total	Male	Female	Total	Male	Female	Total
18-24	207	208	415	44	37	81	251	245	496
25-34	304	299	603	199	193	392	503	492	995
35-44	295	294	589	234	142	376	529	436	965
45-54	224	180	404	163	73	236	387	253	640
55-64	117	144	261	54	20	74	171	164	335
65+	91	141	232	26	11	37	117	152	269
Total	**1238**	**1266**	**2504**	**720**	**476**	**1196**	**1958**	**1742**	**3700**

- Note: Collective households not mentioned in the previous table.

2.6 Survey data collection tools

1. Household interview questionnaire
2. Individual interview questionnaire (respondent)
3. Anthropometric and vital signs measurements
4. laboratory investigations

The period of field work for collecting data was six months for covering all selected families, from February to October 2018, which is permeated by the month of Ramadan, summer vacation and the month of Dhul-Hijjah leave. All survey questionnaires data were collected during the household interviews by experienced trained nurses from the Ministry of Health and designated for this purpose, with the aid of CAPI data collection using a web-based data migration program (SurveyGizmo).

Respondent questionnaire

covers the following sections:

- Socio-demographic characteristics: age, sex, marital status, wealth quintiles, educational level
- Current health status
- Functional assessment: which is followed by calculation of WHO-DAS score
- Prevalence of risk factors: smoking, physical inactivity, intake of fresh fruits and vegetables
- Prevalence of common diseases: Diabetes, hypertension, tuberculosis
- Happiness and Quality of life

Lab investigations and measurements

After taking the consent of the respondents, the survey collects information about vital indicators, measurements of the responding individual and several other measurements, where the process is performed by nurses with experience in the required medical examinations. Measurements include:

1. Height and weight measurements to calculate BMI
2. Waist and hip measurements to calculate WHR
3. Blood pressure
4. Fasting blood sugar
5. Blood lipids levels (Triglycerides, High-Density Lipoprotein (HDL), Low-Density Lipoprotein (LDL)

Diagnostic criteria

WHO standards for diagnosis (WHO, 2010)[3] of high blood pressure, high cholesterol, glucose intolerance, and anthropometric measurements were used in the survey.

High blood pressure

Blood pressure was measured three times during the filling of the questionnaire using an electronic measuring device placed around the shoulder. Where the respondent was asked to sit as instructed before taking the measurement and place hand in the form required for measurement. Blood pressure readings were taken three times with a rest interval of approximately 5 minutes between them. Based on the average of the three measurements to examine the diagnosed and self-reported hypertension, the following table was used to measure the indicators of the rate of high blood pressure in this report:

Categories	Systolic BP (mmHg)	Diastolic BP (mmHg)
Hypotension	< 90	< 60
Normal	≥ 90- 129	≥ 60-85
High normal	≥ 130-<140	> 85-<90
Hypertension	≥ 140	≥ 90
Hypertension Grade I	≥ 140 - <160	≥ 90 - <100
Hypertension Grade II	≥ 160 - <180	≥ 100- <110
Hypertension Grade III	≥ 180	≥ 110
Isolated systolic	≥ 140	<90
Isolated diastolic	<140	≥ 90
Combined	≥ 140	≥ 90

Hypercholesterolemia: The definitions used for diagnosis were according to the World Health Organization (WHO, 1999)[4]:

High total cholesterol	> 5.2 mmol/L
HDL	Low (risky) <1.3, normal ≥ 1.3 mmol/L
LDL	High (risky) ≥ 3.4, normal <3.4
Triglycerides	High ≥ 1.7, normal < 1.7 mmol/L

Diabetes: The definitions used for diagnosis were according to the World Health Organization (WHO,1999)[4]:

Impaired Fasting Glycaemia (IFG)	Fasting blood glucose > 6.1-6.9 mmol/L
Diabetes (DM)	Fasting blood glucose ≥ 7 mmol/L

Anthropometric measurements:

A. BMI

Underweight	< 18.5
Normal	18.5-24.9
Overweight	25.0-<30
Obese: **Class 1** **Class2** **Class3**	 30-<35 35<40 40 or higher

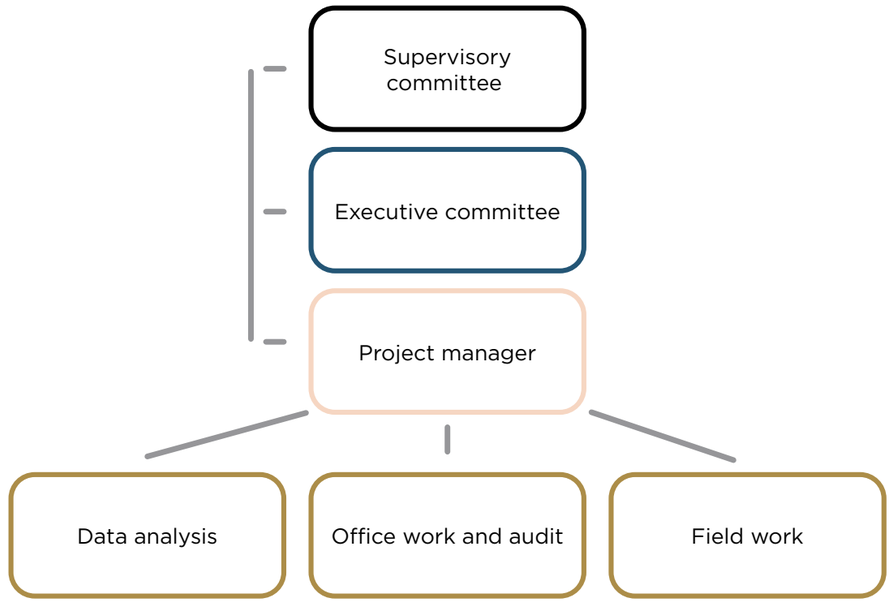
B. Central obesity: According to Scottish International Guideline Network5, the following categories were used:

Abnormal waist	Male	≥ 92 - <102 cm
	Female	≥ 80 - <88 cm
Obesity	Male: Waist	≥102 cm
	Female: Waist	≥88 cm
Waist Hip Ratio (WHR)		
Obesity	Male	>0.90
	Female	>0.85

2.7 Organizational structure of the survey

The 2018 National Health Survey comprises two general and sub-field structures:

First: General structure contains:



- **Supervisory committee:** The Supervisory Committee is responsible for the following tasks:
  - » Reviewing the general plan, research methodology and policies of the National Health Survey.
  - » Examining the necessary financial requirements and looking for additional funding sources.Cooperation and coordination with governmental, non-governmental and international bodies related to the survey.
  - » Following-up the progress of the survey implementation and overcome any arising difficulties and problems.
  - » Reviewing and approving the initial and final reports of the survey to take necessary action.
- **Executive committee:** The Executive Committee is responsible for the following tasks:
  - » Proposing the general plan, implementation methodology and timetable of the National Health Survey.
  - » Proposing the financial plan.
  - » Proposing the appropriate plan for training the survey staff.
  - » Following-up the stages of the survey implementation and developing appropriate solutions for any problems.
  - » Implementing and following-up all technical matters with data quality and analysis.
  - » Following-up the preparation of the initial report and the final report of the survey.

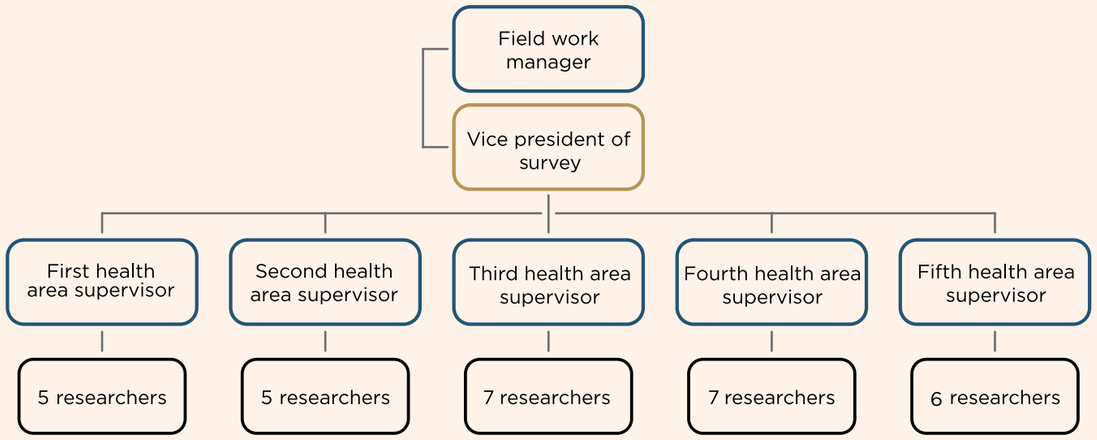
Project manager: Who is responsible for following-up all field matters of the survey in the various governorates of the Kingdom of Bahrain, and providing the Executive Committee for the survey with reports on the progress of work.

Office work: This team is responsible for examining and verifying all completed questionnaires at the end of each day in the field work period before being delivered for analysis.

Analysis: Data cleaning, auditing and analysis of all National Health Survey data.

An Excel spreadsheet was established for the entry of data. We used validation checks on numerical variables and option-based data entry method for categorical variables to reduce potential errors. The analyses were carried with SPSS software (Statistical Package for the Social Sciences, version 24, SPSS Inc, and Chicago, IL, USA) and STATA 14. Frequency tables with percentages were used for categorical variables and descriptive statistics (mean and standard error) were used for numerical variables.

Second: Structure of the field work group:



The staff involved in the administrative and field work of the survey were organized as follows:

Head of the field survey: His task is to manage and lead all the field team tasked with collecting data from families and monitoring all technical and field matters for survey in all governorates of the Kingdom of Bahrain. It is also his duty to submit the periodic reports of the supervisory and executive committee on the latest developments in the field work with the development proposals for field work.

Vice president: His task is to follow up the technical work and provide the head of the field work with periodic reports on the progress of work with collective families.

Supervisors: Five supervisors were allocated for five health areas. The supervisor is responsible for monitoring the progress of work and the quality of data collection and to ensure that the performance of researchers was according to a standard and consistent according to the methodology drawn. The most important tasks were the distribution of daily field work among his team, verification of completed forms, confirmation of the forms' completion and returning the wrong ones. Supervisors also formed a link between the researchers and the head of the field survey, in addition to checking the validity of the data collection process, the withdrawal of the blood samples, the laboratory analysis and the quality control processes in all stages of the survey work.

Researchers: The number of researchers in all the health areas in the Kingdom of Bahrain was 32. The researcher performs the data collection process and ensures that all the data were completed before leaving the family dwelling, as well as checking the form in the field and submitting the completed ones to the supervisor. Researchers were professionals with experience in the field of health and nursing, who have been trained to carry out field survey data collection tasks and withdraw samples.

2.8 Stages of implementing the National Health Survey

The National Health Survey was carried out according to international policies, procedures and standards where WHO policies were adopted in the methodology design and design of the general framework of the survey questionnaire. The Generic Statistical Business Process Model (GSBPM), a methodology that provides the correct scientific basis for the statistical work to produce high quality statistical outputs, was adopted by agreeing on standard terminology and development of metadata systems and processes within the project stages. GSBPM is a flexible tool for describing and defining a set of procedures and processes necessary for the production of official statistics and requires the alignment of infrastructure to work in the statistical.

1. The stage of determining the needs of the National Health Survey

This phase was carried out at the beginning of the National Health Survey project, where it outlined the implementation of the survey, coverage ranges and the extent of non-coverage of needs. The potential capacity to produce these statistics was also examined. This stage covered the important issues of implementation:

1.1 Consultation to identify and confirm data needs: In multiple brainstorming and feedback sessions between the Information & eGovernment Authority and the Ministry of Health, the nature of the required statistics and a good understanding of the needs and their uses and expected outputs were verified. It also reviewed previous experiences in the Kingdom of Bahrain and neighboring countries and began to develop a strategy for implementing the survey. HIS at EMRO conducted national stakeholder workshop to update national indicators list and map data sources for developing integrated survey plan and overcome data gaps of survey-based indicators.

1.2 Identification of output targets: Surveyors set clear practical objectives for the implementation of the survey by identifying accurate statistical outputs of the survey that meet the national needs and needs of decision makers, and to be of a high quality and meets the needs of beneficiaries.

1.3 Identification of the required concepts for measurement: The National Health Survey 2018 has defined concepts of measurement in parallel with the needs of decision makers and data users. The team ensured that all standards and concepts adopted by the survey should comply with international standards, considering the national needs and priorities of the Kingdom of Bahrain.

1.4 Confirmation of data coverage for all needs: The team tasked with the implementation of the survey undertook to verify that all data sources required to collect data met the requirements and to find the best ways to dismantle and resolve constraints and problems that might be encountered during project implementation or analysis. Alternative and supportive sources such as administrative records available for data as well as implementation methodologies were prepared. The legal dimensions of the implementation of this survey were also examined.

1.5 Ratifications on implementation:At this stage, many decisions have been approved to implement the National Health Survey 2018. These include: country to add highlighted annexes in the “Annex” section page 173.

» Signing a memorandum of understanding between the Information & eGovernment Authority and the Ministry of Health to implement the survey (See Annex 6.1).
» Formation of the Supervisory Committee: A higher committee for the survey was established, named “Supervisory Committee” which is chaired by the Assistant Undersecretary of Public Health in the Ministry of Health, and with members from the Information & eGovernment Authority, the Ministry of Health and the Ministry of Interior (See Annex 6.2).
» Formation of the Executive Committee: This Committee was formed under the chairmanship of the Director of Public Health in the Ministry of Health; members are from the Information & eGovernment Authority, the Ministry of Health and the Ministry of the Interior (See Annex 6.3).
» Budget: An integrated budget had been prepared for the survey that took into account all aspects of the work in the various stages of implementation of the survey and within the law of the Civil Service Bureau and the Ministry of Finance
» Media Plan: An integrated media plan had been prepared including media messages and awareness through audio and visual media and social media. The plan included three phases during the survey period, which included the following:
o Media plan before the survey begins.
o Media plan during survey implementation.
o Media plan after completion of data collection phase.
» Adoption of the work file of the survey: A comprehensive preparatory file for the survey was prepared and approved according to the procedure for setting up and implementing projects in the Information & eGovernment Authority.
» Adoption of the time plan for the implementation of the survey (See Annex 6.4).

The roadmap for the media campaign of the National Health Survey project in Bahrain:

Implementation phase	Before:November-December2017	During:January-May 2018	December 2018
Targets	Identifying survey and encouraging participation	Encouraging the continuation of participation and enhancing the circulation of information	Analyzing reactions and disseminating information
Actions taken	• News coverage • Interviews with officials • Weekly radio messages • Advertising in newspapers • Messages through social media and WhatsApp • Promotion during the events • Health brochures and flyers • Creating a page on the Kingdom’s national portal • Messages during waiting time of the call centers in the ministry • Request support from public influential figures	• News coverage • Interviews with officials • Weekly radio messages • Advertising in newspapers • Messages through social media and WhatsApp • Promotion during the events • Health brochures and flyers • Creating a page on the Kingdom›s national portal • Messages during waiting time of the call centers in the Ministry • Request support from public influential figures • Promotion awards • Giveaways	• Press conference to announce the survey results • Honoring the supporting bodies

2. Design phase

During this second phase of the methodology, all the statistical procedures used in the General Directorate of Statistics and Population Register, the design and development of all methodologies and various activities in the process of data collection and analysis were taken. All concepts, terminology, methodologies and tools were designed to ensure the quality of statistical outputs of the National Health Survey. This includes:

2.1 Design of outputs and variables: At this stage, all statistical outputs were prepared from the beginning of the National Health Survey project to the publication phase, including the preparation of the systems and tools used. The outputs were designed according to the international standards of the World Health Organization (GSPBM). Metadata has been identified based on the previous surveys carried out in Bahrain in 2013, as well as the international standards and the best practices implemented. The Omani experience in this field has been used, Guided by technical instruction from HIS at EMRO in line with regional framework of indicators.

2.2 Design of the questionnaire, preparation of a manual methodology for data collection: The survey relied largely on the overall design provided by the World Health Organization (WHO) in the World Health Survey (WHS) questionnaire with some additions that were adapted to the requirements and commitments that serve decision makers in the Kingdom of Bahrain. Some of the requirements set out in the Sustainable Development Goals (SDG’s) have also been added (See Annex 6.5 & 6.6).

The general methodology for collecting the required data in the survey and the period of time was also determined, taking into consideration all the possible conditions that will face the data collection phase, including the month of Ramadan and the summer vacation in the Kingdom of Bahrain, where all the controls that would not affect the data collection were put in place.

2.3 Time frame design: The survey execution schedule was determined (See Annex 6.4).

2.4 Design of data processing methodology: The survey was based on SPSS system in the methodology of auditing, coding, compensation, processing of abnormal values and processing of lost data as well as processing of the data file. STATA 14 is used to verify survey data analysis and calculation of disease and risk factors prevalence in the population.

2.5 Design of the electronic data collection system. The questionnaire was designed in an integrated electronic system using (SurveyGizmo), which enhanced data collection and validation in the implementation of the National Health Survey. It helped researchers to speed up implementation and improve the quality of data collected. This system has also helped in the ease and speed of the process of checking the data and ensured the efficiency and coverage of any gaps or repetition in the data. The program also contributed to the establishment of a database for all data and at all stages of the process.

3. Build phase

This phase came as one of the most important stages of the implementation of the National Health Survey before field data collection, in which the team ensured the safety and smoothness of all methodologies in field work and analysis. During this period the data collection system was implemented and tested so that it is ready to be used in a practical way. Where the following matters have been implemented:

3.1 Construction of the contact center: The National Health Survey implementers established a contact center for the survey to be the first tool for communication with the participating families, in order to educate the family about the objectives of the survey with the prior arrangement of the visit and to make the collection of data more smooth, professional and qualified. To ensure the most efficient work, the call center staff provided integrated records of all households included in the survey sample collected from multiple sources and records.

3.2 Construction of the field work methodology of the National Health Survey: At this stage, the methodology of the fieldwork for data collection was constructed and tested. After the completion of the comprehensive examination of the methodology, it was reviewed and approved by the Executive Vice President for Statistics and Population Registry and Chairman of the Supervisory Committee.

3.3 Building the blood and laboratory testing methodology: The sensitivity of the laboratory tests has been assigned the task of blood extraction and laboratory tests and measurements to the Ministry of Health to ensure the efficiency and quality of work to be monitored and managed by the head of the field survey. The blood-sampling methodology was also established only on weekly working days and during the morning period only, so as to ensure that the samples are properly delivered to the general laboratory of the Ministry of Health.

3.4 Implementation of the electronic system and examination of data entry methodology: As previously mentioned, SurveyGizmo was adopted as an essential tool for the introduction of statistical data for the survey. This phase included all the software related to the preparation of electronic questionnaire, examination of individual and family components, verification of the interconnection and interaction of all components of the two questionnaires (Household, Individual). The data production system functions as a set of interconnected and interrelated components. At this stage, the following was done:

- Implementing the plan for programming the electronic questionnaire and testing it on the tablets. (SurveyGizmo: online questionnaire).
- Build coding mechanism.
- Implement the SurveyGizmo data export methodology to Excel files.
- Data transfer using ETL (extract, transfer and load).
- Building databases.
- Building methodology for data collection.
- Building the audit mechanism.
- Build backup database mechanism.

3.5 Survey pilot study: The National Health Survey team was keen to ensure that all procedures that were followed in implementation were as complete and efficient as required. Therefore, a pilot study was carried out. The pilot phase included a visit to four field families, during which the following tasks were performed:

- Testing the questionnaire in the field.
- Adding or deleting any required or ambiguous questions.
- Testing the ease of survey plan of work and calculating the needed time for filling the questionnaire.
- Submitting a report to reflect the results of the pilot study on the National Health Survey.

3.6 Selection of field work team: Supervisory Committee issued a decision to form a team of the project leader, head of the field survey, coordinator of the human and financial resources of the Information & eGovernment Authority and Head of Nursing Services at the Ministry of Health to arrange interviews with those who wish to participate as field researchers and choose the elite. The team identified specific criteria for the selection of personnel for the field survey, to raise the efficiency of data collection and to ensure ease of delivery of the required information to the respondents, as well as the specificity of the National Health Survey in terms of experience required in a researcher in the field of nursing. The following criteria have been developed for selecting researchers (candidates must have):

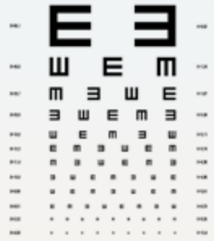
- Bachelor of Nursing or equivalent.
- Practical experience in nursing for at least 3 years.
- Government license to withdraw blood samples.
- Experience in similar surveys.

More than 100 nurses and supervisors of health areas from the Ministry of Health were nominated. After the interviews, the deputy head of the field survey, five health supervisors and 32 researchers were selected and distributed as described earlier.

3.7 Purchase of special equipment for field survey: The survey instruments were purchased according to the international standards and standards required by the WHO, as follows:

Wi - Fi

Medical bag

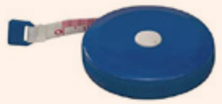


Vision measurement board (3-meter distance)

Electronic blood pressure measuring device

Electronic balance

Tablet



Medical measuring tape

3.8 Final preparations before the stage of field work: This phase included the following activities:

- Preparing the researcher›s guide for the National Health Survey.
- Training supervisors on how to manage fieldwork and monitor daily performance. The intensive training of supervisors took two weeks so that they could carry out their assigned tasks efficiently and effectively.
- Ensuring the integrity of all components of field work.

4. Data collection pre-stage:

This stage was considered the most important stage of the National Health Survey because of its important to ensure reliable results. Field work began in the fourth week of February 2018 and continued until the end of August 2018. The data collection pre-phase included the following actions:

4.1 The Omani Experience: In order to ensure the efficiency of work in the National Health Survey, the Information & eGovernment Authority organized a training workshop for the National Health Survey 2017 project, in cooperation with the Ministry of Health, provided by experts from the Ministry of Health in Oman. The survey was approved by the World Health Organization, in the presence of approximately 20 people from the survey project.

The workshop was held for five days, from 22 to 26 October 2107, during which the Omani experts reviewed the Omani experience in the health survey and presented the successful results of the experiment. The workshop also trained the survey staff on the best practices in the implementation of the survey and how to deal with questionnaires and respondents. The workshop included training on:

4.2 Staff preparation:

4.2.1 Training of health area supervisors on:

- Objectives and methodologies of field work
- Ethics of field work
- Paper and electronic resolution
- Supervision and follow-up work
- Checking the questionnaires

4.2.2 Training of researchers on:

- Objectives and methodologies of field work
- Ethics of field work
- Field researchers' requirements
- Paper and electronic resolution
- Training on medical devices

4.3 Beginning of data collection: In the middle of February, field visits were initiated to implement the data collection stage through direct visits to the respondents and to implement the main follow-up processes of the results of the interviews electronically. According to the mechanism, the researcher visited each family after setting a date for the visit and reported when and how s/he contacted with respondents.

This phase included the continuous assessment of the data collectors and providers in their regional groups, to ensure that the relationship between the staff and the respondents is still as required, as well as the immediate dealing with all queries and complaints.

Periodic and sustained visits were carried out at this stage for follow-up and monitoring by the head of the survey and field supervisors to ensure the safety of work in the field and follow-up on the receipt of periodic reports and completion reports. Periodic reports were also submitted to the Supervisory and Executive Committees, detailed in percentages and indicators of the efficiency of the implementation, in order to ensure the safety of implementation.

4.4 Working in Ramadan: Due to the coincide of the holy month of Ramadan with the period of fieldwork of the survey, and with the specificity of the holy month in terms of the availability of time for respondents and researchers, the following actions were taken:

- Work was done to visit non-Bahraini families (unless there was Bahraini families approved the visit).
- Work was done after 7 pm (where the door was open to any family or researcher wishing to work before breakfast).
- Researchers were divided into groups; each group was consisted of two researchers at the time of the visit if the researcher was a female nurse. If the researcher was a male nurse, he worked alone.
- Sample tables were delivered on a weekly basis to all visits for each group and the process was monitored by supervisors.
- Delivery of results of achievement was done on a daily basis.
- Blood samples were drawn as usual in the general methodology, considering the following:
  - » If the family is Bahraini or Muslim, it was necessary to make sure that fasting was for 12 hours
  - » In case of inability, blood sample was postponed after Ramadan
  - » Delivery schedules of blood samples were received weekly.
  - » The general tables of the movement of families or alternative families were given weekly.

4.5 Performance monitoring and workflow:

4.5.1 Periodic meetings of the Supervisory Committee.
4.5.2 Periodic meetings of the Executive Committee.
4.5.3 Weekly follow-up of district supervisors.
4.5.4 Periodic reports to measure fieldwork performance.
4.5.5 Daily completion of reports.

4.6 Closing the data collection stage: This phase included the following:

4.6.1 Take final electronic versions of the electronic survey and electronic questionnaire database.
4.6.2 Download and convert all the raw data tables from the SurveyGizmo program into Excel tables to be used in the analysis, purification and processing phase which was done by SPSS and STATA.
4.6.3 Classify, arrange and organize all individual tables for collective identification.
4.6.4 Ensure access, purification and treatment of blood test results after receipt of final detection of blood samples.
4.6.5 Receive all the devices from the researchers and survey workers and ensure the transfer of data from hand-held devices.

5. The stage of processing the data collected from the field survey

After the completion of data collection stage, developers began coding the missing values, correcting the errors, organizing the raw data tables and processing them from impurities in order to ensure the quality of the collected data and the statistical aggregates for the analysis stage. The treatment phase included the following processes:

5.1 Integrating spreadsheets: in this process, data from various sources of national health survey inputs were combined, both data collected in the individual and group forms, family data forms and the latest evidence of blood sample results, as well as some of the data produced from administrative and health data and records. This resulted in a set of standardized and integrated data, through:

- Unifying variables between different sources and different values.
- Ensuring that data were integrated from their various sources, while ensuring that they were linked with the same value.
- Integrating all tables into two tables, individual and family, for analysis.

5.2 Classification and coding: within the team, standardization of classifications for the collected data was taken care of to ensure compatibility with best practices, with the aim of distributing the duplicates in the results of outputs. Some of the texts entered were converted to digital symbols to ensure that they were used in the analysis stage, such as:

- Occupational classification
- Nationality groups
- Construction
- Income categories
- School grade

5.3 Calculation of weights and totals: according to the methodology prepared in the design stage, all weights and totals were calculated, the sample took into consideration the relative distribution of the governorates of the Kingdom of Bahrain. Weights were set in case of rejection cases included in the data collection stage, weight by age and sex is calculated and applied to calculation of prevalence of parameters in sample population. The team was able to use those weights when analyzing and extracting totals.

5.4 Correction and deletion: potential problems were identified in the data collected in spreadsheets, the determination of anomalies, unanswered questions, and coding errors. Undesirable values and data that could damage the analysis phase were omitted.

5.5 Completion of all spreadsheets: this process was an input to the analysis phase by organizing the work of the processing stage in practical volumes that facilitate the accessibility and use of all the data.

6. Analysis

Data management, analysis and tabulation were conducted by data analysts and statisticians at IGA in Bahrain and HIS at EMRO. For developing this report, a national workshop was conducted to review the analysis of the outputs and prepare for documentation and writing the report by WHO regional office, HIS-EMRO and national partners. While the WHO regional office did not have access to the raw data, we carefully checked the results, prepared and examined statistical outputs in detail and prepared for reporting. The best regional and international studies were used for comparison with the results of the survey. This consisted of the following operations:

6.1 Conversion of processed data to measurements: this included the best statistical outputs:

- BMI calculation
- Sugar level measurement
- Measurements of the level of blood pressure
- WHO-DAS score
- Mean of QOL

NB: Wealth quintiles used in this survey were already provided from the statistics department at the Information & eGovernment Authority.

6.2 Evaluation of Results: the accumulated experience from the previous survey was used with several experiences of regional and international countries to evaluate the results. Several comparisons were made between the same values and different categories to ensure the quality of outputs. The results of the analysis were verified in multiple stages to verify the validity of the results. This process included:

- Comparison of the results of the National Health Survey with the results of previous surveys.

- Comparison of the results with the best regional and international studies.
- Ensuring that there id no conflict between results.
- Multiple stages of scrutiny at the macro level of results.

6.3 Filtering: values had been observed according to privacy, for example the specificity of the characteristics of married females and in pregnancy, where ratios were calculated specifically in the questions associated with them and excluded from some outcomes that cause bias when added.

6.4 Dealing with missing values: when data was missing or unreliable, it can be compensated by specific steps including:

- Using the arithmetic mean or median of the digital variable for some cases.
- Some values are offset by the repetition of some survey data for the same variable at different places.
- Write and produce data returned to the data set.

6.5 Post-stratification weighting: this was done by age and sex for all the calculated health indicators in order for the sample to resemble the age and sex distribution of the population using the census data-2016.

6.6 Study and interpretation of the results: the study and the in-depth understanding of the results by the statisticians were carried out, where the outputs of the current results were explained by reversing the reality within the expectations, as well as reviewing them in all aspects using several methods of in-depth analysis of outputs.

6.7 Final verification of the application of statistical controls: this stage verified that the data and metadata do not violate any of the rules and laws of statistical work in terms of confidentiality; this includes the examination of basic and secondary data, as well as the examination of the techniques of confidentiality.

6.8 Final Results: this phase ensures that the statistical outputs and related data achieve the objectives within the required quality and are ready for use; it includes:

- Completing consistency checks.
- Defining the level of publication and specifying caveats.
- Collecting information that supports results, including interpretation, abbreviations and any necessary descriptive data.
- Producing documentation supporting results internally.
- Discussing results internally with relevant experts prior to publication.
- Adopting the results and preparing the content for issuance.

7. Ethical considerations

All the participants were assured that the information provided would be confidential and would not be used for any reason apart from scientific purposes. It was stressed to the participants that they had the right to refuse participation and to withdraw from participation at any time and that they are free to refuse answering certain questions. Feedback of the results and advices were provided. Consent was taken and recorded on the questionnaire after reading the consent form by the interviewer:

- Household informant consent form.
- Individual consent form.
- Agreement to give a blood sample for blood glucose and lipids.

8. Limitations of the survey

Some of the items which were proposed to be done were not performed, such as:

- Eye and pulmonary function examinations.
- Health expenditures and insurance.
- Amputation of section to assess population economic level (monthly income and expenditures).
- No child module in data collection tool.
- No data collection section for HIV and hepatitis seroprevalence.
- No data section for contraception and breast feeding.
- Blood pressure measured twice.
- Fasting blood glucose was used to check the control status of diabetic patients who are under treatment, although the recommended is HbA1c.
- Data of other items were collected but not yet analyzed, further analysis is suggested for household income and health expenditure data.
- The questionnaire was too long and detailed (taking two hours approximately) to administer which had caused fatigue and, hence, altered responses among subjects/ interviewers, specially during the month of Ramadan.

2.9 Survey time chart

Month	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6
Year	2017					2018												2019					
-Preparation for the survey prerequisites & administrative procedures																							
-Scrutiny and data preparation																							
-Training survey employees -Obtaining field required equipment, etc.																							
-Field work																							
-Data analysis and tabulation																							
-Report writing and dissemination																							

3. RESULTS

3.1 SOCIO-DEMOGRAPHIC PROFILE:

3.1.1 Characteristics of households

Overall, 3020 households were interviewed, out of which 67.7 % were Bahraini while 32.3% were non Bahraini. Most of the household heads were males representing about 85% and 91% among Bahraini and non-Bahraini households respectively. The mean age (SE) among Bahraini heads was 58 years (0.67) and 42 years (0.82) among non-Bahraini. Most of the household heads are married (82.3%) and at the educational level above primary to secondary (42.4%). However, the percentage of university graduates was (52.3%) among non-Bahraini citizens compared to only (23%) among Bahraini. The distribution of household heads according to wealth quintiles was more or less equal between the two nationalities except for Q5 where 21.2% of Bahraini household heads were belonging to this category compared to only 15.9% among non-Bahraini (Table3.1.1).

Table 3.1.1: Characteristics of the household heads by nationality, sex, age, marital status, educational level and wealth quintiles

Characteristics	Bahraini		Non-Bahraini		Total	
	N	%	N	%	N	%
Total	2046	67.7	974	32.3	3020	100
Sex:						
Male	1741	85.1	885	90.9	2626	87.0
Female	305	14.9	89	9.1	394	13.0
Q1	330	19.6	116	21.0	446	20.0
Q2	316	18.8	101	18.3	417	18.7
Q3	320	19.0	129	23.4	449	20.1
Q4	359	21.4	118	21.4	477	21.4
Q5	356	21.2	88	15.9	444	19.8
Total	1681	100	552	24.7	2233	100
Age group:						
20-	84	4.1	70	7.2	154	5.1
30-	321	15.7	337	34.6	658	21.8
40-	506	24.7	339	34.8	845	28.0
50-	540	26.4	179	18.4	719	23.8
60-	410	20.1	36	3.7	446	14.7
70+	185	9.0	13	1.3	198	6.6
Marital status:						
Never married	157	7.6	110	11.4	267	8.9
Married	1646	80.4	842	86.4	2488	82.3
Widowed	153	7.5	13	1.3	166	5.5
Divorced/Separated	90	4.5	9	0.9	99	3.3
Educational level:						
Primary and below	327	16.0	54	5.5	381	12.6
Above primary to secondary	1022	50.0	259	26.6	1281	42.4
Above secondary/Diploma	165	8.1	147	15.1	312	10.3
University and above	472	23.0	509	52.3	981	32.5
Do not know	60	2.9	5	0.5	65	2.2
Age (years)	**Mean**	**SE**	**Mean**	**SE**	**Mean**	**SE**
Total	59	0.51	41	0.69	53	0.52
Males	58	0.67	42	0.82	52	0.66
Females	61	0.76	40	1.26	56	0.81

3.1.2 Housing characteristics

The housing facilities in Bahrain are expected to be with high standard with almost all people having access to improved housing and source of sanitation. Table 3.1.2 shows that overall, 99.9% of households have durable cement wall, 99.8% have hard floor material and 97.8% have sewer connection with negligible differences between Bahraini and non-Bahraini houses. Figure 3.1.1 shows the sources of water that households obtained their drinking water from, by nationality and total. It shows that the purchased sweet water represents 36.06% of the water sources, 33.05% is from the purification system, 27.32% used bottled water and only 3.01% used public water system.

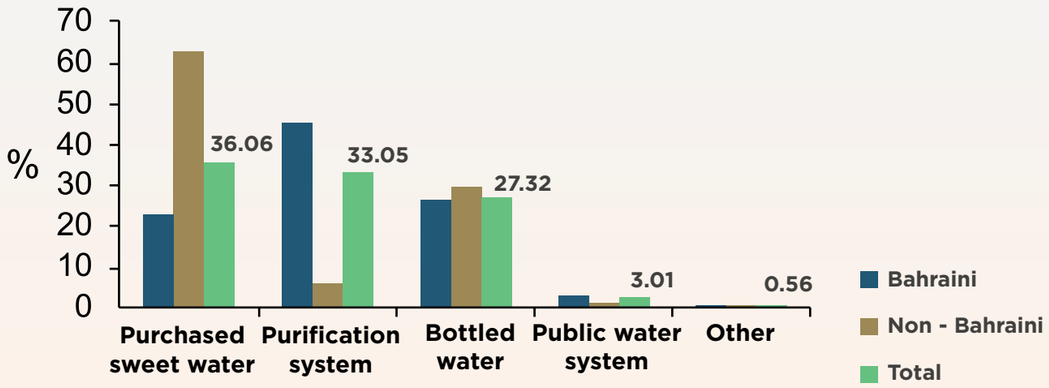


Figure 3.1.1: Sources of drinking water among households

The main source of drinking water among Bahraini citizens is the water from purification system (45.8%) followed by bottled water (26.3%), while the purchased sweet water (62.6%) followed by the bottled one (29.5%) is the main sources among the non-Bahraini.
Table 1.2 provides information on household ownership of the housing unit and crowdedness index. Housing unit ownership is much higher among Bahraini than among non-Bahraini households. About 88% of Bahraini households own their houses, while the majority of non-Bahraini (87.5%) rent the dwelling they live in.
The mean number of living rooms (excluding kitchen, bathrooms, garage, and store rooms) per house differs between Bahraini and non-Bahraini (4.5 rooms and 2.2 rooms, respectively). The mean number of persons per room varied between 1.36 persons/room among Bahraini houses to 1.58 persons/room among non-Bahraini. Crowdedness is more inside the non-Bahraini houses than inside the Bahraini houses, where the crowdedness index ≥ 3 is 9.2% among the non-Bahraini houses which declined to only 5.4% inside the Bahraini houses.

Table 3.1.2: Housing characteristics, ownership of dwelling and crowdedness by nationality, Bahraini NHS

House characteristics	Bahraini		Non-Bahraini		Total	
	N	%	N	%	N	%
Type of wall:						
Cement	2044	99.9	973	99.95	3017	99.90
Mud/Mud brick	2	0.1	0	0.00	0002	0.07
Others	0	0.0	1	0.05	0001	0.03
Floor:						
Hard floor	2040	99.7	974	100	3014	99.8
Earth floor	6	00.3	0	0.0	6	0.2
Water:						
Public water system	76	3.7	15	1.5	91	3.01
Bottled water	538	26.3	287	29.5	825	27.32
Purchased sweet water	479	23.4	610	62.6	1089	36.06
Purification system	937	45.8	61	6.3	998	33.05
Others	16	0.8	1	0.1	17	0.56
Sewer connection:						
Connected	1993	97.4	960	98.6	2953	97.8
Not connected	53	2.6	14	1.4	67	2.2
Dwelling:						
Owned	1451	70.9	36	3.7	1487	49.2
Rented	452	22.1	852	87.5	1304	43.2
Provided free by employer	6	0.3	84	8.6	90	3.0
Others	137	6.7	2	0.2	139	4.6
Crowdedness Index:						
<3	1936	94.6	884	90.8	2820	93.4
≥3	110	5.4	90	9.2	200	6.6
	Mean	SE	Mean	SE	Mean	SE
Number of Living rooms/house	4.5	0.9	2.2	0.8	3.7	0.8
Number of persons/room	1.36	0.6	1.58	2.1	1.43	1.1

3.1.3 Characteristics of the household population

Table 3.1.3a illustrates the household population characteristics by nationality. It is clear from the table that the population who are usual residents in the households interviewed during the survey included 13,772 individuals. Overall, the majority of the households' population are Bahraini (n=10,107) representing about 73.4 % of the studied population. No great variations were observed in the distribution of households' population by age groups between Bahraini and non-Bahraini. The table shows that nearly 8.5% of the households' population was less than 5 years old with the same percentage observed among both Bahraini and non-Bahraini (8.5% and 8.4% respectively); about 54% of them were below 30 years old. The smallest contribution was observed in the age group 70+ where 2.7 % and 0.8 % were among Bahraini and non-Bahraini respectively.

With regard to sex, males were higher among Bahraini households' population (50.1%), compared to non-Bahraini (46.2%).
Looking at the variation in the marital status, the table shows that 36.4% of the Bahraini households' population have never married and 57.2% are currently married. On the contrary, 23.6% of the non-Bahraini households' population have never married while 73.7% are currently married.

For the educational level, the table shows that non-Bahraini households' population attains higher educational levels more than the Bahraini population. For example, only 24% of the Bahraini households' population completed university or higher compared to 36.2% among the non-Bahraini households' population, and secondary education was attained by 10.6% of non-Bahraini households' population compared to 8.8% among the Bahraini. However, the percentage of non-Bahraini with no formal education or achieved less than primary education (15.6%) is higher than the percentage among Bahraini households' population (10.8%).

The Bahraini National Health Survey addressed a question to respondents regarding their health insurance coverage scheme. Table 3.1.3b shows that 18.2% of the respondents are covered by employer, which is more among non-Bahraini (43.9%) compared to only 8.8% among Bahraini. 3.5% of respondents are self-covered, which is more among non-Bahraini (10%) than among Bahraini (1.1%). The table indicates that 77.3% of the respondents are not covered by health insurance. The non-insurance among Bahraini (89.8%) is nearly double that of the non-Bahraini (42.9%) - Figure 3.1.2.

There are some remarkable variations by the other selected background characteristics. As for sex, as expected, the percentage of males insured by employer are much higher than among females as they are the main working group. For that, it is also expected that insurance by employer is higher in age groups (25-55 years old) than the younger and older age groups. Contrary to that is the absence of insurance. For self-paid insurance, the highest percentage is at age <5 years old than the older age groups, may be due to the pre-school age where parents are keen to insure their children.

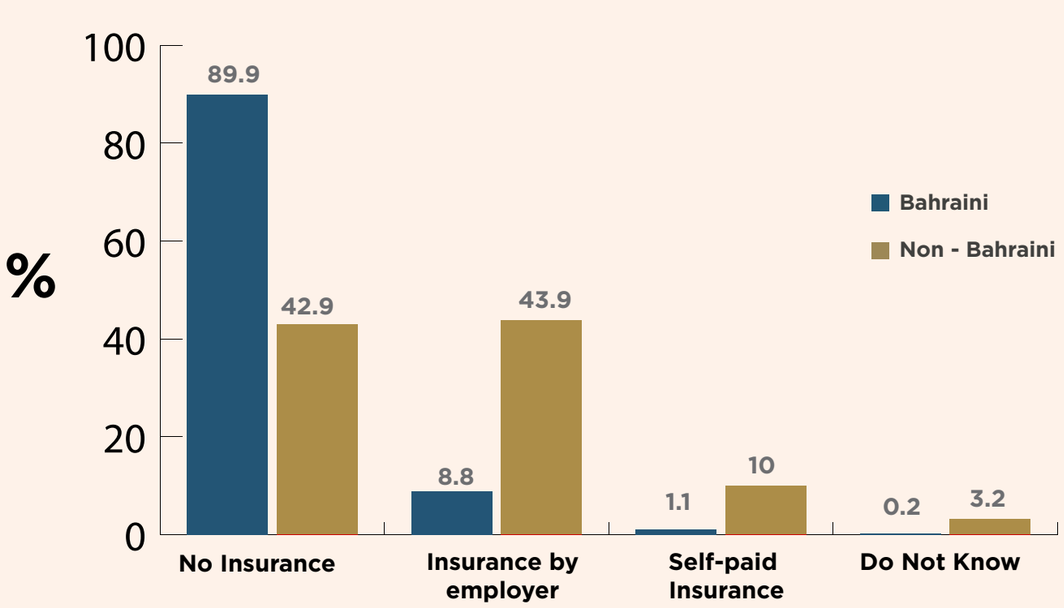


Figure 3.1.2: Health insurance coverage by nationality

Table 3.1.3a: Households population by background characteristics (n=13772) -NHS

Characteristics	Bahraini		Non-Bahraini		Total	
	N	%	N	%	N	%
Total	10107	73.4	3665	26.6	13772	100
Sex:						
Male	5061	50.1	1695	46.2	6756	49.06
Female	5046	49.9	1970	53.8	7016	50.94
Age group:						
0-4	856	8.5	308	8.4	1164	8.5
5-9	975	9.6	330	9.0	1305	9.5
10-14	1031	10.2	263	7.2	1294	9.4
15-19	1031	10.2	189	5.2	1220	8.9
20- 24	978	9.7	201	5.5	1179	8.6
25-29	859	8.5	364	9.9	1223	8.9
30-34	643	6.4	487	13.3	1130	8.2
35-39	634	6.3	439	12.0	1073	7.8
40-44	609	6.0	381	10.4	990	7.2
45-49	556	5.5	303	8.3	859	6.2
50-54	544	5.4	196	5.3	740	5.4
55-59	505	5.0	110	3.0	615	4.5
60-64	382	3.8	51	1.4	433	3.1
65-69	233	2.3	18	0.5	251	1.8
70-74	141	1.4	13	0.4	154	1.1
75-79	69	0.7	6	0.2	75	0.5
80+	61	0.6	6	0.2	67	0.5
Current marital status (n=10009):						
Never married	2634	36.4	653	23.6	3287	32.8
Married	4141	57.2	2035	73.7	6176	61.7
Widowed	261	3.6	39	1.4	300	3.0
Divorced/Separated	209	2.8	37	1.3	246	2.5
Educational level (n=10009):						
Primary and below	786	10.8	431	15.6	1217	12.2
Above primary to secondary	3928	54.2	877	31.7	4805	48.0
Above secondary/Diploma	633	8.8	292	10.6	925	9.2
University and above	1739	24.0	1056	38.2	2795	27.9
Do not know	159	2.2	108	3.9	267	2.7
	Mean	**SE**	**Mean**	**SE**	**Mean**	**SE**
Age (years)						
Total	59	0.51	41	0.69	53	0.52
Males	58	0.67	42	0.82	52	0.66
Females	61	0.76	40	1.26	56	0.81
Age when started working for pay	21	0.11	22	0.12	22	0.08
Working hours/day in the main job	8	0.05	8	0.05	8	0.05

Table 3.1.3b: Percent distribution of respondents by health insurance coverage by selected demographic characteristics, NHS

Characteristics	No insurance	Insurance by employer	Self-paid insurance	Do not know	N
	%	%	%	%	
Nationality					
Bahraini	89.8	8.8	1.1	0.2	10107
Non-Bahraini	42.9	43.9	10.0	3.2	3665
Total	77.3	18.2	3.5	1.0	13772
Sex					
Male	75.4	21.1	2.7	0.8	6756
Female	79.2	15.4	4.2	1.2	7016
Age group					
0 - 4	78.6	14.0	5.7	1.7	1164
5 - 9	81.1	12.7	4.5	1.7	1305
10 - 14	81.2	13.5	4.1	1.2	1294
15 - 19	86.1	9.1	3.8	0.9	1220
20 - 24	85.1	10.6	3.3	1.0	1179
25 - 29	74.5	21.5	3.2	0.9	1223
30 - 34	64.3	31.5	2.8	1.3	1130
35 - 39	64.5	30.8	4.0	0.7	1073
40 - 44	65.5	30.9	2.9	0.8	990
45 - 49	66.4	29.3	3.3	1.1	859
50 - 54	77.6	18.2	3.6	0.6	740
55 - 59	84.0	13.6	1.4	1.0	615
60 - 64	92.8	6.4	0.8	0.0	433
65 - 69	94.8	3.9	1.3	0.0	251
70 - 74	95.5	2.5	2.0	0.0	154
75+	97.5	1.9	0.6	0.0	142

3.1.4 Individual respondent's characteristics (n=3020)

Table 1.4a presents the distribution of eligible respondents (18 and above years) by background characteristics. Nearly 68% of respondents are Bahraini, and 32.3% are non-Bahraini. Overall, 10% of participants are under 30 years old and 40% of respondents are between 30 and 44 years old. Non-Bahraini respondents are younger than Bahraini respondents (11.9 % of non-Bahraini are under 30 years compared with 9.9% for Bahraini). The mean age among the Bahraini responders was 47.51 years (SE = 0.30), while it was 41.16 years (SE = 0.33) among the non-Bahraini. Overall, male respondents represent 57.7% which decreased to 53.1% among Bahraini and increased to 67.3% among non-Bahraini. About 9% have never married, 82.3% are currently married, and 8.8% are widowed or separated/divorced. Overall, 11.7% of respondents are with no education with almost same percentage with secondary education (11%). Differentials with nationality are clear, where 6.3% of non-Bahraini respondents are with Primary and below education compared with 14.3% among Bahraini. Nearly half of the non-Bahraini respondents are with university or more education compared with only 27.2% among Bahraini respondents.

Table 3.1.4a: Characteristics of the survey respondents by background characteristics-NHS

Characteristics	Bahraini		Non-Bahraini		Total	
	N	%	N	%	N	%
Total	2046	67.7	974	32.3	3020	100
Sex:						
Male	1085	53.1	654	67.3	1739	57.7
Female	961	46.9	320	32.7	1281	42.3
Age group:						
18-29	203	9.9	116	11.9	319	10.5
30-44	696	34.0	510	52.4	1206	40.0
45- 59	708	34.6	306	31.4	1014	33.6
60-69	329	16.1	31	3.2	360	11.9
70+	110	5.4	11	1.1	121	4.0
Current marital status:						
Never married	157	7.6	110	11.4	267	8.9
Married	1646	80.4	842	86.4	2488	82.3
Widowed	153	7.5	13	1.3	166	5.5
Divorced/Separated	90	4.5	9	0.9	99	3.3
Highest educational level:						
Primary and below	293	14.3	61	6.3	354	11.7
Above primary to secondary	962	47.0	275	28.2	1237	41.0
Above secondary/Diploma	186	9.1	145	14.9	331	11.0
University and above	557	27.2	483	49.6	1040	34.4
Do not know	48	2.4	10	1.0	58	1.9
Age (years)	**Mean**	**SE**	**Mean**	**SE**	**Mean**	**SE**
Total:	47.51	0.30	41.16	0.33	45.46	0.24
Males	47.77	0.41	41.96	0.39	45.59	0.30
Females	47.22	0.45	39.51	0.59	45.29	0.38

Work status of respondents

Overall, 71.5 % of the respondents have ever worked, of which 71.1% are currently working in the last 7 days prior to the survey. Of the 1401 Bahraini who answered the question about current work, 59.7% said that they are currently working in the last 7 days prior to the survey compared to 91.9% among the non-Bahraini respondents (n=767) - (Figure 3.1.3).

Reasons to stop working reported by respondents are mainly retirement (59%), homemaker/ family related (17.1%), vacation and sick leaves (7.2%), while 5.4% reported that they can't find job (Figure 3.1.4). The main cause of currently not working among Bahraini was retirement, while taking care of family members was the main cause among non-Bahraini. "Can't find a job" was mentioned more by non-Bahraini (17.8%) than Bahraini (4.1%).

Table 3.1.4b presents employment type of those who have ever worked by nationality. Overall, respondents who have currently worked are employed by private sector (51.8%) more than the public sector (40.9 %), 4.5% are self-employed, and only 1.7 % are employed by joint sector. Slightly above half of Bahraini respondents (53.3%) are working in public sector, while three quarters of non-Bahraini (75.4%) are working in the private sector. For the added benefits received besides the current payment in cash or in kind, overall, 38.3 % received pension, 34.1% received medical benefits, 17.9 % received cash benefits, while 7.3% received food or provisions. Variation exists by the respondents' nationality as 50.8% of the Bahraini received pension compared to only 5.1% among non-Bahraini, while 63.3% of the non-Bahraini received benefits for medical services or health care compared to only 23.1% among Bahraini. For age when started working for pay, the overall mean age was 22 years (SE = 0.08) with limited differentials by nationality and the mean working hours/day in the main job was 8 hours (SE = 0.05) with no differentials by nationality also.

Table 3.1.4b: Work status and type of employment of respondents according to background characteristics

Characteristics	Bahraini		Non-Bahraini		Total	
	N	%	N	%	N	%
Total	2046	67.7	974	32.3	3020	100
Ever worked:						
Yes	1401	68.1	767	78.4	2168	71.5
No	645	31.9	207	21.6	852	28.5
Current working in the last 7 days (n=2168):						
Yes	836	59.7	705	91.9	1541	71.1
No	565	40.3	62	8.1	627	28.9
Causes of currently not working (n=627):						
-Cannot find a job	23	4.1	11	17.8	34	5.4
-Do not have economic need	10	1.7	0	0.0	10	1.6
-Have to take care of family member	4	0.7	3	4.8	7	1.1
-Health problems/disabled	23	4.1	0	0.0	23	3.7
-Homemaker/caring for family	83	14.6	24	38.7	107	17.1
-In studies/training	2	0.4	0	0.0	2	0.3
-Retired/old to work	362	64.1	8	12.9	370	59.0
-Vacation/sick leave	32	5.7	13	21.0	45	7.2
-Others	26	4.6	3	4.8	29	4.6

Characteristics	Bahraini		Non-Bahraini		Total	
	N	%	N	%	N	%
Employer type of current main job (2163):						
-Public sector	745	53.3	133	18.1	878	40.9
-Private sector	547	39.0	581	75.4	1128	51.8
-Joint sector	35	2.5	2	0.2	37	1.7
-Self-employed	63	4.5	34	4.5	97	4.5
-Others	10	0.7	13	1.8	23	1.1
Added benefits (n=2461):						
- Retirement or pension	908	50.8	34	5.1	942	38.3
- Medical services	413	23.1	427	63.3	840	34.1
- Food or provisions	114	6.4	66	9.7	180	7.3
- Cash bonuses	324	18.1	117	17.4	441	17.9
- Others	28	1.6	30	4.5	58	2.4
	Mean	**SE**	**Mean**	**SE**	**Mean**	**SE**
Age when started working for pay	21	0.11	22	0.12	22	0.08
Working hours/day in the main job	8	0.05	8	0.05	8	0.05

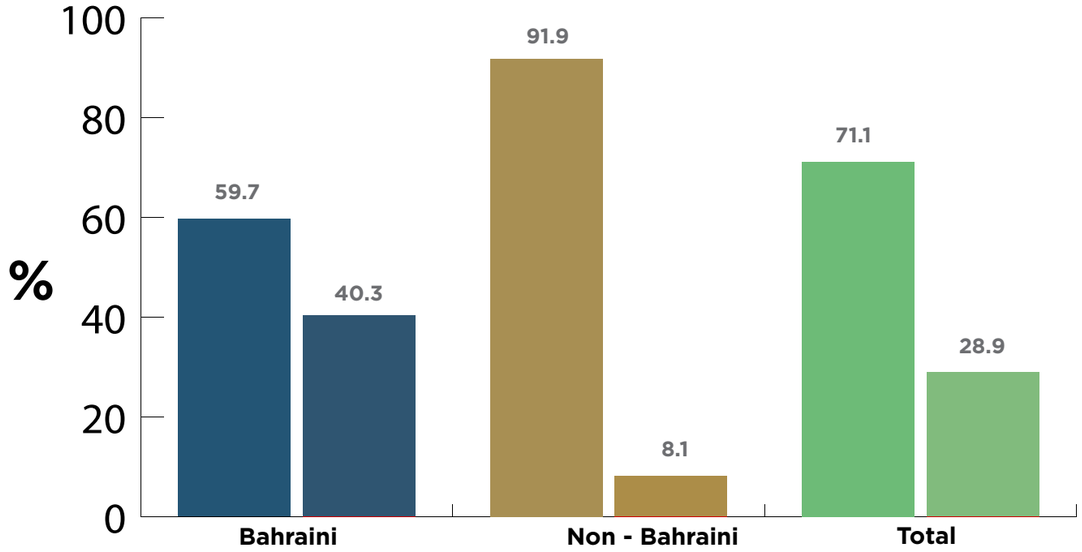


Figure 3.1.3: Percentage of respondents who are currently working by nationality

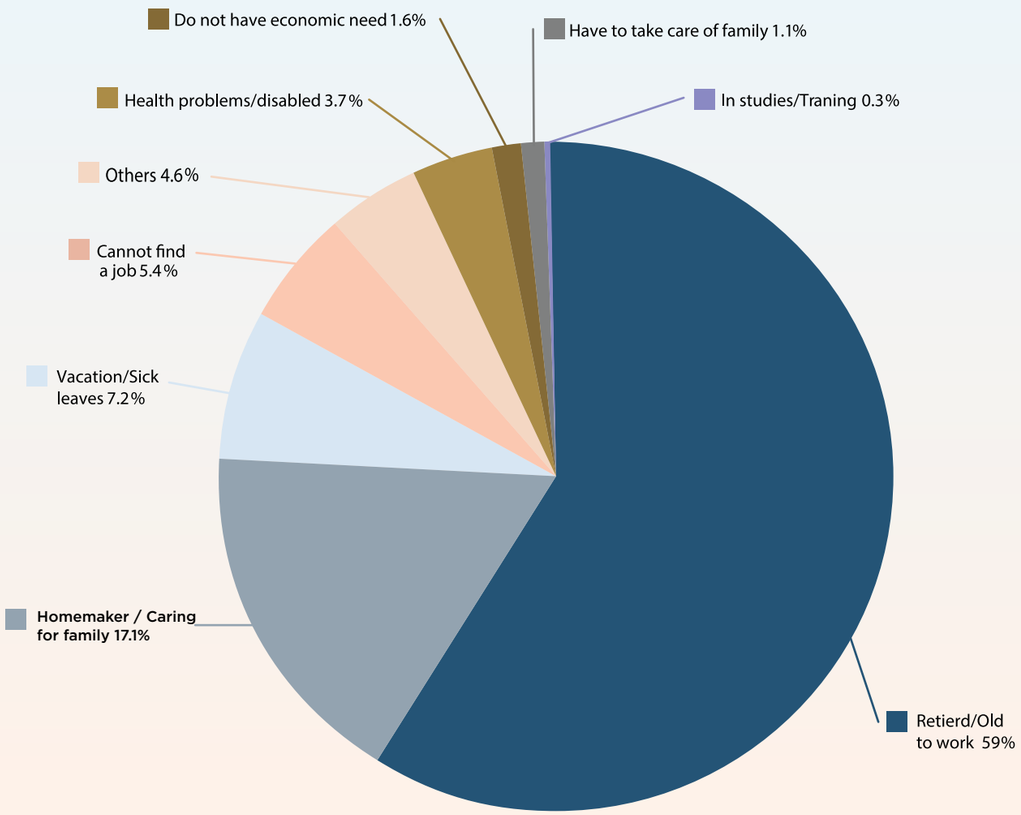


Figure 3.1.4: Reasons of discontinuation of work among respondets

Household income

The NHS collected information on monthly income and sources by background characteristics and the results are presented in Table 3.1.4c. Overall, 77.8% are receiving wage salary, while trading and business is the main source of income for 5.9%, pension or benefits (26.9%) and rents/interests/dividends (4%). Some respondents have income from more than one source and hence the total adds up to more than 100 percent. In general, the median monthly income per household is 800 BD.

The table shows differences by background characteristics; male-headed households are more likely to report that their main source of income is wage or salary from jobs (82.2%), less likely to report income from enterprises and freelance occupations or rental of property as a source of income (6.6% and 4.4% respectively), and about one quarter reported pension retirement fund and social insurance as their main source of income. The same trend is observed among females but by different percentages for the wages (58.2%), enterprises and freelance occupations (5.7%), rental of property (3.5%) and pension retirement fund and social insurance (37.4%). The median monthly income among male-headed households (800 BD) is higher than among female-headed households (500 BD).

Non-Bahraini are more likely to have their main source of income as “wage/salary” (91.9%) compared with (76.6%) for Bahraini; however, the median income of non-Bahraini households is less than Bahraini households (554 BD vs. 900 BD respectively).
There is striking variation in the median income of households by wealth quintile, where it is 290 BD in the lowest wealth quintile compared to 800 BD in the third quintile, then it jumps to 2440 BD in the fifth (highest) quintile.

Education of household head is associated with the source and volume of monthly income. Households whose head is with primary or below education are less likely to have wage or salary (61.5%) than educated head, where more than 85% of households whose heads are university graduates or higher have wage or salary as their income. The median income increased with education. The median income for household head with education classified as illiterate is 500 BD, increasing to 700 BD for those with primary and below education, then humps to 1100 BD for those with university education.

For the marital status, as expected, the highest median income was among married (822 BD) and the least was among singles (300 BD). Pension and social insurance was the highest source of income among widowed.

Table 3.1.4d indicates that, overall, the mean monthly spending per household is 868.1 BD. The mean monthly spending among Bahraini households is higher than among non-Bahraini households (889.6 BD vs.773.8 BD respectively). The mean overall monthly spending of lowest wealth quintile (Q1) households is only 429.2 BD compared to 1646.2 BD for the highest wealth quintile (Q5).

Table 3.1.4c: Percentage distribution of households by income sources, and median monthly household income, according to selected background characteristics, NHS

Characteristics	Median monthly income by BD	Income Sources			
		Wages/ salary from Job	Net income from enterprises and freelance occupations	Net income from rental of property	Pension retirement fund and social insurance
		%	%	%	%
Total	800	77.8	5.9	4.30	26.9
Nationality					
Bahraini	900	76.6	7.3	6.09	42.5
Non-Bahraini	554	91.9	4.6	1.10	0.90
Sex					
Male	800	82.2	6.6	4.4	25.6
Female	500	58.2	5.7	3.5	37.4
Marital status					
Never married	300	82.5	4.3	1.4	16.5
Married	822	82.3	6.6	4.4	25.3
Widowed	500	47.5	5.2	5.6	60.0
Divorced/Separated	620	56.8	9.7	2.2	25.8
Educational status					
Primary and below	500	61.5	3.8	5.1	54.3
Above primary to secondary	700	79.0	7.3	3.3	30.8
Above secondary/ Diploma	800	81.9	7.0	6.2	20.9
University and above	1100	87.3	6.5	4.4	13.4
Do not know	595	60.3	1.6	7.7	37.1

Characteristics	Median monthly income by BD	Income Sources			
		Wages/ salary from Job	Net income from enterprises and freelance occupations	Net income from rental of property	Pension retirement fund and social insurance
		%	%	%	%
Wealth Quintiles					
Q1	290	64.4	4.2	1.4	37.1
Q2	500	77.6	6.3	1.1	28.9
Q3	800	82.6	7.5	2.0	27.6
Q4	1200	86.7	8.5	4.9	30.9
Q5	2440	93.0	12.4	17.6	35.7

Table 3.1.4d: Households average overall monthly spending by nationality and wealth quintiles

Characteristics	Overall monthly spending	N
	Mean (BD)	
Total	868.1	1687
Nationality		
Bahraini	889.6	1378
Non-Bahraini	773.8	309
Wealth Quintiles		
Q1	429.2	220
Q2	507.2	236
Q3	654.7	278
Q4	943.8	331
Q5	1646.2	324

Household health expenditure

Information was collected concerning household health expenditure on different items. For better recall data were collected using different reference period; for regular expenditure on health such as health care personnel fees, drugs, ambulance, diagnostic and laboratory tests, 30 days reference time was used while 12 months reference period was used for other health-related items such as prescription glass, hearing aids canes, prosthetic devices and hospitalization. Results of these questions are presented in Tables 3.1.4e-3.1.4g.

Table 3.1.4e presents the regular health expenditure for households by some background characteristics. Overall, the highest mean expenditure was for dentistry (58 BD) followed by the fees for medical registration and consultation (27.7 BD), then drugs (18 BD). Differentials are clear between Bahraini and non-Bahraini where Bahraini spent much more than non-Bahraini. In general, males spent on health more than females and there is an increase in health expenditures with the increase in wealth quintiles.

Table 3.1.4f presents the occasional health expenditures for households in the last 12 months by some background characteristics. Overall, the highest mean expenditure was for the health-related items (48.4 BD) followed by fees of overnight stay in hospitals (36 BD). The least mean expenditure was for the health insurance (7 BD). Differentials are clear between Bahraini and non- Bahraini where Bahraini spent much more than non-Bahraini. Males spent

on health more than females, and there is an increase in health expenditures with the increase in wealth quintiles, although this trend is not clear for long-term care facility use. The highest mean was also among those belonging to Q5.

Data about the sources of funding for the health care services were collected during the NHS among those who had health expenditures. Table 3.1.4g shows the sources of financing health expenditures by income categories in the last 12 months prior to the survey. The vast majority of households reported that they paid their health expenditures through their current income (85.3%), (13.7%) from savings, (8.5%) borrowed from relatives or friends not including family members, (9.1%) borrowed from financial institutions (such as banks) and (3.9%) had to sell some owned items to cover their health expenditures. Interestingly, health insurance contributed to only 9.5% of the financial sources of health spending.

The table also shows variations in the sources of health financing by selected background characteristics. In general, current income is the main source of health financing across all subgroups with limited variations. It is obvious from the table that Bahraini households are more likely than non-Bahraini households to borrow or sell owned items to cover their health spending. However, data indicated that wealthier households are more likely to spend on health from savings and insurance than those in Q1. Households falling in the lowest wealth quintile were the most likely to sell items for health care spending; 5.8% of households in Q1 had to sell items and 15.4% had to borrow compared to only 3.3% in Q5 who had to sell items and 5.5% who had to borrow.

Table 3.1.4e: Mean regular health expenditures among households in the last 30 days (BD) by nationality, sex and wealth quintiles

Characteristics	Physicians	Traditional healer	Diagnostic/lab tests	Medications	Dentists	Ambulance	Others	N
	Mean	Mean	Mean	Mean	Mean	Mean	Mean	
Total	27.7	3	13.5	18	58	0	6	3020
Nationality								
Bahraini	37.1	3	18.2	23	83	0	9	2046
Non-Bahraini	8.2	1	3.5	6	4	0	1	974
Sex								
Male	28.3	2	13.1	18	60	0	7	2634
Female	24.1	3	16.0	18	43	0	1	386
Wealth Quintiles								
Q1	21.0	3	7.5	13	41	0	1	446
Q2	17.7	2	12.2	15	64	0	24	417
Q3	27.8	2	13.5	18	46	0	6	449
Q4	35.5	2	16.4	21	58	0	5	477
Q5	49.9	3	20.2	27	99	0	7	444

Table 3.1.4f: Mean occasional health expenditures among households in the last 12 months (BD) by nationality, sex and wealth quintiles

Character	Health insurance	Health-related items	Overnight stay in a hospital	Long-term care facility	N
	Mean	Mean	Mean	Mean	
Total	7	48.4	36.0	32.34	3020
Nationality					
Bahraini	7	68.8	49.5	40.48	2046
Non-Bahraini	6	5.9	7.7	15.31	974
Sex					
Male	8	52.4	33.6	34.10	2634
Female	0	21.9	52.0	20.64	386
Wealth Quintiles					
Q1	1	20.9	15.5	27.86	446
Q2	6	35.0	28.6	3.21	417
Q3	4	31.2	39.7	5.54	449
Q4	3	36.8	52.1	35.86	477
Q5	15	162.5	89.3	81.00	444

Table 3.1.4g: Percentage distribution of financial sources used by households to pay for any and all health expenditures in the last 12 months by nationality, sex and wealth quintiles

Character	Current income	Savings	Health insurance	Sold items	Relatives/ friends	Loans	Others
	%	%	%	%	%	%	%
Total	85.3	13.7	9.5	3.9	8.5	9.1	3.9
Nationality							
Bahraini	85.6	14.3	8.1	4.3	9.7	10.7	4.4
Non-Bahraini	83.8	11.2	15.4	2.3	3.3	2.3	1.7
Sex							
Male	85.1	13.6	10.2	3.8	7.7	9.4	4.0
Female	86.4	14.8	4.9	4.6	13.4	7.7	3.5
Wealth Quintiles							
Q1	79.8	9.0	2.0	5.8	15.4	5.4	4.5
Q2	89.5	9.4	8.5	4.2	10.9	6.7	2.2
Q3	89.4	13.1	5.7	4.9	8.6	11.1	3.9
Q4	89.6	13.0	10.9	3.6	6.7	11.1	5.7
Q5	90.4	19.9	16.4	3.3	5.5	7.8	3.5

3.2 HEALTH STATUS OF THE RESPONDENTS

The working definition of health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (WHO, 1947)6 is distinct from diagnostic categories and it may be expressed as the degree of conformity to an accepted standard of health for different demographic or social groups, such as different age groups, sex, wealth quintiles with normal limits of variation. These standards may vary between individuals, households and groups within the population in the way that some individuals may have higher expectations of health than others. However, in general, health refers to the psychological and physical functions that are essentially the attributes of individuals.

The Bahraini National Health Survey collected information on eight domains of health, while overall general health ratings were also investigated, encompassing all domains. The eight domains of health that were investigated in the survey are: Mobility, Self-care, Pain and discomfort, Cognition, Interpersonal activities, Sleep and energy, Affect and Vision.

The majority of these domains were investigated through two questions on the questionnaire, although some, such as self-care, pain and discomfort, interpersonal activities and vision had more questions than this. For each question on the domain the respondents were asked about the amount of difficulty that they had with various aspects of health and were asked to rate their difficulties on a five-point Likert scale, from none (no difficulty), mild, moderate, severe and extreme, and the rating was obtained for the last 30 days prior to the survey.

3.2.1 General health rating

Overall health: Respondents were asked to rate their health on the day of the interview, from very good to very bad. Table 3.2.1 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 very good or good, with 39.2% and 48.1% in these categories respectively. About 11% of the respondents rated their health as moderate, while only 2.1% stated that their health was either bad or very bad (Figure 3.2.1). Non-Bahraini respondents were more likely to rate their health as good to very good (94.8%) than Bahraini (83.8%). Males were much more likely to rate themselves healthy than females, with 90.2% of the males are in the top two categories, compared with 83.4% of females. The proportion of females who stated that their health was moderate or bad to very bad was higher than the proportion of males in the same categories.
As expected, there is a relationship between age and self-rated health, with the highest

percentage of those who said their health was very good in the youngest age groups, and the lowest in the older age groups. The percentage of respondents in the moderate health category increased from 6.1% among age group (18–29 year) to about 33% among those in the age group (70-79 years), and to 40.7% in the age group (80 years and above). In addition, the percentage of people who stated that their health was bad or very bad increases by age. If we take the very good and good categories collectively, we will observe minimal differences between wealth quintiles while the bad to very bad rating is decreasing from Q1 to Q5.

Table 3.2.1: General rating of current health

Characteristics	Very good	Good	Moderate	Bad	Very bad	N
	%	%	%	%	%	
Total	39.2	48.1	10.6	1.9	0.2	
Nationality:						
Bahraini	41.3	42.5	13.4	2.6	0.2	2046
Non-Bahraini	34.9	59.9	4.6	0.4	0.2	974
Sex:						
Male	41.5	48.7	8.2	1.5	0.1	1739
Female	36.2	47.2	13.8	2.5	0.3	1281
Age group:						
18-29	57.2	36.7	6.1	0.0	0.0	319
30-44	43.6	48.4	6.7	1.2	0.1	1206
45-59	36.3	51.1	10.1	2.4	0.1	1014
60-69	26.0	49.4	21.0	3.3	0.3	360
70-79	13.2	47.6	32.8	5.3	1.1	94
80+	9.0	36.5	40.7	9.2	4.6	27
Wealth Quintiles:						
Q1	31.9	51.3	14.2	2.1	0.5	432
Q2	42.2	45.3	10.0	2.1	0.4	461
Q3	39.1	46.4	12.0	2.5	0.0	445
Q4	44.9	42.1	11.7	1.3	0.0	451
Q5	48.9	39.1	10.6	1.1	0.3	444

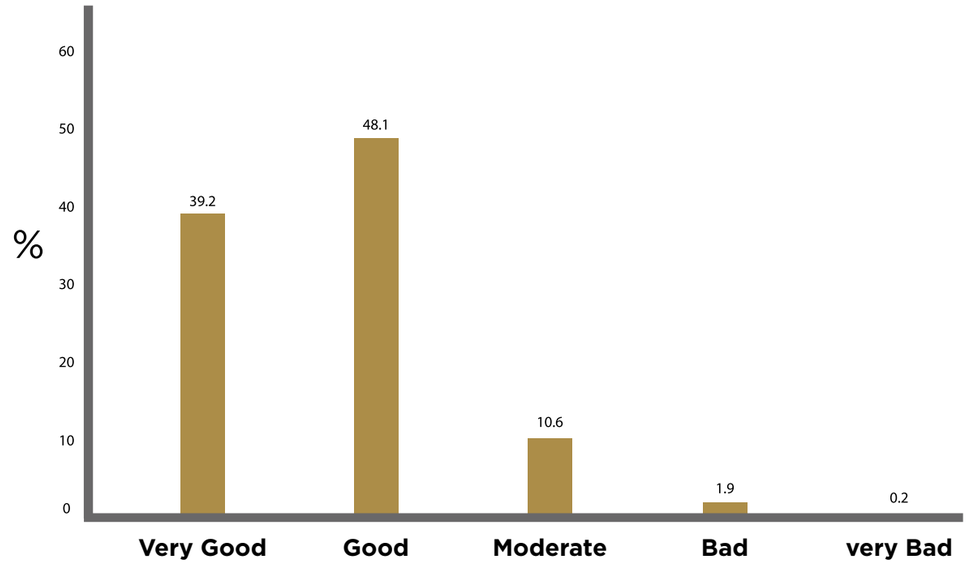


Figure 3.2.1: Overall self-rating of today health of the respondents

3.2.2 Difficulty in work or household activities

A further aspect was investigated with respect to the general health of the respondents regarding difficulties with work or household activities and mobility. The respondents were asked to rate their difficulties on a scale from no difficulty to extreme difficulty or cannot do these activities. The results are shown in Table 3.2.2.a stratified by nationality and sex and in table 3.2.2b stratified by nationality and age.

Table 3.2.2a shows that about 72% of the overall respondents reported that they had no difficulties with work or household activities, which is higher among non-Bahraini (87.6%) compared to Bahraini (64.1%). While 16.4% had only mild difficulties; the Bahraini respondents reported higher percentage (20.1%) than the non-Bahraini (8.8%). Therefore, there are about 12% of people who reported that they had from moderate to severe and extreme severe difficulties with these aspects of life which is 4 times higher among Bahraini (15.8%) than non-Bahraini (3.6%).

Males were more likely to report that they had no difficulty with these tasks compared with females. Almost 79% of males stated that they have no difficulty, which is 17% higher than the percentage reported by females (62%). Both males and females among non-Bahraini reported higher percentages of no difficulty compared to Bahraini respondents. For severe and extreme severe categories, Bahraini respondents reported higher percentage (5.4%) than non-Bahraini (0.9%).

With regard to age, table 3.2.2b shows that the highest percentage of no difficulty was observed in the age group (18-29 years) in both Bahraini and non-Bahraini which has gradually decreased in the higher age groups. The percentages in the age groups 18-, 30-, 45-, 60- & 70- of non-Bahraini are higher than the corresponding percentages in Bahraini age groups. For the age group 80+, 15.8% of the Bahraini respondents reported severe to extremely severe difficulty in doing these activities.

3.2.3 Mobility

Two questions were asked regarding the mobility of the individual during the 30 days prior to the interview. The questions were:

- How much difficulty did you have with moving around?
- How much difficulty did you have in performing vigorous activities (such as cycling or working in the farm)?

The first question was asked to assess whether respondents generally faced any difficulty in moving in and around their houses, while the second was about vigorous activities which require hard physical effort, discomfort or pain and cause large increases in breathing or heart rate. The results for both questions on mobility are shown in Tables 3.2.2.a and 3.2.2.b.

Difficulty in moving around

The vast majority (81.4%) of respondents stated that they did not have any difficulties with moving around. The percentage of people who stated that they had mild difficulty was 11.3%, while the percentages with moderate, severe or extreme severe difficulty were reported by only 5%, 2% and 0.4% respectively. The differences between population subgroups were as those for the general health rating, with males, non-Bahraini and the younger aged having the highest percentage of individuals reporting that they had no difficulty with moving around.

Difficulty with vigorous activities

as with the difficulty in moving around, fewer people stated that they had difficulties with vigorous activities; however, 73.1% of the respondents stated that they had no difficulty with vigorous activities. The percentage of respondents who said that they had mild difficulties was 14.1%, moderate difficulties was 6.7%, severe difficulties was 3.8%, while 2.2% stated that they had extreme difficulty or that they could not do vigorous activities.
"No difficulty" to "mild difficulty" in doing vigorous activities was reported more by non-Bahraini, while the other categories were reported more by Bahraini.

With regard to sex, only the no difficulty category in doing vigorous activities was higher among males, while all the other categories, from mild to extreme severe, were higher among females, while 3.2% of females stated that they cannot do these vigorous activities compared to 1.6% of males.

Table 3.2.2b shows that, as expected, there was a relationship between age and doing vigorous activities. For each increase in age group, the proportion of respondents with no difficulty decreased, while the proportion in all other categories of difficulty increased. The highest percentage of "cannot do these activities" was observed in the age group (80 years and above) among Bahraini (29.2%).

Table 3.2.2a: Difficulty in doing everyday activities in the last 30 days stratified by nationality and sex

Difficulties in doing activities in the last 30 days	Bahraini			Non Bahraini			Total		
	Female	Male	Total	Female	Male	Total	Female	Male	Total
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
In work or household activities:									
None	55.9	71.4	64.1	81.0	90.8	87.6	62.1	78.7	71.7
Mild	24.8	16.0	20.1	10.9	7.8	8.8	21.3	12.9	16.4
Moderate	12.6	8.5	10.4	5.6	1.2	2.7	10.9	5.7	7.9
Severe	5.6	3.8	4.7	2.5	0.2	0.9	4.9	2.5	3.5
Extreme severe /cannot do	1.1	0.3	0.7	0.0	0.0	0.0	0.8	0.2	0.5
Total	**961**	**1085**	**2046**	**320**	**654**	**974**	**1281**	**1739**	**3020**
In moving around:									
None	68.0	81.6	75.2	91.4	95.7	94.3	73.9	86.9	81.4
Mild	19.2	10.7	14.6	6.0	3.5	4.3	15.8	7.9	11.3
Moderate	8.6	5.3	6.9	1.6	0.8	1.1	6.9	3.6	5.0
Severe	3.7	1.9	2.8	1.0	0.0	0.3	3.0	1.2	2.0
Extreme severe /cannot do	0.5	0.5	0.5	0.0	0.0	0.0	0.4	0.3	0.4
Total	**961**	**1085**	**2046**	**320**	**654**	**974**	**1281**	**1739**	**3020**
In doing vigorous activities:									
None	61.2	69.7	65.7	86.4	89.8	88.7	67.5	77.3	73.1
Mild	19.4	15.0	17.0	7.1	8.4	8.0	16.3	12.5	14.1
Moderate	9.7	8.3	9.0	3.7	1.4	2.1	8.2	5.7	6.7
Severe	6.2	4.5	5.3	0.6	0.4	0.5	4.8	2.9	3.8
Extreme severe /cannot do	3.5	2.5	3.0	2.2	0.0	0.7	3.2	1.6	2.2
Total	**961**	**1085**	**2046**	**320**	**654**	**974**	**1281**	**1739**	**3020**

Table 3.2.2b : Difficulty in doing everyday activities in the last 30 days stratified by nationality and age

Difficulties in doing activities in the last 30 days	Bahraini age groups						Non-Bahraini age groups					
	Age group						Age group					
	18-	30-	45-	60-	70-	80+	18-	30-	45-	60-	70-	80+
	%	%	%	%	%	%	%	%	%	%	%	%
In work or household activities:												
None	75.5	69.5	64.7	54.6	38.3	18.5	90.8	89.0	86.1	80.8	51.3	0.0
Mild	16.3	18.1	21.8	21.5	24.8	20.0	6.2	7.5	10.7	16.2	29.2	0.0
Moderate	5.7	9.6	8.5	15.3	21.1	24.2	0.9	2.2	3.2	3.0	19.5	100
Severe	2.0	2.8	4.5	8.0	11.3	22.9	2.2	1.3	0.0	0.0	0.0	0.0
Extreme severe	0.5	0.0	0.4	0.6	4.5	14.3	0.0	0.0	0.0	0.0	0.0	0.0
Total	**203**	**696**	**708**	**329**	**84**	**26**	**116**	**510**	**306**	**31**	**10**	**1**
In moving around:												
None	90.4	86.0	74.0	59.4	38.8	14.0	95.9	95.3	94.4	87.5	51.3	0.0
Mild	7.1	8.1	17.8	22.2	26.7	23.5	3.1	3.4	4.6	12.5	29.2	0.0
Moderate	2.1	4.1	5.6	12.5	23.4	29.6	0.0	1.2	1.0	0.0	9.7	0.0
Severe	0.4	1.8	2.2	5.0	8.6	18.5	1.0	0.0	0.0	0.0	9.7	100
Extreme severe	0.0	0.0	0.4	0.9	2.5	14.3	0.0	0.0	0.0	0.0	0.0	0.0
Total	**203**	**696**	**708**	**329**	**84**	**26**	**116**	**510**	**306**	**31**	**10**	**1**
in doing vigorous activities												
None	86.2	77.5	63.5	44.5	33.6	18.5	94.3	90.9	85.5	74.6	61.1	0.0
Mild	9.2	12.7	20.2	23.5	21.5	9.4	3.8	6.4	10.8	19.2	19.5	0.0
Moderate	2.1	6.1	10.0	14.2	19.1	9.8	0.0	2.1	2.7	6.2	0.0	0.0
Severe	1.5	3.2	3.8	11.8	12.7	33.1	1.0	0.2	0.7	0.0	0.0	0.0
Extreme severe	1.0	0.5	2.5	6.0	13.1	29.2	0.9	0.4	0.3	0.0	19.5	100
Total	**203**	**696**	**708**	**329**	**84**	**26**	**116**	**510**	**306**	**31**	**10**	**1**

3.2.4 Self-care

three questions were asked about the ability of individuals to care for themselves in the last 30 days prior to the interview. These were:

- How much difficulty did you have with self-care, such as washing or dressing yourself?
- How much difficulty did you have in taking care of and maintaining your general appearance (e.g. grooming, looking neat and tidy)?
- How much difficulty did you have in staying by yourself for a few days (3 to 7 days)?

These questions were designed to obtain information about a wide range of activities such as washing and dressing which include a large amount of dexterity and upper and lower body movement, maintaining the general appearance and staying by yourself for a few days. The results for these three questions are shown in tables 3.2.3a (stratified by nationality and sex) and 3.2.3b (stratified by nationality and age).

Washing and dressing

table 3.2.3a reveals that the vast majority (95.5%) of the respondents said that they had no difficulty at all regarding washing or dressing. In comparison, almost 0.7% stated that they had severe or extreme severe difficulties or that they could not wash or dress themselves. Differences between Bahraini and non-Bahraini are clear, where non- Bahraini reported less difficulty than Bahraini. There were minimal sex differences relating to this aspect of self-care, with 96.7% of males reporting no difficulties with washing or dressing compared to 93.7% of females stated the same. Minimal difference between males and females was reported in those that had moderate, severe or extreme severe difficulties, with higher percentage of females in these categories.

Table 3.2.3b shows that age is also associated with the ability to wash or dress, with the proportion of people with severe or extreme severe difficulties increasing as age increased. The highest percentage of extreme severe difficulty in doing these activities was among age group (80 years and above) among Bahraini (9.6%).

Taking care of and maintaining general appearance

The results for difficulties with taking care of and maintaining general appearance are very similar to the results obtained for washing and dressing (table 3.2.3a). In general, 95.7% of respondents stated that they had no problems with this aspect of care, while 4.3% said that they had moderate, severe and extreme severe difficulties or could not do it themselves. The percentage of no difficulty was higher among non-Bahraini, males and lower age groups (Table 3.2.3.b).

Staying by one's self for a few days (3-7 days)

Table 3.2.3a shows that when respondents were asked whether they had difficulty staying by their own for a few days, 90.7% of the respondents said that they had no difficulty at all regarding staying by themselves for a few days. In comparison, 3.7% stated that they had severe or extreme severe difficulties or that they could not stay by themselves. There are 7% difference between males and females relating to this aspect of self-care, with 93.7% of males reporting no difficulties, while only 86.5% of females stated the same. There was minimal difference between males and females in those that had moderate, severe or extreme severe difficulties, with a higher percentage of females in these groups.

Differences between Bahraini and non-Bahraini indicated that non-Bahraini reported less difficulty than Bahraini (96.4% of non-Bahraini reported no difficulty in comparison with 87.9% of Bahraini). Bahraini were three times more to report that they had severe to extreme severe difficulties to stay by themselves for a few days than non-Bahraini.

Age was also associated with the ability to stay by themselves. Table 3.2.3b reveals that among Bahraini, the proportion of people with no difficulty decreased as age increased, while severe or extreme severe difficulties increased as age increased. The reverse was observed among non-Bahraini.

Table 3.2.3a: Difficulty with 'self-care' in the last 30 days stratified by nationality and sex

Difficulties in doing activities in the last 30 days	Bahraini			Non-Bahraini			Total		
	Female	Male	Total	Female	Male	Total	Female	Male	Total
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
With bathing, washing or dressing :									
None	92.4	95.2	93.9	98.3	99.1	98.9	93.7	96.7	95.5
Mild	3.6	2.8	3.2	1.7	0.7	1.0	3.2	2.0	2.5
Moderate	2.6	1.2	1.9	0.0	0.0	0.0	2.0	0.8	1.3
Severe	1.1	0.5	0.7	0.0	0.0	0.0	0.8	0.3	0.5
Extreme severe / cannot do	0.3	0.3	0.3	0.0	0.2	0.1	0.3	0.2	0.2
Total	**961**	**1085**	**2046**	**320**	**654**	**974**	**1281**	**1739**	**3020**
In maintaining general appearance:									
None	92.1	95.6	94.0	98.6	99.4	99.1	93.7	97.1	95.7
Mild	3.9	3.0	3.4	1.4	0.6	0.9	3.3	2.1	2.6
Moderate	2.9	0.6	1.7	0.0	0.0	0.0	2.2	0.4	1.1
Sever	0.9	0.4	0.6	0.0	0.0	0.0	0.6	0.2	0.4
Extreme severe / cannot do	0.2	0.4	0.3	0.0	0.0	0.0	0.2	0.2	0.2
Total	**961**	**1085**	**2046**	**320**	**654**	**974**	**1281**	**1739**	**3020**
In staying by yourself for a few days:									
None	84.3	91.1	87.9	92.9	98.1	96.4	86.49	93.73	90.66
Mild	5.7	3.6	4.6	1.3	1.7	1.6	3.90	2.88	3.61
Moderate	3.5	2.1	2.7	1.8	0.2	0.7	2.97	1.32	2.02
Severe	3.5	2.2	2.8	2.0	0.0	0.6	3.12	1.38	2.12
Extreme severe / cannot do	3.0	1.1	2.0	2.0	0.0	0.7	2.81	0.69	1.59
Total	**961**	**1085**	**2046**	**320**	**654**	**974**	**1281**	**1739**	**3020**

Table 3.2.3b: Difficulty with 'self-care' in the last 30 days stratified by nationality and age groups

Difficulties in doing activities in the last 30 days	Bahraini age groups						Non-Bahraini age groups					
	Age group						Age group					
	18-	30-	45-	60-	70-	80+	18-	30-	45-	60-	70-	80+
	%	%	%	%	%	%	%	%	%	%	%	%
With bathing, washing or dressing :												
None	98.9	97.1	96.1	88.5	74.1	32.7	98.3	99.1	99.7	100	70.8	0.0
Mild	0.6	1.1	2.4	6.2	15.8	19.8	0.8	0.9	0.3	0.0	29.2	100
Moderate	0.5	1.3	0.6	3.8	6.9	29.2	0.0	0.0	0.0	0.0	0.0	0.0
Severe	0.0	0.3	0.7	1.0	3.2	8.8	0.0	0.0	0.0	0.0	0.0	0.0
Extreme severe	0.0	0.2	0.1	0.6	0.0	9.6	0.9	0.0	0.0	0.0	0.0	0.0
Total	203	696	708	329	84	26	116	510	306	31	10	1
In maintaining general appearance:												
None	99.4	97.4	95.6	89.4	74.2	32.7	99.2	99.3	99.7	100	80.5	0.0
Mild	0.6	1.3	2.6	6.6	18.0	19.8	0.8	0.7	0.3	0.0	19.5	100
Moderate	0.0	1.0	0.9	2.8	5.7	29.2	0.0	0.0	0.0	0.0	0.0	0.0
Severe	0.0	0.3	0.7	0.6	2.1	8.8	0.0	0.0	0.0	0.0	0.0	0.0
Extreme severe	0.0	0.0	0.2	0.6	0.0	9.5	0.0	0.0	0.0	0.0	0.0	0.0
Total	**203**	**696**	**708**	**329**	**84**	**26**	**116**	**510**	**306**	**31**	**10**	**1**
In staying by yourself for a few days:												
None	93.7	93.5	89.1	80.6	61.6	27.9	95.0	96.4	97.5	100	80.6	0.0
Mild	2.5	2.2	4.3	7.5	18.0	10.4	2.0	1.6	1.6	0.0	0.0	0.0
Moderate	1.0	1.5	1.6	6.6	5.7	24.6	0.0	0.6	0.6	0.0	9.7	100
Severe	1.1	1.5	2.8	3.7	10.4	18.2	2.0	0.6	0.0	0.0	9.7	0.0
Extreme severe	1.7	1.3	2.2	1.6	4.3	18.9	1.0	0.8	0.3	0.0	0.0	0.0
Total	**203**	**696**	**708**	**329**	**84**	**26**	**116**	**510**	**306**	**31**	**10**	**1**

3.2.5 Pain and discomfort

For this domain, three questions were asked to obtain information regarding the amount of pain and discomfort that individuals had suffered from in the 30 days prior to the interview. These were:

- What was the extent of bodily aches or pains you had suffered from?
- What was the extent of bodily discomfort you had suffered from?
- How much difficulty you've had in your daily life because of your pain?

These questions are designed to assess the extent of pain and discomfort that people experience that may affect their usual activities for either a short or long period of time. If the answers for the first two questions were "no difficulty/none", the respondent was asked the third question. These three questions on bodily aches and pains and discomfort were analyzed, and the results are shown in tables 3.2.4a stratified by nationality and sex and 3.2.4.b stratified by nationality and age.

Bodily aches and pains

Table 3.2.4.a shows that almost two-thirds of the respondents reported that they had no aches and pains in the 30 days before the survey (66.7%), while 20.1% reported that they suffered from mild pain. The percentage of those who suffered from moderate bodily aches and pains was 8.9%. In addition, more than 4.3% of the respondents stated that they had severe aches and pains.

The non-Bahraini were less likely to suffer than Bahraini since about 15% of the non-Bahraini suffered from various degrees of aches and pains, from mild to extreme, compared to 42.2% among Bahraini.

Males were more likely than females to state that they never had any aches or pains, with almost three-quarters of males saying this compared to only 57% of females. Mild, moderate, severe and extreme pains are more common among females compared to males (Table 2.4a).

With regard to age, table 3.2.4.b shows that the percentage of not suffering has gradually decreased with the increase in age and it was more obvious among Bahraini age groups than among non-Bahraini. As expected, the older age groups suffered from severe to extreme severe difficulty more than the younger age groups.

Bodily discomfort

The results for the extent of experiencing bodily discomfort shown in table 3.2.4a, are almost similar to the results obtained for the extent of experiencing bodily aches or pains. The differences between groups are of a similar magnitude. To summarize, about 70% of the respondents stated that they had no bodily discomfort, while 18% experienced mild discomfort. The percentage of people experiencing moderate bodily discomfort was 8.4%. Females, Bahraini respondents and older adults had smaller percentages stating that they never experienced discomfort compared to males, non-Bahraini and younger adults. 0.7% and 0% of non-Bahraini suffered from severe and extreme severe bodily discomfort, respectively, compared to 4.3% and 0.5% among Bahraini.

The relationship between age and bodily discomfort was the same as was in previous question, with older adults reporting pain more often than younger adults, with no great difference between the percentages in each of the categories for the youngest three age groups (18–59), indicating that the extent of aches and pains do not rise in general until over the age of 60. Table 3.2.4b shows that three quarters of respondents in the age group 18-29 years among Bahraini and more than 90% among non-Bahraini do not have any bodily aches or pains compared to 46.9% among Bahraini and 78.7% among non-Bahraini reported that they had no difficulty starting from age of 60. Table 3.2.4b shows that Bahraini nationals suffer more than non-Bahraini as the percentage of moderate and severe suffering is more in all Bahraini age groups than the non-Bahraini.

Difficulty in daily life because of pain

Table 3.2.4a presents the results for difficulty in daily life due to pain. Those who stated in the previous two questions that they have suffered were asked to rank the extent of difficulty in their daily life because of their pain and discomfort. About 16% said that they suffered with mild degree, 7.5% with moderate degree and 3.4% with severe to extreme severe degree. In all the previous categories, the percentage of non-Bahraini and males was less than the Bahraini and females. “Not suffering” has gradually decreased with the increase in age, while severe and extreme severe categories were higher for age groups above 70 years old than among the younger age groups (table 3.2.4b).

Table 3.2.4.a: Extent of bodily aches or pains, discomfort and difficulty in daily life due to pains in the last 30 days stratified by nationality and sex

Difficulties in doing activities	Bahraini			Non Bahraini			Total		
	Female	Male	Total	Female	Male	Total	Female	Male	Total
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Due to Bodily aches or pains:									
None	50.4	64.4	57.8	76.6	89.2	85.1	57.0	73.8	66.7
Mild	27.8	20.4	23.9	18.0	9.2	12.1	25.3	16.3	20.1
Moderate	14.4	10.5	12.4	2.9	1.2	1.8	11.6	7.0	8.9
Severe	6.7	4.4	5.4	1.8	0.4	0.8	5.4	2.9	3.9
Extreme severe	0.7	0.3	0.5	0.7	0.0	0.2	0.7	0.2	0.4
Total	**961**	**1085**	**2046**	**320**	**654**	**974**	**1281**	**1739**	**3020**
Due to Bodily discomfort:									
None	54.4	68.4	61.8	81.4	90.5	87.5	61.1	76.8	70.1
Mild	25.9	18.7	22.1	13.4	7.6	9.5	22.8	14.5	18.0
Moderate	13.6	9.3	11.3	3.5	1.7	2.3	11.1	6.4	8.4
Severe	5.5	3.2	4.3	1.7	0.2	0.7	4.5	2.1	3.2
Extreme severe	0.6	0.4	0.5	0.0	0.0	0.0	0.5	0.2	0.3
Total	**961**	**1085**	**2046**	**320**	**654**	**974**	**1281**	**1739**	**3020**
Difficulty in daily life due of pain:									
None	55.5	71.3	63.9	86.6	93.9	91.6	63.3	79.8	72.8
Mild	26.2	16.9	21.2	8.4	4.8	5.9	21.7	12.3	16.3
Moderate	11.7	9.0	10.2	3.2	1.1	1.8	9.6	6.0	7.5
Severe	6.2	2.5	4.3	1.5	0.2	0.6	5.0	1.6	3.1
Extreme severe	0.4	0.4	0.4	0.3	0.0	0.1	0.4	0.3	0.3
Total	**319**	**360**	**679**	**106**	**216**	**322**	**425**	**576**	**1001**

Table 3.2.4.b: Extent of bodily aches or pains, bodily discomfort and difficulty in daily life due to pains in the last 30 days stratified by nationality and age

Difficulties in doing activities in the last 30 days	Bahraini age groups						Non-Bahraini age groups					
	Age group						Age group					
	18-	30-	45-	60-	70-	80+	18-	30-	45-	60-	70-	80+
	%	%	%	%	%	%	%	%	%	%	%	%
Due to Bodily aches or pains:												
None	71.3	63.1	57.6	46.9	36.9	23.1	88.1	85.9	84.1	78.7	61.1	0.0
Mild	15.2	20.8	26.5	28.9	30.2	14.1	9.7	11.2	14.1	15.4	19.5	0.0
Moderate	10.5	10.4	10.0	17.6	22.5	48.6	0.0	1.8	1.4	5.9	9.7	100
Severe	2.4	5.3	5.5	5.9	9.4	10.4	1.2	0.9	0.4	0.0	9.7	0.0
Extreme severe	0.6	0.4	0.4	0.7	1.0	3.8	1.0	0.2	0.0	0.0	0.0	0.0
Total	**203**	**696**	**708**	**329**	**84**	**26**	**116**	**510**	**306**	**31**	**10**	**1**
Due to Bodily discomfort:												
None	74.8	67.7	62.1	49.6	39.1	23.1	91.3	88.5	86.6	75.7	70.9	0.0
Mild	15.1	18.7	23.9	27.6	31.1	14.2	4.6	8.8	11.3	21.3	9.7	100
Moderate	6.6	9.3	9.6	17.3	20.5	48.6	1.9	2.1	2.1	3.0	9.7	100
Severe	3.5	4.0	3.7	4.8	9.3	9.4	2.2	0.6	0.0	0.0	9.7	0.0
Extreme severe	0.0	0.3	0.7	0.7	0.0	4.7	0.0	0.0	0.0	0.0	0.0	0.0
Total	**203**	**696**	**708**	**329**	**84**	**26**	**116**	**510**	**306**	**31**	**10**	**1**
Difficulty in daily life activities due to pain:												
None	82.3	79.6	72.2	54.1	45.3	22.2	79.1	85.3	74.1	68.7	61.1	0.0
Mild	10.8	12.8	18.0	25.3	26.0	18.1	19.1	11.8	14.1	15.4	19.5	0.0
Moderate	4.4	4.8	7.2	15.2	18.4	37.5	0.7	2.0	11.4	15.9	9.7	100
Severe	2.1	2.6	2.2	5.1	10.3	17.6	0.1	0.9	0.4	0.0	9.7	0.0
Extreme severe	0.4	0.2	0.4	0.3	0.0	4.6	1.0	0.0	0.0	0.0	0.0	0.0
Total	**92**	**206**	**212**	**129**	**24**	**16**	**76**	**106**	**110**	**20**	**9**	**1**

3.2.6 Cognition

Cognition relates to the ability of the respondents to concentrate or remember things associated with tasks, such as reading, writing, drawing or listening to others. It also refers to how well persons can learn something that is new to them. Two questions were asked about this domain in the questionnaire with regard to the last 30 days prior to the survey date. These were:

- How much difficulty did you have with concentrating or remembering things?
- How much difficulty did you have in learning a new task (for example learning how to get to a new place, learning a new game or learning a new recipe)?

The results for the responses to these two cognition questions are displayed in table 3.2.5a stratified by nationality and sex and table 3.2.5b stratified by nationality and age.

Concentrating or remembering

Table 3.2.5.a shows the percentage distribution of respondents having difficulty in concentrating or remembering things in the last 30 days stratified by nationality and sex. Almost 90 % of those surveyed stated that they had no difficulty at all with concentrating or remembering things, while 6.9% mentioned that they had mild difficulties doing these actions. In addition, 2.3% of respondents stated that they had moderate and only 0.7% had severe difficulties in concentration or remembering. The great difference between Bahraini and non-Bahraini respondents was observed in the categories of none and mild suffering as the non-Bahraini were higher in the “none” category and lower in the “mild” category than Bahraini. Males show the same previous pattern compared with females in both categories. With regard to other suffering categories, there are negligible differentials with nationality and sex.

The same pattern observed earlier between age groups was seen within this domain. Table 3.2.5b shows that as age increased, the percentage of people who said that they had difficulties increased. Among the 18-29 years age group respondents, almost 5% of Bahraini and 2% of non-Bahraini stated that they had some problems with remembering or concentrating (ranging from mild to extreme severe problems) compared with 29.9% among Bahraini and 38.8% among non-Bahraini in the age group 70–79 years, ranging from mild to extreme difficulties. In addition, the only extreme suffer was observed among Bahraini at age 80 and above.

Learning a new task

Respondents’ cognition was assessed also by asking a second question regarding any difficulty faced in learning a new task such as learning how to get to a new place, learning a new game, recipe, names, routes, skills, etc. Table 3.2.5a presents the percentage distribution of the respondents having difficulty in learning a new task in the last 30 days stratified by nationality and sex.

Compared to the results for concentrating and remembering, almost the same percentages were observed for the overall percent. Overall, 91.4% of respondents replied that they faced no difficulties in this domain; the percentage is higher among non-Bahraini (98.5%) compared to Bahraini (88.1%), and more in males than in females in both nationalities. 5.5% stated that they had mild difficulties, which is more in Bahraini and females. Only 2% had moderate difficulties and 1.1% stated that they had severe or extreme severe difficulties. Less sufferers were observed among non-Bahraini and males. In general, more females have reported mild, moderate, severe and extreme severe difficulties in learning a new task compared to males.

Age is inversely related with learning a new task. The self-reported ability to learn new tasks fell markedly for the age of 69+ which is more marked among Bahraini than non-Bahraini. The percentage of having no difficulty in learning a new task decreased by 42.8% among Bahraini compared to 19% among non-Bahraini, between age groups (18-29 years) and (70-79 years) respectively. The only extreme suffer was observed among Bahraini age group 80+ (9.6%) - table 3.2.5b.

Table 3.2.5a: Difficulty with 'concentrating or remembering things' and in learning a new task in the last 30 days stratified by nationality and sex

Difficulties in doing activities	Bahraini			Non-Bahraini			Total		
	Female	Male	Tot	Female	Male	Tot	Female	Male	Tot
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Concentrating or remembering things:									
None	84.1	89.2	86.7	93.8	98.3	96.9	86.5	92.7	90.1
Mild	11.0	7.4	9.1	4.1	1.3	2.2	9.3	5.1	6.9
Moderate	3.8	2.6	3.2	1.7	0.2	0.7	3.3	1.7	2.3
Severe	1.0	0.8	0.9	0.4	0.2	0.2	0.8	0.5	0.7
Extreme severe	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0
Total	**961**	**1085**	**2046**	**320**	**654**	**974**	**1281**	**1739**	**3020**
In learning a new task:									
None	85.4	90.4	88.1	96.3	99.5	98.5	88.1	93.8	91.4
Mild	9.3	5.9	7.5	3.4	0.2	1.2	7.8	3.8	5.5
Moderate	3.3	2.4	2.8	0.3	0.3	0.3	2.5	1.6	2.0
Severe	1.8	1.0	1.4	0.0	0.0	0.0	1.4	0.6	0.9
Extreme severe	0.2	0.3	0.2	0.0	0.0	0.0	0.2	0.2	0.2
Total	**961**	**1085**	**2046**	**320**	**654**	**974**	**1281**	**1739**	**3020**

Table 3.2.5b: Difficulty with 'concentrating or remembering things' and in learning a new task in the last 30 days stratified by nationality and age

Difficulties in doing activities in the last 30 days	Bahraini age groups						Non-Bahraini age groups					
	Age group						Age group					
	18-	30-	45-	60-	70-	80+	18-	30-	45-	60-	70-	80+
	%	%	%	%	%	%	%	%	%	%	%	%
In concentrating or remembering:												
None	94.0	90.0	88.3	80.9	70.1	27.9	98.0	97.0	97.6	97.0	61.1	0.0
Mild	4.4	6.8	9.4	13.1	19.3	18.4	1.0	1.7	2.1	3.0	38.9	100
Moderate	0.5	2.2	2.0	4.7	9.5	48.9	1.0	0.8	0.3	0.0	0.0	0.0
Severe	1.1	1.0	0.4	1.3	1.1	0.0	0.0	0.5	0.0	0.0	0.0	0.0
Extreme severe	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	0.0	0.0	0.0	0.0
Total	**203**	**696**	**708**	**329**	**84**	**26**	**116**	**510**	**306**	**31**	**10**	**1**
In learning a new task:												
None	95.2	94.9	89.4	80.4	54.5	13.8	99.0	98.8	98.4	100	80.5	0.0
Mild	3.7	3.6	7.9	11.4	29.3	4.8	1.0	1.0	0.9	0.0	19.5	100
Moderate	1.1	1.1	1.7	5.5	9.5	43.8	0.0	0.2	0.7	0.0	0.0	0.0
Severe	0.0	0.4	0.9	2.4	5.7	28.0	0.0	0.0	0.0	0.0	0.0	0.0
Extreme severe	0.0	0.0	0.1	0.3	1.0	9.6	0.0	0.0	0.0	0.0	0.0	0.0
Total	**203**	**696**	**708**	**329**	**84**	**26**	**116**	**510**	**306**	**31**	**10**	**1**

3.2.7 Interpersonal Activities:

An individual's ability to cope with interpersonal relationships is a further domain of health that was assessed in the Bahraini National Health Survey. This includes ascertaining how much of an active role the respondents play in maintaining personal relationships and also in community activities. A further aspect is how well the individuals are able to deal with conflicts and tensions in personal relationships, including partners, relatives and friends. Meeting new people and making new friends, as well as dealing with strangers, are further dimensions of interpersonal activities that can be investigated. Four questions were asked about interpersonal relationships in the 30 days before the survey. They were:

- How much difficulty did you have with personal relationships or participation in the community?
- How much difficulty did you have in dealing with conflicts and tensions with others?
- How much difficulty did you have with making new friendships or maintaining current friendships?
- How much difficulty did you have with dealing with strangers?

Responses to these four questions were analyzed, and the results are shown in Tables 3.2.6a and 3.2.6b.

Personal relationships and participation in the community

There is a high percentage of respondents who stated that they had no difficulty with personal relationships or community participation during the 30 days prior to the survey. About 95% stated that they had no problems, with 5% reporting from mild to extreme severe difficulties. The percentage of Bahraini nationals who had no problems in this concern (92.8%) is slightly lower than the percentage among than non-Bahraini (98.4%). So, the other severity categories, from mild to extreme sever, are observed more among Bahraini compared to non-Bahraini. 96% of males and 92.6% of females reported having no difficulty in involving themselves in personal or community level activities. Correspondingly, a higher proportion of females had mild, moderate, severe and extreme severe difficulty in personal relationships and community activities compared to males (table3.2.6a).

Looking at variation by age in table 3.2.6b, 93.8% of Bahraini respondents in the age group (18-29 years) did not have any difficulty in interpersonal relationships which dropped to 56.5% at age 80+. The same dropping pattern is not observed among non-Bahraini as 99.1% in the age group (18-29 years) did not have any difficulty in interpersonal relationships, while 100% at age 80+ reported no difficulty. Percentage of mild severity in all age groups are higher among Bahraini compared to non-Bahraini. No one among non-Bahraini respondents showed severe or extreme severe difficulties.

Conflicts and tensions

When respondents were asked whether they had difficulties in dealing with conflicts and tensions during the 30 days prior to the survey, overall, 91% stated that they did not have any difficulties with dealing with conflicts and tensions, while 5.4% stated that they had mild difficulties with this aspect of interpersonal activities. Very few respondents (less than 1%) reported severe or extreme severe difficulties, and 2.8% stated moderate difficulty (Table 3.2.6a).

There is 9% more among non-Bahraini respondents than Bahraini and 5% more among males compared to females who had no difficulty. Females showed higher percentage of mild, moderate, severe and extreme severe difficulty than males and all percentages are lower among non-Bahraini compared to Bahraini for both males and females (Table 3.2.6a).

Table 3.2.6b shows that the percentages of respondents in the different difficulty categories over the younger age groups (18–59 years) did not vary as much as seen in other domains of health. There was a decrease in the percentage of respondents with no difficulties in the older age groups (60+) among Bahraini while the reverse was observed among non-Bahraini as the percentage reached 100% for the age groups (60 years and above).

Making new friendships or maintaining current friendships

Table 3.2.6a presents the distribution of the respondents with respect to difficulties with making new friendships or maintaining current friendships. Overall, 94.6 % of respondents reported that they did not have any difficulties with making new friendships or maintaining current friendships, while 3.2% stated that they had mild difficulties with this aspect of interpersonal activities. Few respondents (0.2%) reported extreme difficulties, and 1.6% and 0.4% stated moderate and severe problems respectively.

96% of males and 92.6% of females reported having no difficulty. On the contrary, a higher proportion of females had mild, moderate and severe difficulty compared to males, while males showed higher percentage of extreme severity (0.2) than females (0.1%). As observed in other domains, non-Bahraini suffered less (1.4%) collectively than Bahraini (7.3%) from this difficulty.

For the effect of age, table 3.2.6b shows that 92% of Bahraini respondents in the age group (18-29 years) did not have any difficulty compared to 61.3% at age 80+ while the corresponding percentages among non-Bahraini are 90.4% and 60.3% respectively. This implies that almost 40% of the respondents at age 80+ have various degrees of difficulties in making new friendships or maintaining current friendships. The reported prevalence of mild, moderate, and severe difficulty in making new friendships or maintaining current friendships sharply increased among the respondents above the age of 70. However, extreme severity is only reported in the middle age group, 45-59 years, in both nationalities, being 0.4% among Bahraini and 0.3% among non-Bahraini.

Dealing with Strangers

Table 3.2.6a also presents the distribution of respondents with respect to difficulties in dealing with strangers. In general, 94.4% of respondents mentioned that they did not have any difficulties in dealing with strangers, while 3.9% stated that they had mild difficulties with this aspect of interpersonal activities. Almost none of the respondents (0.2% and 0.1%) reported severe and extreme severe difficulties, and 1.4% stated moderate problems. The differences between the two nationality status groups are observed, with Bahraini reporting more difficulties than non-Bahraini.
92% of males and 96% of females had no difficulty in this domain. Correspondingly, a higher proportion of females had mild, moderate, and severe difficulty compared to males, while both had the same percentage for the extreme severe category (<1%).

By age, table 3.2.6b shows that 89.4% and 91.5% of respondents in the age group (18-29 years) among Bahraini and non-Bahraini, respectively, did not have any difficulty compared to about 63% at age 80+ in both nationalities. This implies that 37% of the respondents at age 80+ had difficulties in dealing with strangers. The reported prevalence of mild and moderate difficulty in dealing with strangers increased dramatically among the respondents above the age of 70 in both nationalities and nearly no one suffered from extreme severity in this domain.

Table 3.2.6a: Difficulty in "interpersonal activities" in the last 30 days stratified by nationality and sex

	Bahraini			Non-Bahraini			Total		
	Female	Male	Total	Female	Male	Total	Female	Male	Total
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
With personal relationships or participation in the community:									
None	91.1	94.4	92.8	96.9	99.1	98.4	92.6	96.1	94.6
Mild	5.5	3.7	4.6	2.5	0.7	1.3	4.7	2.6	3.5
Moderate	2.6	1.2	1.8	0.6	0.2	0.3	2.1	0.8	1.3
Severe	0.8	0.3	0.5	0.0	0.0	0.0	0.6	0.2	0.4
Extreme severe	0.0	0.4	0.3	0.0	0.0	0.0	0.0	0.3	0.2
Total	**961**	**1085**	**2046**	**320**	**654**	**974**	**1281**	**1739**	**3020**
With dealing with conflicts and tensions with others:									
None	86.0	90.2	88.1	95.6	97.6	97.0	88.4	93.0	91.0
Mild	8.3	6.1	7.2	3.0	1.1	1.7	7.0	4.2	5.4
Moderate	4.4	3.0	3.7	0.7	1.0	0.9	3.5	2.2	2.8
Severe	1.1	0.5	0.8	0.4	0.3	0.3	0.9	0.5	0.7
Extreme severe	0.2	0.2	0.2	0.3	0.0	0.1	0.2	0.1	0.2
Total	**961**	**1085**	**2046**	**320**	**654**	**974**	**1281**	**1739**	**3020**
With making new friendships or maintaining current friendships:									
None	91.1	94.1	92.7	96.9	99.4	98.6	92.6	96.1	94.6
Mild	4.7	3.5	4.1	3.1	0.3	1.2	4.3	2.3	3.2
Moderate	3.2	1.5	2.3	0.0	0.3	0.2	2.4	1.1	1.6
Severe	0.9	0.5	0.7	0.0	0.0	0.0	0.7	0.3	0.4
Extreme severe	0.1	0.4	0.2	0.0	0.0	0.0	0.1	0.2	0.2
Total	**961**	**1085**	**2046**	**320**	**654**	**974**	**1281**	**1739**	**3020**
With dealing with strangers:									
None	90.2	94.2	92.4	98.1	99.1	98.8	92.2	96.0	94.4
Mild	6.4	4.3	5.3	1.6	0.7	1.0	5.2	3.0	3.9
Moderate	2.8	1.2	1.9	0.3	0.2	0.2	2.1	0.8	1.4
Severe	0.5	0.2	0.3	0.0	0.0	0.0	0.4	0.1	0.2
Extreme severe	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Total	**961**	**1085**	**2046**	**320**	**654**	**974**	**1281**	**1739**	**3020**

Table 3.2.6.b: Difficulty in "interpersonal activities" in the last 30 days stratified by nationality and age

Difficulties in doing activities in the last 30 days	Bahraini						Non-Bahraini					
	Age group						Age group					
	18-	30-	45-	60-	70-	80+	18-	30-	45-	60-	70-	80+
	%	%	%	%	%	%	%	%	%	%	%	%
With personal relationships or participation in the community:												
None	93.8	95.4	92.8	92.8	79.5	56.5	99.1	98.2	98.5	96.7	100	100
Mild	4.0	3.2	4.9	4.4	11.0	20.0	0.0	1.4	1.5	3.3	0.0	0.0
Moderate	1.7	1.4	1.1	2.2	9.5	4.6	0.9	0.4	0.0	0.0	0.0	0.0
Severe	0.5	0.0	0.5	0.6	0.0	18.9	0.0	0.0	0.0	0.0	0.0	0.0
Extreme severe	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	**203**	**696**	**708**	**329**	**84**	**26**	**116**	**510**	**306**	**31**	**10**	**1**
With dealing with conflicts and tensions with others:												
None	87.0	89.4	91.3	84.8	76.9	56.7	96.4	96.3	97.9	100	100	100
Mild	8.7	6.9	5.2	8.3	13.7	20.0	2.6	1.6	1.8	0.0	0.0	0.0
Moderate	1.5	3.0	2.6	6.2	9.4	18.7	1.0	1.2	0.3	0.0	0.0	0.0
Severe	1.9	0.6	0.8	0.6	0.0	4.6	0.0	0.7	0.0	0.0	0.0	0.0
Extreme severe	0.9	0.1	0.1	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0
Total	**203**	**696**	**708**	**329**	**84**	**26**	**116**	**510**	**306**	**31**	**10**	**1**
With making new friendships or maintaining current friendships:												
None	92.0	92.6	93.1	93.0	71.7	61.3	90.4	92.7	93.7	92.0	80.4	60.3
Mild	8.0	4.9	5.0	5.0	15.9	24.7	8.0	4.8	4.4	6.0	16.9	23.7
Moderate	0.0	2.2	1.0	1.7	12.4	9.4	3.6	2.1	1.1	1.3	2.7	10.6
Severe	0.0	0.3	0.4	0.3	0.0	4.6	0.0	0.4	0.5	0.7	0.0	5.4
Extreme severe	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0
Total	**203**	**696**	**708**	**329**	**84**	**26**	**116**	**510**	**306**	**31**	**10**	**1**
With dealing with strangers:												
None	89.4	93.7	93.7	93.0	81.7	62.7	91.5	95.8	94.5	92.0	81.0	63.0
Mild	7.6	3.8	4.4	5.0	15.9	23.3	6.5	2.1	4.4	2.3	16.8	23.3
Moderate	3.0	2.4	1.0	1.7	2.4	9.4	2.0	2.0	1.0	1.7	2.2	9.4
Severe	0.0	0.1	0.6	0.3	0.0	4.6	0.0	0.1	0.1	4.0	0.0	4.3
Extreme severe	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	**203**	**696**	**708**	**329**	**84**	**26**	**116**	**510**	**306**	**31**	**10**	**1**

3.2.8 Sleep and energy

Feeling rested and refreshed is important for good health. Lack of sleep can affect many areas of life and reduce functioning while awake. Reduced energy levels are one of the consequences of the lack of sleep, although it could also be a result of many other disorders. Information was collected in the health state module to know how much difficulty the respondents have with sleeping such as inability to fall asleep, interrupted sleep or waking up too early in the morning than a person would usually wake up. An assessment was also made to know whether the respondents were feeling tired or having less energy. The survey asked two questions in relation to sleep and energy in the last 30 days before the survey. These questions were:

- How much difficulty did you have with sleeping, such as falling asleep, waking up frequently during the night or waking up too early in the morning?
- How much difficulty did you have due to not feeling rested and refreshed during the day (e.g. feeling tired, not having energy)?

The distribution of the responses to these two questions is shown in table 3.2.7a stratified by nationality and sex, and table 3.2.7b stratified by nationality and age.

Sleeping

The percentage of people with difficulty in sleeping by background characteristics indicates the patterns observed in most of the health states analyzed earlier. There were also differences by sex, nationality status and age. Table 3.2.7a presents the distribution of the respondents with respect to difficulties in sleeping by nationality and sex. The results indicate that 83.5% of respondents did not have any difficulty associated with sleeping which is lower than the one reported in all the previous health states.

Almost 9.2% of the individuals interviewed reported mild difficulties, while 4.9% stated that they had moderate difficulties. Only 2.3% reported severe problems and less than 1% reported extreme severe difficulty. The percentage of non-Bahraini individuals who reported difficulties with sleep was less than the percentage reported among Bahraini. The differences observed between these two groups are in the mild, moderate, severe and extreme severe difficulties categories; however, the much higher percentage difference was observed in the mild category.

Females were less likely to report that they had no difficulties with sleep than males, with 78.1% reported no difficulties compared to 87% among males. 11.5% of females reported mild difficulties, while 6.9 % reported moderate difficulties. This contrasts with 7.4% and 3.5% of males with mild and moderate problems respectively.

Difficulties with sleep by any degree of severity increased with age, as shown in table 3.2.7b. The percentage of Bahraini respondents having no difficulty was 83.6% among those in the age group (18-29 years). This percentage decreased to 63.4% among those in the age group (70-79 years) and dropped more to 41.9% among those aged 80 and above. Among the non-Bahraini, the percentage dropped from 95.8% in the age group (18-29 years) to 70.8% in the age group (70-79 years). The highest percentage of extreme severe difficulty was reported among the Bahraini age group (18-29 years) although it was minimal (0.5%).

Feeling rested and refreshed

The second aspect of sleep and energy that was assessed during the survey was feeling rested and refreshed during the day. An assessment was made to know whether the respondents had failed to complete tasks because of the lack of energy to carry on activities. Table 3.2.7a also shows the results for this question. Data reveals that 83.2% of respondents said that they had no difficulties with feeling rested and refreshed. For those who did experience difficulties, 9.9% faced mild difficulties, 5.4% moderate difficulties and 1.4% severe difficulties. Only 0.1% of respondents reported that the difficulties that they had with feeling rested and refreshed were extreme severe.

Once again, a higher percentage of males stated that they had no problems with feeling rested and refreshed than females, with 87% of men and 78% of women reported no difficulties. Women had higher percentages in each of the other difficulty categories, from mild to severe but the extreme severe was reported only by men. The same pattern is seen by nationality status, with a higher percentage of non-Bahraini nationals reporting no difficulties than Bahraini, while a higher percentage of Bahraini nationals were observed in each of the remaining difficulty categories than non- Bahraini.

Table 3.2.7b shows that the percentage of respondents in the mild and moderate difficulties groups increased markedly after the age of 60, and the severe category after the age of 70 among Bahraini respondents, while the mild category increased after the age of 60 and the moderate and severe categories after the age of 70 among non-Bahraini. The only reported extreme severe difficulty was reported by the Bahraini middle age group (45-59 years).

Table 3.2.7a: Problems with 'sleeping' and 'Energy' in the last 30 days stratified by nationality and sex

	Bahraini			**Non-Bahraini**			**Total**		
	Female	**Male**	**Total**	**Female**	**Male**	**Total**	**Female**	**Male**	**Total**
	(%)	**(%)**	**(%)**	**(%)**	**(%)**	**(%)**	**(%)**	**(%)**	**(%)**
With sleeping:									
None	73.8	82.8	78.6	90.7	95.5	93.9	78.1	87.6	83.5
Mild	13.7	9.8	11.6	5.0	3.5	4.0	11.5	7.4	9.2
Moderate	8.3	5.2	6.7	2.6	0.7	1.3	6.9	3.5	4.9
Severe	4.0	2.1	3.0	1.7	0.3	0.8	3.4	1.4	2.3
Extreme severe	0.2	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Total	**961**	**1085**	**2046**	**320**	**654**	**974**	**1281**	**1739**	**3020**
Due to not feeling rested and refreshed during the day:									
None	74.3	81.6	78.2	89.5	96.1	93.9	78.1	87.0	83.2
Mild	14.3	11.7	12.9	5.1	2.9	3.6	12.0	8.4	9.9
Moderate	8.3	5.7	6.9	4.7	0.8	2.2	7.4	3.9	5.4
Severe	3.1	0.9	2.0	0.7	0.2	0.3	2.5	0.6	1.4
Extreme severe	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1
Total	**961**	**1085**	**2046**	**320**	**654**	**974**	**1281**	**1739**	**3020**

Table 3.2.7b: Problems with 'sleeping' and 'Energy' in last 30 days stratified by nationality and age

Difficulties in doing activities in last 30 days	**Bahraini**						**Non -Bahraini**					
	Age group						**Age group**					
	18-	**30-**	**45-**	**60-**	**70-**	**80+**	**18-**	**30-**	**45-**	**60-**	**70-**	**80+**
	%	**%**	**%**	**%**	**%**	**%**	**%**	**%**	**%**	**%**	**%**	**%**
With sleeping:												
None	83.6	81.7	80.8	70.6	63.4	41.9	95.8	94.1	94.0	92.7	70.8	0.0
Mild	8.0	10.3	11.1	14.4	21.7	23.4	4.2	4.4	3.0	7.3	0.0	0.0
Moderate	6.3	5.8	4.8	10.7	10.7	20.4	0.0	0.9	1.8	0.0	19.5	100
Severe	1.6	2.2	3.2	4.0	3.2	14.3	0.0	0.6	1.2	0.0	9.7	0.0
Extreme severe	0.5	0.0	0.1	0.3	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	**203**	**696**	**708**	**329**	**84**	**26**	**116**	**510**	**306**	**31**	**10**	**1**
Due to not feeling rested and refreshed during the day:												
None	84.9	81.1	80.5	69.8	62.3	37.2	93.7	93.0	96.5	93.3	70.8	0.0
Mild	8.8	11.2	12.2	17.7	21.6	23.5	5.4	4.5	1.3	6.7	0.0	0.0
Moderate	4.7	6.4	5.8	9.7	9.7	25.0	0.9	2.0	2.2	0.0	19.5	100
Severe	1.6	1.3	1.4	2.8	6.4	14.3	0.0	0.5	0.0	0.0	9.7	0.0
Extreme severe	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	**203**	**696**	**708**	**329**	**84**	**26**	**116**	**510**	**306**	**31**	**10**	**1**

3.2.9 Affect

Some people may be depressed in such a way that it interferes with their life and influences their health. The general name for such feelings is "affect". This aspect of health was investigated through two questions relating to the last 30 days prior to the survey. The questions asked regarding affect are:

- How much of a problem did you have with feeling sad, low or depressed?
- How much of a problem did you have with worry or anxiety?

It is acknowledged that everybody worries to some extent, although it only becomes a problem when a person worries more than usual or worries excessively. Sadness can lead to someone feeling tired and losing interest in taking part in activities. Tables 3.2.8a and 3.2.8b present the results for these two questions relating to affect.

Feeling sad, low or depressed

Table 3.2.8a shows that 81.7% of respondents did not have any problems of feeling sad, low or depressed in the last 30 days. The proportion of respondents being sad or depressed was 11% in mild, 4.6% in moderate, and 2.6% in severe level of depression. Only 75.7% of Bahraini stated that they never felt sad or low, compared with 94.1% of non-Bahraini. A higher percentage of Bahraini nationals were seen in each of the difficulty categories than non-Bahraini.

There was also a large difference between males and females, with females more likely to feel depressed than males. 86.3% of males and 75.4% of females did not have any sad feeling or depression. However, a higher proportion of females have reported mild, moderate and severe feelings of depression. There was some evidence that the proportion of respondents who felt low or depressed at least of mild degree was higher for older adults of age 70 years and above, and the moderate degree was higher at age 80+. However, the differences between the younger age groups were not that large in both nationalities (table 3.2.8.b).

Worry or anxiety

Table 3.2.8a displays the percentage of respondents who felt worried or anxious during the 30 days prior to the survey. Overall, 80.4% of respondents stated that they never felt this way, while 12.9% of the respondents reported mild feeling , 6.4% of respondents had moderate and 2.7% of respondents had severe to extreme severe worry or anxiety.
The differences between groups with different background characteristics were very similar to those seen for feeling sad, low or depressed. A slightly higher percentage of males than females had no problems with worry or anxiety (81% and 79.2% respectively) and females had higher percentages in the mild, moderate and severe worry or anxiety than males.

There was a difference between Bahraini and non-Bahraini in this measure. 78.8% of Bahraini respondents never had these problems, while 82.3% of non-Bahraini felt the same way. Correspondingly, the mild, moderate and severe difficulties were observed more among Bahraini than among non-Bahraini.
Among the Bahraini nationals, the proportion of respondents with no worry or anxiety declined with the increase in age while the proportion of respondents with various degrees of this difficulty increased with the increase in age, but the same pattern was not observed among the non-Bahraini. About 30% of the Bahraini respondents in ages 60+ and 70 + and 49% in age 80+ had various forms of worry or anxiety compared with about 23% among the age group (18–29 years) and 30% among the age group (30–44 years) - Table 3.2.8b.

Table 3.2.8a: Difficulty with Affect in the last 30 days stratified by nationality and sex

	Bahraini			Non-Bahraini			Total		
	Female	Male	Total	Female	Male	Total	Female	Male	Total
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
With feeling sad, low or depressed:									
None	70.3	80.5	75.7	90.6	95.8	94.1	75.4	86.3	81.7
Mild	16.2	12.7	14.4	6.8	2.7	4.1	13.8	8.9	11.0
Moderate	9.1	3.8	6.3	1.3	0.8	1.0	7.2	2.7	4.6
Severe	4.2	2.9	3.5	1.2	0.7	0.8	3.5	2.0	2.6
Extreme severe	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Total	**961**	**1085**	**2046**	**320**	**654**	**974**	**1281**	**1739**	**3020**
With worry or anxiety:									
None	80.2	83.2	82.3	78.1	79.1	78.8	79.2	81.0	80.4
Mild	16.4	15.3	15.3	13.6	12.7	13.0	14.2	12.0	12.9
Moderate	2.8	1.2	1.9	8.0	7.0	7.5	6.3	5.8	6.4
Severe	0.5	0.2	0.4	0.3	1.2	0.7	0.3	1.1	0.2
Extreme severe	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1
Total	**961**	**1085**	**2046**	**320**	**654**	**974**	**1281**	**1739**	**3020**

Table 3.2.8b: Difficulty with Affect in the last 30 days stratified by nationality and age

Difficulties in doing activities in last 30 days	Bahraini age groups						Non-Bahraini age groups					
	Age group						Age group					
	18-	30-	45-	60-	70-	80+	18-	30-	45-	60-	70-	80+
	%	%	%	%	%	%	%	%	%	%	%	%
With feeling sad, low or depressed:												
None	76.7	80.2	75.2	69.8	70.4	51.4	94.1	94.0	94.2	100	90.3	0.0
Mild	15.7	11.0	14.3	18.2	20.7	29.8	4.9	3.5	4.7	0.0	9.7	100
Moderate	5.7	5.1	6.6	8.4	5.5	14.0	1.0	1.2	0.7	0.0	0.0	0.0
Severe	1.9	3.6	3.7	3.6	3.4	4.8	0.0	1.3	0.4	0.0	0.0	0.0
Extreme sever	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	**203**	**696**	**708**	**329**	**84**	**26**	**116**	**510**	**306**	**31**	**10**	**1**
With worry or anxiety:												
None	75.4	76.0	74.3	69.6	68.6	46.7	95.2	93.5	94.3	100	90.3	0.0
Mild	17.1	13.7	14.4	19.5	24.5	24.0	3.8	3.3	3.8	0.0	9.7	100
Moderate	4.2	6.3	7.9	7.5	4.6	24.6	1.0	2.1	0.7	0.0	0.0	0.0
Severe	3.3	3.7	3.4	3.4	2.3	4.7	0.0	0.9	0.9	0.0	0.0	0.0
Extreme severe	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.0	0.0	0.0
Total	**203**	**696**	**708**	**329**	**84**	**26**	**116**	**510**	**306**	**31**	**10**	**1**

3.2.10 Vision

Vision is an important facet of health. Respondents were asked to state whether they used glasses or contact lenses to be able to see either short or long distances. After this, the respondents were asked about difficulties they may had seeing objects at distances and also with difficulties seeing objects at arm's length. Both of these questions were asked with the assumption that the answer would be given as if the respondent was wearing glasses or contact lenses, if needed, when looking at these objects. The two specific questions asked were:

- How much difficulty did you have in seeing and recognizing a person or object you know across the road (from a distance of about 20 meters)?
- How much difficulty did you have in seeing and recognizing an object at arm's length (for example, reading)?

Table 3.2.9a presents the results stratified by nationality, and sex and table 3.2.9b presents the results stratified by nationality and age.

With regard to the use of eyeglasses or contact lenses to see far away, 28% of respondents said that they are using either of them which was more among Bahraini (30.1%) compared to non-Bahraini, and more in males than females in both nationalities. For the use of eyeglasses or contact lenses to see up close, 30% of respondents gave positive answers, which also was more among Bahraini (31.8%) than non-Bahraini (26.3%), and in males more than females specially among the non-Bahraini, being 27.7% in males and 23.3% in females, compared to Bahraini (32.5% in males and 31.0% in females). The overall mean of last time since the eyes examined by doctor (in months) was 176 months. Stratified by nationality, it was higher among Bahraini (181) than non-Bahraini (166); and by sex, it was higher among females (216) compared to males (148) - Table 3.2.9a.

Seeing and recognizing a person or an object across the road

The results for how difficult the respondents found seeing and recognizing a person or an object across the road are shown in table 3.2.9a. 82.6% of respondents stated that they had no difficulty in seeing someone across the road, while 11.7% stated that they had mild difficulty and 3.8% had moderate difficulty in doing this. Very few people reported severe or extreme severe difficulties (1.4% and < 1% respectively). Mild, moderate, and severe difficulties in far vision are higher among Bahraini compared to non–Bahraini while the extreme difficulty reported among Bahraini only. About 85% of males and 79.6% of females had no difficulty in seeing or recognizing a person across the road. Overall, mild, moderate, severe and extreme severe difficulties in vision are higher among females compared to males.

Table 3.2.9b shows that the main differences in difficulties between population groups were observed by age categories, with the ability to see an object or recognize a person across the road decreasing as age increased. Among Bahraini, about 88% of those in the age group (18–29 years) and 90% in the age group (30–44 years) had no difficulty in seeing long distances, while the corresponding value for the age group (70–79 year) was 53.3% and about 25% among respondents aged 80 and above. In comparison, about 91% of non-Bahraini in the age groups (18–29 years) and (30–44 years) had no difficulty in seeing long distances, while the corresponding value for the age group (70–79 years) was 60.9% and 39.5% for those aged 80 and above. It is clear that non-difficulty is higher in all age groups among non-Bahraini compared to the Bahraini nationals. The severe to extreme severe difficulty was observed among elderly Bahraini in the age groups 60-,70- and 80+, being 4.3%, 7.9% and 18.3% respectively.

Seeing and recognizing an object at arm's length

Table 3.2.9a shows that the percentages of people who had difficulties with seeing an object at arm's length were almost similar to the percentages of those who reported difficulties with seeing an object at a distance. The percentage of people who reported no difficulties was 81.9%, with 13% reporting mild difficulties. The percentage of people with moderate difficulties was 3.8%, while it was 1.1% for severe difficulties 0.2% for extreme severe difficulties.

Once again, the highest percentages of those with some sort of difficulty were mainly reported among females and Bahraini nationals, with 21.1% and 22% of difficulties respectively. This contrasts with males and non-Bahraini nationals where the percentages were 14% and 9.1% respectively - Table 3.2.9a.

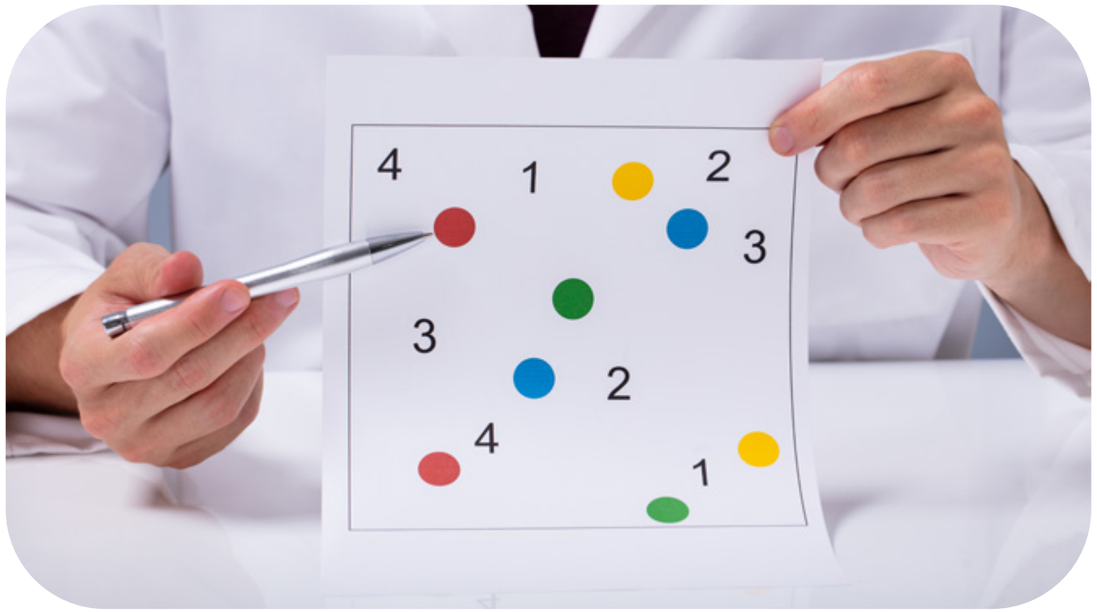
Difficulties were more common as age increases, especially after the age of 60, but the dramatic decrease was observed after the age of 70; 42.8 % of Bahraini and 49.1% of non-Bahraini at the age group (70-79 years) reported that they had various degrees of difficulties. About 82% in the age group (80 years and above) complained from various degrees of difficulties in both nationalities. Extreme severe difficulty was found only among the Bahraini nationals aged 80 and above - Table 3.2.9b.

Table 3.2.9a: Difficulty with 'seeing' across the road (20m) and at arm's length or in reading in the last 30 days stratified by nationality and sex

	Bahraini			Non-Bahraini			Total		
	Female	Male	Total	Female	Male	Total	Female	Male	Total
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Use of eyeglasses or contact lenses to see far away:									
Yes	29.4	30.6	30.1	20.7	24.9	23.6	27.3	28.5	28.0
No	70.6	69.4	69.9	79.3	75.1	76.4	72.7	71.5	72.0
Total	961	1085	2046	320	654	974	1281	1739	3020
Use of eyeglasses to see up close:									
Yes	31.0	32.5	31.8	23.3	27.7	26.3	29.1	30.7	30.0
No	69.0	67.5	68.2	76.7	72.3	73.7	70.9	69.3	70.0
Total	961	1085	2046	320	654	974	1281	1739	3020
Difficulty in seeing and recognizing an object or a person you know across the road:									
None	75.1	81.2	78.4	92.4	91.4	91.7	79.6	85.1	82.6
Mild	16.1	11.7	13.7	6.1	7.8	7.2	13.6	10.2	11.7
Moderate	5.3	4.9	5.1	1.5	0.8	1.1	4.3	3.3	3.8
Severe	2.5	1.7	2.1	0.0	0.0	0.0	1.8	1.1	1.4
Extreme severe	1.0	0.5	0.7	0.0	0.0	0.0	0.7	0.3	0.5
Total	961	1085	2046	320	654	974	1281	1739	3020
Difficulty in seeing and recognizing an object at arm's length:									
None	73.9	80.8	77.5	93.8	89.5	90.9	78.9	84.0	81.9
Mild	18.0	13.3	15.5	4.3	9.2	7.6	14.6	11.8	13.0
Moderate	5.7	4.1	4.9	1.9	1.3	1.5	4.8	3.1	3.8
Severe	1.9	1.5	1.7	0.0	0.0	0.0	1.4	0.9	1.1
Extreme severe	0.5	0.3	0.4	0.0	0.0	0.0	0.3	0.2	0.2
Total	961	1085	2046	320	654	974	1281	1739	3020
	Mean SE	**Mean SE**	**Mean SE**	**Mean SE**	**Mea SE**	**Mean SE**	**Mean SE**	**Mean SE**	**Mean SE**
Last time since the eyes examined by doctor	222 33.86	146 21.66	181 19.61	196 18.62	151 11.51	166 9.87	216 25.8	148 14.16	176 13.64

Table 3.2.9b: Difficulty with 'seeing' across the road (20m) and at arm's length or in reading in the last 30 days stratified by nationality and age

Difficulties in doing activities in last 30 days	Bahraini age groups						Non-Bahraini age groups					
	Age group						Age group					
	18-	30-	45-	60-	70-	80+	18-	30-	45-	60-	70-	80+
	%	%	%	%	%	%	%	%	%	%	%	%
Difficulty in seeing and recognizing an object or a person you know across the road:												
None	87.8	90.4	81.0	69.1	53.3	22.4	91.4	91.3	87.7	79.5	60.9	39.5
Mild	8.6	6.7	13.9	19.5	25.8	28.4	7.1	7.8	11.2	19.2	37.6	39.2
Moderate	2.2	2.2	3.4	7.1	13.0	30.9	1.5	0.9	1.1	1.3	1.5	21.3
Severe	0.7	0.6	1.5	2.9	5.9	9.1	0.0	0.0	0.0	0.0	0.0	0.0
Extreme severe	0.7	0.1	0.2	1.4	2.0	9.2	0.0	0.0	0.0	0.0	0.0	0.0
Total	**203**	**696**	**708**	**329**	**84**	**26**	**116**	**510**	**306**	**31**	**10**	**1**
Difficulty in seeing and recognizing an object at arm's length:												
None	93.1	94.1	73.9	64.2	57.2	18.0	91.4	91.0	87.8	69.5	50.9	29.5
Mild	6.2	4.5	20.0	21.7	29.0	36.2	7.1	8.1	10.2	19.2	37.6	39.2
Moderate	0.3	1.1	5.0	8.9	9.0	36.7	1.5	0.9	2.0	11.3	11.5	31.3
Severe	0.0	0.3	1.1	4.3	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Extreme severe	0.4	0.0	0.0	0.9	1.0	9.1	0.0	0.0	0.0	0.0	0.0	0.0
Total	**203**	**696**	**708**	**329**	**84**	**26**	**116**	**510**	**306**	**31**	**10**	**1**



3.3 FUNCTION ASSESSMENT (DIFFICULTIES/ LIMITATIONS)

The health state of the individual respondents was assessed using a tool for measuring functioning and disability. The WHO Disability Assessment Schedule (WHO-DAS) has been developed to assess the activity limitations and participation restrictions experienced by an individual irrespective of medical diagnosis. Respondents were asked to state the level of difficulty experienced taking into consideration how they usually do the activity, including the use of any assistive devices and/or the help of a person. The domains included in the instrument are: understanding and communicating, getting around, self-care, getting along with people, life activities, and participation in society. The respondents were asked to answer questions about the degree of difficulty in performing certain tasks in the last 30 days. These tasks are listed in table 3.1a stratified by nationality and sex and table 3.1b stratified by age and wealth quintiles which involve: motor skills, social skills, cognitive skills, etc. The responses extend from "none" to "extreme severity" on a 5-points Likert scale.

Table 3.3a shows the prevalence of the degree of difficulty reported by respondents in performing each of the above-mentioned tasks in the last 30 days prior to the survey. Overall, the majority of respondents reported that they didn't have difficulty with performing any of the 22 tasks asked about, ranged from 76.3% as in standing for long periods up to 97.5% in getting to and using the toilet, with higher percentages among males and non-Bahraini.

Among the high percentages of respondents who reported a difficulty in performing a task was with climbing one flight of stairs without resting; about 21% of respondents recorded various degrees of difficulties, 11.6% of which reported mild difficulty, 4.5% moderate difficulty, 3% reported sever difficulty and 2% reported extreme severe difficulty. The difficulty was higher among Bahraini and females. 24% of the respondents reported having a problem standing for long periods.

With regard to age, "no difficulty in performing the tasks" decreased as the age increased. There was no significant difference observed between the different wealth quintiles, with slight increase in the percentage of respondents who reported difficulty in performing some tasks among those in to Q5 - Table 3.3b.

Table 3.3a: Difficulty with tasks /activities in the last 30 days stratified by nationality and sex

Difficulties in doing these activities in the last 30 days	Bahraini			Non-Bahraini			Total		
	Female	Male	Total	Female	Male	Total	Female	Male	Total
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
In sitting for long periods:									
None	69.9	75.3	72.8	85.6	92.2	90.0	73.8	81.7	78.4
Mild	18.3	16.2	17.2	10.9	7.1	8.3	16.4	12.7	14.3
Moderate	7.1	6.1	6.5	2.7	0.5	1.2	6.0	4.0	4.8
Severe	4.2	2.1	3.1	0.8	0.2	0.5	3.4	1.4	2.2
Extreme severe	0.5	0.3	0.4	0.0	0.0	0.0	0.4	0.2	0.3
Total	**961**	**1085**	**2046**	**320**	**654**	**974**	**1281**	**1739**	**3020**
In walking 100 meters:									
None	74.5	87.8	81.5	90.8	96.5	94.7	78.5	91.1	85.8
Mild	11.3	6.1	8.5	8.0	3.3	4.8	10.5	5.0	7.3
Moderate	6.7	2.7	4.6	0.9	0.2	0.4	5.2	1.8	3.2
Severe	6.4	2.3	4.3	0.3	0.0	0.1	4.9	1.4	2.9
Extreme severe	1.1	1.1	1.1	0.0	0.0	0.0	0.9	0.7	0.8
Total	**961**	**1085**	**2046**	**320**	**654**	**974**	**1281**	**1739**	**3020**
In standing up from sitting down:									
None	74.3	82.3	78.6	90.2	95.9	94.1	78.3	87.5	83.5
Mild	15.5	11.4	13.3	7.6	3.6	4.9	13.5	8.4	10.6
Moderate	6.2	4.1	5.1	2.2	0.5	1.0	5.2	2.7	3.8
Severe	3.5	1.3	2.3	0.0	0.0	0.0	2.6	0.8	1.6
Extreme severe	0.5	0.9	0.7	0.0	0.0	0.0	0.4	0.6	0.5
Total	**961**	**1085**	**2046**	**320**	**654**	**974**	**1281**	**1739**	**3020**
In standing for long periods:									
None	63.2	75.4	69.7	83.1	93.6	90.2	68.2	82.3	76.3
Mild	18.2	12.8	15.3	13.5	5.0	7.8	17.0	9.8	12.9
Moderate	9.8	7.0	8.3	1.9	1.0	1.3	7.8	4.7	6.0
Severe	6.5	3.6	5.0	1.2	0.4	0.6	5.2	2.4	3.6
Extreme severe	2.3	1.2	1.7	0.3	0.0	0.1	1.8	0.8	1.2
Total	**961**	**1085**	**2046**	**320**	**654**	**974**	**1281**	**1739**	**3020**
In climbing one flight of stairs without resting:									
None	65.7	79.2	72.9	87.6	93.3	91.5	71.1	84.6	78.9
Mild	16.7	11.5	13.9	9.1	5.7	6.9	14.8	9.3	11.6
Moderate	7.7	5.0	6.3	1.7	0.6	0.9	6.2	3.3	4.5
Severe	6.5	2.3	4.3	0.0	0.4	0.2	4.9	1.6	3.0
Extreme severe	3.5	2.0	2.7	1.5	0.0	0.5	3.0	1.3	2.0
Total	**961**	**1085**	**2046**	**320**	**654**	**974**	**1281**	**1739**	**3020**

Table 3.3b: Difficulty with tasks/activities in the last 30 days stratified by age and wealth quintiles

	Age group						Wealth Quintiles				
	18-	30-	45-	60-	70-	80+	Q1	Q2	Q3	Q4	Q5
	%	%	%	%	%	%	%	%	%	%	%
In sitting for long periods:											
None	89.3	84.1	77.5	65.0	43.6	22.2	77.3	77.7	76.6	75.2	77.2
Mild	8.3	11.1	15.4	20.8	33.6	31.7	15.6	14.6	14.1	18.1	13.8
Moderate	2.1	3.2	4.5	9.0	16.9	23.5	4.2	5.4	5.8	5.6	5.2
Severe	0.3	1.5	2.5	4.6	4.1	13.4	2.5	2.1	3.0	0.9	3.4
Extreme severe	0.0	0.1	0.1	0.6	1.8	9.2	0.4	0.2	0.5	0.2	0.4
Total	**316**	**1208**	**1017**	**358**	**99**	**22**	**432**	**461**	**445**	**451**	**444**
In walking 100 meters:											
None	96.1	94.1	86.0	65.9	37.9	13.2	80.0	81.6	85.7	86.8	90.1
Mild	2.3	3.6	8.2	17.0	24.3	9.0	8.8	10.8	6.3	7.1	4.6
Moderate	1.3	1.3	3.0	8.2	12.5	23.3	4.7	3.3	3.8	3.3	2.9
Severe	0.3	0.8	2.3	7.0	21.2	31.8	5.1	3.0	3.4	2.2	1.9
Extreme severe	0.0	0.2	0.5	1.9	4.1	22.7	1.4	1.3	0.8	0.6	0.5
Total	**316**	**1208**	**1017**	**358**	**99**	**22**	**432**	**461**	**445**	**451**	**444**
In standing up from sitting down:											
None	94.7	91.7	83.1	62.4	47.3	8.8	79.9	83.1	83.7	83.3	84.0
Mild	3.0	5.6	12.7	23.3	25.0	22.5	11.3	11.3	9.2	12.1	10.5
Moderate	1.7	1.9	3.1	7.6	18.5	36.1	5.2	3.7	4.8	3.5	2.8
Severe	0.6	0.8	0.6	5.3	7.0	18.0	3.3	1.0	1.6	0.7	2.3
Extreme severe	0.0	0.0	0.5	1.4	2.2	14.6	0.3	0.9	0.7	0.7	0.5
Total	**316**	**1208**	**1017**	**358**	**99**	**22**	**432**	**461**	**445**	**451**	**444**
In standing for long periods:											
None	89.9	84.7	75.0	53.9	37.7	13.2	73.7	75.6	77.0	73.5	76.3
Mild	6.2	9.6	15.0	21.6	22.1	9.0	13.5	13.9	10.7	15.5	11.8
Moderate	2.7	3.7	5.6	13.2	20.1	24.5	7.3	5.1	7.0	7.4	6.1
Severe	0.9	1.8	3.0	8.9	14.0	30.6	4.1	3.6	4.2	2.1	4.4
Extreme severe	0.3	0.2	1.4	2.4	6.1	22.7	1.4	1.8	1.1	1.5	1.4
Total	**316**	**1208**	**1017**	**358**	**99**	**22**	**432**	**461**	**445**	**451**	**444**
In climbing one flight of stairs without resting:											
None	93.0	87.5	76.5	59.5	37.7	13.4	75.5	77.8	78.4	77.9	79.9
Mild	4.1	8.6	14.2	18.5	21.7	8.7	12.1	12.2	9.6	14.9	10.2
Moderate	2.0	2.7	5.0	9.4	10.4	19.0	5.2	4.7	6.8	2.6	6.2
Severe	0.6	0.7	2.7	7.7	18.0	27.4	5.3	2.7	2.9	1.6	2.5
Extreme severe	0.3	0.5	1.6	4.9	12.2	31.5	1.9	2.6	2.3	3.0	1.2
Total	**316**	**1208**	**1017**	**358**	**99**	**22**	**432**	**461**	**445**	**451**	**444**

Table 3.3a (Cont'd)

	Bahraini			Non-Bahraini			Total		
	Female	Male	Total	Female	Male	Total	Female	Male	Total
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
With stooping, kneeling or crouching:									
None	68.5	78.5	73.8	92.0	96.9	95.3	74.4	85.5	80.8
Mild	14.2	10.8	12.4	4.5	2.8	3.3	11.8	7.8	9.5
Moderate	6.6	5.2	5.8	2.7	0.3	1.1	5.6	3.3	4.3
Severe	7.3	3.5	5.4	0.3	0.0	0.1	5.6	2.2	3.6
Extreme severe	3.4	2.0	2.6	0.5	0.0	0.2	2.6	1.2	1.8
Total	**961**	**1085**	**2046**	**320**	**654**	**974**	**1281**	**1739**	**3020**
Picking up things with your fingers:									
None	87.6	91.9	89.9	95.5	98.1	97.3	89.5	94.2	92.3
Mild	7.7	4.1	5.8	3.8	1.8	2.4	6.8	3.2	4.7
Moderate	2.4	2.1	2.3	0.7	0.1	0.3	2.0	1.4	1.6
Severe	1.7	0.8	1.2	0.0	0.0	0.0	1.3	0.5	0.8
Extreme severe	0.6	1.1	0.8	0.0	0.0	0.0	0.4	0.7	0.6
Total	**961**	**1085**	**2046**	**320**	**654**	**974**	**1281**	**1739**	**3020**
In taking care of your household:									
None	80.1	92.5	86.7	94.6	98.1	97.0	83.7	94.6	90.0
Mild	10.5	4.3	7.2	3.5	1.6	2.2	8.7	3.3	5.6
Moderate	5.5	1.6	3.4	1.5	0.0	0.5	4.5	1.0	2.5
Severe	2.7	0.8	1.7	0.4	0.0	0.1	2.1	0.5	1.2
Extreme severe	1.3	0.7	1.0	0.0	0.3	0.2	1.0	0.6	0.7
Total	**961**	**1085**	**2046**	**320**	**654**	**974**	**1281**	**1739**	**3020**

	Bahraini			Non-Bahraini			Total		
	Female	Male	Total	Female	Male	Total	Female	Male	Total
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
In joining community activities:									
None	86.3	92.3	89.4	93.8	98.8	97.2	88.1	94.7	91.8
Mild	6.6	5.0	5.8	3.7	0.9	1.8	5.9	3.5	4.5
Moderate	4.2	1.4	2.7	2.5	0.3	1.0	3.8	1.0	2.2
Severe	2.3	0.6	1.4	0.0	0.0	0.0	1.7	0.4	1.0
Extreme severe	0.6	0.7	0.7	0.0	0.0	0.0	0.5	0.4	0.5
Total	**961**	**1085**	**2046**	**320**	**654**	**974**	**1281**	**1739**	**3020**
In extending arms above shoulder:									
None	89.1	95.4	92.4	96.4	98.2	97.6	90.9	96.4	94.1
Mild	6.2	2.7	4.3	3.0	1.6	2.1	5.4	2.3	3.6
Moderate	2.8	0.9	1.8	0.0	0.0	0.0	2.1	0.5	1.2
Severe	1.2	0.3	0.8	0.6	0.2	0.3	1.1	0.4	0.7
Extreme severe	0.7	0.7	0.7	0.0	0.0	0.0	0.5	0.4	0.4
Total	**961**	**1085**	**2046**	**320**	**654**	**974**	**1281**	**1739**	**3020**
In concentrating on doing something for 10 minutes:									
None	89.7	94.6	92.3	98.5	98.7	98.6	91.8	96.2	94.3
Mild	6.2	3.3	4.6	1.5	1.2	1.3	5.1	2.4	3.6
Moderate	2.7	1.0	1.8	0.0	0.0	0.0	2.0	0.6	1.2
Severe	1.1	0.7	0.9	0.0	0.1	0.1	0.8	0.5	0.6
Extreme severe	0.3	0.4	0.4	0.0	0.0	0.0	0.3	0.3	0.3
Total	**961**	**1085**	**2046**	**320**	**654**	**974**	**1281**	**1739**	**3020**

Table 3.3b (Cont'd)

	Age group						Wealth Quintiles				
	18-	30-	45-	60-	70-	80+	Q1	Q2	Q3	Q4	Q5
	%	%	%	%	%	%	%	%	%	%	%
With stooping, kneeling or crouching:											
None	94.8	90.3	80.2	54.6	35.6	17.8	78.2	82.0	80.1	79.1	78.0
Mild	3.9	5.4	11.3	20.0	20.3	4.4	10.1	7.9	8.4	13.2	10.9
Moderate	0.6	2.7	3.4	10.4	17.3	28.1	4.9	5.3	5.2	3.5	4.7
Severe	0.6	1.3	3.3	9.9	17.9	22.8	5.4	2.4	4.9	1.9	3.6
Extreme severe	0.0	0.3	1.8	5.0	8.9	26.9	1.5	2.3	1.3	2.3	2.9
Total	**316**	**1208**	**1017**	**358**	**99**	**22**	**432**	**461**	**445**	**451**	**444**
Picking up things with your fingers:											
None	99.0	97.4	91.9	79.9	68.2	40.3	88.2	94.7	93.0	91.8	94.9
Mild	0.7	1.7	5.4	13.0	13.2	19.0	6.8	2.4	3.8	6.0	3.1
Moderate	0.0	0.6	1.5	4.5	8.4	9.0	2.5	1.1	1.6	1.5	0.9
Severe	0.0	0.2	0.6	1.2	9.0	18.2	1.6	1.1	1.0	0.2	0.4
Extreme severe	0.3	0.1	0.6	1.4	1.2	13.6	1.0	0.6	0.6	0.4	0.7
Total	**316**	**1208**	**1017**	**358**	**99**	**22**	**432**	**461**	**445**	**451**	**444**
In taking care of your household:											
None	97.8	96.5	90.5	74.2	54.4	13.3	83.8	91.3	91.2	89.3	93.4
Mild	1.2	2.2	6.0	15.6	17.2	23.5	8.9	4.6	4.3	7.3	2.0
Moderate	0.7	0.8	2.1	5.6	17.2	22.1	3.6	2.0	2.7	2.1	3.4
Severe	0.3	0.4	0.7	3.5	5.2	23.0	2.8	0.9	1.4	0.4	1.0
Extreme severe	0.0	0.1	0.7	1.1	6.0	18.1	0.9	1.2	0.4	0.9	0.2
Total	**316**	**1208**	**1017**	**358**	**99**	**22**	**432**	**461**	**445**	**451**	**444**
In joining community activities:											
None	96.6	96.0	93.6	82.3	59.2	31.2	86.4	93.2	91.4	92.8	93.3
Mild	1.9	2.2	3.5	11.7	22.2	13.7	6.3	2.8	4.4	5.0	4.2
Moderate	1.2	1.4	1.7	2.8	12.6	23.1	4.9	2.1	2.5	0.9	1.5
Severe	0.0	0.2	0.9	1.4	3.9	22.8	1.7	0.8	1.2	0.9	0.7
Extreme severe	0.3	0.2	0.3	0.8	2.1	9.2	0.7	1.1	0.5	0.4	0.3
Total	**316**	**1208**	**1017**	**358**	**99**	**22**	**432**	**461**	**445**	**451**	**444**
In extending arms above shoulder:											
None	99.3	98.2	94.3	85.0	69.9	40.3	90.7	93.7	94.0	95.2	96.3
Mild	0.3	1.2	3.5	8.6	21.1	27.7	6.0	4.1	3.2	2.5	2.3
Moderate	0.0	0.3	0.8	4.4	6.0	10.0	1.9	0.7	1.4	1.5	0.4
Severe	0.4	0.2	0.5	1.4	1.8	17.4	1.1	0.6	1.1	0.6	0.6
Extreme severe	0.0	0.1	0.9	0.6	1.2	4.6	0.3	0.9	0.3	0.2	0.4
Total	**316**	**1208**	**1017**	**358**	**99**	**22**	**432**	**461**	**445**	**451**	**444**
In concentrating on doing something for 10 minutes:											
None	98.4	97.9	95.9	85.8	65.1	40.5	89.7	94.7	94.8	95.4	95.7
Mild	0.6	1.6	2.5	9.2	23.5	19.5	6.8	2.1	3.3	2.9	3.1
Moderate	0.3	0.1	1.0	3.2	8.3	22.5	1.8	1.8	0.9	1.5	0.4
Severe	0.7	0.2	0.3	1.8	1.9	12.8	1.5	0.6	0.8	0.2	0.5
Extreme severe	0.0	0.2	0.3	0.0	1.2	4.7	0.3	0.8	0.2	0.0	0.2
Total	**316**	**1208**	**1017**	**358**	**99**	**22**	**432**	**461**	**445**	**451**	**444**

Table 3.3a (Cont'd)

	Bahraini			Non-Bahraini			Total		
	Female	Male	Tot	Female	Male	Tot	Female	Male	Tot
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
In walking a long distance:									
None	63.6	82.7	73.8	88.6	95.9	93.5	69.9	87.7	80.1
Mild	12.5	6.2	9.1	7.4	3.2	4.6	11.2	5.1	7.7
Moderate	9.8	4.4	6.9	2.8	0.9	1.5	8.0	3.1	5.2
Severe	10.1	4.4	7.1	0.3	0.0	0.1	7.7	2.7	4.8
Extreme severe	4.0	2.3	3.1	0.9	0.0	0.3	3.2	1.4	2.2
Total	**961**	**1085**	**2046**	**320**	**654**	**974**	**1281**	**1739**	**3020**
In bathing/washing your whole body:									
None	93.1	96.0	94.5	97.7	98.9	98.5	94.3	97.1	95.9
Mild	4.1	1.8	2.9	2.3	1.0	1.4	3.7	1.5	2.4
Moderate	1.6	1.2	1.4	0.0	0.0	0.0	1.1	0.7	0.9
Severe	0.7	0.3	0.5	0.0	0.0	0.0	0.5	0.2	0.3
Extreme severe	0.5	0.7	0.7	0.0	0.1	0.1	0.4	0.5	0.5
Total	**961**	**1085**	**2046**	**320**	**654**	**974**	**1281**	**1739**	**3020**
In getting dressed:									
None	93.7	96.9	95.3	97.9	99.1	98.7	94.7	97.7	96.4
Mild	3.8	1.9	2.8	2.1	0.9	1.3	3.3	1.5	2.3
Moderate	1.6	0.6	1.1	0.0	0.0	0.0	1.2	0.4	0.7
Severe	0.7	0.1	0.4	0.0	0.0	0.0	0.6	0.1	0.3
Extreme severe	0.2	0.5	0.4	0.0	0.0	0.0	0.2	0.3	0.3
Total	**961**	**1085**	**2046**	**320**	**654**	**974**	**1281**	**1739**	**3020**
In your day-to-day work:									
None	83.0	93.3	88.5	95.6	98.6	97.6	86.2	95.4	91.4
Mild	9.2	4.2	6.5	2.9	1.3	1.8	7.6	3.0	5.1
Moderate	4.2	1.5	2.8	1.1	0.1	0.5	3.5	1.0	2.0
Severe	2.9	0.5	1.6	0.4	0.0	0.1	2.2	0.3	1.1
Extreme severe	0.7	0.5	0.6	0.0	0.0	0.0	0.5	0.3	0.4
Total	**961**	**1085**	**2046**	**320**	**654**	**974**	**1281**	**1739**	**3020**
With carrying things:									
None	75.8	84.9	80.7	91.8	97.7	95.7	79.8	89.7	85.5
Mild	11.1	6.7	8.8	5.0	1.9	2.9	9.6	4.9	6.9
Moderate	6.0	4.6	5.2	2.1	0.5	1.0	5.0	3.0	3.9
Severe	4.9	2.4	3.6	0.6	0.0	0.2	3.8	1.5	2.5
Extreme severe	2.2	1.4	1.8	0.6	0.0	0.2	1.8	0.9	1.3
Total	**961**	**1085**	**2046**	**320**	**654**	**974**	**1281**	**1739**	**3020**
With moving around inside your house:									
None	87.5	94.7	91.3	97.5	99.0	98.5	90.1	96.4	93.7
Mild	6.5	2.6	4.4	1.9	0.9	1.2	5.3	1.9	3.4
Moderate	4.0	1.2	2.5	0.6	0.0	0.2	3.1	0.7	1.7
Severe	1.2	0.7	1.0	0.0	0.0	0.0	0.9	0.5	0.6
Extreme severe	0.8	0.8	0.8	0.0	0.1	0.1	0.6	0.5	0.6
Total	**961**	**1085**	**2046**	**320**	**654**	**974**	**1281**	**1739**	**3020**

Table 3.3b (Cont'd)

	Age group						Wealth Quintiles				
	18-	30-	45-	60-	70-	80+	Q1	Q2	Q3	Q4	Q5
	%	%	%	%	%	%	%	%	%	%	%
In walking a long distance:											
None	93.5	89.0	78.9	57.9	37.7	13.2	74.9	78.0	79.3	79.4	82.7
Mild	3.5	5.9	8.7	14.0	11.3	0.0	9.1	9.0	6.2	8.6	4.8
Moderate	1.7	3.4	6.8	8.3	11.3	0.0	5.4	5.6	5.6	6.0	6.8
Severe	0.7	1.4	4.0	14.4	24.7	40.8	8.0	5.3	5.9	3.3	3.9
Extreme severe	0.6	0.3	1.6	5.4	15.0	46.0	2.6	2.1	3.0	2.7	1.8
Total	**316**	**1208**	**1017**	**358**	**99**	**22**	**432**	**461**	**445**	**451**	**444**
In bathing/washing your whole body:											
None	99.0	99.1	96.7	88.4	77.8	35.7	92.8	95.5	95.9	97.2	97.3
Mild	1.0	0.5	2.3	6.7	14.0	13.3	4.1	1.6	2.8	2.0	1.5
Moderate	0.0	0.2	0.3	2.6	6.2	33.3	1.9	1.8	0.5	0.6	0.2
Severe	0.0	0.0	0.2	1.2	1.1	8.4	0.5	0.2	0.5	0.0	0.3
Extreme severe	0.0	0.2	0.5	1.1	0.9	9.3	0.7	0.9	0.3	0.2	0.7
Total	**316**	**1208**	**1017**	**358**	**99**	**22**	**432**	**461**	**445**	**451**	**444**
In getting dressed:											
None	99.3	99.2	97.5	90.3	78.1	40.3	93.3	96.6	96.1	97.2	98.7
Mild	0.7	0.5	1.9	6.0	14.9	23.3	3.9	1.6	2.9	2.6	0.8
Moderate	0.0	0.2	0.3	2.0	5.1	18.8	1.9	0.8	0.3	0.2	0.3
Severe	0.0	0.0	0.1	0.9	1.9	8.4	0.7	0.2	0.5	0.0	0.0
Extreme sever	0.0	0.1	0.2	0.8	0.0	9.2	0.2	0.8	0.2	0.0	0.2
Total	**316**	**1208**	**1017**	**358**	**99**	**22**	**432**	**461**	**445**	**451**	**444**
In your day-to-day work:											
None	97.0	97.1	92.6	78.0	56.8	22.2	85.6	93.9	91.9	92.3	91.4
Mild	2.7	2.0	4.3	13.9	20.5	19.1	6.8	3.3	4.4	5.5	4.8
Moderate	0.3	0.5	2.0	4.5	11.5	27.5	3.4	1.1	2.5	1.4	2.0
Severe	0.0	0.4	0.5	3.0	9.1	22.0	3.2	1.1	0.9	0.7	1.3
Extreme severe	0.0	0.0	0.6	0.6	2.1	9.2	1.0	0.6	0.2	0.2	0.5
Total	**316**	**1208**	**1017**	**358**	**99**	**22**	**432**	**461**	**445**	**451**	**444**
With carrying things:											
None	95.4	92.9	85.8	66.3	47.2	13.2	81.9	86.8	84.8	84.7	85.4
Mild	3.0	4.1	6.9	15.9	17.9	18.1	8.8	6.2	5.5	7.9	6.5
Moderate	0.7	1.7	4.0	9.7	12.3	28.9	4.0	3.0	4.4	4.3	5.2
Severe	0.3	0.7	2.2	5.7	16.7	26.2	3.3	2.9	3.8	1.5	1.7
Extreme severe	0.6	0.5	1.2	2.4	5.9	13.6	2.0	1.2	1.5	1.6	1.2
Total	**316**	**1208**	**1017**	**358**	**99**	**22**	**432**	**461**	**445**	**451**	**444**
With moving around inside your home:											
None	98.7	98.7	94.8	81.4	62.3	35.7	88.8	94.4	93.4	95.4	95.6
Mild	0.7	0.6	2.9	11.4	18.9	14.6	6.0	2.0	2.6	3.3	2.8
Moderate	0.3	0.3	1.4	4.2	13.7	22.9	3.5	1.8	1.8	0.8	1.1
Severe	0.0	0.2	0.6	1.7	2.0	13.1	1.0	0.6	1.4	0.2	0.0
Extreme severe	0.3	0.2	0.3	1.3	3.1	13.7	0.7	1.2	0.8	0.3	0.5
Total	**316**	**1208**	**1017**	**358**	**99**	**22**	**432**	**461**	**445**	**451**	**444**

Table 3.3a (Cont'd)

	Bahraini			Non-Bahraini			Total		
	Female	Male	Tot	Female	Male	Tot	Female	Male	Tot
	%	%	%	%	%	%	%	%	%
With eating:									
None	94.2	96.3	95.2	97.5	99.4	98.8	95.0	97.5	96.4
Mild	2.9	2.2	2.6	1.8	0.6	1.0	2.6	1.6	2.0
Moderate	1.2	0.8	1.0	0.7	0.0	0.2	1.1	0.5	0.8
Severe	0.9	0.3	0.6	0.0	0.0	0.0	0.7	0.2	0.4
Extreme severe	0.8	0.4	0.6	0.0	0.0	0.0	0.6	0.2	0.4
Total	**961**	**1085**	**2046**	**320**	**654**	**974**	**1281**	**1739**	**3020**
With getting up from lying down:									
None	83.8	91.4	87.8	94.2	98.4	97.1	86.4	94.0	90.8
Mild	9.2	4.3	6.6	3.8	1.6	2.3	7.8	3.3	5.2
Moderate	4.0	2.4	3.1	1.7	0.0	0.5	3.4	1.5	2.3
Severe	2.5	0.9	1.6	0.0	0.0	0.0	1.9	0.5	1.1
Extreme severe	0.6	1.2	0.9	0.3	0.0	0.1	0.5	0.7	0.6
Total	**961**	**1085**	**2046**	**320**	**654**	**974**	**1281**	**1739**	**3020**
With getting to and using the toilet:									
None	92.2	96.4	94.5	97.8	99.3	98.8	93.6	97.5	97.5
Mild	4.7	2.0	3.3	1.6	0.7	1.0	3.9	1.5	1.5
Moderate	1.6	0.8	1.2	0.3	0.0	0.1	1.3	0.5	0.5
Severe	1.1	0.2	0.6	0.0	0.0	0.0	0.8	0.2	0.2
Extreme severe	0.4	0.6	0.4	0.3	0.0	0.1	0.4	0.3	0.3
Total	**961**	**1085**	**2046**	**320**	**654**	**974**	**1281**	**1739**	**3020**
With getting where one wants to go using private or public transport:									
None	86.7	94.9	91.1	95.4	98.0	97.2	88.9	96.1	93.1
Mild	7.6	2.0	4.6	3.0	1.7	2.1	6.4	1.9	3.8
Moderate	3.0	1.7	2.3	0.6	0.0	0.2	2.4	1.0	1.6
Severe	1.7	0.5	1.0	0.7	0.0	0.2	1.4	0.3	0.8
Extreme severe	1.0	0.9	1.0	0.3	0.3	0.3	0.9	0.7	0.7
Total	**961**	**1085**	**2046**	**320**	**654**	**974**	**1281**	**1739**	**3020**
Getting out of house:									
None	87.6	95.3	91.7	96.1	99.2	98.2	89.7	96.8	93.8
Mild	6.7	2.1	4.3	2.4	0.8	1.3	5.6	1.6	3.3
Moderate	2.9	1.3	2.0	1.2	0.0	0.4	2.5	0.8	1.5
Severe	1.7	0.4	1.0	0.0	0.0	0.0	1.3	0.2	0.7
Extreme severe	1.1	0.9	1.0	0.3	0.0	0.1	0.9	0.6	0.7
Total	**961**	**1085**	**2046**	**320**	**654**	**974**	**1281**	**1739**	**3020**

Table 3.3b (Cont'd)

	Age group						Wealth Quintiles				
	18-	30-	45-	60-	70-	80+	Q1	Q2	Q3	Q4	Q5
	%	%	%	%	%	%	%	%	%	%	%
With eating:											
None	98.9	98.7	97.4	91.1	76.1	63.9	95.0	97.1	96.5	96.6	97.3
Mild	0.7	0.7	1.7	5.4	13.9	4.2	3.4	1.1	1.4	2.4	1.1
Moderate	0.0	0.3	0.4	1.8	5.9	14.4	0.4	1.1	0.7	0.6	0.6
Severe	0.0	0.0	0.3	1.4	1.9	8.4	0.7	0.3	0.9	0.4	0.1
Extreme severe	0.4	0.3	0.2	0.3	2.2	9.1	0.5	0.4	0.5	0.0	0.9
Total	**316**	**1208**	**1017**	**358**	**99**	**22**	**432**	**461**	**445**	**451**	**444**
With getting up from lying down:											
None	98.4	96.1	90.6	78.5	60.3	31.3	89.2	90.7	91.1	90.0	92.3
Mild	0.9	2.6	5.6	11.7	21.2	9.0	5.8	4.9	3.8	5.7	4.3
Moderate	0.7	1.0	2.3	5.1	9.2	18.6	2.2	2.3	3.0	3.1	1.7
Severe	0.0	0.1	0.9	3.2	7.2	17.4	2.1	1.0	1.2	0.7	1.2
Extreme severe	0.0	0.2	0.6	1.5	2.1	23.7	0.7	1.1	0.9	0.5	0.5
Total	**316**	**1208**	**1017**	**358**	**99**	**22**	**432**	**461**	**445**	**451**	**444**
With getting to and using the toilet:											
None	99.3	99.3	96.9	87.4	74.9	40.3	92.8	96.1	96.0	97.1	98.2
Mild	0.7	0.4	1.9	8.0	18.1	14.2	3.6	2.1	2.9	2.0	1.1
Moderate	0.0	0.2	0.7	2.2	3.0	23.4	2.1	0.4	0.6	0.9	0.2
Severe	0.0	0.0	0.2	1.2	2.9	13.0	0.9	0.8	0.3	0.0	0.0
Extreme severe	0.0	0.1	0.3	1.2	1.2	9.1	0.6	0.6	0.2	0.0	0.5
Total	**316**	**1208**	**1017**	**358**	**99**	**22**	**432**	**461**	**445**	**451**	**444**
With getting where one wants to go using private or public transport:											
None	98.7	97.8	93.6	82.5	64.1	26.8	87.4	93.7	93.0	94.5	95.3
Mild	1.0	1.2	4.4	9.3	16.1	14.6	6.4	3.1	3.4	3.4	2.2
Moderate	0.3	0.2	1.2	4.4	12.0	23.1	3.1	1.3	2.0	0.6	1.7
Severe	0.0	0.4	0.3	1.6	5.7	21.8	2.1	0.9	0.7	0.7	0.9
Extreme severe	0.0	0.4	0.5	2.2	2.1	13.7	1.0	1.0	0.9	0.8	0.9
Total	**316**	**1208**	**1017**	**358**	**99**	**22**	**432**	**461**	**445**	**451**	**444**
Getting out of house:											
None	98.3	98.2	95.3	83.5	61.8	26.8	88.8	94.7	93.8	95.5	96.4
Mild	1.1	1.0	2.7	9.0	21.3	19.1	4.7	3.0	3.0	2.5	1.6
Moderate	0.6	0.5	1.0	3.8	9.9	18.6	3.2	1.1	2.5	1.2	0.6
Severe	0.0	0.0	0.5	1.5	5.8	17.4	2.1	0.4	0.5	0.6	0.0
Extreme severe	0.0	0.3	0.5	2.2	1.2	18.1	1.2	0.8	0.2	0.2	1.4
Total	**316**	**1208**	**1017**	**358**	**99**	**22**	**432**	**461**	**445**	**451**	**444**

After asking about the degree of difficulties respondents had in the last 30 days, they were asked about two aspects:

- To what extent did those difficulties emotionally affect your health conditions?
- To what extent did those difficulties affect your life, in general?

Answers for these two questions are present in table 3.3c stratified by nationality and sex, and table 3.3d stratified by age and wealth quintiles.

Table 3.3c shows the percentage of respondents who stated that they were emotionally affected by their health conditions. More than 80% of the respondents stated that health difficulties, if experienced, did not emotionally affect them at all. Only 7.1% stated that they were mildly affected, 4.3% were moderately affected and 2.1% were severely to extreme severely affected. The percentage of no effect was higher among males than females and among non-Bahraini than Bahraini (Figure 3.1). The percentage of males who stated that they were never emotionally affected by their health conditions was 11% higher than females (91.1% compared to 80.2%). Less percentage of non-Bahraini than Bahraini said that they were emotionally affected by health (3.6% compared to 18.2% respectively) - Table 3.3.2a.

Table 3.3d shows that, in general, the wealth quintiles of the respondents showed a little effect on their emotions. The percentage of those who stated that they were never emotionally affected by their health conditions among the Q5 (Highest) group is 82.9% compared to 82.5% among the Q1 (Lowest) group.

For the effect of age, the percentage of those who stated that they were never emotionally affected by their health conditions decreased with age. Nearly 91% among the age group (18–29 years) reported having no emotional effect compared to only 60.7 % among the age group (70-79 years) and 44.9% among those aged 80 and above (Table 3.3b).

Table 3.3c also shows the percentage of respondents who stated that their lives were interfered by their health conditions. 85% of respondents stated that health difficulties, if experienced, did not interfere with their life at all. This percentage fell to nearly 8% for those who said that their life has been mildly interfered by their health conditions and to 4.7% for those with moderate interference then to less than 1% for extreme severe interference. The percent of no effect was higher among males than females and among non-Bahraini than Bahraini (Figure 3.2).

The percentage of those who stated that their lives were never interfered by their health conditions among males is 90.2% which is a 2.3% higher compared to females (77.9%). The percentage of non-Bahraini saying that their lives were never interfered by their health was higher than Bahraini (96.1% versus 79.7% respectively) reflecting that Bahraini citizens are more affected.

Table 3.3d shows also that the wealth quintiles of the respondents did not greatly affect the results. The percentage of those who stated that their lives were never interfered by their health condition among the Q5 (Highest) group is 82% compared to 80.9% among the Q1 (Lowest).

The percentage of those who had not experienced any interference was similar for the youngest two age groups. However, the percentages of respondents whose life had been interfered with by these difficulties was far higher for those aged over 60, with 30.7% stating that their health difficulties had interfered with their life, and for those aged 70 and above (44.2%), while it was 79.2% among those aged 80 and above.

Table 3.3c: Amount of emotional effects of the health conditions on life of the respondents in the last 30 days stratified by nationality and sex

	Bahraini			Non-Bahraini			Total		
	Female	Male	Total	Female	Male	Total	Female	Male	Total
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
Emotionally affected by health conditions:									
None	75.9	87.1	81.8	93.1	97.8	96.4	80.2	91.1	86.5
Mild	11.6	7.0	9.2	4.6	2.0	2.8	9.8	5.1	7.1
Moderate	7.9	4.3	6.0	1.9	0.0	0.6	6.4	2.7	4.3
Severe	4.1	1.2	2.5	0.4	0.2	0.2	3.2	0.8	1.8
Extreme severe	0.5	0.4	0.5	0.0	0.0	0.0	0.4	0.3	0.3
Total	**961**	**1085**	**2046**	**320**	**654**	**974**	**1281**	**1739**	**3020**
Overall life affected by difficulties:									
None	73.1	85.6	79.7	92.3	98.0	96.1	77.9	90.2	85.0
Mild	13.7	7.4	10.4	4.9	1.7	2.8	11.5	5.3	7.9
Moderate	9.1	4.4	6.6	1.8	0.0	0.6	7.3	2.7	4.7
Severe	3.5	2.3	2.8	0.7	0.3	0.4	2.8	1.5	2.1
Extreme severe	0.5	0.4	0.4	0.3	0.0	0.1	0.5	0.2	0.3
Total	**961**	**1085**	**2046**	**320**	**654**	**974**	**1281**	**1739**	**3020**

Table 3.3d: Amount of emotional effects of the health conditions on life of the respondents in the last 30 days stratified by age and wealth quintiles

	Age group						Wealth Quintiles				
	18-	30-	45-	60-	70-	80+	Q1	Q2	Q3	Q4	Q5
	%	%	%	%	%	%	%	%	%	%	%
Emotionally affected by health conditions:											
None	90.8	91.5	87.2	73.7	60.7	44.9	82.5	86.2	85.7	88.8	82.9
Mild	6.9	4.3	6.6	13.9	20.8	14.4	9.0	6.8	6.5	6.8	9.2
Moderate	1.6	2.5	4.5	8.2	12.5	23.1	5.0	4.4	5.5	2.9	5.4
Severe	0.7	1.4	1.5	3.6	4.9	13.0	2.3	2.0	2.0	1.5	2.5
Extreme severe	0.0	0.3	0.2	0.6	1.1	4.6	1.2	0.6	0.3	0.0	0.0
Total	**316**	**1208**	**1017**	**358**	**99**	**22**	**432**	**461**	**445**	**451**	**444**
Overall life affected by difficulties:											
None	90.8	91.5	85.2	69.3	55.8	26.8	80.9	85.8	86.0	85.2	82.0
Mild	6.4	5.0	8.2	15.9	15.8	13.6	10.2	7.9	4.8	8.9	8.8
Moderate	2.2	2.0	4.9	9.9	18.2	28.5	5.2	3.7	7.0	3.6	6.2
Severe	0.6	1.4	1.6	4.1	7.0	26.6	2.6	2.1	2.0	2.0	2.7
Extreme severe	0.0	0.1	0.2	0.8	3.1	4.6	1.2	0.4	0.2	0.2	0.2
Total	**316**	**1208**	**1017**	**358**	**99**	**22**	**432**	**461**	**445**	**451**	**444**

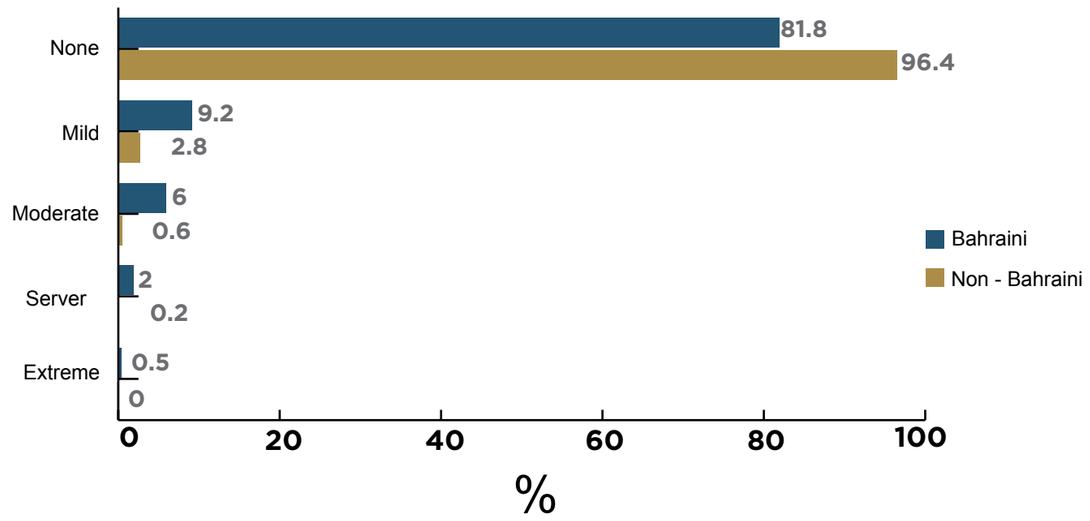


Figure 3.1: Amount of emotional effect of health conditions on the respondents in the last 30 days by nationality

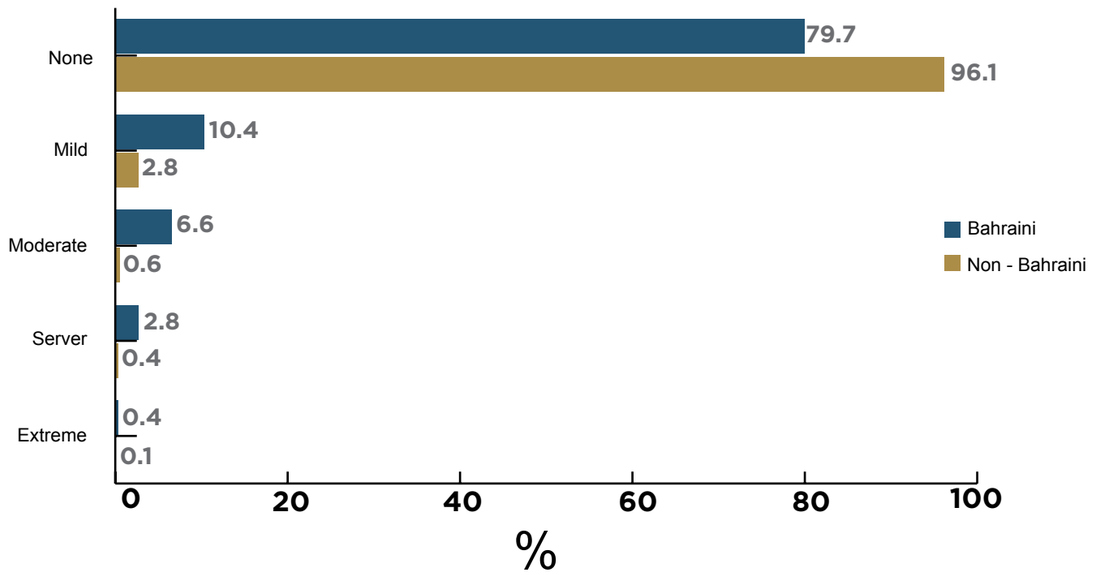


Figure 3.2: Amount of overall interference of the health conditions on the respondents' life in the last 30 days by nationality

3.3.1 WHO-DAS score:

All the following items were considered when answering questions in the WHO-DAS:

- Degree of difficulty: For the WHO-DAS, having difficulty with an activity means: increased effort, discomfort or pain, slowness, and changes in the way the person does the activity.
- Due to health conditions: Health conditions include: diseases, illnesses or other health-related problems, injuries, mental or emotional problems.
- In the past 30 days: Research shows that recall abilities are most accurate for the period of one month. As a result, the past 30 days has been selected as the timeframe for the WHO-DAS.
- Averaging good and bad days: Some respondents experience variability in the degree of difficulty that they experience over 30 days. Respondents were instructed to give a rating that averages good days and bad days.
- As the respondent usually does the activity: Respondents should rate the difficulty experienced considering how they usually do the activity. If assistive devices and/or the help of a person (personal assistance) are normally available, respondents should answer keeping this help in mind.

Items not experienced in the past 30 days are not rated: The WHO-DAS seeks to determine the amount of difficulty encountered in activities that a person actually does as opposed to activities that s/he would like to do or those s/he can do but doesn't.
The responses were recorded on a scale of 1 to 5, with "1" indicating "no difficulty" and "5" indicating "extreme difficulty". These scores were combined using established methods to produce a WHO-DAS score, ranging from 0 to 100 (categories as very low (≤20%), low (>20-≤ 40), moderate (> 40-≤ 60), high (>60-≤ 80), very high (>80-≤ 100). The lower the score, the healthier is the individual.
The mean WHO-DAS score is shown in table 3.3.1 The mean WHO-DAS score for all respondents was 26.17, indicating that the average level of disability among respondents was low which means good health in this domain.

Females had about 3% higher the mean WHO-DAS score than males (28.02 for females compared with 24.81 for males). Bahraini also had a higher score than non-Bahraini (27.64 for Bahraini compared to 23.08 for non-Bahraini). As expected, there is increasing in the average score with rising in age. WHO-DAS average score of 23.13 was reported among those at age group (18-29 years) while it was 31.69 for those at age group (60-69 years), then it peaks at 61.95 among those aged 80 years and above reflecting that this is the most affected group.

Wealth index slightly affected the WHO-DAS score. The Q1 (Lowest) group had an average score equal to 27.84 while those at Q5 (Highest) group had a mean score of 25.74 (healthier).

The current marital status affected the WHO-DAS score with the highest means among divorced and widowed individuals (30.07 and 38.58 respectively) and the lowest among those who have never married (24.13).

Table 3.3.1: Mean WHO-DAS score

	DAS score		
	Weighted mean % score	**SE**	**Un-weighted N**
Total	26.17	0.16	3020
Sex:			
Male	24.81	0.17	1739
Female	28.02	0.29	1281
Nationality:			
Bahraini	27.64	0.23	2046
Non Bahraini	23.08	0.10	974
Age groups:			
18-29	23.13	0.18	316
30-44	23.78	0.12	1208
45-59	25.86	0.24	1017
60-69	31.69	0.69	358
70-79	40.09	1.68	99
80+	61.95	4.80	22
Wealth Quintiles:			
Q1	27.84	0.55	432
Q2	26.31	0.46	461
Q3	26.44	0.42	445
Q4	25.83	0.35	451
Q5	25.74	0.37	444
Current marital status:			
Never married	24.13	0.30	267
Currently married	25.40	0.15	2488
Separated/divorced	30.07	1.27	99
Widowed	38.58	1.35	166

Results by sex and nationality status are shown in Figure 3.3. The graph indicates that non-Bahraini had the lowest mean score on the WHO-DAS instrument, indicating the best health. Females scored the highest score, indicating the lowest level of functioning and the highest level of disabilit.

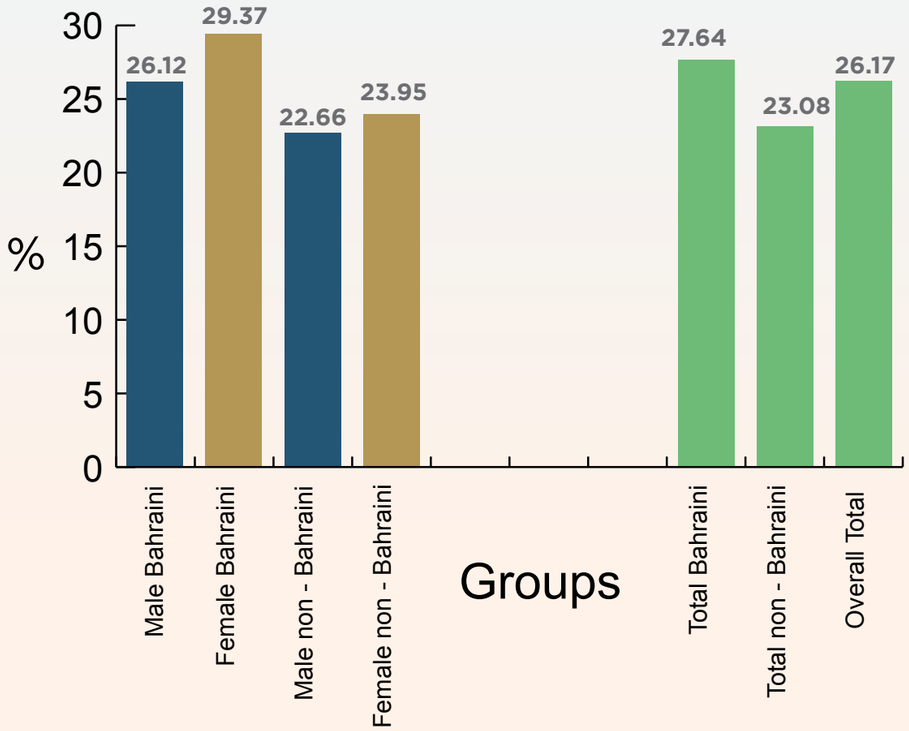


Figure 3.3: Mean WHO-DAS score by sex and nationality

3.4 RISK FACTORS AND HEALTH BEHAVIOURS

Health does not consist of only one dimension; there are a number of different facets which contribute to an individual's health. One of these facets is the exposure of an individual to factors that influence the ability to achieve good health, such as smoking, nutrition and physical activity.

This chapter identifies the risks to health and measures how these risks are distributed in the population. It is necessary to identify risks to focus on the interventions that can improve health of future populations through the effective inter-sectoral collaborations. Data have been collected on three major risk factors; use of tobacco, nutrition, and categories of physical activities because of their detrimental effects on health.

3.4.1 Use of tobacco

The tobacco epidemic is one of the biggest public health threats the world has ever faced, killing more than 7 million people a year. More than 6 million of those deaths are the result of direct tobacco use while around 890 000 are the result of non-smokers being exposed to second-hand smoke. Around 80% of the 1.1 billion smokers worldwide live in low- and middle-income countries, where the burden of tobacco-related illness and death is heaviest (WHO, 2018)[7].

It is estimated that worldwide tobacco is responsible for more than one in 10 adult deaths, with the main illnesses associated with tobacco use being lung cancer (as well as other cancers), vascular disease (including heart disease and strokes), chronic bronchitis and emphysema (World Bank, 1999)[8]. Tobacco kills up to half of its users. Tobacco users who die prematurely deprive their families of income, raise the cost of health care and hinder economic development.

The percentage of adults reporting regular or irregular current smoking is shown in Table 3.4.1.1 Overall, 15% of respondents stated that they smoke every day, whilst 3.9% said that they smoke, but not on daily basis and 78.1% reported never smoking at all. Stratified by nationality, percentage of smokers (either regular or irregular), ex-smokers and never smokers are presented in figure 3.4.1.1 It is clear from the figure that

Bahraini current smokers (22.3%) are 10% higher than non-Bahraini (12.2%) but the non-Bahraini are higher by 12.3% in the percentage of never smoke (86.2%) compared to Bahraini (73.9%).

Table 3.4.1.1 shows the percentage of smokers across the selected background characteristics. It is clear that women smoke much less than men, with 23.5% of men smoking every day compared to only 3.3% of women. Regular smoking also decreased with age, especially for smokers over the age of 60. The percentage of current daily smokers among the age group (18-29 years) was 17.2% compared to 11.3% among the age group (60-69 years). The table also shows that there was a difference in the prevalence of smoking between Bahraini (17.8%) and non-Bahraini (9.5%).

By wealth quintiles, there was little differences between the percentages of daily smokers, and it is noticeable that the Q1 (Lowest) respondents do smoke little below (14.9%) than the rest of the respondents in the other wealth quintiles. The table also shows that the highest percentage of current daily smokers was among the primary and below education category (18.6%) compared to 12.2% among graduates and above.

The mean age of starting smoking among the daily smokers was 21.35 years which is bigger among Non-Bahraini (23.8), females (28.4), oldest age group (46.2), and those above secondary education (25), compared to Bahraini (20.7), males (20.6), youngest age group (17.6) and those with primary and below education (22.3) who started smoking earlier in age. There is trivial effect of wealth quintiles on age of starting smoking. Results by age is quite interesting which might suggest future pattern in which younger respondents are more likely to start smoking at younger age than older respondents.

Figure 3.4.1.2 shows that among the Bahraini respondents who currently daily smoke (n=364), the prevalence of cigarette smoking is 8.3% while the prevalence of smoking Shisha is 66.2% , this is compared to 3.2% and 83.9% among non-Bahraini (n=93) respectively.

Table 3.4.1.1: Prevalence of tobacco use and average age of starting smoking among current daily smokers by background characteristic

Tobacco smoking	Current daily	Current not daily	Not current smoker	Never smoke	Age of starting smoking for current daily (n=457)	Total
	Weighted %	Weighted %	Weighted %	Weighted %	Weighted Mean (SE)	Un-weighted N
Total	**15.0**	**3.9**	**3.0**	**78.1**	**21.35 (0.32)**	**3020**
Nationality:						
Bahraini	17.8	4.5	3.8	73.9	20.65 (0.37)	2046
Non-Bahraini	9.5	2.7	1.6	86.2	23.84 (0.65)	974
Sex:						
Male	23.5	4.4	4.7	67.4	20.63 (0.31)	1739
Female	3.3	3.1	0.7	92.9	28.41 (1.52)	1281
Age group:						
18-29	17.2	5.2	1.7	75.9	17.55 (0.23)	316
30-44	15.1	4.2	2.6	78.1	21.45 (0.41)	1208
45-59	13.5	1.9	3.4	81.2	25.19 (0.84)	1017
60-69	11.3	2.9	7.2	78.6	27.91 (2.66)	358
70-79	10.2	2.8	9.3	77.7	25.64 (5.66)	99
80+	7.6	7.7	10.6	74.1	46.20 (3.26)	22
Highest education:						
Primary and below	18.6	3.8	4.9	72.7	22.27 (1.16)	346
Above primary to secondary	18.1	4.3	3.0	74.6	20.32 (0.42)	1237
Above secondary/ Diploma	9.7	4.8	3.0	82.5	25.01 (1.30)	331
University and above	12.2	2.9	2.5	82.4	21.84 (0.56)	1046
Do not know	8.7	5.9	3.3	82.1	25.03 (8.23)	60
Wealth quintiles:						
Q1	14.9	3.5	2.0	79.6	20.88 (0.42)	432
Q2	17.0	4.3	4.3	74.4	21.35 (0.78)	461
Q3	15.1	2.7	4.0	78.2	20.44 (0.88)	445
Q4	18.5	2.6	4.3	74.6	21.22 (0.81)	451
Q5	16.4	6.4	3.9	73.3	21.81 (0.86)	444

- Data adjusted by age and sex

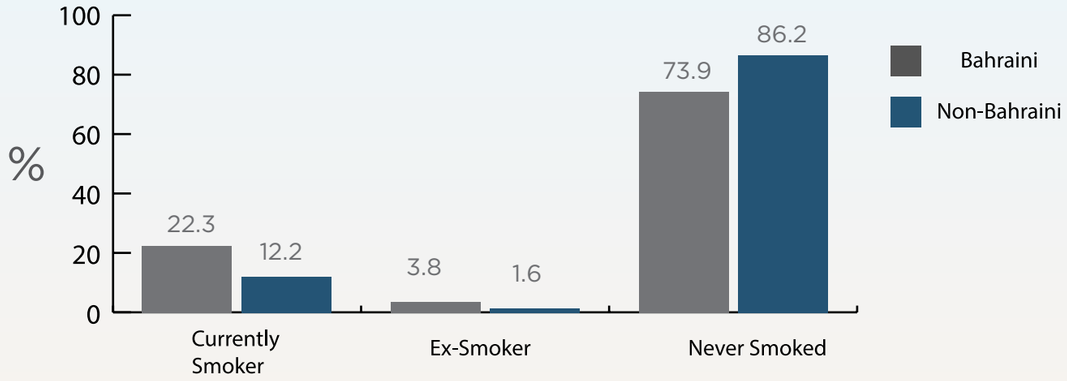


Figure 3.4.1.1: Prevalence of smoking tobacco among respondents.

- Data adjusted by age and sex

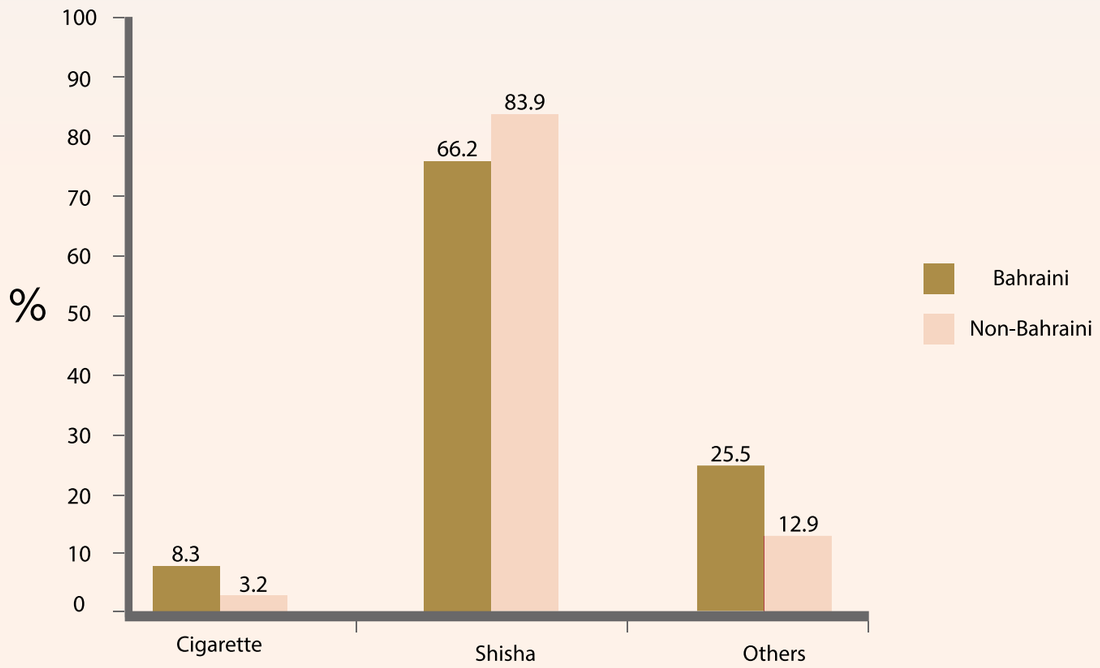


Figure 3.4.1.2: Types of daily tobacco smoke by nationality.

- Data adjusted by age and sex

For the mean number of cigarettes smoked per day, table 3.4.1.2 shows that the mean number of cigarettes smoked is higher among Bahraini nationals, males in both nationalities, age group (45-59 years) in both nationalities, among respondents with secondary to university education and among respondents belonging to Q3 compared to other groups.

Table 3.4.1.2: The mean number of cigarettes smoked per day among current daily smokers by nationality

Current daily smoking of manufactured cigarettes (n=33)	Bahraini (n=30)		Non-Bahraini (n=3)	
	Weighted Mean	SE	Weighted Mean	SE
Sex:				
Male	14	0.6	10	3.07
Female	4	1.24	8	0.87
Total	13	0.57	10	0.84
Age group:				
18-29	10	0.89	8	1.39
30-44	13	0.86	11	1.16
45-59	16	1.42	13	2.17
60-69	14	2.43	4	0.1
70-79	14	7.16	0	0
80+	6	12.94	0	0
	Weighted Mean		**SE**	
Highest education:				
Primary and below	13		1.69	
Above primary to secondary	12		0.65	
Above secondary/Diploma	15		1.90	
University and above	11		0.85	
Do not know	1		1.06	
Wealth quintiles:				
Q1	11		1.23	
Q2	11		1.11	
Q3	16		1.37	
Q4	14		1.15	
Q5	11		1.21	

- Data adjusted by age and sex

The prevalence of smoking shisha and other types of tobacco products was displayed in table 3.4.1.3. The total prevalence of shisha smoking among Bahraini (28%) is nearly double the prevalence among non-Bahraini (13.6), while the other types such as pipe, cigars, and cheroots are more common among non-Bahraini (86.4%) than Bahraini (72%). Unfortunately, shisha smoking is more prevalent among females than males in both nationalities, while the reverse is observed of the other types. The highest percentage of shisha use was observed among the youngest age group (18-29 years) then among those aged 70 and above in both nationalities. Shisha is highly prevalent among university graduates and above and among respondents in Q2, while the other types are more prevalent among respondents with primary and blow education and among respondents at the lowest quintile (Q1).

Table 3.4.1.3: Prevalence of Shisha use and other types of tobacco among current daily smokers by background characteristic

Current daily smoking of shish and others (n=424)	Bahraini (n=334)		Non-Bahraini (n=90)		Total
	Shisha (n=241)	Others (n=93)	Shisha (n=78)	Others (n=12)	Un-weighted N
	Weighted %	Weighted %	Weighted %	Weighted %	
Sex:					
Male	25.1	74.9	12.2	87.8	373
Female	54.4	45.6	30.6	69.4	51
Total	28.0	72.0	13.6	86.4	424
Age group:					
18-29	38.4	61.6	37.9	62.1	54
30-44	28.6	71.4	0.0	100	180
45-59	14.3	85.7	9.8	90.2	138
60-69	19.4	80.6	0.0	100	40
70-79	0.0	100	100	0.0	10
80+	49.0	51.0	0.0	0.0	2
Highest education:					
Primary and below	11.3		88.7		61
Above primary to secondary	24.4		75.6		208
Above secondary/ Diploma	19.9		80.1		34
University and above	32.4		67.6		116
Do not know	19.6		80.4		5
Wealth quintiles:					
Q1	12.9		87.1		59
Q2	34.0		66.0		78
Q3	17.4		82.6		70
Q4	27.0		73.0		73
Q5	21.8		78.2		66

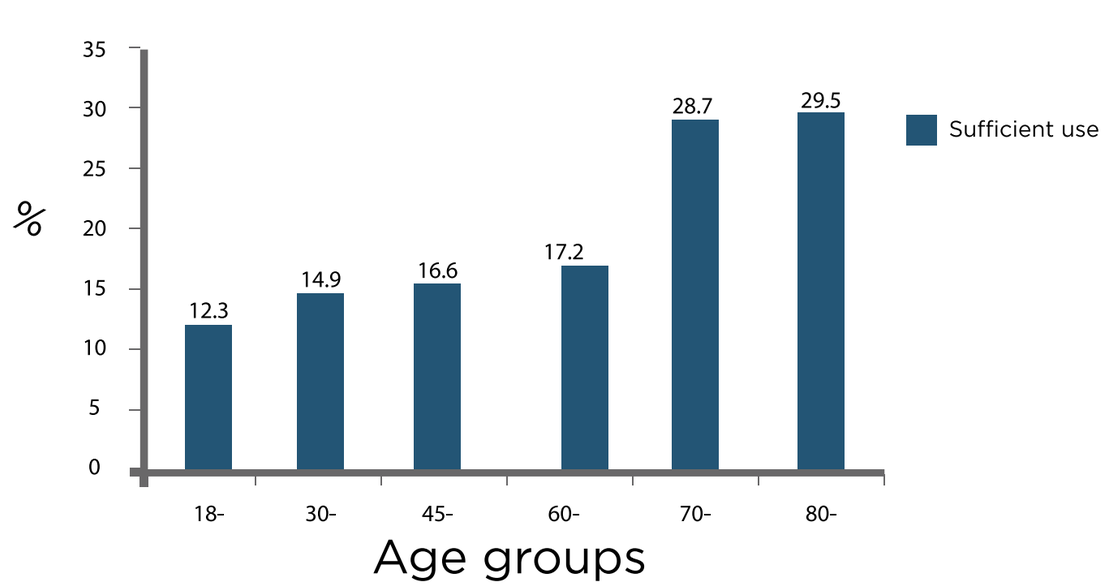
- Data adjusted by age and sex

3.4.2 Nutrition

Knowledge about the dietary habits of a population is vital for targeted planning and implementation of nutritional health policies and programs. Fruits and vegetables are important components of a healthy diet. Reduced fruit and vegetable consumption is linked to poor health and increased risk of non-communicable diseases (NCDs). An estimated 3.9 million deaths worldwide were attributable to inadequate fruit and vegetable consumption in 2017 (WHO, 2019)[9]. 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 equate to about 400g of fruits and vegetables. Table 3.4.2.1 shows the percentages of respondents who reported sufficient and insufficient fruits and vegetables intake.

Almost 15% of respondents (one in seven) reported that they ate sufficient fruits and vegetables on a typical day, with the vast majority stating that they did not eat five servings per day, which is more among non-Bahraini (16.8%) than among Bahraini (14.1%). By sex, 86.2% of males compared to 83.4% of females reported that they didn't eat sufficient fruits and vegetables on a typical day. Percentage of sufficient intake gradually increased with the increase in age, being about 12% among participants in the youngest age group to about 29% among those aged 70 and above (Figure 3.4.2.1). The highest percentages of insufficient intake were observed among respondents with below secondary education compared to those above. Sufficient use was higher among respondents at rich quintiles, Q4 and Q5 (32.8%) compared to poor quintiles Q1 and Q2 (27.7%).

Figure 3.4.2.1: Prevalence of sufficient intake of fruits and vegetables in a typical day by age groups.



- Data adjusted by age and sex

Table 3.4.2.1: Prevalence of fruits and vegetables intake according to background characteristics

Daily use of fruits and vegetables	Insufficient < 5 serving/typical day	Sufficient ≥ 5 serving/typical day	Total
	Weighted %	Weighted %	Un-weighted N
Total	**85.0**	**15.0**	**3020**
Nationality:			
Bahraini	85.9	14.1	2046
Non-Bahraini	83.2	16.8	974
Sex:			
Male	86.2	13.8	1739
Female	83.4	16.6	1281
Age group:			
18-29	87.7	12.3	316
30-44	85.1	14.9	1208
45-59	83.4	16.6	1017
60-69	82.8	17.2	358
70-79	71.3	28.7	99
80+	70.5	29.5	22
Highest education:			
Primary and below	86.9	13.1	346
Above primary to secondary	87.4	12.6	1237
Above secondary/Diploma	77.5	22.5	331
University and above	83.7	16.3	1046
Do not know	91.5	8.5	60
Wealth quintiles:			
Q1	84.5	15.5	432
Q2	87.8	12.2	461
Q3	89.1	10.9	445
Q4	82.0	18.0	451
Q5	86.2	13.8	444

- Data adjusted by age and sex

Table 3.4.2.2 shows percentage distribution of those who felt hungry due to shortness of money during the last 12 months. The table shows that about 3.7% of respondents felt hungry, because they couldn't afford enough food during the 12 months preceding the survey. There is a marked difference in the percentages of respondents who felt hungry by nationality (4.1% for Bahraini versus 2.8% for non-Bahraini), sex (4.1% for females versus 3.3% for males), educational level (11.8% for primary and below education versus only 0.5% among graduates), and wealth quintiles (11.6% in Q1 versus 0.6% in Q5). However, there is little difference in the percentages by age groups.

The table also shows that the percentage of those who felt hungry due to shortness of money was 3.3% among the respondents in the age group (18-29 years), 3.8% in the age group (70-79 years) while no one at age 80+ felt hungry due to shortness of money.

Table 3.4.2.2: Percentage of those who felt hungry during the last 12 months according to background characteristics

Hunger due to shortness of money	No	Yes	Total
	Weighted %	Weighted %	Un-weighted N
Total	**98.8**	**1.2**	**3020**
Nationality:			
Bahraini	98.7	1.3	2046
Non-Bahraini	99.0	1.0	974
Sex:			
Male	98.9	1.1	1739
Female	98.7	1.3	1281
Age group:			
18-29	98.5	1.5	316
30-44	99.1	0.9	1208
45-59	98.9	1.1	1017
60-69	98.3	1.7	358
70-79	99.2	0.8	99
80+	100.0	0.0	22
Highest education:			
Primary and below	94.8	5.2	346
Above primary to secondary	98.7	1.3	1237
Above secondary/Diploma	99.0	1.0	331
University and above	100.0	0.0	1046
Do not know	97.3	2.7	60
Wealth quintiles:			
Q1	93.6	6.4	432
Q2	100.0	0.0	461
Q3	100.0	0.0	445
Q4	100.0	0.0	451
Q5	100.0	0.0	444

- Data adjusted by age and sex

With regard to spending the whole day without eating due to lack of money, table 3.4.2.3 shows that 2.4% of respondents gave positive answer with no big difference according to nationality (2.6% among Bahraini versus 2.0% among non-Bahraini), sex (2.1% among males versus 2.8% among females) and age. The big difference was observed between educational levels of the respondents, being higher among respondents with primary and below education (9.3%) compared to only 0.3% among university graduates and above. The prevalence decreased with the increase in wealth quintiles (9.2% in Q1 compared to 0.3% in Q5).

Table 3.4.2.3: Percentage of those who went without eating for a whole day due to lack of money according to background characteristics

Hunger due to lack of money	**No**	**Yes**	**Total**
	Weighted %	**Weighted %**	**Un-weighted N**
Total	**99.1**	**0.9**	**3020**
Nationality:			
Bahraini	98.9	1.1	2046
Non-Bahraini	99.4	0.6	974
Sex:			
Male	99.2	0.8	1739
Female	99.0	1.0	1281
Age group:			
18-29	98.8	1.2	316
30-44	99.3	0.7	1208
45-59	99.3	0.7	1017
60-69	98.6	1.4	358
70-79	100.0	0.0	99
80+	100.0	0.0	22
Highest education:			
Primary and below	95.9	4.1	346
Above primary to secondary	98.9	1.1	1237
Above secondary/Diploma	99.7	0.3	331
University and above	100.0	0.0	1046
Do not know	98.5	1.5	60
Wealth quintiles:			
Q1	94.6	5.4%	432
Q2	100.0	0.0	461
Q3	100.0	0.0	445
Q4	100.0	0.0	451
Q5	100.0	0.0	444

- Data adjusted by age and sex

3.4.3 Physical activity

Physical activity is defined as any bodily movement produced by skeletal muscles that requires energy expenditure. Physical inactivity (lack of physical activity) has been identified as the fourth leading risk factor for global mortality (6% of deaths globally)[10]. Moreover, physical inactivity is estimated to be the main cause for approximately 21-25% of breast and colon cancers, 27% of diabetes and approximately 30% of ischemic heart disease burden. The term “physical activity” should not be mistaken with “exercise”. Exercise is a subcategory of physical activity that is planned, structured, repetitive, and purposeful in the sense that the improvement or maintenance of one or more components of physical fitness is the objective. Physical activity includes exercise, as well as, other activities which involve bodily movement and are done as part of playing, working, active transportation, house chores and recreational activities. Increasing physical activity is a societal, not just an individual problem. Therefore, it demands a population-based, multi-sectoral, multi-disciplinary, and culturally relevant approach. WHO recommends at least 30 minutes of regular, moderate intensity physical effort for at least five days a week for adults.

The Bahraini National Health Survey asked questions about physical activity at both work and home, including vigorous and moderate intensity exercise. Exercise includes lifting, digging, cleaning, cooking and washing that cause small or large increases in breathing or heart rate. 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. The results for this analysis are shown in table 3.4.3.1 for all respondents and by subgroups.

Table 3.4.3.1 and figure 3.4.3.1 show that the percentage of Bahraini respondents who reported doing sufficient exercise over the course of a typical week was slightly more than non-Bahraini, with 49.1% for Bahraini respondents and 48.1% of the non-Bahraini. The percentage of males who attained the target was higher than females, with 59.6% of Bahraini men compared to only 37% of Bahraini females had sufficient exercise, while the respective percentages among non-Bahraini were 52.3% among males and 40.1% among females. Age and educational level had little effects on doing sufficient physical activity. The percentage of respondents reported doing insufficient physical activity is almost the same among the youngest and the oldest age groups and among the different educational levels. Wealth had an obvious effect on doing sufficient physical activity as the percentage increased with the increase in wealth quintiles, from 42% in Q1 to 57.2% in Q5.

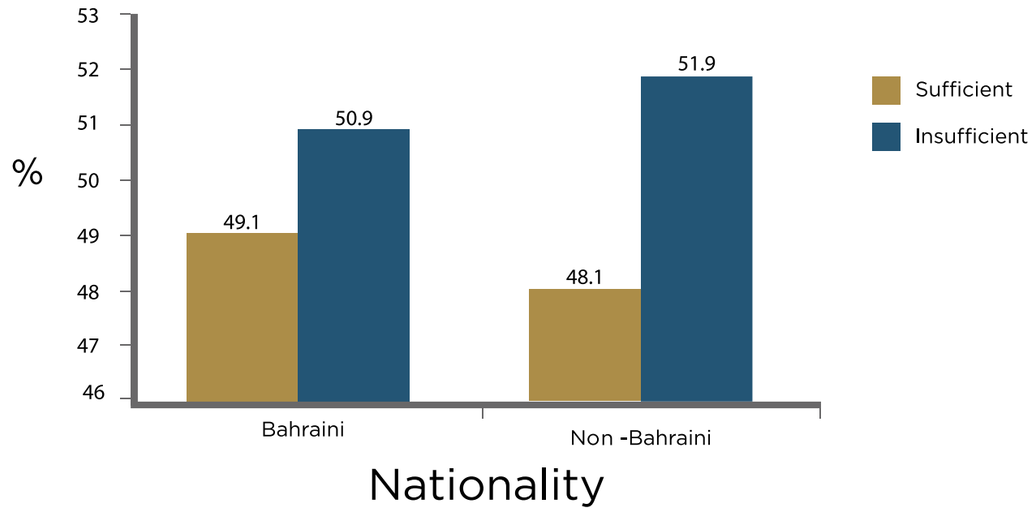


Figure 3.4.3.1: Prevalence of physical activity by nationality, data adjusted by age and sex

Table 3.4.3.1: Prevalence of physical activity by background characteristics

	Bahraini (n=2046)		Non-Bahraini (n=974)		Total
	Insufficient	Sufficient	Insufficient	Sufficient	Un-weighted N
	Weighted %	Weighted %	Weighted %	Weighted %	
Total	**50.9**	**49.1**	**51.9**	**48.1**	**3020**
Sex:					
Male	40.4	59.6	47.7	52.3	1739
Female	63.0	37.0	59.9	40.1	1281
Age group:					
18-29	50.2	49.8	51.8	48.2	316
30-44	45.0	55.0	50.9	49.1	1208
45-59	51.2	48.8	54.9	45.1	1017
60-69	64.7	35.3	39.6	60.4	358
70-79	68.7	31.3	70.4	29.6	99
80+	94.6	5.4	100.0	0.0	22
Highest education:					
Primary and below	58.3		41.7		346
Above primary to secondary	47.0		53.0		1237
Above secondary/ Diploma	53.9		46.1		331
University and above	52.9		47.1		1046
Do not know	75.7		24.3		60
Wealth quintiles:					
Q1	58.0		42.0		432
Q2	51.2		48.8		461
Q3	50.1		49.9		445
Q4	46.0		54.0		451
Q5	42.8		57.2		444

- Data adjusted by age and sex

3.5 SELF-REPORTED MORBIDITY AND SCREENING COVERAGE

The delivery of health care to individuals who require it is vital for any community health system which includes population health improvement and the reduction of health inequalities. To enable the assessment of whether the delivery of needed health care is reaching, morbidity profile of the population is needed, alongside whether those in need are actually receiving this needed care or not. 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 received the care that they need.

The Bahrain National Health Survey gathered evidence on prevalence of comprehensive range of communicable and non-communicable diseases in adults (18 years and above) such as stroke, diabetes, depression, tuberculosis, oral health problems, vision care, road traffic accidents and injury. Women and maternal health needs are also considered in this chapter. This was carried by asking the respondents whether they had been diagnosed with a specific illness among the morbidities which are defined below.

3.5.1 Non-communicable diseases

The burden of non-communicable diseases (NCDs) is continuously increasing all over the world describing it as the coming epidemic. People of all age groups, regions and countries are affected by NCDs. Non-communicable diseases account for 60% of the global burden of disease in all ages and they kill 41 million people each year, equivalent to 71% of all deaths globally11. Each year, 15 million people die from NCDs between the ages of 30 and 69 years; over 85% of these “premature” deaths occur in low- and middle-income countries. Cardiovascular diseases account for most NCD deaths, or 17.9 million people annually, followed by cancers (9.0 million), respiratory diseases (3.9 million), and diabetes (1.6 million). These four groups of diseases account for over 80% of all premature NCDs deaths. NCDs threaten progress towards the 2030 Agenda for Sustainable Development, which includes a target of reducing premature deaths from NCDs by one-third by 2030. Population ageing and changes in the distribution of risk factors have accelerated the incidence of non-communicable diseases in many developing countries although most of these factors are preventable such as smoking and physical inactivity.

Data were gathered in the survey regarding the prevalence and coverage of a range of non-communicable diseases, including angina, stroke, chronic lung diseases, bronchial asthma, depression, diabetes, hypertension, oral health problems, road traffic accidents, injuries and vision problems.

Need is referred to the percentage of respondents who had been formally diagnosed with the condition, while coverage referred to the percentage of respondents with a self-reported condition who received treatment or screening for this condition. During analysis, coverage for all conditions that had been formally diagnosed was present collectively in the last three tables of this chapter. Instead, the percentage of those who had been formally diagnosed with a condition who had been taking medication in the two weeks before the survey is presented individually in this chapter.

Stroke:

Table 3.5.1.1 shows that the percentage of respondents who stated that they had been formally diagnosed suffering from stroke is 0.7% which is reported only by Bahraini respondents (1.1%) while no one from non-Bahraini stated that they suffered from this illness.
The main burden of this condition fell on men and the elderly. 1.5% of Bahraini men compared to only 0.5% of women respondents indicated having received a diagnosis of stoke.
The main burden of this condition fell on the age groups above 60 years. Where the prevalence was zero among the age group (18-29 years), it was 2.8%, 5.6% and 10.8% among age groups; 60-,70- and 80+ respectively. Percentage of respondents reported having received a diagnosis of stroke did not change much with educational level and wealth quintiles. However, the least percentage reported was among those with primary to secondary education and with the Q4 group if compared with the need in the other subgroups.

Angina

Table 3.5.1.2 shows that the percentage of respondents who stated that they had been formally diagnosed suffering from angina (need) was 1.8% in the population which was 4 times more among Bahraini (2.4%) compared to non-Bahraini (0.8%). Males are more sufferers than females among Bahraini (2.9% for males versus 1.7 % for females), while among non-Bahraini, the sufferers were only males (1.2%) with no reported cases among females.
Among the age groups, the prevalence had dramatically increased with aging, It was 10.1%, 12.2% and 31.2% among age groups (60-69 years), (70-79 years) and (80 years and above) respectively, while it was 0% among the age group (18-29 years) and only 0.6% among the age group (30-44 years).

The effect of education and wealth is clear on this ailment, as there is decreasing trend in the prevalence with increasing in educational level and increasing trend in the prevalence with increasing in wealth quintiles.

Asthma

The percentage of respondents who stated that they had been formally diagnosed suffering from bronchial asthma (need) is 4% (table 3.5.1.3) being more than double among Bahraini (5%) than non-Bahraini (2.1%). The burden was higher among Bahraini males (4.1%) compared to females (0.6%), while the reverse is true among non-Bahraini being 2.0% among males compared to 2.3% among females.

With regard to the effect of age, the population prevalence shows increasing in the trend with aging. However, the same prevalence trend was obvious among Bahraini nationals being only 5% at the age group (18-29 years), while reached 9.8% and 13.5% among respondents lie in the age groups (70-79 years) and (80 years and above) respectively. However, for the non-Bahraini such trend is not present.

Wealth has inconsistent effect on the prevalence of the need of bronchial asthma. Percentage of respondents indicated having received a diagnosis of bronchial asthma among the

respondents in Q4 and Q5 was the highest (8.2% and 6.8% respectively) and the least was among the respondents in Q2 and Q3 (1.9% and 2.2% respectively). However, the need among Q1 lies in the middle (3.5%).

The highest prevalence was observed among respondents with primary and below education (6.4%), while the lowest was among university graduates and above (3.9%).

Table 3.5.1.1: Self-reported stroke according to background characteristics

Have been told by a doctor that they have a stroke	Bahraini			Non-Bahraini			Total		
	No	Yes	Un-Wt N	No	Yes	Un-Wt N	No	Yes	Un-Wt N
	Wt %	Wt %		Wt %	Wt %		Wt %	Wt %	
Total	**98.9**	**1.1**	**2046**	**100**	**0.0**	**974**	**99.3**	**0.7**	**320**
Sex:									
Male	98.5	1.5	1085	100	0.0	654	99.1	0.9	1739
Female	99.5	0.5	961	100	0.0	320	99.6	0.4	1281
Age group:									
18-29	100	0.0	202	100	0.0	114	100	0.0	316
30-44	99.6	0.4	698	100	0.0	510	99.8	0.2	1208
45-59	98.3	1.7	710	100	0.0	307	98.8	1.2	1017
60-69	97.0	3.0	326	100	0.0	32	97.2	2.8	358
70-79	93.8	6.2	89	100	0.0	10	94.4	5.6	99
80+	88.3	11.7	21	100	0.0	1	89.2	10.8	22
	No			Yes			Total		
	Weighted %			Weighted %			Un-weighted N		
Highest Education:									
Primary and below	98.1			1.9			346		
Above primary to secondary	99.3			0.7			1237		
Above secondary/ Diploma	99.0			1.0			331		
University and above	99.7			0.3			1046		
Do not know	100			0.0			60		
Wealth quintiles:									
Q1	99.0			1.0			432		
Q2	99.2			0.8			461		
Q3	98.7			1.3			445		
Q4	99.4			0.6			451		
Q5	99.2			0.8			444		

- Data adjusted by age and sex

Table 3.5.1.2: Self-reported angina according to background characteristics

Have been diagnosed with angina	Bahraini			Non-Bahraini			Total		
	No	Yes	Un-Wt N	No	Yes	Un-Wt N	No	Yes	Un-Wt N
	Wt %	Wt %		Wt %	Wt %		Wt %	Wt %	
Total	**97.6**	**2.4**	**2046**	**99.2**	**0.8**	**974**	**98.2**	**1.8**	**3020**
Sex:									
Male	97.1	2.9	1085	98.8	1.2	654	97.8	2.2	1739
Female	98.3	1.7	961	100	0.0	320	98.8	1.2	1281
Age group:									
18-29	100	0.0	202	100	0.0	114	100	0.0	316
30-44	99.4	0.6	698	99.5	0.5	510	99.5	0.5	1208
45-59	97.2	2.8	710	97.7	2.3	307	97.4	2.6	1017
60-69	89.9	10.1	326	96.6	3.4	32	90.5	9.5	358
70-79	87.8	12.2	89	100	0.0	10	89.1	10.9	99
80+	68.8	31.2	21	100	0.0	1	69.9	30.1	22

	No	Yes	Total
	Weighted %	Weighted %	Un-weighted N
Highest Education:			
Primary and below	95.4	4.6	346
Above primary to secondary	98.5	1.5	1237
Above secondary/ Diploma	97.7	2.3	331
University and above	98.9	1.1	1046
Do not know	90.9	9.1	60
Wealth quintiles:			
Q1	98.1	1.9	432
Q2	98.6	1.4	461
Q3	98.2	1.8	445
Q4	97.4	2.6	451
Q5	97.6	2.4	444

- Data adjusted by age and sex

Table 3.5.1.3: Self-reported Asthma according to background characteristics

Have ever been diagnosed with asthma	Bahraini			Non-Bahraini			Total		
	No	Yes	Un-Wt N	No	Yes	Un-Wt N	No	Yes	Un-Wt N
	Wt %	Wt %		Wt %	Wt %		Wt %	Wt %	
Total	**95.0**	**5.0**	**2046**	**97.9**	**2.1**	**974**	**96.0**	**4.0**	**3020**
Sex:									
Male	95.9	4.1	1085	98.0	2.0	654	96.7	3.3	1739
Female	94.0	0.6	961	97.7	2.3	320	95.1	4.9	1281
Total	95.0	5.0	2046	97.9	2.1	974	96.0	4.0	3020
Age group:									
18-29	95.0	5.0	202	97.8	2.2	114	95.9	4.1	316
30-44	96.9	3.1	698	98.0	2.0	510	97.4	2.6	1208
45-59	93.5	6.5	710	97.8	2.2	307	94.8	5.2	1017
60-69	94.4	5.6	326	100	0.0	32	94.9	5.1	358
70-79	90.2	9.8	89	100	0.0	10	91.1	8.9	99
80+	86.7	13.3	21	100	0.0	1	87.2	12.8	22

	No	Yes	Total
	Weighted %	Weighted %	Un-weighted N
Highest Education:			
Primary and below	93.6	6.4	346
Above primary to secondary	96.8	3.2	1237
Above secondary/ Diploma	94.9	5.1	331
University and above	96.1	3.9	1046
Do not know	93.1	6.9	60
Wealth quintiles:			
Q1	96.5	3.5	432
Q2	98.1	1.9	461
Q3	97.8	2.2	445
Q4	91.8	8.2	451
Q5	93.2	6.8	444

- Data adjusted by age and sex

Depression:

Table 3.5.1.4 shows that the percentage of respondents who stated that they had been formally diagnosed suffering from depression (need) is 12.7%. Depression is more prevalent among Bahraini (16.9%) than non-Bahraini (4.7%) and among females (15.1%) than males (10.9%). The depression need is the highest (24.3%) among the Bahraini respondents aged 80+. Among non-Bahraini, there was no case reported at the older ages (above 70) and, unfortunately, the highest percentage was among non-Bahraini at the youngest age group (18-29 years). The highest percent of depression need was among the respondents with lowest educational level and illiterate (18.3%), then gradually decreased to reach 11.1% among university graduates. The reverse was observed with wealth quintiles as depression prevalence had gradually increased with the increase in wealth quantities as the minimum was in Q1 (12.9%) and the maximum was in Q5 (20.8%).

Table 3.5.1.4: Self-reported depression according to background characteristics

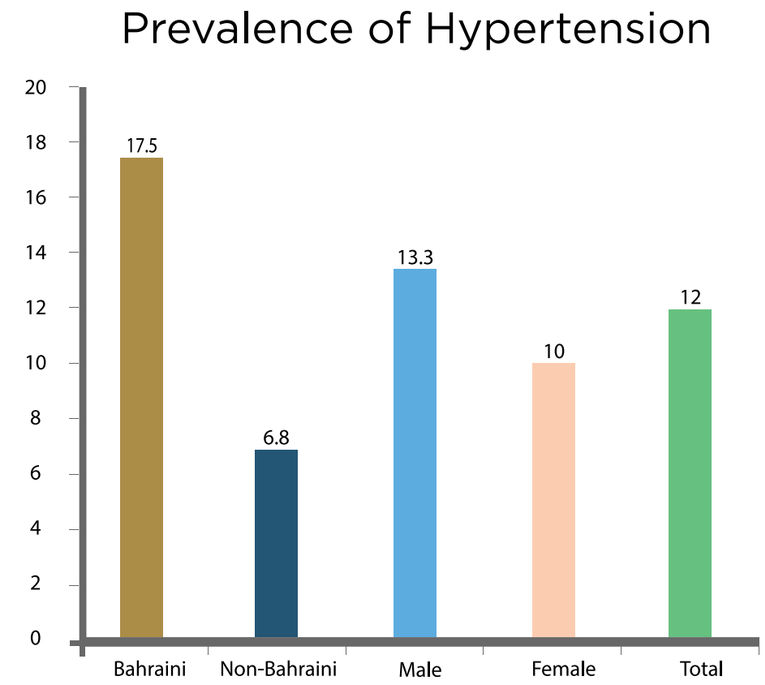
Have ever been diagnosed with depression	Bahraini			Non-Bahraini			Total		
	No	Yes	Un-Wt N	No	Yes	Un-Wt N	No	Yes	Un-Wt N
	Wt %	Wt %		Wt %	Wt %		Wt %	Wt %	
Total	83.1	16.9	2046	95.3	4.7	974	87.3	12.7	3020
Sex:									
Male	83.7	16.3	1085	97.5	2.5	654	89.1	10.9	1739
Female	82.4	17.6	961	91.2	8.8	320	84.9	15.1	1281
Age group:									
18-29	82.6	17.4	202	93.9	6.1	114	86.5	13.5	316
30-44	84.0	16.0	698	95.6	4.4	510	89.0	11.0	1208
45-59	82.4	17.6	710	96.5	3.5	307	86.6	13.4	1017
60-69	85.0	15.0	326	97.1	2.9	32	86.1	13.9	358
70-79	78.9	21.1	89	100	0.0	10	81.0	19.0	99
80+	75.7	24.3	21	100	0.0	1	76.6	23.4	22
	No			Yes			Total		
	Weighted %			Weighted %			Un-weighted N		
Highest Education:									
Primary and below	81.7			18.3			346		
Above primary to secondary	87.2			12.8			1237		
Above secondary/ Diploma	87.4			12.6			331		
University and above	88.9			11.1			1046		
Do not know	87.8			12.2			60		
Wealth quintiles:									
Q1	87.1			12.9			432		
Q2	87.7			12.3			461		
Q3	86.1			13.9			445		
Q4	83.2			16.8			451		
Q5	79.2			20.8			444		

- Data adjusted by age and sex

Hypertension

The percentage of respondents who stated that they had been formally diagnosed from hypertension (need) is 12.1% (Table 3.5.1.5a). Again, the main burden of this condition fell on men. 13.3% of men compared to 10.1% of women respondents indicated having received a diagnosis of hypertension. This is mainly due to the high prevalence of reported hypertension among Bahraini respondents (17.5%) and the high difference between Bahraini males (19.1%) and females (16%), while the prevalence is much lower among non-Bahraini respondents (6.8%) with difference between males (8.9%) and females (2.6%) - Figure 3.5.1.5a.

Age was a major affecting factor, reports of hypertension increased markedly between each successive age group in both nationalities. Self-reported hypertension is gradually increased with increases in the wealth quintiles, from 9.9% in Q1 to 17.2% in Q5. However, the reverse was observed with educational level. The hypertension need was the highest (25.5%) among the respondents with primary and below education, then decreased with higher levels of education reaching to 11.3% among the university graduates.



- Data adjusted by age and sex

Figure 3.5.1.5a: Prevalence of self-reported hypertension in the last 2 weeks by nationality and sex and total prevalence

Table 3.5.1.5a: Self-reported hypertension according to background characteristics

	Bahraini			Non-Bahraini			Total		
	No	Yes	Un-Wt N	No	Yes	Un-Wt N	No	Yes	Un-Wt N
	Wt %	Wt %		Wt %	Wt %		Wt %	Wt %	
Total	**82.2**	**17.5**	**2046**	**93.1**	**6.8**	**974**	**87.9**	**12.1**	**3020**
Sex:									
Male	80.8	19.1	1085	91	8.9	654	86.6	13.3	1739
Female	83.9	16	961	97.3	2.6	320	89.9	10.1	1281
Age group:									
18-29	99.7	0.3	202	100	0	114	99.8	0.1	316
30-44	91.4	8.5	698	94.3	5.6	510	93.1	6.8	1208
45-59	68	31.9	710	81.7	18.2	307	74.3	25.6	1017
60-69	47.6	52.3	326	60.9	39	32	49.5	50.4	358
70-79	42.5	57.3	89	33.8	66.1	10	41.5	58.4	99
80+	41.1	58.9	21	100	0	1	42.9	57	22
	No			Yes			Total		
	Weighted %			Weighted %			Un-weighted N		
Highest Education:									
Primary and below	74.4			25.5			346		
Above primary to secondary	90.1			9.8			1237		
Above secondary/ Diploma	91.1			8.8			331		
University and above	88.6			11.3			1046		
Do not know	70.9			29.1			60		
Wealth quintiles:									
Q1	90.1			9.9			432		
Q2	89.6			10.3			461		
Q3	86.2			13.7			445		
Q4	84.8			15.1			451		
Q5	82.7			17.2			444		

- Data adjusted by age and sex

Table 3.5.1.5b: History of medication intake among self-reported hypertensive cases in the last 2 Week

	Report history of hypertension N= 632			
	Take medication for hypertension N= 564		No medication for hypertension N= 68	
	High blood pressure on measurement N= 352	Normal blood pressure on measurement N=200	High blood pressure on measurement N=57	Normal blood pressure on measurement N= 11
	Wt %	Wt %	Wt %	Wt %
Nationality				
Bahraini	63.1	34.1	83.9	16.1
Non Bahraini	56.4	43.1	100.0	0.0
Sex				
Male	61.5	36.6	97.8	2.2
Female	60.2	37.3	67.7	32.3
Age group				
18-29	..	..	100	0
30-44	54	45	91	9
45-59	61	38	87	13
60-69	63	32	86	14
70-79	74	26	42	58
80+	64	36	..	..
Highest Education				
Primary and below	67.7	28.2	91.3	8.7
Above primary to secondary	64.0	35.3	85.2	14.8
Above secondary/ Diploma	64.8	34.1	100.0	..
University and above	50.4	47.6	87.7	12.3
Do not know	84.3	12.8	100.0	..
Wealth quintiles				
Q1	62.2	34.7	95.2	4.8
Q2	62.3	37.0	86.6	13.4
Q3	60.3	38.8	82.4	17.6
Q4	63.3	36.7	92.5	7.5
Q5	58.2	38.8	81.5	18.5
Total	61.1	36.9	88.1	11.8
* 2 cases are missing				

Table 3.5.1.5b shows that among the 89% of the self-reported hypertensive population receiving medication in the last 2 weeks, only 36.9% were controlled. The controlled hypertension is higher among Non-Bahraini, males, middle age group, and university graduates. While uncontrolled hypertension is higher among Bahraini, males, age group 70 and above, those with primary and below education and in Q4.

Diabetes

Table 3.5.1.6a shows that, overall, the percentage of respondents who stated that they had been formally diagnosed suffering from Diabetes (need) is 10.8%. This is much higher compared with the worldwide diabetes prevalence of 8.5% (WHO, 2018)[12].

The percentage of self-reported diabetes among Bahraini respondents was 15.4%, while it was 6.9% among non-Bahraini. There was a high difference in self-reported proportion between non-Bahraini males (8.7%) and females (2.6%), while there was low difference between Bahraini males (15.8%) and females (15.1) - Figure 3.5.1.6a.

Table 3.5.1.6a also shows that there was a clear relationship between prevalence and age, as prevalence increased with every successive age group in both nationalities. The self-reported percentage was less than 1% in the age group (18-29 years), then jumped to 59% in the age group (70-79 years).

The diabetes need was the highest (21.8%) among the respondents in the lowest educational level and the prevalence decreased with the increase in educational level, reaching (7.3%) among university graduates. However, limited variation was observed by wealth quintiles.

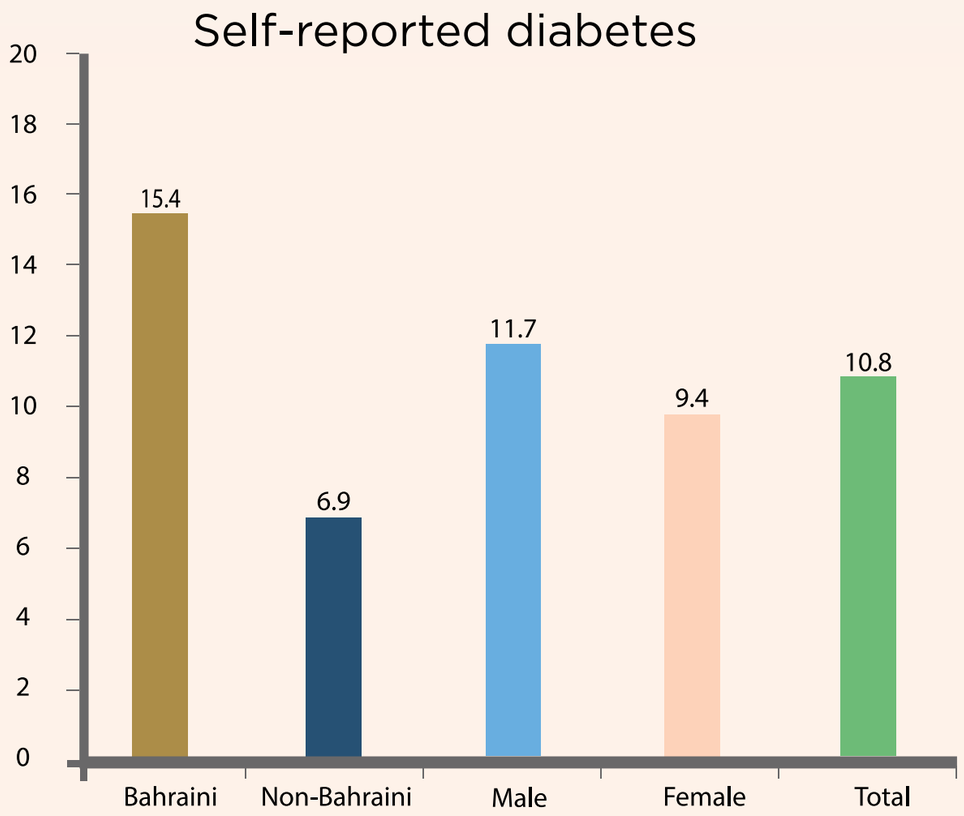


Figure 3.5.1.6a: Prevalence of self-reported diabetes by nationality and sex and total prevalence

Table 3.5.1.6a: Self-reported diabetes according to background characteristics

Characteristics	Bahraini			Non-Bahraini			Total		
	No	Yes	Un-Wt N	No	Yes	Un-Wt N	No	Yes	Un-Wt
	Wt %	Wt %		Wt %	Wt %		Wt %	Wt %	N
Sex:									
Male	84.1	15.8	1085	91.2	8.7	654	88.2	11.7	1739
Female	84.9	15.1	961	97.3	2.6	320	90.5	9.4	1281
Total	84.5	15.4	2046	93.2	6.9	974	89.2	10.8	3020
Age group:									
18-29	99.6	0.3	202	98.8	1.2	114	99.2	0.7	1208
30-44	93.3	6.6	698	95.7	4.2	510	94.8	5.1	1208
45-59	74.1	25.8	710	81.2	18.7	307	77.3	22.6	1017
60-69	48.2	51.7	326	56.4	43.5	32	49.3	50.6	358
70-79	41.4	58.5	89	36.9	63	110	40.9	59	99
80+	64.8	35.1	21	100	100	1	65.9	34	22
	No			Yes			Total		
	Weighted %			Weighted %			Un-weighted N		
Highest Education:									
Primary and below	78.1			21.8			346		
Above primary to secondary	89.1			10.9			1237		
Above secondary/ Diploma	90.1			9.8			331		
University and above	92.6			7.3			1046		
Do not know	70.7			29.2			60		
Wealth quintiles:									
Q1	89.2			10.6			432		
Q2	91.6			8.3			461		
Q3	89			10.8			445		
Q4	87.4			12.5			451		
Q5	84.6			15.3			444		

- Data adjusted by age and sex

Table 3.5.1.6b: History of medication intake among self-reported diabetic cases in the last 2 weeks

Proportion from total group characteristics (row proportion)

Diabetic cases in the last 2 weeks	Report history of diabetes N=559			
	Take medication for DM		No medication for DM	
	N=524*		N=35**	
	High blood sugar on measurement N=210	Normal blood sugar on measurement N=143	High blood sugar on measurement N=13	Normal blood sugar on measurement N=15
	Wt %	Wt %	Wt %	Wt %
Nationality:				
Bahraini	40.5	31.6	24.8	58
Non-Bahraini	43.8	9.5	29.3	64
Sex:				
Male	34	55.4	50	21.3
Female	0	84	26.5	31.4
Age group:				
18-29	..	..	..	100
30-44	50.7	17.7	43	31.2
45-59	42.3	19.2	20	69.2
60-69	38.6	33.9	69.8	30.1
70-79	34	38.3	100	..
80+	..	79.4	..	100
Highest Education:				
Primary and below	43.2	27.1	69.2	30.8
Above primary to secondary	37.0	26.6	20.0	61.9
Above secondary/ Diploma	50.0	18.1	22.8	77.2
University and above	45.8	23.7	5.1	83.9
Do not know	31.0	25.3	100.0	..
Wealth quintiles:				
Q1	53.3	11.5	53.6	46.4
Q2	35.3	31.2	81.7	7.4
Q3	30.3	32.0	36.3	33.4
Q4	52.1	24.4	13.4	53.8
Q5	51.1	39.7	..	96.9
Total	41.5	24.9	27.1	61.2

- *171 cases refused testing blood sugar .. Means No observation

Table 3.5.1.6b shows that among the 93.7% of the self-reported diabetic cases receiving medication in the last 2 weeks, 24.9% were controlled. The controlled diabetes is higher among Bahraini, males, age groups 60 & above, those with primary and below education and those in Q5, while uncontrolled diabetes cases were 41% and higher among Non-Bahraini, males , middle age group, among those with above secondary/Diploma education and those in Q1.

3.5.2 Communicable diseases, oral health and injuries

Socioeconomic, environmental and behavioral factors, as well as international travel and migration, foster and increase the spread of communicable diseases. Vaccine-preventable diseases, food borne, zoonotic, health care-related and communicable diseases pose significant threats to human health and may sometimes threaten international health security. In cooperation with governments, WHO develops norms and standards, guidance and public health tools to help countries implement effective disease prevention and control programs and address their risk factors. Participants in the NHS were asked about the need for some of these communicable diseases during the last 12 months prior to the survey.

Tuberculosis (TB)

Tuberculosis (TB) is a contagious airborne disease caused mainly by Mycobacterium tuberculosis, which infects one-fourth of the world's population. With timely diagnosis and appropriate treatment, further spread of the disease can be prevented. WHO supports the implementation of the End TB Strategy and works with key international and national partners to support the WHO to eliminate TB13.

Table 3.5.2.1 shows that the percentage of respondents reported that they were screened and diagnosed by a doctor as having TB in the last 12 months is 0.7% being higher among non-Bahraini (1.1%) compared to Bahraini (0.5%). The burden of this condition fell more on women, on the overall population (0.6% in men and 0.9% in women) and in both Bahraini (0.3% in men and 0.8% in women) and non-Bahraini (1.1% in men and 1.2% in women).

Tuberculosis need in the whole population is highest (1%) among the respondents in the middle age group (45-59 years) and none was diagnosed in the 80+ age group. Stratified by nationality, diagnosed TB was highest in the age group (45-59 years), while none in the youngest age group (18-29 years) and in the 80+ age group was diagnosed as tuberculous patient among Bahraini respondents. Contrary to that the highest percentage among non-Bahraini (1.5%) was in age group (18-29 years) and none was diagnosed in the 60+ age group.

Surprisingly, the percentage of respondents indicated having received diagnosis of Tuberculosis was among the respondents in Q5 (1.5%) followed by the respondents in Q3 (0.9%) and the least was among the respondents in Q4 (0.2%). In addition, none of the respondents in Q1 was diagnosed with TB in the last 12 months. Education has inconsistent effect on the prevalence of the need of tuberculosis.

Table 3.5.2.1: Self-reported TB in the last 12 months prior to the survey according to background characteristics

TB-testing in last 12 months	Bahraini			Non-Bahraini			Total		
	No	Yes	Un-Wt N	No	Yes	Un-Wt N	No	Yes	Un-Wt N
	Wt %	Wt %		Wt %	Wt %		Wt %	Wt %	
Total	99.5	0.5	2046	98.9	1.1	974	99.3	0.7	3020
Sex:									
Male	99.7	0.3	1085	98.9	1.1	654	99.4	0.6	1739
Female	99.2	0.8	961	98.8	1.2	320	99.1	0.9	1281
Age group:									
18-29	100	0.0	202	98.5	1.5	114	99.5	0.5	316
30-44	99.6	0.4	698	98.7	1.3	510	99.2	0.8	1208
45-59	98.8	1.2	710	99.7	0.3	307	99.0	1.0	1017
60-69	99.5	0.5	326	100	0.0	32	99.5	0.5	358
70-79	99.0	1.0	89	100	0.0	10	99.1	0.9	99
80+	100	0.0	21	100	0.0	1	100	0.0	22

	No	Yes	Total
	Weighted %	Weighted %	Un-weighted N
Highest Education:			
Primary and below	99.4	0.6	346
Above primary to secondary	99.4	0.6	346
Above secondary/ Diploma	99.8	0.2	331
University and above	99.0	1.0	1046
Do not know	98.0	2.0	60
Wealth quintiles:			
Q1	100	0.0	432
Q2	99.2	0.8	461
Q3	99.1	0.9	445
Q4	99.8	0.2	451
Q5	98.5	1.5	444

- Data adjusted by age and sex

Oral health:

Oral health problems are prevalent at all ages whereas injuries due to accidents are major concern among young adults. Changing food habits and lifestyles play a crucial role in the destruction of teeth, a major non-communicable disease. Risk of tooth decay is increased by the consumption of foods which are rich in sugar and starch.

The Bahraini National Health Survey collected information on the need of oral health problems during the 12 months prior to the survey. Table 3.5.2.2a presents the results for oral health in Bahrain. The table shows that 12.8% of respondents had oral health problems in the last 12 months prior to the survey.

The main burden of this condition fell more on women. Nearly 15% of women compared to only 11% of men stated that they had problems with their mouth and/or teeth in the last 12 months. There was great variation in the oral health problems between Bahraini (17.4%) and non-Bahraini (4.1%).

There were slight variations in the oral health problems need due to age. The need is highest (18.1%) among the age group (60-69 years) and lowest (11.2%) among the (70-79 years) age group. This distribution was observed among both nationalities.

There was no clear relation with the respondents' educational level, with the highest prevalence (14.7%) was among primary and below education while the lowest prevalence (12.5%) was in the primary to secondary educational level. There was an increase in the percentages of oral health problems need with the increase in wealth. The need among Q1group was 10.6% while it was 16.9% among Q5 group.

Another important dimension of the oral health is the number of participants who lost all their natural teeth. Table 3.5.2.2b shows that the prevalence of this need among Bahraini was 4.6% while it was 1.6% among non-Bahraini, giving an overall prevalence of 3.6%. As expected, this burden fell more on women being (15.3%) compared to men (10.9%). The prevalence losing all natural teeth increased with age and wealth quintiles, while it gradually decreases with the increase in educational level.

Table 3.5.2.2a: Oral health problems in the last 12 months according to background characteristics

Mouth and/or teeth problems in the last 12 months	Bahraini			Non-Bahraini			Total		
	No	Yes	Un-Wt N	No	Yes	Un-Wt N	No	Yes	Un-Wt N
	Wt %	Wt %		Wt %	Wt %		Wt %	Wt %	
Total	82.6	17.4	2046	95.9	4.1	974	87.2	12.8	3020
Sex:									
Male	84.3	15.7	1085	96.6	3.4	654	89.1	10.9	1739
Female	80.8	19.2	961	94.5	5.5	320	84.7	15.3	1281
Age group:									
18-29	82.0	18.0	202	95.5	4.5	114	86.6	13.4	316
30-44	83.3	16.7	698	95.6	4.4	510	88.7	11.3	1208
45- 59	82.7	17.3	710	97.3	2.7	307	87.0	13.0	1017
60-69	80.8	19.2	326	94.0	6.0	32	81.9	18.1	358
70-79	87.6	12.4	89	100	0.0	10	88.8	11.2	99
80+	87.2	12.8	21	100	0.0	1	87.7	12.3	22
	No			Yes			Total		
	Weighted %			Weighted %			Un-weighted N		
Highest Education:									
Primary and below	85.3			14.7			346		
Above primary to secondary	87.5			12.5			1237		
Above secondary/ Diploma	86.8			13.2			331		
University and above	87.3			12.7			1046		
Do not know	89.3			10.7			60		
Wealth quintiles:									
Q1	89.4			10.6			432		
Q2	88.5			11.5			461		
Q3	84.0			16.0			445		
Q4	82.4			17.6			451		
Q5	83.1			16.9			444		

- Data adjusted by age and sex

Table 3.5.2.2b: Losing all natural teeth according to background characteristics

Lost all natural teeth	Bahraini			Non-Bahraini			Total		
	No	Yes	Un-Wt N	No	Yes	Un-Wt N	No	Yes	Un-Wt N
	Wt %	Wt %		Wt %	Wt %		Wt %	Wt %	
Total	95.4	4.6	2046	98.4	1.6	974	96.4	3.6	3020
Sex:									
Male	94.8	5.2	1085	98.7	1.3	654	96.3	3.7	1739
Female	96.0	4.0	961	97.9	2.1	320	96.5	3.5	1281
Age group:									
18-29	100	0.0	202	100	0.0	114	100	0.0	316
30-44	97.6	1.4	698	99.0	1.0	510	98.2	0.9	1208
45- 59	94.9	5.1	710	98.5	1.5	307	96.0	4.2	1017
60-69	84.9	26.1	326	93.8	6.2	32	85.7	14.3	358
70-79	73.6	26.4	89	92.2	7.8	10	75.5	24.5	99
80+	59.0	41.0	21	0.0	100	1	57.0	43.0	22
	No			Yes			Total		
	Weighted %			Weighted %			Un-weighted N		
Highest Education:									
Primary and below	85.5			14.5			346		
Above primary to secondary	97.3			2.7			1237		
Above secondary/ Diploma	98.1			1.9			331		
University and above	97.8			1.2			1046		
Do not know	88.5			12.5			60		
Wealth quintiles:									
Q1	96.4			3.6			432		
Q2	96.6			3.4			461		
Q3	95.6			4.0			445		
Q4	95.6			4.4			451		
Q5	96.0			4.4			444		

- Data adjusted by age and sex

Road Traffic Accidents (RTAs)

Overall, injuries accounted for over 14% of the adult diseases burden in the world in 2002. The burden of road traffic injuries is increasing, especially in the developing countries of Sub-Saharan Africa and South-East Asia. In the low- and middle-income countries of the Eastern Mediterranean region, road traffic injuries are the second leading cause of death in the age range of 5-14 years. Globally, road traffic injures are the third leading cause of death among men in the age range of 15-44 years.

The Bahraini National Health Survey collected information on the need of road traffic accidents and other bodily injuries during the 12 months prior to the survey. The other bodily injuries are those injuries caused not because of road accidents. The percentages of people who had had a road traffic accident are shown in table 3.5.2.3. The table shows that 1.8% of respondents had road traffic accidents, mainly among Bahraini (2.3%) compared to non-Bahraini (0.8%) in the last 12 months. The distribution of respondents who had had a road traffic accident differed between groups of the population. Of males, 2.0% stated that they had been injured this way, in comparison with only 1.5% of females.

Age was also associated with road traffic accidents. Excluding the oldest age group which had the highest prevalence (11.8%), the youngest age group was affected more (2.9%) than the other age groups.

Wealth and educational levels did not affect the need of traffic road accidents significantly. However, the least percentages were present among respondents with education from above secondary to below university (1.5%) and in Q4 (1.4%).

Other injuries

For injuries due to other accidents rather than the RTA, table 3.5.2.4 shows that 2.1% of respondents stated that this had occurred to them. These injuries were more among Bahraini (2.5%), females (2.1%), respondents in the age group (70-79 years) (5.6%), among those with primary and below education, and those in Q4 (3.2%) compared to non-Bahraini (1.2%), males (2.0%), respondents in the age group (45-59 years) (1.2%), university graduates (1.5%) and in Q1 (1.5%).

Table 3.5.2.3: Prevalence of road traffic accident during the last 12 months according to background characteristics

Have been involved in a road traffic accident during last 12 months	Bahraini			Non-Bahraini			Total		
	No	Yes	Un-Wt N	No	Yes	Un-Wt N	No	Yes	Un-Wt N
	Wt %	Wt %		Wt %	Wt %		Wt %	Wt %	
Total	97.7	2.3	2046	99.2	0.8	974	98.2	1.8	3020
Sex:									
Male	97.2	2.8	1085	99.3	0.7	654	98.0	2.0	1739
Female	98.3	1.7	961	99.0	1.0	320	98.5	1.5	1281
Age group:									
18-29	96.5	3.5	202	98.1	1.9	114	97.1	2.9	316
30-44	98.2	1.8	698	99.5	0.5	510	98.8	1.2	1208
45-59	98.6	1.4	710	100	0.0	307	99.0	1.0	1017
60-69	97.1	2.9	326	100	0.0	32	97.4	2.6	358
70-79	100	0.0	89	100	0.0	10	100	0.0	99
80+	87.7	12.3	21	100	0.0	1	88.2	11.8	22

	No	Yes	Total
	Weighted %	Weighted %	Un-weighted N
Highest Education:			
Primary and below	98.2	1.8	346
Above primary to secondary	98.0	2.0	1237
Above secondary/Diploma	98.5	1.5	331
University and above	98.3	1.7	1046
Do not know	100	0.0	60
Wealth quintiles:			
Q1	98.2	1.8	432
Q2	98.4	1.6	461
Q3	98.6	1.4	445
Q4	98.4	1.6	451
Q5	97.9	2.1	444

- Data adjusted by age and sex

Table 3.5.2.4: Prevalence of other bodily injuries during the last 12 months according to background characteristics

Have had any other bodily injury during last 12 months	Bahraini			Non-Bahraini			Total		
	No	Yes	Un-Wt N	No	Yes	Un-Wt N	No	Yes	Un-Wt N
	Wt %	Wt %		Wt %	Wt %		Wt %	Wt %	
Total	**97.5**	**2.5**	**2046**	**98.8**	**1.2**	**974**	**97.9**	**2.1**	**3020**
Sex:									
Male	97.3	2.7	1085	99.1	0.9	654	98.0	2.0	1739
Female	97.8	2.2	961	98.1	1.9	320	97.9	2.1	1281
Age group:									
18-29	98.6	1.4	202	97.8	2.2	114	98.3	1.7	316
30-44	96.5	3.5	698	98.9	1.1	510	97.5	2.5	1208
45-59	98.3	1.7	710	100	0.0	307	98.8	1.2	1017
60-69	96.5	3.5	326	100	0.0	32	96.8	3.2	358
70-79	93.8	6.2	89	100	0.0	10	94.4	5.6	99
80+	96.0	4.0	21	100	0.0	1	96.1	3.9	22
	No			Yes			Total		
	Weighted %			Weighted %			Un-weighted N		
Highest Education:									
Primary and below	97.2			2.8			346		
Above primary to secondary	97.6			2.4			1237		
Above secondary/Diploma	98.1			1.9			331		
University and above	98.5			1.5			1046		
Do not know	98.7			1.3			60		
Wealth quintiles:									
Q1	98.5			1.5			432		
Q2	97.0			3.0			461		
Q3	97.1			2.9			445		
Q4	96.8			3.2			451		
Q5	98.0			2.0			444		

- Data adjusted by age and sex

3.5.3 Women health care and screening

Cervical Cancer

Cervical cancer is the fourth most frequent cancer in women with an estimated 570,000 new cases in 2018 representing 6.6% of all female 14 cancers. Approximately, 90% of deaths from cervical cancer occurred in low- and middle-income countries. The high mortality rate from cervical cancer globally could be reduced through a comprehensive approach that includes prevention, early diagnosis, and effective screening and treatment programs. Currently, there are vaccines that protect against common cancer-causing types of human papilloma virus and can significantly reduce the risk of cervical cancer. Cervical cancer takes many years to develop, so changes can be detected in the cervix early, before the appearance of the cancer. Therefore, screening women for these changes can detect the early development of the disease and, coupled with treatment, the development of the cancer can be halted. Screening programs are therefore an important part of the fight against this cancer.

The Bahraini National Health Survey collected information on the screening of cervical cancer by asking female respondents aged 18-69 if they have received a pap smear test during pelvic examination in the last 3 years. Only women who were selected to answer the individual questionnaire were asked these questions.

Table 3.5.3.1a shows that 56.2 % of the female respondents had vaginal examination in the last three years and the Bahraini females reported more examination percentage (56.8%) than non-Bahraini females (43.7%). The highest percentage of examination was among females in the age group (30-59 years) with an average of 61.7%, and the least percent was among elderly females (> 70 years) with averaged percentage equal to 27.1%.

With regard to educational level and wealth, the lowest percentage of females who have received vaginal examination was in the lowest educational level (41.2%) and in Q1 (43.6%). Table 3.5.3.1b shows that 90.7% of the examined females received a Pap smear test during pelvic examination in the last 3 years, mainly among Bahraini.

Women in the age groups (30-44 years), (45-59 years) and (60-69 years) were the most likely to have had a pap smear in the last three years (92.4%, 91.6% and 91.3% respectively), then the percentage of women who had received a pap smear dropped to 73.1% and 65.7% for women in the age groups (70–79 years) and (80 years and above) respectively.

The table also shows that the proportion of women screened for cervical cancer increased with income. It was 96.5% in Q5 and 86.3% in Q1. There was minimal variation on female percentage who did cancer screening among different educational levels.

Table 3.5.3.1a: Self-reported vaginal examination during the last 3 years prior to the survey according to background characteristics

Vaginal examination during the last 3 years	Bahraini			Non-Bahraini			Total		
	No	Yes	Un-Wt N	No	Yes	Un-Wt N	No	Yes	Un-Wt N
	Wt %	Wt %		Wt %	Wt %		Wt %	Wt %	
Sex:									
Female	43.2	56.8	899	56.3	43.7	296	43.8	56.2	1195
Age group:									
18-29	65.0	35.0	76	64.3	35.7	49	64.7	35.3	125
30-44	30.9	69.1	323	50.6	49.4	160	37.7	62.3	483
45-59	34.7	65.3	305	56.3	43.7	75	38.9	61.1	380
60-69	50.0	50.0	132	48.3	51.7	8	49.9	50.1	140
70-79	70.6	29.4	52	66.7	33.3	3	70.4	29.6	55
80+	81.7	18.3	11	0.0	100	1	75.4	24.6	12
	No			Yes			Total		
	Weighted %			Weighted %			Un-weighted N		
Highest Education:									
Primary and below	58.8			41.2			171		
Above primary to secondary	45.5			54.5			441		
Above secondary/ Diploma	49.0			51.0			129		
University and above	43.6			56.4			410		
Do not know	60.1			39.9			44		
Wealth quintiles:									
Q1	56.4			43.6			191		
Q2	43.6			56.4			162		
Q3	41.1			58.9			170		
Q4	36.6			63.4			185		
Q5	35.2			64.8			146		

Table 3.5.3.1b: Self-reported pap smear examination during the last 3 years prior to the survey according to background characteristics

Pap smear examination during the last 3 years	Bahraini			Non-Bahraini			Total		
	No	Yes	Un-Wt N	No	Yes	Un-Wt N	No	Yes	Un-Wt N
	Wt %	Wt %		Wt %	Wt %		Wt %	Wt %	
Sex:									
Female	7.5	92.5	536	15.0	85.0	135	9.3	90.7	671
Age group:									
18-29	11.6	88.4	31	17.0	83.0	18	13.7	86.3	49
30-44	4.6	95.4	225	15.5	84.5	79	7.6	92.4	304
45-59	8.3	91.7	198	9.4	90.6	32	8.4	91.6	230
60-69	7.9	92.1	65	23.5	76.5	4	8.7	91.3	69
70-79	28.5	71.5	15	0.0	100	1	26.9	73.1	16
80+	50.0	50.0	2	0.0	100	1	34.3	65.7	3
	No			Yes			Total		
	Weighted %			Weighted %			Un-weighted N		
Highest Education:									
Primary and below	9.8			90.2			69		
Above primary to secondary	9.1			90.9			263		
Above secondary/Diploma	7.0			93.0			77		
University and above	9.5			90.5			245		
Do not know	20.3			79.7			17		
Wealth quintiles:									
Q1	13.7			86.3			91		
Q2	19.3			80.7			89		
Q3	6.5			93.5			104		
Q4	5.1			94.9			116		
Q5	3.5			96.5			106		

Breast cancer examination

According to the American Institute for Cancer Research, breast cancer is the most commonly occurring cancer in women and the second most common cancer overall. There were over 2 million new cases in 2018. It is estimated that, worldwide, over 508 000 women died in 2011 due to breast cancer (Global Health Estimates, WHO 2013)15. Although breast cancer is thought to be a disease of the developed world, almost 50% of breast cancer cases and 58% of deaths occur in less developed countries (GLOBOCAN 2008)16.

Early detection of breast cancer with screening mammography means that treatment can be started earlier in the course of the disease, possibly before it has spread. Results from randomized clinical trials and other studies show that screening mammography can help reduce the number of deaths from breast cancer among women ages 40 to 74, especially for those over age 50 yrs.17 . This should be done once every two or three years and is seen to be worthwhile only in women aged over 40. Also, studies to date have not shown a benefit from regular screening mammography in women under age 40 or from baseline screening mammograms (mammograms used for comparison) taken before age 40. However, in the Bahraini National Health Survey, all the participating women were asked if they had ever had Mammography during the last 3 years prior to the survey. But during analysis those belonging to the age group (18-29 years) were excluded as no female in this age group reported that she ever did mammography in her life.

Table 3.5.3.2, shows that among women aged above 29 who were asked if they have had a mammography test during the last 3 years, more than 50% of the respondents said that they had never had a mammography, and among those who did, 48.6% were Bahraini compared to only 29.6% of non-Bahraini.

There is evidence that the percentage screened in the previous three years increased as age rose till 69 years then started to decrease. It is 30.8% among women aged 30-44, increased to 60.5% among women aged 60-69 then decreased to 38.8% among women aged 70-79. By nationality, the same trend was observed among Bahraini women but the continuous increase when moving from one group to the next one was observed among non-Bahraini women. The table shows that wealth was related to the percentage of women who had had mammography and the proportion of women screened for breast cancer increased with income. It was 37.5% among women in Q1 (Lowest) and 60.4% among those atin Q5 (Highest)..

The table also shows that the participants' educational level was also related to the percentage of women who had had mammography taking the same rising trend as in wealth with increasing in the educational level. It was 38.8% among the lowest educational level which is nearly doubled among the university graduates' group (56.5%).

Table 3.5.3.2: Self-reported ever had mammography during the last 3 years prior to the survey according to background characteristics

Have ever had Mammography	Bahraini			Non-Bahraini			Total		
	No	Yes	Un-Wt	No	Yes	Un-Wt	No	Yes	Un-Wt
	Wt %	Wt %	N	Wt %	Wt %	N	Wt %	Wt %	N
Sex:									
Female	51.4	48.6	899	70.4	29.6	296	54.8	45.2	1195
Age group:									
30-44	66.8	33.2	323	76.6	23.4	160	69.2	30.8	483
45-59	47.8	52.2	305	68.9	31.1	75	52.1	47.9	380
60-69	38.3	61.7	132	62.7	37.3	8	39.5	60.5	140
70-79	62.0	38.0	52	50.0	50.0	3	61.2	38.8	55
80+	47.0	53.0	11	0.0	100	1	43.4	56.6	12
	No			**Yes**			**Total**		
	Weighted %			**Weighted %**			**Un-weighted N**		
Highest Education:									
Primary and below	61.2			38.8			142		
Above primary to secondary	55.7			44.3			420		
Above secondary/ Diploma	43.0			57.0			104		
University and above	43.5			56.5			385		
Do not know	58.2			41.8			19		
Wealth quintiles:									
Q1	62.5			37.5			173		
Q2	61.3			38.7			130		
Q3	59.4			40.6			145		
Q4	50.1			49.9			160		
Q5	39.6			60.4			121		

3.5.4 Care during pregnancy and childbirth

Antenatal care and mother to child transmissionof HIV

Care during pregnancy and during child birth is vital for the health of the mother and the child. Antenatal care enables the detection of early complications with respect to pregnancy, including anemia, hypertensive disorders and bleeding, and also identifies higher-risk pregnancies. Information and counseling can be given to the expectant mothers to enable her to make informed decisions about the pregnancy. It is recommended by WHO that a mother have at least four visits to a health facility during the term of the pregnancy.

In the Bahraini National Health Survey women in their reproductive age (18-49 years) who had had a birth in the previous five years were asked about the care that they received during the pregnancy. The results from these questions are shown in tables 3.5.4.1 to 3.5.4.7.

There were 319 women aged between 18 and 49 gave birth in the previous five years. These women were assessed for the number of antenatal visits (not present in the tables) and the checks that were done during the visits. 80% of the targeted women attended three or more antenatal visits while 82% of the women had two visits and equal percentage had only one visit to a health care professional during their last pregnancy.
During an antenatal visit a mother should have certain checks and tests carried out to ensure that the pregnancy is going to plan. These include blood pressure measurements, blood and urine analysis, ultrasound and HIV testing. Also, the expectant mothers were told about the signs of pregnancy complications.

For Blood pressure examination, table 3.5.4.1 shows that all Bahraini women and 97.4% of non-Bahraini women had their blood pressure checked during the antenatal visits with no valuable differences with age, educational level and wealth.

Table 3.5.4.1: Checking for blood pressure among women (18-49 years) who had had a birth in the last five years by background characteristics

Blood pressure examined during pregnancy	Bahraini			Non-Bahraini			Total		
	No	Yes	Un-Wt N	No	Yes	Un-Wt N	No	Yes	Un-Wt N
	Wt %	Wt %		Wt %	Wt %		Wt %	Wt %	
Sex:									
Female	0.0	100	221	2.6	97.4	95	0.8	99.2	316
Age group:									
18-29	0.0	100	42	4.5	95.5	22	1.5	98.5	64
30-44	0.0	100	168	1.3	98.7	72	0.4	99.6	240
45-59	0.0	100	11	0.0	100	1	0.0	100	12
	No			**Yes**			**Total**		
	Weighted %			**Weighted %**			**Un-weighted N**		
Highest Education:									
Primary and below	0.0			100			18		
Above primary to secondary	1.6			98.4			104		
Above secondary/Diploma	0.0			100			36		
University and above	0.5			99.5			156		
Do not know	0.0			100			2		
Wealth quintiles:									
Q1	0.0			100			39		
Q2	3.2			96.8			50		
Q3	0.0			100			52		
Q4	1.7			98.3			53		
Q5	0.0			100			37		

For blood analysis, table 3.5.4.2 shows that 98.9% of the targeted women performed blood analysis during pregnancy; 99.4% among Bahraini and 97.8% among non-Bahraini. The difference in percentages between subgroups was minimal. The 100% was observed among Bahraini women in the age group (18-29 years), in both nationalities in the age group (45-59 years), in women with primary and below and those above secondary to university education and in Q2, Q4 and Q5.

Table 3.5.4.2: Blood analysis performed for women (18-49 years) who had had a birth in the previous five years by background characteristics

Blood analysis during pregnancy	Bahraini			Non-Bahraini			Total		
	No	Yes	Un-Wt N	No	Yes	Un-Wt N	No	Yes	Un-Wt N
	Wt %	Wt %		Wt %	Wt %		Wt %	Wt %	
Sex:									
Female	0.6	99.4	221	2.2	97.8	95	1.1	98.9	316
Age group:									
18-29	0.0	100	42	3.5	96.5	22	1.2	98.8	64
30-44	1.0	99.0	168	1.4	98.6	72	1.1	98.9	240
45-59	0.0	100	11	0.0	100	1	0.0	100	12
	No			**Yes**			**Total**		
	Weighted %			**Weighted %**			**Un-weighted N**		
Highest Education:									
Primary and below	0.0			100			18		
Above primary to secondary	0.7			99.3			104		
Above secondary/Diploma	0.0			100			36		
University and above	1.9			98.1			156		
Do not know	0.0			100			2		
Wealth quintiles:									
Q1	2.9			97.1			39		
Q2	0.0			100			50		
Q3	1.2			98.8			52		
Q4	0			100			53		
Q5	0.0			100			37		

For urine analysis, table 3.5.4.3 shows that 99.2% of the targeted women performed urine analysis during pregnancy; 98.8%% among Bahraini and 100 % among non-Bahraini. The difference in percentages between age subgroups was minimal. The lowest percentages were observed among women with primary and below education (92.9%) and in Q3 (96.3%).

Table 3.5.4.3: Urine analysis performed for women (18-49 years) who had had a birth in the previous five years by background characteristics

Urine analysis during pregnancy	Bahraini			Non-Bahraini			Total		
	No	Yes	Un-WtN	No	Yes	Un-WtN	No	Yes	Un-WtN
	Wt %	Wt %		Wt %	Wt %		Wt %	Wt %	
Sex:									
Female	1.2	98.8	221	0.0	100	95	0.8	99.2	316
Age group:									
18-29	0.0	100	42	0.0	100	22	0.0	100	64
30-44	1.9	98.1	168	0.0	100	72	1.3	98.7	240
45-59	0.0	100	11	0.0	100	1	0.0	100	12
	No			**Yes**			**Total**		
	Weighted %			**Weighted %**			**Un-weighted N**		
Highest Education:									
Primary and below	7.1			92.9			18		
Above primary to secondary	0.7			99.3			104		
Above secondary/Diploma	0.0			100			36		
University and above	0.4			99.6			156		
Do not know	0.0			100			2		
Wealth quintiles:									
Q1	0.0			100			39		
Q2	0.0			100			50		
Q3	3.7			96.3			52		
Q4	0.0			100			53		
Q5	0.0			100			37		

Similar to urine analysis, for 99.2% of the targeted women, ultrasound examination was performed with minimal difference between subgroups as shown in table 3.5.4.4.

Table 3.5.4.4: Ultrasound examination performed for women (18-49 years) who had had a birth in the previous five years by background characteristics

Ultrasound scan during pregnancy	Bahraini			Non-Bahraini			Total		
	No	Yes	Un-Wt N	No	Yes	Un-Wt N	No	Yes	Un-Wt N
	Wt %	Wt %		Wt %	Wt %		Wt %	Wt %	
Sex:									
Female	0.8	99.2	221	0.9	99.1	95	0.8	99.2	316
Age group:									
18-29	0.0	100	42	0.0	100	22	0.0	100	64
30-44	0.9	99.1	168	1.5	98.5	72	1.1	98.9	240
	No			**Yes**			**Total**		
	Weighted %			**Weighted %**			**Un-weighted N**		
Highest Education:									
Primary and below	0.0			100			18		
Above primary to secondary	1.1			98.9			104		
Above secondary/Diploma	3.9			96.1			36		
University and above	0.0			100			156		
Do not know	0.0			100			2		
Wealth quintiles:									
Q1	1.9			98.1			316		
Q2	1.9			98.1			39		
Q3	0.0			100			50		
Q4	0.0			100			52		
Q5	1.0			99.0			53		

Table 3.5.4.5 shows that counseling for signs of pregnancy complications was lower than the previous checks and tests. Only 85.5% of the targeted women reported that they received this service which is lower among women at age 30-44 (83.2%), university graduates (84.4%) and in Q4 and Q5 (80.1% and 81.1% respectively).

Table 3.5.4.5: Counsel about signs of pregnancy complications performed for women (18-49 years) who had had a birth in the previous five years by background characteristics

Signs of pregnancy complications	Bahraini			Non-Bahraini			Total		
	No	Yes	Un-Wt	No	Yes	Un-Wt	No	Yes	Un-Wt
	Wt %	Wt %	N	Wt %	Wt %	N	Wt %	Wt %	N
Sex:									
Female	14.1	85.9	221	15.2	84.8	95	14.5	85.5	316
Age group:									
18-29	8.7	91.3	42	15.3	84.7	22	10.9	89.1	64
30-44	17.5	82.5	168	15.2	84.8	72	16.8	83.2	240
45-59	9.2	90.8	11	0.0	100	1	8.5	91.5	12
	No			**Yes**			**Total**		
	Weighted %			**Weighted %**			**Un-weighted N**		
Highest Education:									
Primary and below	0.0			100			18		
Above primary to secondary	14.9			85.1			104		
Above secondary/Diploma	11.7			88.3			36		
University and above	15.6			84.4			156		
Do not know	60.8			39.2			2		
Wealth quintiles:									
Q1	10.3			89.7			39		
Q2	8.9			91.1			50		
Q3	16.7			83.3			52		
Q4	19.9			80.1			53		
Q5	18.9			81.1			37		

AID's is a dangerous and stigmatized infection caused by the Human Immune Deficiency Virus (HIV), which weakens the immune system and leads to death through secondary infections such as tuberculosis or pneumonia. The virus is transmitted through many routs including sexual contact, through the placenta of HIV infected mothers to their unborn children, or through contact with contaminated needles (injections) or blood. The HIV epidemic has shifted over the past 30 years, from the first reported cases in the early 1980s, to an estimated high of 3.7 million new infections in 1997, to declining new infections and AIDS-related mortality throughout the 2000s. In 2012, approximately 9.7 million people in low- and middle-income countries were on antiretroviral drugs (ART)18. The greatest decrease in HIV incidence is among children, which has been reduced by 52% in 10 years. Many reasons exist for this decrease in incidence, including reduced infectiousness of people living with HIV on ART, expansion of programs for prevention of mother-to-child transmission (PMTCT) of HIV, and introduction of harm-reduction programs focusing on safer sex and outreach to high-risk populations.

Tables 3.5.4.6 and 3.5.4.7 present the proportion of female respondents of reproductive age with live birth in the last 5 years who indicated having been counseled and tested and given results for HIV during their last pregnancy. Results of these tables show that 44.9% of the targeted women had been counseled and 43% only tested for HIV. As expected, more non-Bahraini women were counseled and tested for HIV. Low percentages of providing these services were observed among women at age 45-59 (33.9% counseled and tested for HIV), women with primary and below education (nearly 28% counseled and tested for HIV) and women in Q1 for counseling (34.5%) and Q5 for testing (28.1%) compared to the rest of subgroups in each character.

Table 3.5.4.6: Counsel about HIV performed for women (18-49 years) during pregnancy who had had a birth in the previous five years by background characteristics

Counseled about HIV during antenatal visits	Bahraini			Non-Bahraini			Total		
	No	Yes	Un-Wt	No	Yes	Un-Wt	No	Yes	Un-Wt
	Wt %	Wt %	N	Wt %	Wt %	N	Wt %	Wt %	N
Sex:									
Female	62.5	37.5	221	39.6	60.4	95	55.1	44.9	316
Age group:									
18-29	65.0	35.0	42	36.5	63.5	22	55.2	44.8	64
30-44	60.6	39.4	168	42.0	58.0	72	54.6	45.4	240
45-59	71.9	28.1	11	0.0	100	1	66.1	33.9	12
	No			**Yes**			**Total**		
	Weighted %			**Weighted %**			**Un-weighted N**		
Highest Education:									
Primary and below	71.8			28.2			18		
Above primary to secondary	56.9			43.1			104		
Above secondary/Diploma	45.1			54.9			36		
University and above	53.4			46.6			156		
Do not know	100			0.0			2		
Wealth quintiles:									
Q1	65.5			34.5			39		
Q2	43.5			56.5			50		
Q3	62.2			37.8			52		
Q4	63.8			36.2			53		
Q5	63.8			36.2			37		

Table 3.5.4.7: Percentage of women (18-49 years) tested for HIV during pregnancy who had had a birth in the previous five years by background characteristics

Tested for HIV during antenatal visits	Bahraini			Non-Bahraini			Total		
	No	Yes	Un-Wt N	No	Yes	Un-Wt N	No	Yes	Un-Wt N
	Wt %	Wt %		Wt %	Wt %		Wt %	Wt %	
Sex:									
Female	63.4	36.6	221	43.7	56.3	95	57.0	43.0	316
Age group:									
18-29	67.0	33.0	42	45.6	54.4	22	59.7	40.3	64
30-44	60.9	39.1	168	42.8	57.2	72	55.1	44.9	240
45-59	71.9	28.1	11	0.0	100	1	66.1	33.9	12
	No			**Yes**			**Total**		
	Weighted %			**Weighted %**			**Un-weighted N**		
Highest Education:									
Primary and below	71.9			28.1			18		
Above primary to secondary	56.7			43.3			104		
Above secondary/Diploma	54.9			45.1			36		
University and above	55.3			44.7			156		
Do not know	100			0.0			2		
Wealth quintiles:									
Q1	63.6			36.4			39		
Q2	46.8			53.2			50		
Q3	62.1			37.9			52		
Q4	64.5			35.5			53		
Q5	71.9			28.1			37		

3.5.5 Birth delivery care

Care during labor and delivery is a further way to improve the health of both mother and child, as complications can be early identified and averted if a skilled professional is available during this time. Table 3.5.5.1 shows the percentage of births in the five years before the survey by the type of assisting delivery persons, while table 3.5.5.2 shows the place of delivery.
99.1% of women in Bahrain reported having received assistance with birth delivery from a health care professional (doctor, nurse or midwife) during their last birth. Generally, percentage of mothers who received assistance from a health care professional were slightly higher among Bahraini women (99.3%) compared to non-Bahraini (98.8%). There was no difference in percentage of using professional assistants among all age groups and educational levels.

Table 3.5.5.1: Percentage of deliveries according to delivery assessment personnel among women (18-49 years) who had had a birth in the previous five years by background characteristics

Delivery Assessment personnel	Doctor	Nurse/ midwife	Doctor	Others	Don't know	Un-Wt N
	Wt %	Wt %	Wt %	Wt %	Wt %	
Nationality:						
Bahraini Female	**41.9**	**44.9**	**12.5**	**0**	**0.7**	**221**
Non Bahraini female	45.6	18.6	34.6	1.2	0	95
Total	**43.1**	**36.3**	19.7	**0.4**	**0.5**	**316**
Age group:						
B/18-	**39.5**	**52.5**	6	**0**	**2**	**42**
Non B/18-	45.8	11.7	42.5	0	0	22
B/30-	**43.5**	**40.1**	16.4	**0**	**0**	**168**
Non B/30-	44	34.8	21.2	0	0	72
B/45-	**36.5**	**53.9**	9.6	**0**	**0**	**11**
Non B/45-	41.7	49.5	8.8	0	0	1
Highest education:						
Primary and below	34.8	43.8	21.4	0	0	18
Above primary to secondary	33.2	50.9	15.9	0	0	104
Above secondary/ Diploma	48.8	26.2	25	0	0	36
University and above	49.9	27.4	20.8	0.9	1	156
Wealth quintiles:						
Q1	51.6	36.6	11.8	0	0	39
Q2	25.5	41.3	33.2	0	0	50
Q3	41	38.1	19.7	1.2	0	52
Q4	45.6	36.7	17.7	0	0	53
Q5	50.7	32.8	11.6	0	4.9	37

Table 3.5.5.2 shows that 100% of mothers who reported their location of birth gave birth in a maternity house or a hospital. Hospitals were used by both Bahraini and non-Bahraini. Hospital and maternity house were used more by the Q4 (100%), women at age 18-29 (97.4%) and among women with education above secondary to university (100%).

Table 3.5.5.2: Place of delivery among women (18-49 years) who had a birth in the previous five years by background characteristics

Characteristics	Bahraini			Non-Bahraini			Total		
	Hospital/ Maternity house	Other health facility	Total	Hospital/ Maternity house	Other health facility	Total	Hospital/ Maternity house	Other health facility	Total
	WT %	WT %	N	WT %	WT %	N	WT%	WT %	N
Sex:									
Female	95.1	4.9	221	97.1	2.9	95	95.8	4.2	316
Age group:									
18-29	96.0	4.0	42	100	0.0	22	97.4	2.6	64
30-44	94.8	5.2	168	95.2	4.8	72	94.9	5.1	240
45-59	90.8	9.2	11	100	0.0	1	91.5	8.5	12
	Hospital/Maternity house			**Other health facility**			**Un-weighted N**		
	Weighted %			**Weighted %**					
Highest Education:									
Primary and below	85.9			14.1			18		
Above primary to secondary	94.6			5.4			105		
Above secondary/ Diploma	100			0.0			36		
University and above	96.7			3.3			157		
Do not know	100			0.0			2		
Wealth quintiles:									
Q1	93.6			6.4			39		
Q2	96.9			3.1			50		
Q3	95.3			4.7			53		
Q4	100			0.0			38		
Q5	84.6			15.4					

3.6 MEDICAL MEASUREMENTS AND LABORATORY INVESTIGATIONS

This chapter looks at a number of health indicators that help in determining the overall nutritional status and health risks of the Bahraini and non-Bahraini populations. The chapter discusses results from anthropometric data that has been collected during the survey, as well as waist and hip circumferences. In addition, blood pressure measurements that were taken during the survey will be presented. Moreover, the blood glucose and cholesterol measurements will also be presented.

3.6.1 Nutritional status

The nutritional status of adolescents and adults indicates their health and wellbeing. The Bahraini National Health Survey was designed to collect anthropometric data from all respondents (i.e. in the individual questionnaire for eligible one household members aged 18 and above) excluding pregnant women. In few cases, respondents refused to conduct the measures, or the interviewer couldn't obtain the measures. Data have been collected to look at the obesity using BMI and WHR measures.

Height measures were collected using portable Stadiometer productions, while weight was obtained using digital bathroom-type scales. In addition, measures of waist and hip circumference were obtained using a flexible non-stretchable measuring tape. For measuring the hip circumference, the maximal circumference over the buttocks was measured. As for the waist circumference, interviewers were instructed to take the measure by putting the measuring tool at the top of the hip bone then bringing it all the way around the navel and to make sure it is not too tight and parallel to the floor.

Body Mass Index (BMI)

Using the height and weight data, the BMI was calculated to assess respondents' nutritional status. The body-mass index (BMI) is calculated by dividing the weight in kilograms by the square of height in meters (kg/m2). Also, it has to be noted that the BMI calculations and cut off points used are the same for all adults regardless of the age and sex. The BMI cut off points are:

- Underweight: BMI ≤ 18.5
- Normal: BMI >18.5-24.9
- Overweight: BMI 25-29.9
- Obese: BMI ≥ 30

Table 3.6.1.1 shows the prevalence of underweight, overweight and obesity for all respondents excluding pregnant women, those whose measures could not be obtained (either refused or for other health-related reasons), and women who are less than two months postpartum. In general, 25.6% of the respondents are within the normal BMI range (22.1% among Bahraini and 32.4% among non-Bahraini). However, the table indicates that among Bahraini citizens, 1.9% of the respondents are underweight, about one-third of the respondents are overweight and 42.8% are obese. Among the non-Bahraini, the corresponding percentages are 2.1%, 39.8% and 25.7% (figure 3.6.1.1). Combining overweight and obese percentages show that the Bahraini nationals suffer more from overweight to obese than the non-Bahraini (76% versus 65.5%).

Table 3.6.1.1 also shows that underweight is highest among Bahraini respondents who are 80 years old and above (6.9%); and by sex underweight is also slightly higher among females than males (3% among females versus 1% among males). By educational level, 2.3% of those with above Primary to secondary education and 1.9% of the university graduates suffer from underweight. It is also worth noting that 1% of the respondents in the highest wealth quintiles (Q4 & Q5) are underweight.

Looking at the prevalence of overweight, it is clear that it's higher among males in both nationalities, among Bahraini aged 80+ (46.3%) and in the non-Bahraini age group (60-69 years) (56.7%). An increase trend was also observed in prevalence of overweight with the increase in successive wealth quintiles from Q1-Q4.

Variations in the prevalence of obesity by background characteristics are presented in the table. The table shows that obesity is higher among Bahraini females than males, where 47.2% of females are considered obese compared to 39.2% of males. The same trend was also observed among non-Bahraini, as the males' percentage (23.2%) is lower than females' (30.6%). By age, the highest percentage of obesity was found among those at age 45-59 years (54.6% among Bahraini and 32.1% among non-Bahraini).

The highest percentage of obesity was reported among the lowest (41.2%) and the highest (40.5%) educational levels. In addition, obese respondents are more in Q3-Q5 than in Q1 and Q2.

Table 3.6.1.1: BMI categories among respondents of NHS

Characteristics	Bahraini				
	UnderWt	normal	OverWT	Obese	UnWt N
	WT%	WT%	WT%	WT%	
Sex:					
Male	1.0	23.7	36.1	39.2	1068
Female	3.0	20.1	29.7	47.2	927
Total	1.9	22.1	33.2	42.8	1995
Age group:					
18-29	4.6	35.1	29.1	31.2	194
30-44	1.1	20.4	35.7	42.8	682
45-59	0.5	12.4	32.5	54.6	701
60-69	0.6	13.3	36.2	50.0	315
70-79	0.0	20.8	41.2	38.0	87
80+	6.9	25.0	46.3	21.8	16

Characteristics	Non-Bahraini				
	UnderWt	normal	OverWT	Obese	UnWt N
	WT%	WT%	WT%	WT%	
Sex:					
Male	2.5	31.5	42.9	23.2	647
Female	1.2	34.4	33.8	30.6	306
Total	2.0	32.4	39.8	25.7	953
Age group:					
18-	5.7	42.8	31.8	19.7	112
30-	0.6	29.4	42.6	27.4	498
45-	0.3	24.3	43.4	32.1	302
60-	0.0	30.8	56.7	12.5	31
70-	0.0	50.8	32.2	17.0	9
80+	0.0	0.0	100	0.0	1

Characteristics	Total				
	UnderWt	normal	OverWT	Obese	UnWt N
	WT%	WT%	WT%	WT%	
Sex:					
Male	1.6	26.7	38.7	33.0	1715
Female	2.5	24.2	30.9	42.5	1233
Total	1.9	25.6	35.5	36.9	2948
Age group:					
18-29	5.0	37.8	30.0	27.2	306
30-44	0.9	24.3	38.7	36.2	1180
45-59	0.4	15.9	35.8	47.9	1003
60-69	0.5	14.8	38.0	46.7	346
70-79	0.0	23.7	40.3	36.0	96
80+	6.6	23.8	48.7	20.9	17

	Underweight	Normal	Overweight	Obese	Unweighted N
	Weighted%	Weighted%	Weighted%	Weighted%	
Highest Education:					
Primary and below	0.7	24.6	33.5	41.2	333
Above primary to secondary	2.3	24.8	34.4	38.6	1207
Above secondary/ Diploma	1.8	31.3	30.5	36.4	321
University and above	1.9	25.4	38.8	33.9	1028
Do not know	1.7	20.7	37.1	40.5	59
Wealth quintiles:					
Q1	3.6	31.1	30.2	35.1	425
Q2	3.3	27.3	36.1	33.3	444
Q3	2.8	16.0	39.6	41.6	436
Q4	0.7	18.7	40.7	39.9	446
Q5	0.3	24.1	34.8	40.8	436

- Data adjusted by age and sex

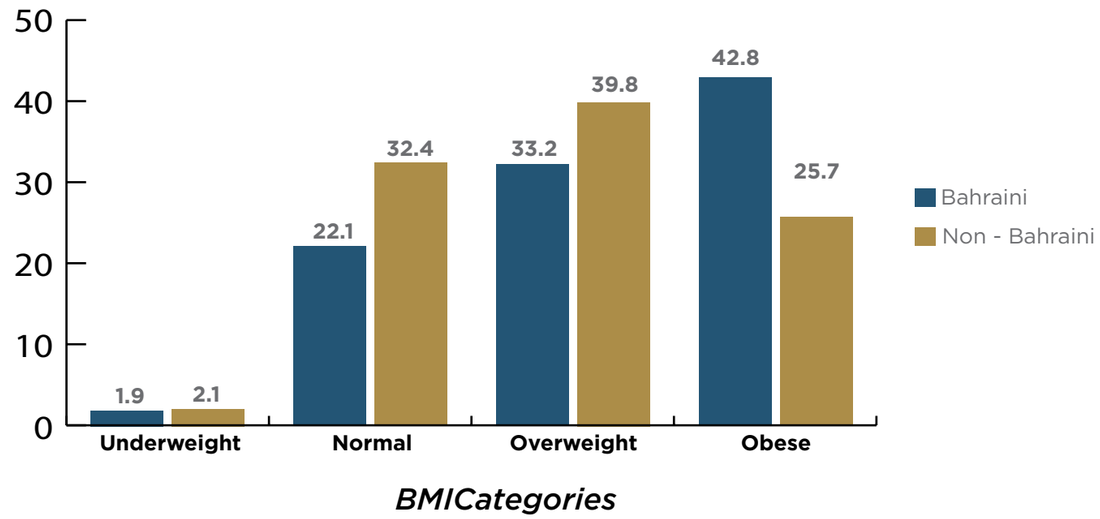


Figure 3.6.1.1: Distribution of BMI in Bahrain population by nationality

Waist to hip ratio (WHR)

Another indicator of the nutritional status is Waist to Hip Ratio. Waist and Hip circumferences were obtained for all respondents aged 18 and above. These measurements were used to calculate the Waist to Hip Ratio (WHR) which is used as an indicator of central obesity and also is used to measure the health risks (such as cardiac risk) for a person. According to the WHR, the normal value for females is ≤0.8, where value between of 0.81-0.85 is considered as risky, while WHR of > 0.85 is considered as abnormal (central obesity). For males, a normal value is ≤ 0.95, while a value between 0.96 and 1.0 is considered as risky, and WHR > 1.0 is considered as abnormal ratio.

According to table 3.6.1.2, results reveal that the majority of the population has an abnormal WHR where three quarters of the respondents have abnormal WHR indicating central obesity. Abnormal WHR is more prevalent among non-Bahraini (82.2%) compared to (71.7%) among Bahraini. Overall, central obesity is more by 11% among males (80.0%) than among females (68.6%) - Figure 3.6.1.2.

The percentage of respondents who have abnormal WHR gradually increased with the increase in age groups (from 60.4% at age 18-29 to 92.7% at age 80+). WHR was also higher among respondents with primary and below education and in Q4 compared to the relevant groups.

Table 3.6.1.2: Distribution of Waist to Hip Ratio categories by background categories

Characteristics	Bahraini			Non-Bahraini			Total		
	Normal	Abnormal	Total	Normal	Abnormal	Total	Normal	Abnormal	Total
	WT %	WT %	Un-Wt N	WT %	WT %	Un-Wt N	WT %	WT %	Un-Wt N
Sex:									
Male	23.6	76.4	1028	14.4	85.6	635	20.0	80.0	1663
Female	34.1	65.9	872	24.6	75.4	294	31.4	68.6	1166
Total	28.3	71.7	1900	17.8	82.2	929	24.6	75.4	2829
Age group:									
18-29	43.8	56.2	188	31.7	68.3	108	39.6	60.4	296
30-44	28.1	71.9	646	13.1	86.9	488	21.5	78.5	1134
45-59	19.3	80.7	674	10.2	89.8	292	16.5	83.5	966
60-69	11.3	88.7	298	0.0	100	31	10.3	89.7	329
70-79	4.6	95.4	79	11.9	88.1	9	5.4	94.6	88
80+	7.6	92.4	15	0.0	100	1	7.3	92.7	16
	Normal			Abnormal			Un-weighted N		
	Weighted %			Weighted %					
Highest Education:									
Primary and below	15.2			84.8			313		
Above primary to secondary	27.8			72.2			1163		
Above seconda Diploma	26.5			73.5			309		
University and above	23.1			76.9			985		
Do not know	9.1			90.9			59		
Wealth quintiles:									
Q1	21.4			78.6			409		
Q2	29.1			70.9			426		
Q3	24.9			75.1			413		
Q4	19.3			80.7			425		
Q5	29.6			70.4			423		

- Data adjusted by age and sex

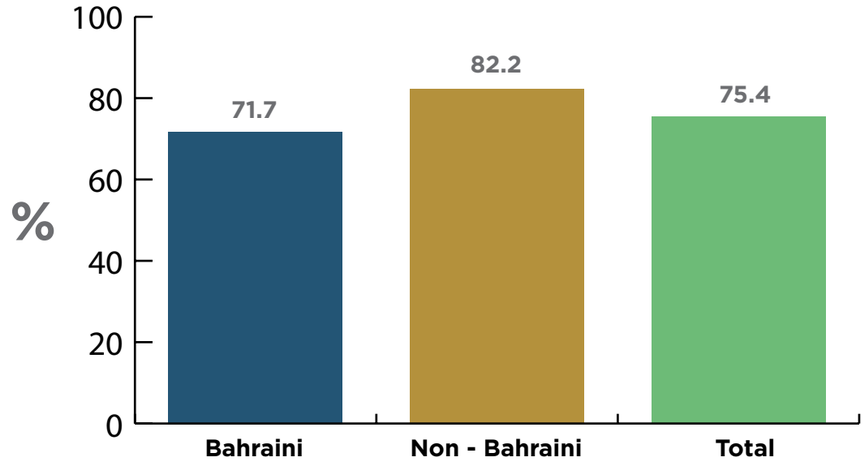


Figure 3.6.1.2: Distribution of central obesity in Bahrain by nationality

3.6.2 Blood presure

High and low blood pressures are associated with a number of different serious health conditions such as hypertension which is associated with cardiovascular and kidney diseases while hypotension is often associated with shock.

During the Bahraini National Health Survey, blood pressure measurements were taken to all respondents aged 18 and above. Blood pressure measurements were taken and reported in the administered questionnaire two times with one minute interval in between. Blood pressure measurements were obtained using a fully automatic hand wrist monitor. Data from those readings were used to identify population who are at risk for hypertension or hypotension. The average of the two blood pressure measurements was used to classify blood pressure of respondents according to WHO criteria.

It has to be noted that respondents who reported hypertension when asked were categorized to have hypertension even if their measures were within the normal range.

By measurements, the percentage of optimal, normal and high normal blood pressures in Bahrain during the survey was 28.2%, 23.2% and 18.2% respectively. Hypotension was not recorded for any participant during the survey. 21.8% of the participants had high measured blood pressure, which is divided to grade I (7.6%), grade II (6.3%), grade III (0.4%) and isolated systolic blood pressure was (7.6%).). (These results are not presented in the table)

The newly diagnosed blood pressure cases (21.8%) - Figure 3.6.2.1, in addition to self-reported hypertension (even with normal blood pressure readings) - Table 3.5.1.5a, were summed and shown in table 3.6.2.1 as overall prevalence of hypertension. Table 3.6.2.1 shows that the overall prevalence of hypertension in Bahrain is equal to 33.6%, which is 40.5% among Bahraini and 27.5% among non-Bahraini. Overall hypertension is more common among males than females (38.7% versus 26% respectively). As expected, population in the older age groups (above 60 years old) have the highest prevalence of hypertension (more than 70%). The prevalence of overall hypertension prevalence is highest among those with primary and below education (54.4%) and in Q5 (40.4).

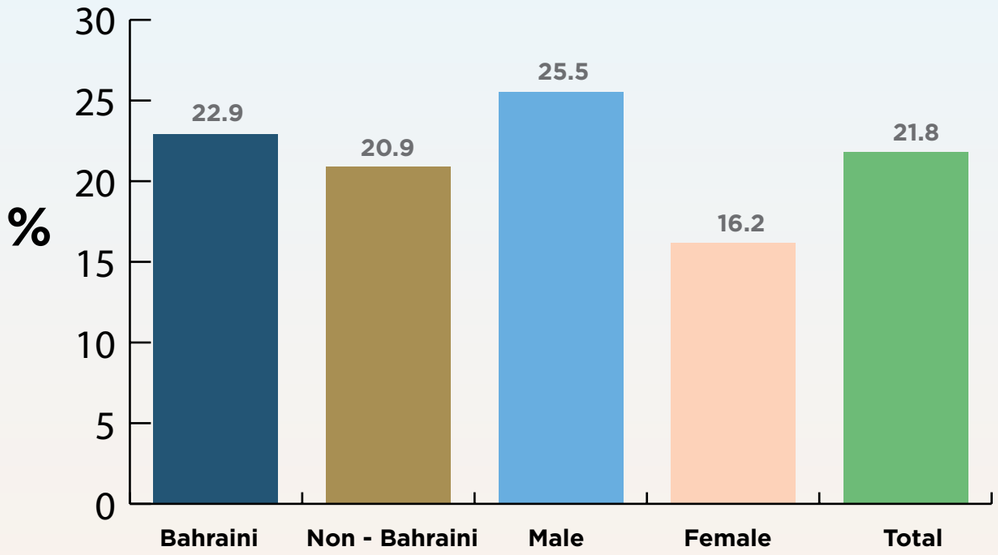


Figure 3.6.2.1: Percentage of newly diagnosed cases of hypertension by the survey

Table 3.6.2.1: Prevalence of overall hypertension among population

Characteristics	Number	% of prevalence hypertension
Total	1371	33.6
Nationality:		
Bahraini	1020	40.4
Non Bahraini	351	27.5
Sex:		
Male	901	38.7
Female	470	26
Age group:		
18-29	43	12.6
30-44	379	29.3
45-59	588	59.4
60-69	272	76.8
70-79	74	79.7
80+	15	76.3
Highest Education:		
Primary and below	228	54.3
Above primary to secondary	568	31.6
Above secondary/Diploma	135	28
University and above	397	32.1
Do not know	43	56.7
Wealth quintiles:		
Q1	195	30
Q2	191	30
Q3	222	39.7
Q4	224	37.8
Q5	225	40.4

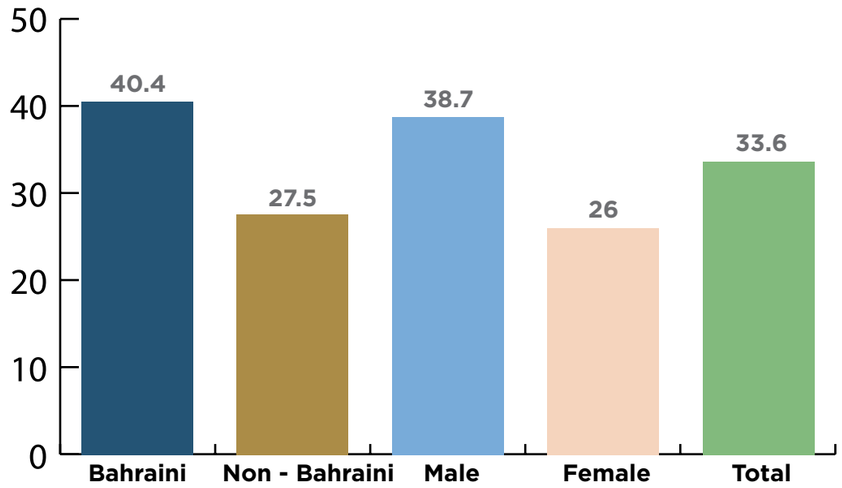


Figure 3.6.2.2: **Overall prevalence of hypertension by sex and nationality**

3.6.3 Prevalence of Diabetes

Diabetes is a chronic metabolic disorder that occurs when a person has high blood sugar. This occurs either because the body does not produce enough insulin (Type 1) or because cells do not respond to the insulin produced (Type 2). In addition, diabetes can occur among pregnant women during pregnancy which may lead to development of Type 2 diabetes later. During the NHS, fasting blood sample was collected for diabetes screening. The fasting blood glucose results were used to identify those diabetic. A person is considered to be pre-diabetic, if fasting plasma glucose level is between 6.1-6.9 mmol/L and diabetic if fasting plasma glucose level is ≥ 7.0 mmol/L.

By measurements, the majority (76.9%) of Bahrain population had a normal blood glucose level. However, 10.7 % are with impaired fasting glycaemia and 12.2% are diabetics. (These results are not presented in the table)

The newly diagnosed diabetic cases by measurements (4.7%) - Figure 3.6.3.1, in addition to self-reported diabetes (even with normal readings) - Table 3.5.1.6a, were summed and shown in table 3.6.3.1 as overall prevalence of diabetes. Table 3.6.3.1 shows that the overall prevalence of diabetes in Bahrain is equal to 15%, which is higher among Bahraini (18.4%) than non-Bahraini (14%).
Data from table 3.6.3.1 reveals that the overall prevalence of diabetes among males (17.1%) is higher than among females (10.7%). The percentage of respondents who are diabetic is highest among those with primary an below education (31.1%), and at age 60 and above (more than 50%) and in Q1 (19.5%).

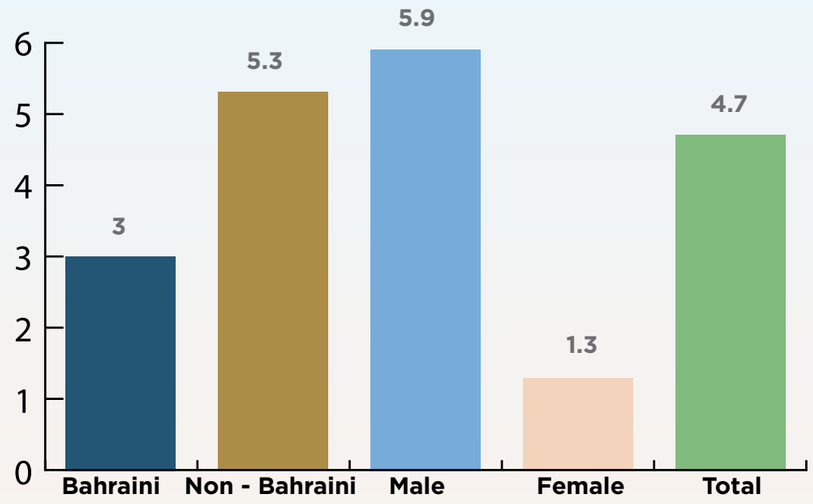


Figure 3.6.3.1: Percentage of newly diagnosed cases of diabetes

Table 3.6.3.1: Prevalence of overall diabetes among population

Characteristics	Number	% Prevalence of Diabetes
Total	**655**	**15%**
Nationality:		
Bahraini	513	18.4
Non Bahraini	142	14
Sex:		
Male	406	17.1
Female	249	10.7
Age group:		
18-29	4	0.7
30-44	99	10.5
45-59	293	28.9
60-69	196	54.8
70-79	57	61.5
80+	6	34
Highest Education:		
Primary and below	138	31.1
Above primary to secondary	272	14.2
Above secondary/Diploma	70	14
University and above	145	10.5
Do not know	30	36.2
Wealth quintiles:		
Q1	104	19.5
Q2	105	12.6
Q3	95	12.4
Q4	103	15
Q5	100	17.1

- Data adjusted by age and sex
- * Overall prevalence = self-reported diabetes + newly diagnosed by survey

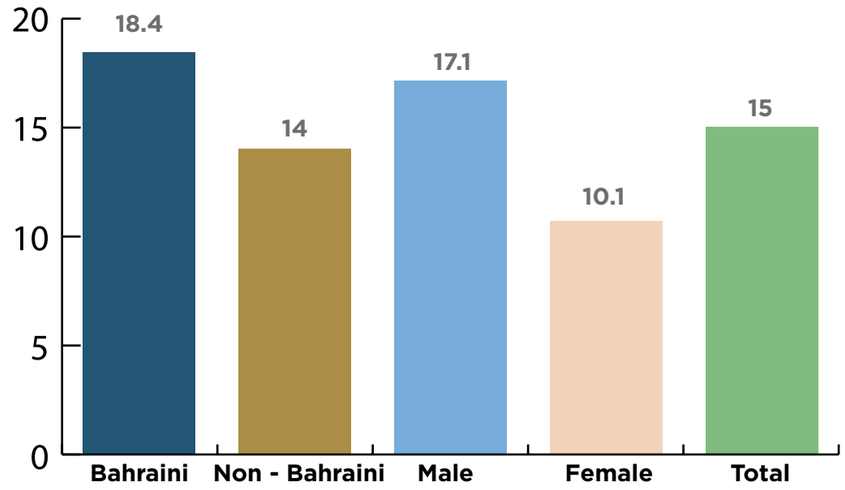


Figure 3.6.3.2: Overall prevalence of diabetes by sex and nationality

3.6.4 Prevalence of Cholesterolemia

Cholesterol is a fat-like waxy substance which is essential to our health as it is required to build and maintain membranes. It is found in all parts of the body and it comes from two sources, food and liver. Although cholesterol is necessary, high levels can be serious since it can accumulate within the walls of the arteries consequently causing them to become narrow and lose their elasticity, putting the person at higher risk of developing atherosclerosis and cardiac diseases. Cholesterol travels in blood attached to a protein called lipoprotein. There are several types of these lipoprotein:

HDL (high-density lipoprotein) or often referred to as good or protective cholesterol. This type of lipoprotein helps removing the excess fat by binding with it in the bloodstream and carrying it back to the liver for disposal.
LDL (low-density lipoprotein) or often referred to as bad or risky cholesterol. It carries mostly the fat and only a small amount of protein from the liver to other parts of the body.
VLDL (very low-density lipoprotein) contains very little protein. Its main purpose is to distribute the triglyceride produced by liver (not measured during the survey).
Triglycerides are a type of fat the body uses to store and give energy to the muscles and only small amounts of it is found in the blood.
Cholesterol and triglyceride tests were obtained for respondents during NHS in order to evaluate the amount of fatty substances in their blood.

Total cholesterol

Table 3.6.4.1 presents results of total cholesterol analysis among Bahrain population. The table indicates that about 31% of the population have a high level of cholesterol being lower among Bahraini (29.4%) compared to non-Bahraini (35.8%) and among females (27.8%) compared to males (33.5%). The highest levels of cholesterol have been noticed among those in the age group (45-59 years (40.6%), those with educational level from above secondary to university (35.8%) and in Q1 (35%).

Table 3.6.4.1: Prevalence of total cholesterol in Bahrain and its distribution by background characteristics

Characteristics	Bahraini			Non-Bahraini			Total		
	Normal <5.2 mg/dl	High ≥ 5.2 mg/dl	Un-weighted N	Normal <5.2 mg/dl	High ≥ 5.2 mg/dl	Un-weighted N	Normal <5.2 mg/dl	High ≥ 5.2 mg/dl	Un-weighted N
	WT %	WT %		WT %	WT %		WT %	WT %	
Sex:									
Male	69.8	30.2	773	59.3	40.7	332	66.5	33.5	1105
Female	71.6	28.4	566	74.2	25.8	140	72.2	27.8	706
Total	70.6	29.4	1339	64.2	35.8	472	68.8	31.2	1811
Age group:									
18-29	80.8	19.2	107	78.3	21.7	43	80.1	19.9	150
30-44	67.2	32.8	429	61.8	38.2	240	65.2	34.8	669
45-59	61.9	38.1	495	51.8	48.2	161	59.4	40.6	656
60-69	77.3	22.7	233	76.5	23.5	20	77.3	22.7	253
70-79	78.8	21.2	59	61.2	38.8	7	76.8	23.2	66
80+	65.7	34.3	16	100	0.0	1	67.4	32.6	17
	Normal			Abnormal			Un-weighted N		
	Weighted %			Weighted %					
Highest Education:									
Primary and below	71.9			28.1			319		
Above primary to secondary	69.1			30.9			750		
Above secondary/ Diploma	64.2			35.8			203		
University and above	68.7			31.3			587		
Do not know	72.8			27.2			40		
Wealth quintiles:									
Q1	65.0			35.0			260		
Q2	69.8			30.2			269		
Q3	69.5			30.5			287		
Q4	66.5			33.5			280		
Q5	71.9			28.1			319		

- Data adjusted by age and sex

High-Density Lipoprotein (HDL)

Table 3.6.4.2 and figure 3.6.4.1 show that the lipoprotein analysis for Bahrain population indicated that 35.5% of the population have a high level of HDL indicating low risk of developing heart diseases, while 64.5% have a low HDL and thus are at higher risk. Variations in level of HDL by background characteristics are illustrated in the table.

Results revealed that, in general, males are more likely than females to have low HDL. 78.5% of males have HDL≤ 1.3 mmol/L compared to 42.9% among females. On the other hand, high levels of HDL cholesterol were more common among females, where 57.1% of females have high HDL while 21.5% of the males have high HDL.

Unfortunately, the highest percentage of low HDL cholesterol was reported among respondents in the younger age groups (64.5% at age 18-29 and 67.3% at age 30-44). No great variation was observed between different educational levels with the lowest percentage of risk reported among university graduates (60.2%). By wealth quintiles, the lowest percentage of risk was reported among Q5 (60.8%).

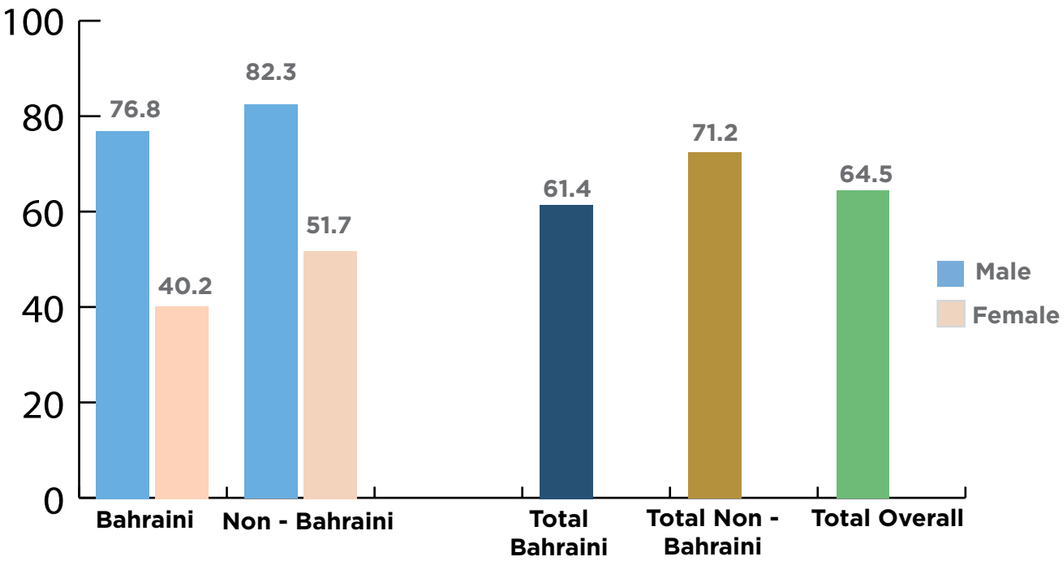


Figure 3.6.3.1: **Prevalence of low HDL cholesterol by sex and nationality**

Table 3.6.4.2: Percent distribution of HDL (mg/dl) categories, according to background characteristics, NHS

Characteristics	Bahraini			Non-Bahraini			Total		
	Normal ≥ 1.3 mg/dl	At risk <1.3 mg/dl	Un-Wt N	Normal ≥ 1.3 mg/dl	At risk <1.3 mg/dl	Un-Wt N	Normal ≥ 1.3 mg/dl	At risk <1.3 mg/dl	Un-Wt N
	WT %	WT %		WT %			WT %	WT %	
Sex:									
Male	23.2	76.8	770	17.7	82.3	332	21.5	78.5	1102
Female	59.8	40.2	565	48.3	51.7	140	57.1	42.9	705
Total	36.6	61.4	1335	27.7	72.3	472	35.5	64.5	1807
Age group:									
18-29	36.9	63.1	106	32.2	67.8	43	35.5	64.5	149
30-44	39.9	60.1	429	20.4	79.6	240	32.7	67.3	669
45-59	38.5	61.5	493	35.7	64.3	161	37.8	62.2	654
60-69	38.7	61.3	232	35.9	64.1	20	38.5	61.5	252
70-79	38.1	61.9	59	61.2	38.8	7	40.7	59.3	66
80+	43.3	56.7	16	100	0.0	1	45.9	54.1	17

	Normal	At risk	Un-weighted N
	Weighted %	Weighted %	
Highest Education:			
Primary and below	34.4	65.6	231
Above primary to secondary	32.5	67.5	746
Above secondary/ Diploma	34.7	65.3	203
University and above	39.8	60.2	587
Do not know	43.4	56.6	40
Wealth quintiles:			
Q1	36.9	63.1	260
Q2	33.1	66.9	267
Q3	34.6	65.4	286
Q4	31.4	68.6	280
Q5	39.2	60.8	319

Low-Density Lipoprotein (LDL)

Distribution of the LDL (normal and high) among the Bahrain population is presented in table 3.6.4.3. Almost 22% of the Bahrain population suffer from high level of LDL cholesterol (≥ 3.4 mg/dl) and thus are at higher risk of developing cardiovascular diseases. High level of LDL is more prevalent among non-Bahraini (25.5%) compared to Bahraini (20.9%) and among males (26.8%) compared to females (15.2%).

Also, high percent of the population having high LDL was reported among those with above secondary to university education (24.5%) as for low HDL. The percentage of population with high LDL was higher among respondents in Q1 (23.1%), which is not of much variation with the other quintiles.

Figure 3.6.4.2 shows the zigzag variation of high LDL by age. About 11% of the population in the age group (18-24 years) had high LDL, which increased to more than the double (26.3% at age 30-44, then peaked to 29.3% among those aged 45-59, followed by drop to 18.8% at age 60-69 and further drop to 11.9% at age 70-79, then suddenly increased to 25.4% at age 80+.

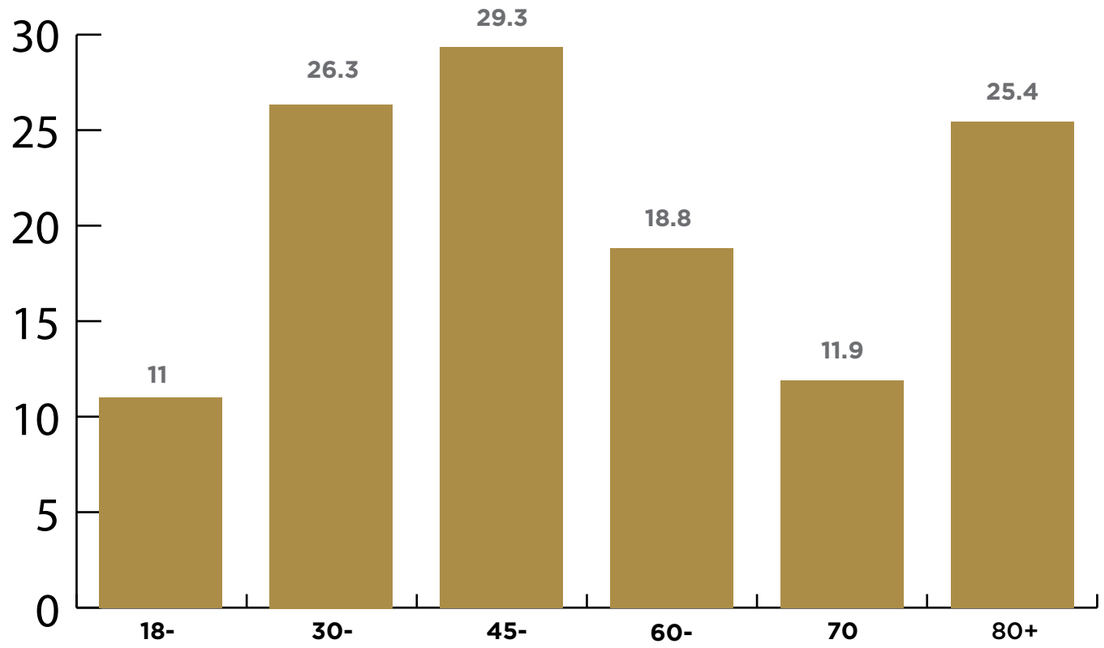


Figure 3.6.4.2: Prevalence of high LDL in Bahrain by age

Table 3.6.4.3: Percentage distribution of LDL (mg/dl) categories according to background characteristics

Characteristics	Bahraini			Non-Bahraini			Total		
	Normal <3.4 mg/dl	At risk ≥3.4 mg/dl	Un-Wt N	Normal <3.4 mg/dl	At risk ≥3.4 mg/dl	Un-Wt N	Normal <3.4 mg/dl	At risk ≥3.4 mg/dl	Un-Wt N
	WT %	WT %		WT %	WT %		WT %	WT %	
Sex:									
Male	75.0	25.0	765	69.4	30.6	330	73.2	26.8	1095
Female	84.7	15.3	564	85.1	14.9	139	84.8	15.2	703
Total	79.1	20.9	1329	74.5	25.5	469	77.8	22.2	1798
Age group:									
18-29	89.6	10.4	106	87.5	12.5	43	89.0	11.0	149
30-44	76.1	23.9	428	69.7	30.3	238	73.7	26.3	666
45-59	71.3	28.7	491	68.9	31.1	160	70.7	29.3	651
60-69	81.6	18.4	229	76.5	23.5	20	81.2	18.8	249
70-79	88.4	11.6	59	85.7	14.3	7	88.1	11.9	66
80+	73.3	26.7	16	100	0.0	1	74.6	25.4	17
	Normal			At risk			Un-weighted N		
	Weighted %			Weighted %					
Highest Education:									
Primary and below	79.6			20.4			230		
Above primary to secondary	77.6			22.4			741		
Above secondary/ Diploma	75.5			24.5			202		
University and above	78.3			21.7			586		
Do not know	76.8			23.2			39		
Wealth quintiles:									
Q1	76.9			23.1			259		
Q2	78.9			21.1			265		
Q3	79.3			20.7			284		
Q4	78.6			21.4			278		
Q5	77.8			22.2			318		

Triglycerides:

Results of triglycerides are presented in table 3.6.4.4. About 42% of Bahrain population has a high level of triglycerides with remarkable variations by background characteristics. Males are more by 18.1% than females to have high triglycerides, and non-Bahraini nationals are higher by 9.6% than Bahraini (Figure 3.6.4.3).

By age, the percentage of respondents with high triglycerides is the highest among those in the age group (30-79 years), ranged from 45% to 53.5%. On the contrary, the lowest percentage of respondents with high triglycerides was reported among the lowest and the highest age groups (24.2% and 16.4% respectively).

Looking at variations by educational level, the table shows that 45.6% % of the population who are above secondary to university education had the highest level of high triglycerides followed by primary and below education (43.1%).

There is no clear relation between high level of triglycerides and wealth quintiles. The highest percent of high triglycerides was recorded among those at Q1 (45.3%) while the lowest is among those at Q5% (36.0%). The other wealth quintiles groups are between these two figures.

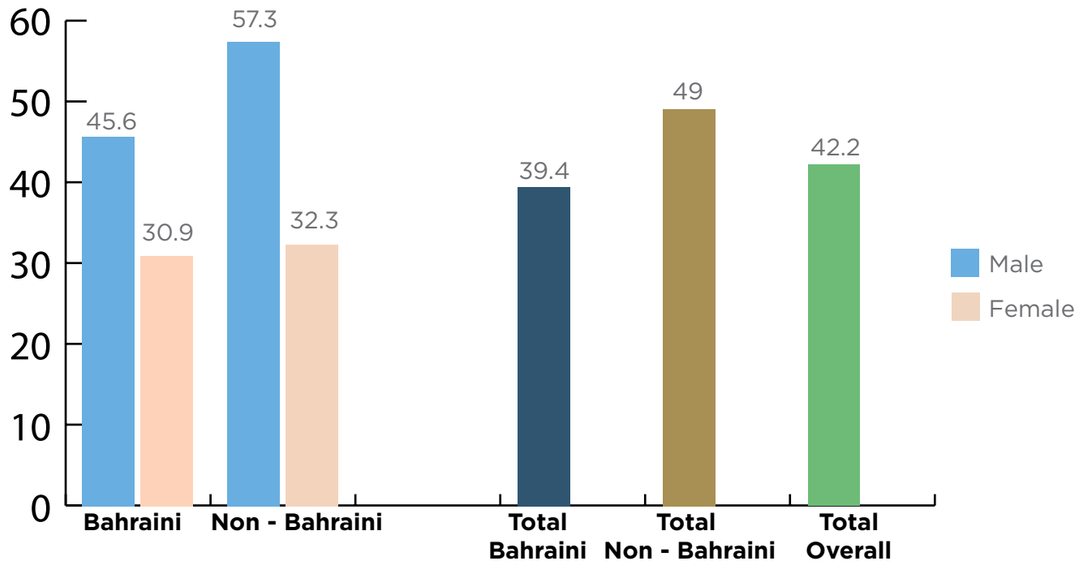


Figure 3.6.3.1: **Prevalence of high triglycerides of Bahrain population by sex and nationality**

Table 3.6.4.4: Percentage distribution of triglycerides (mg/dl) categories according to background characteristics

Characteristics	Bahraini			Non-Bahraini			Total		
	Normal < 1.7	At risk ≥ 1.7	Tot	Normal < 1.7	At risk ≥ 1.7	Tot	Normal < 1.7	At risk ≥ 1.7	Tot
	WT %	WT %	Un-WtN	WT %	WT %	Un-WtN	WT %	WT %	Un-WtN
Sex:									
Male	54.4	45.6	772	42.7	57.3	332	50.7	49.3	1104
Female	69.1	30.9	566	67.7	32.3	140	68.8	31.2	706
Total	60.6	39.4	1338	51.0	49.0	472	57.8	42.2	1810
Age group:									
18-29	77.7	22.3	107	71.3	28.7	43	75.8	24.2	150
30-44	60.4	39.6	429	45.9	54.1	240	55.0	45.0	669
45-59	49.3	50.7	495	37.7	62.3	161	46.5	53.5	656
60-69	52.7	47.3	232	44.6	55.4	20	52.0	48.0	252
70-79	46.8	53.2	59	75.5	24.5	7	50.1	49.9	66
80+	82.8	17.2	16	100	0.0	1	83.6	16.4	17
	Normal			At risk			Un-weighted N		
	Weighted %			Weighted %					
Highest Education:									
Primary and below	56.9			43.1			231		
Above primary to secondary	58.1			41.9			749		
Above secondary/ Diploma	54.4			45.6			203		
University and above	59.3			40.7			587		
Do not know	49.5			50.5			40		
Wealth quintiles:									
Q1	54.7			45.3			260		
Q2	60.0			40.0			269		
Q3	55.7			44.3			286		
Q4	56.7			43.3			280		
Q5	64.0			36.0			319		

3.7 HEALTH SERVICE UTILIZATION

The concept of responsiveness was developed in 2000 as part of the WHO conceptual framework of health systems. WHO is giving a special focus on health systems responsiveness with the aims to improve the health system to provide equitable services, treatment and fair payment among people. This would require quality of health care, providing on-time health information and health needs to respond to population needs.

This chapter looks at one vital aspect of health care system which is responsiveness. Responsiveness is discussed in this chapter from respondents' perspective based on their reported past experiences.

3.7.1 Needing and receiving health care

The Bahraini National Health Survey collected information about the responsiveness of the health system in terms of being able to meet the population requirements for health care. A question was addressed to respondents about the most recent time (last time) that they needed health care. In addition, they were asked whether they received the needed health care or not.

Table 3.7.1 presents the percentage distribution of respondents who needed health care services and the percentage of those who received them last time. The table shows that almost 95.3% of the respondents reported that they needed health care (whether received or not) which was higher among Bahraini (97.6%) compared to non-Bahraini (90.4%). Females were more likely than males to report that they needed health care (97.2% compared to 93.9% respectively). Expectedly, health care needs increases with age from a level of 89.8% among those in the age group (18-29 years) to 100% among those aged 80+. This trend of increase was observed in both nationalities. The highest percentages of need were observed among participants with the lowest health education (96.4%) and participants in Q3 and Q4 (97.0% and 97.2% respectively).

Thinking about last time of need, among those who needed health care, 2.1% of Bahraini and 0.8% of non-Bahraini did not get their needs giving overall percentage equal to 1.7% of unmet needs (Figure 3.7.1). Some variations are noticed by the selected background characteristics. For example, males were little more in not having their needs met than females (1.7% vs. 1.6% respectively).

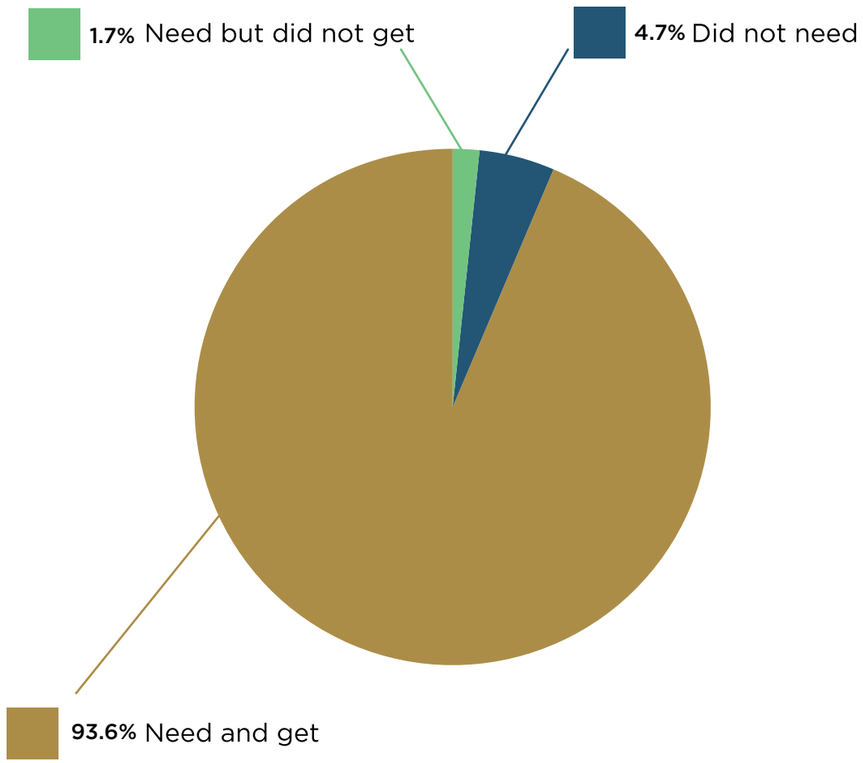
Also, unmet needs of health care have gradually decreased with age being 2.8% among participants in the age group (18-29 years) till no one in the age group (70-79 years), then it reported its highest percentage among respondents in the age group (80 years and above) (9.2%). The educational level had no great effect on this domain while wealth quintiles had as the percentage of unmet needs did not change a lot among participants between Q1 to Q3, then the percentage decreased nearly by one-third among participants in Q4 and Q5.

Table 3.7.1: Percentage distribution of respondents needing and receiving health care by selected background characteristics

	Bahraini				Non Bahraini				Total			
	Did not need	Need and get	Need and did not get		Did not need	Need and get	Need and did not get		Did not need	Need and get	Need and did not get	
	Wt%	Wt %	Wt %	N	Wt %	Wt %	Wt %	N	Wt %	Wt %	Wt %	N
Sex												
Male	3.2	94.8	2.0	1085	11.0	88.0	1.0	654	6.1	92.2	1.7	1739
Female	1.4	96.5	2.1	961	6.7	92.9	0.3	320	2.8	95.6	1.6	1281
Total	2.4	95.5	2.1	2046	9.6	89.6	0.8	974	4.7	93.6	1.7	3020
Age group												
18-29	5.7	90.3	4.0	202	17.8	81.3	0.9	114	10.2	87.0	2.8	316
30-44	2.3	95.9	1.8	698	10.9	88.3	0.8	510	5.9	92.7	1.4	1208
45-59	2.2	96.0	1.8	710	5.2	93.9	0.9	307	3.2	95.3	1.5	1017
60-69	1.2	96.8	2.0	326	4.4	95.6	0.0	32	1.5	96.7	1.8	358
70-79	1.1	98.9	0.0	89	0.0	100	0.0	10	1.0	99.0	0.0	99
80+	0.0	90.4	9.6	21	0.0	100	0.0	1	0.0	90.8	9.2	22

	Did not need	Need and get	Need and did not get	N
	Wt %	Wt %	Wt %	
Highest Education:				
Primary and below	3.6	94.2	2.2	346
Above primary to secondary	4.3	93.6	2.1	1237
Above secondary/Diploma	4.3	94.8	0.9	331
University and above	5.8	92.9	1.2	1046
Do not know	2.3	97.7	0.0	60
Wealth Quintiles:				
Q1	6.6	91.4	2.0	432
Q2	4.8	93.1	2.1	461
Q3	3.0	94.6	2.4	445
Q4	3.5	95.2	1.3	451
Q5	2.8	95.9	1.3	444

Figure 3.7.1: Percent distribution of respondents needing and receiving health care by selected background characteristics



3.7.2 Types of health care facilities preferred

Percentage distribution of places where respondents have most often gone when felt sick in the last 3 years was presented at table 3.7.2 and depicted in figure 3.7.2. The most visited places among Bahraini was public clinics (56.9%) followed by public hospitals (15.1%), while private hospitals were most visited among non-Bahraini (46.6%) followed by public clinics (25.4%). The preferred place among Bahraini males and females was public clinics as reported by 53.4% and 60.8% respectively. Among non-Bahraini, the preferred place was the private hospitals as reported by 43.5% males and 52.9% females. Public clinics were the preferred place among all Bahraini age groups, ranging from 51.8% at age 30-44 to 60.8% at age 60-69. Among non-Bahraini, private hospitals were the most visited, ranging from 40.1% at age 18-29 to 100% at age 80+. Public clinics were the preferred place by respondents in all the educational levels and wealth quintiles.

Table 3.7.2: Percentage distribution of places where respondents have most often gone when felt sick in the last 3 years

	No	Private clinics	Private hospitals	Public clinics	Public hospitals	Traditional healer	Pharmacy	Others	Un-Wt N
	Wt %	Wt %	Wt %	Wt %	Wt %	Wt %	Wt %	Wt %	
Nationality:									
B./Male	5.3	8.4	14.3	53.4	17.9	0.2	0.1	0.4	1085
Non-B. / Male	12.0	8.8	43.5	26.7	7.8	0.0	0.2	1.0	654
B./Female	3.5	7.9	15.2	60.8	11.9	0.0	0.1	0.5	961
Non-B. / Female	7.1	9.0	52.9	22.6	6.3	0.3	0.3	1.6	320
Total/Bahraini	4.5	8.2	14.7	56.9	15.1	0.1	0.2	0.3	2046
Total/Non-B.	10.4	8.8	46.6	25.4	7.3	0.1	0.2	1.2	974
Age group:									
B/18-	10.2	6.8	13.6	59.6	9.7	0.0	0.0	0.0	202
Non/18-	18.7	8.5	40.1	26.9	5.1	0.0	0.0	0.8	114
B/30-	4.1	11.6	17.6	51.8	14.2	0.0	0.0	0.7	698
Non/30-	11.7	8.1	43.5	28.1	7.3	0.2	0.4	0.7	510
B/45-	4.0	6.8	12.0	59.7	16.4	0.3	0.4	0.4	710
Non/45-	6.1	10.2	51.2	21.5	8.7	0.0	0.0	2.3	307
B/60-	3.2	6.1	14.2	60.8	15.4	0.0	0.0	0.3	326
Non/60-	4.4	9.5	61.2	21.6	3.3	0.0	0.0	0.0	32
B/70-	1.1	4.4	19.9	56.9	17.7	0.0	0.0	0.0	89
Non/60-	0.0	9.7	90.3	0.0	0.0	0.0	0.0	0.0	10
B/80+	9.6	4.6	9.4	43.8	32.7	0.0	0.0	0.0	21
Non/80+	0.0	0.0	100	0.0	0.0	0.0	0.0	0.0	1
Highest education:									
Primary and below	5.8	4.4	13.2	61.5	14.8	0.3	0.0	0.0	346
Above primary to secondary	6.4	6.4	17.6	53.3	15.6	0.1	0.3	0.3	1237
Above secondary/ Diploma	5.5	10.9	27.9	44.1	10.4	0.0	0.0	1.2	331
University and above	7.1	11.8	37.8	32.9	9.0	0.1	0.2	1.1	1046
Do not know	2.3	0.0	9.6	76.3	10.2	0.0	0.0	1.7	60
Wealth quintiles:									
Q1	8.6	3.5	18.2	56.6	12.4	0.0	0.0	0.6	432
Q2	7.1	8.1	15.4	52.6	16.1	0.0	0.5	0.2	461
Q3	5.4	6.3	19.9	49.9	17.0	0.4	0.2	0.9	445
Q4	4.1	10.7	25.4	45.9	12.9	0.2	0.0	0.9	451
Q5	4.8	11.4	30.9	37.0	14.4	0.0	0.4	1.1	444

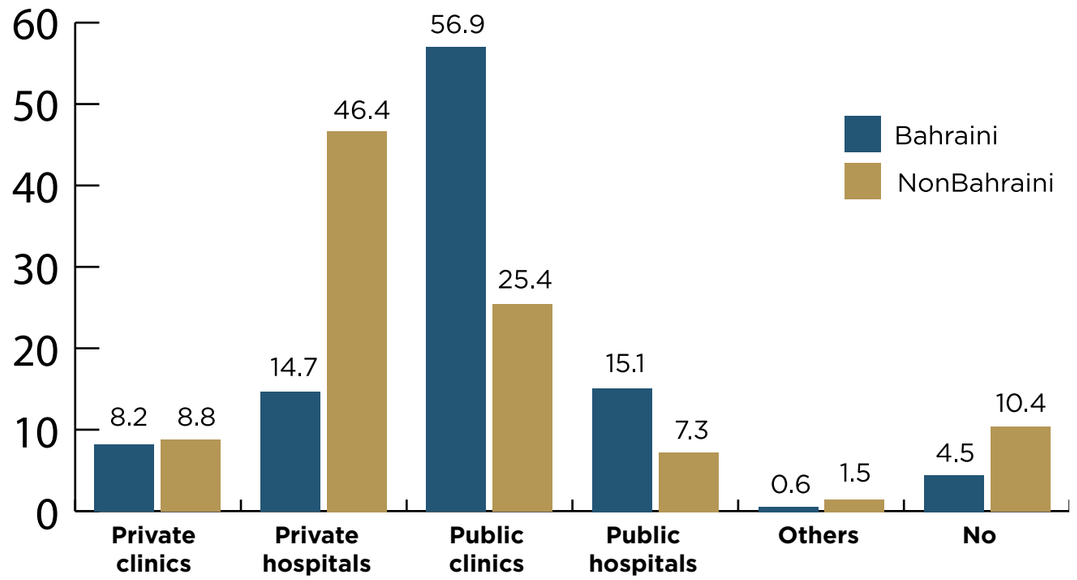


Figure 3.7.2: Places where respondents have most often gone when felt sick in the last 3 years

3.7.3 Main reasons of hospitalization

Table 3.7.3 shows the main reasons of last time the participants were hospitalized by background characteristics. Generally acute conditions such as diarrhea, fever, flu cough were the most common cause for hospitalization in most of the subgroups, followed by mouth, teeth of swallowing problems. However, diabetes and general pain were the most common reported reasons among participants aged 80+ by 4.8% for each reason. General pain and nutritional deficiency were also reported among participants at age 18-29. Diabetes, general pain and hypertension (0.3% each) were reported as main reasons of hospitalization among participants with low education level following mouth problems (0.5%). Hypertension was also reported among the participants in Q5 by 0.4% following acute conditions (0.5%).

Table 3.7.3: The main reasons of last time the participants were hospitalized by background characteristics

Main reason of last visit to a health care	No	Acute condition	Chronic joint pain	Diabetes	General pain	HT	Nutritional deficiency	surgery	Mouth Problems	Others	Un-Wt N
	Wt%	Wt %	Wt %	Wt %	Wt %	Wt%	Wt %	Wt %	Wt %	Wt %	
Nationality:											
B./Male	97.9	0.8	0.2	0.0	0.2	0.0	0.0	0.0	0.4	0.6	1085
Non-B. /Male	99.0	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.3	0.5	654
B./Female	97.9	0.4	0.1	0.1	0.3	0.1	0.1	0.1	0.2	0.7	961
Non-B./Female	99.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	320
Total/B	97.9	0.6	0.1	0.0	0.2	0.0	0.0	0.0	0.3	0.6	2046
Total/Non-B.	99.2	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.3	974
Age group:											
B/18-	96.0	1.1	0.0	0.0	0.5	0.0	0.5	0.0	0.5	1.4	202
Non/18-	99.1	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	114
B/30-	98.2	0.6	0.0	0.1	0.1	0.0	0.0	0.1	0.3	0.6	698
Non/30-	99.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	510
B/45-	98.2	0.7	0.3	0.0	0.3	0.0	0.0	0.0	0.1	0.3	710
Non/45-	99.1	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.6	0.0	307
B/60-	98.0	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.5	0.9	326
Non/60-	100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	32
B/70-	100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	89
Non/60-	100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10
B/80+	90.4	0.0	0.0	4.8	4.8	0.0	0.0	0.0	0.0	4.8	21
Non/80+	100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
Highest education:											
Primary and below	97.8	0.0	0.0	0.3	0.3	0.3	0.0	0.0	0.5	0.8	346
Above primary to secondary	97.9	0.7	0.2	0.0	0.3	0.0	0.0	0.0	0.2	0.6	1237
Above secondary/ Diploma	99.1	0.3	0.0	0.0	0.0	0.3	0.1	0.0	0.0	0.4	331
University and above	98.8	0.4	0.0	0.0	0.0	0.0	0.1	0.1	0.3	0.4	1046
Do not know	100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	60
Wealth quintiles:											
Q1	98.0	0.9	0.0	0.0	0.2	0.0	0.0	0.0	0.4	0.5	432
Q2	97.9	0.2	0.0	0.2	0.2	0.0	0.0	0.0	0.6	0.8	461
Q3	97.6	1.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	1.1	445
Q4	98.7	0.0	0.4	0.0	0.4	0.0	0.0	0.0	0.2	0.2	451
Q5	98.7	0.5	0.0	0.0	0.0	0.4	0.0	0.2	0.2	0.0	444

3.8 WELLBEING AND QUALITY OF LIFE

This chapter is concerned with presenting information about the perceived wellbeing of the respondents. Subjective assessment on individuals own health and general well-being will be presented. Well-being will be evaluated using measuring specific quality of life indicators, including physical health, psychological health, social relationships and environment.

3.8.1 Overall Quality of Life (QOL)

The WHO quality of life project was commenced in 1991. The project aimed to develop an instrument to measure overall cross-culturally quality of life. This instrument initially incorporated 100 question but later they were aggregated to 8 questions.

These questions have been addressed to respondents during the NHS which address satisfaction with own health, life, monetary sufficiency, physical activities, social relationships, social trust and overall satisfaction with life. Responses to these eight questions were done on a 5-scale Likert system (“1” = “very satisfied and “5” = “very dissatisfied”).

During analysis, the responses weighting was reversed and summed, and scaled on a scale from 0% to 100% in which a score of 0 % indicates an extremely poor quality of life, while a score of 100 % indicates a very good quality of life.

Table 3.8.1 presents the mean WHO-QOL scores by selected background characteristics. Results reveal that on average quality of life in Bahrain is very good, lying in the highest fifth of the scale (83.9%).

Some variations by the selected characteristics were observed. The Bahraini nationals reported slightly higher percentage score (84.5%) than the non-Bahraini (83.1%) indicating that the majority of the respondents are satisfied with their life.

Variations are remarkable by age, marital status, wealth quintiles and educational levels but such variations were not observed by sex (82.1% for females versus 83.1% for males). Results reveal that never married respondents are most likely to be satisfied with various aspects of the quality of life (82.2%) followed by currently married respondents (81.1%) then decreased among divorced and widowed (77.6% and 74.6% respectively).

The QOL percentage score decreased by age from 84.7% among respondents in the age group (18-29 years) to 81.2% among respondents in the age group (60-69 years) before dropping to its lowest score of 69.7% among those aged 80 years and above (Figure 3.8.1).

The QOL score was the highest among respondents in Q5 (86.8%) compared to 76.3% among those in Q1. The results of the table also reveal that the QOL score gradually increased with the increase in the educational level, ranging from 84.6% among university graduates to 79.5% among respondents with the lowest educational level.

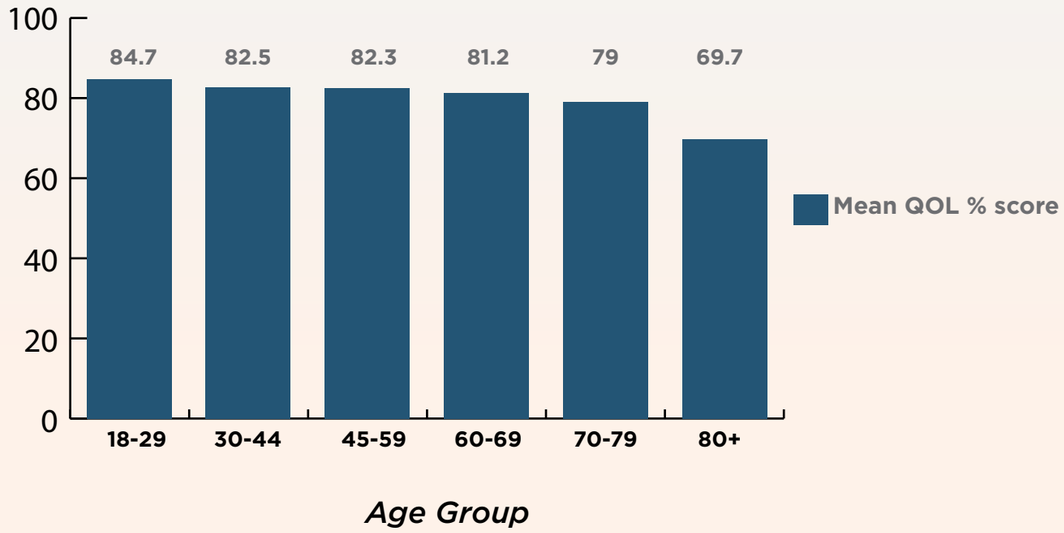


Figure 3.8.1: Mean QOL score by age groups

Table 3.8.1: Mean QOL score by background characteristics

Characteristics		Mean score(%)	SE	N
Nationality	Bahraini	84.5	0.5	2046
	Non Bahraini	83.1	4.1	974
	Total	83.9	1.1	3020
Sex	Female	82.1	1.9	1281
	Male	83.1	1.4	1739
Marital status	1-Never married	82.2	1.3	267
	2- Currently married	81.1	1.0	2488
	3- Separated/divorced	77.6	1.5	99
	4-Widowed	74.6	1.9	166
Age group	18-29	84.7	0.5	316
	30-44	82.5	1.6	1208
	45-59	82.3	1.3	1017
	60-69	81.2	1.2	358
	70-79	79.0	1.2	99
	80+	69.7	0.2	22
Wealth quintiles	Q1	76.3	1.1	432
	Q2	82.8	1.9	461
	Q3	82.9	1.3	445
	Q4	86.0	1.2	451
	Q5	86.6	1.5	444
Highest education	Primary and below	79.5	1.7	354
	Above primary to secondary	81.6	1.1	1237
	Above secondary/ Diploma	80.2	1.2	331
	University and above	84.6	1.2	1040
	Do not know	80.6	0.4	58

3.8.2 Satisfaction with various aspects of quality of life

For this aspect, the respondents were asked 4 questions, and rating of satisfaction was ranged from never to very often. Table 3.8.2 presents the answers of the respondents on the frequency of not being able to control important things in their lives. Overall, few respondents reported having a problem with this aspect of quality of life. 29% of the respondents have never felt unable to control important things in their lives, 40.1% were almost never controlling important things in their lives and 26.9% reported they did that “sometimes”. Only 0.6% and 3.2% were very often and fairly often (respectively) unable to control important things in their lives.

Older respondents were more likely to report inability to control important things in their lives in comparison with younger respondents. About 9% of respondents aged 80+ reported that they were fairly often or very often unable to control important things in their lives, whereas this percentage decreases to 3.2% among those in the age group (18-29 years).

For the marital status, the highest percentages of fairly often or very often unable to control important things in life together were reported by the divorced and widowed respondents (17.3% and 11.0% respectively). By wealth quintiles, poorer respondents were the most likely to suffer from inability to control important things in life. Also, respondents with lower educational levels suffered more than the higher educated respondents.

Table 3.8.2: Inability to control the important things in life by background characteristics

		Inability to control important things in life					
		1-Never	2-Almostnever	3-Sometimes	4-Fairly often	5-Very often	Total
		%	%	%	%	%	N
Nationality	Bahraini	30.3	30.9	33.7	4.3	0.8	2046
	Non-Bahraini	26.8	59.3	12.8	1.0	0.1	974
	Total	29.2	40.1	26.9	3.2	0.6	3020
Sex	Female	22.9	39.5	32.0	5.1	0.5	1281
	Male	33.8	40.5	23.2	1.8	0.7	1739
Age group	18-29	28.3	38.7	29.8	3.1	0.1	316
	30-44	27.9	44.2	24.5	2.5	0.9	1208
	45-59	31.1	38.9	25.9	3.7	0.4	1017
	60-69	32.2	32.5	31.7	3.1	0.5	358
	70-79	20.1	34.3	38.6	6.0	1.0	99
	80+	22.0	36.9	32.0	9.1	0.0	22
Current marital status	Never married	30.0	44.8	20.9	4.0	0.3	267
	Currently married	29.9	40.9	26.4	2.3	0.5	2488
	Separated/divorced	22.2	29.4	31.1	13.9	3.4	99
	Widowed	21.2	26.5	41.3	9.9	1.1	166
Wealth quintiles	Q1	19.2	41.9	31.7	6.1	1.1	432
	Q2	29.2	36.3	28.9	2.8	2.8	461
	Q3	27.8	35.1	32.6	3.1	1.4	445
	Q4	30.2	33.8	32.0	3.8	0.2	451
	Q5	34.1	36.9	26.9	2.1	0.0	444
Highest education	Primary and below	20.2	40.9	31.7	4.1	1.1	354
	Above primary to secondary	31.2	36.3	24.8	4.9	1.9	1237
	Above secondary/ Diploma	37.8	25.1	22.6	4.1	1.4	331
	University and above	30.2	31.8	33.7	3.5	0.8	1040
	Do not know	36.9	34.1	26.2	2.8	0.0	58

3.8.3 Coping with all things had to been done

Table 3.8.3 shows results of respondents' personal opinion about their inability to cope with all things. The same pattern and variations across subgroups that was observed in the previous table is observed here as well. The majority of the respondents (68.9%) are likely to report that they never or almost never felt unable to cope with all things that had to be done. Only 3.4% of the respondents reported that they fairly often or very often felt unable to cope with all things that had to be done while 30% mentioned that sometimes they were unable to deal with all things that had to be done.

Males were more likely than females to report that they never felt unable to cope with all things that had to be done. Also, respondents aged 70+, divorced and respondents with lowest educational levels were the most likely to state that they were fairly often or very often felt unable to cope with all things that had to be done. Also, respondents in the lowest wealth quintile were more likely than respondents in the higher wealth quintile to report that.

Table 3.8.3: Inability to cope with all things that had to been done by background characteristics

Characteristics		Could not cope with all the things that had to be done					
		1- Never	2- Almost never	3- Sometimes	4- Fairly often	5- Very often	Total
		%	%	%	%	%	N
Nationality	Bahraini	29.8	31.0	34.5	4.2	0.5	2046
	Non Bahraini	27.7	58.1	13.2	0.8	0.2	974
	Total	29.1	39.8	27.7	3.1	0.3	3020
Sex	Female	22.2	39.6	33.9	4.2	0.1	1281
	Male	34.3	39.9	23.0	2.4	0.4	1739
Age group	18-29	30.1	36.6	29.8	3.2	0.3	316
	30-44	27.4	43.8	25.9	2.6	0.3	1208
	45-59	31.2	39.6	25.5	3.5	0.2	1017
	60-69	31.5	31.8	33.7	2.5	0.5	358
	70-79	20.1	31.8	40.1	7.1	0.9	99
	80+	21.8	35.9	36.7	5.6	0.0	22
Current marital status	Never married	30.8	40.6	25.2	3.0	0.4	267
	Currently married	29.8	41.2	26.3	2.5	0.2	2488
	Separated/ divorced	19.6	26.2	41.1	11.9	1.2	99
	Widowed	21.7	25.0	44.0	8.2	1.1	166
Wealth Quintiles	Q1	21.2	38.5	32.7	5.8	1.8	432
	Q2	29.7	38.6	28.6	2.7	0.4	461
	Q3	27.5	35.3	35.1	1.8	0.3	445
	Q4	30.8	31.6	35.9	1.5	0.2	451
	Q5	33.7	38.0	26.8	1.5	0.0	444
Highest education	Primary and below	21.7	37.8	32.2	5.5	2.8	354
	Above primary to secondary	29.7	37.6	28.6	2.7	1.4	1237
	Above secondary/ Diploma	27.5	35.1	35.1	1.8	0.5	331
	University and above	30.8	31.6	35.9	1.5	0.2	1040
	Do not know	33.7	38.0	26.7	1.6	0.0	58

3.8.4 Rating of overall quality of life

Figure 3.8.2 presents respondents perceived overall quality of life. The individual questionnaire included a question about their satisfaction with their lives as a whole. In general, four of every five of the respondents stated that their overall quality of life is good or very good. Only 1% reported that their lives are very bad or bad (Table 3.8.4). This means that the vast majority of respondents are satisfied with their life. Variations by background characteristics revealed that rating overall quality of life as good or very good is higher among Bahraini citizens and males. Rating QOL as bad to very bad is common among respondents aged 80+ (9.1%), divorced (6.5%), persons in Q1 (3.2%) and those with lowest education (5.2%).

Table 3.8.4: Overall quality of life by background characteristics

		Rating of overall quality of life					
		1-Very good	2-Good	3-Moderate	4-Bad	5-Very Bad	Total
		%	%	%	%	%	N
Nationality	Bahraini	35.3	52.3	11.2	1.1	0.1	2046
	Non Bahraini	32.0	63.3	4.5	0.2	0.0	974
	Total	34.2	55.8	9.0	0.8	0.2	3020
Sex	Female	32.6	54.6	11.6	1.2	0.0	1281
	Male	35.3	56.7	7.2	0.6	0.2	1739
Age group	18-29	38.5	54.9	6.3	0.3	0.0	316
	30-44	33.5	58.5	7.2	0.6	0.2	1208
	45-59	35.5	53.5	9.6	1.4	0.0	1017
	60-69	32.5	53.6	13.4	0.2	0.3	358
	70-79	27.5	56.5	15.1	0.9	0.0	99
	80+	12.8	59.1	19.0	9.1	0.0	22
Current marital status	Never married	33.9	57.7	8.4	0.0	0.0	267
	Currently married	35.4	55.9	7.9	0.7	0.1	2488
	Separated/divorced	24.0	47.4	22.1	5.6	0.9	99
	Widowed	22.2	56.4	19.6	1.8	0.0	166
Wealth Quintiles	Q1	25.4	56.4	15.0	3.0	0.2	432
	Q2	30.7	56.7	11.8	0.4	0.4	461
	Q3	28.6	60.5	10.6	0.3	0.0	445
	Q4	38.2	51.6	9.0	1.1	0.1	451
	Q5	50.7	45.0	4.0	0.3	0.0	444
Highest education	Primary and below	35.4	46.4	13.0	4.0	1.2	354
	Above primary to secondary	30.7	56.7	10.8	1.4	1.5	1237
	Above secondary/ Diploma	28.6	60.5	10.6	0.3	0.0	331
	University and above	38.2	52.6	8.1	1.1	0.0	1040
	Do not know	51.0	46.0	2.8	0.2	0.0	58

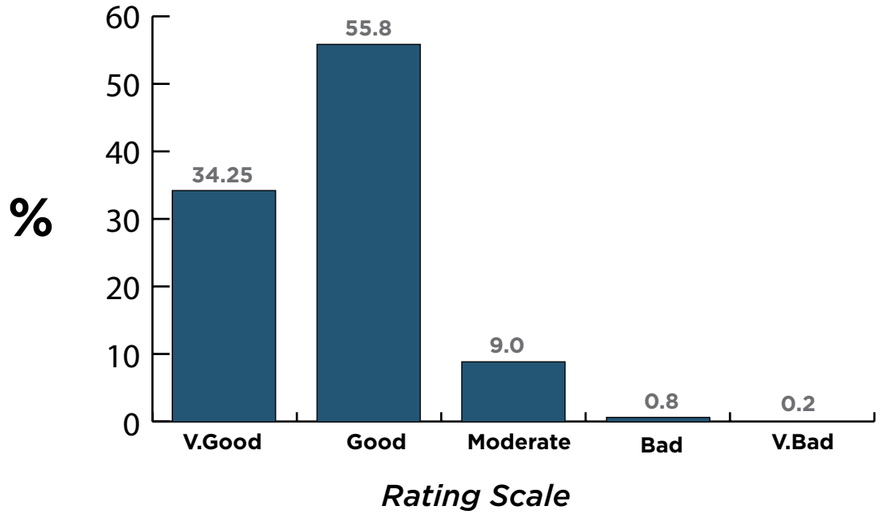


Figure 3.8.2: Rating of quality of life among respondents

3.8.5 Self-reported overall happiness these days

Respondents perceived overall happiness is illustrated in table 3.8.5. Almost none of the respondents reported that they are unhappy or very unhappy with their lives (0.5% and 0.1% respectively) with the highest percentage being reported among divorced respondents (5.1%). On the other hand, 86.2% of the respondents stated that they are either happy or very happy. It is also worth noting that 13.2% reported that they are neither happy nor unhappy (Figure 3.8.3).

Males are more likely to mention that they are very happy with their lives than female respondents (26.5% versus 23.4%). Also, 62.2% of male respondents reported that they are happy with their lives compared to 59.3% among females.

Younger respondents are more likely than older respondents to mention that they are very happy with their lives. Nearly one quarter of the respondents in the age group (18-29 years) reported that they are very happy whereas this percentage decreased to 8.8% among those aged 80+.

By wealth quintiles, overall, above 83% and more in almost all wealth quintiles except Q1 (79.8%) are either very happy or happy; however, the percentage of those who reported that they are very happy was maximum in Q5 (92.1%). With regard to the educational level, the highest percentage of unhappy or very unhappy was observed among participants with primary and below education (4%) compared to only 0.7% among university graduates.

Table 3.8.5: Self-reported overall happiness by background characteristics

		Self-reported overall happiness these days					
		1-Very happy	2-Happy	3-Neither happy nor unhappy	4-Unhappy	5-Very unhappy	Total
		%	%	%	%	%	N
Nationality	Bahraini	24.3	57.8	16.4	1.3	0.2	2046
	Non Bahraini	27.0	67.6	5.2	0.1	0.1	974
	Total	25.2	61.0	13.2	0.5	0.1	3020
Sex	Female	23.4	59.3	15.7	1.5	0.1	1281
	Male	26.5	62.2	10.6	0.5	0.2	1739
Age group	18-29	25.9	63.6	9.6	0.6	0.3	316
	30-44	25.0	62.5	11.4	1.0	0.1	1208
	45-59	25.8	59.3	13.6	1.2	0.1	1017
	60-69	25.4	56.9	17.1	0.3	0.3	358
	70-79	21.6	63.9	14.5	0.0	0.0	99
	80+	8.8	68.5	18.1	4.6	0.0	22
Current marital status?	Never married	24.7	61.2	13.3	0.8	0.0	267
	Currently married	26.2	61.7	11.3	0.7	0.1	2488
	Separated/divorced	17.4	49.1	28.4	4.1	1.0	99
	Widowed	16.1	57.3	24.3	2.2	0.1	166
Wealth Quintiles	Q1	20.5	59.3	17.2	3.0	0.0	432
	Q2	25.3	60.0	13.8	0.6	0.3	461
	Q3	21.3	62.4	14.8	0.9	0.6	445
	Q4	25.6	58.1	15.6	0.7	0.0	451
	Q5	34.7	57.4	7.6	0.3	0.0	444
Highest education	Primary and below	21.3	58.3	16.4	3.0	1.0	354
	Above primary to secondary	26.0	59.3	12.8	1.6	0.3	1237
	Above secondary/ Diploma	31.3	52.4	14.8	0.9	0.6	331
	University and above	35.6	58.1	5.6	0.7	0.0	1040
	Do not know	34.6	57.4	7.7	0.3	0.0	58

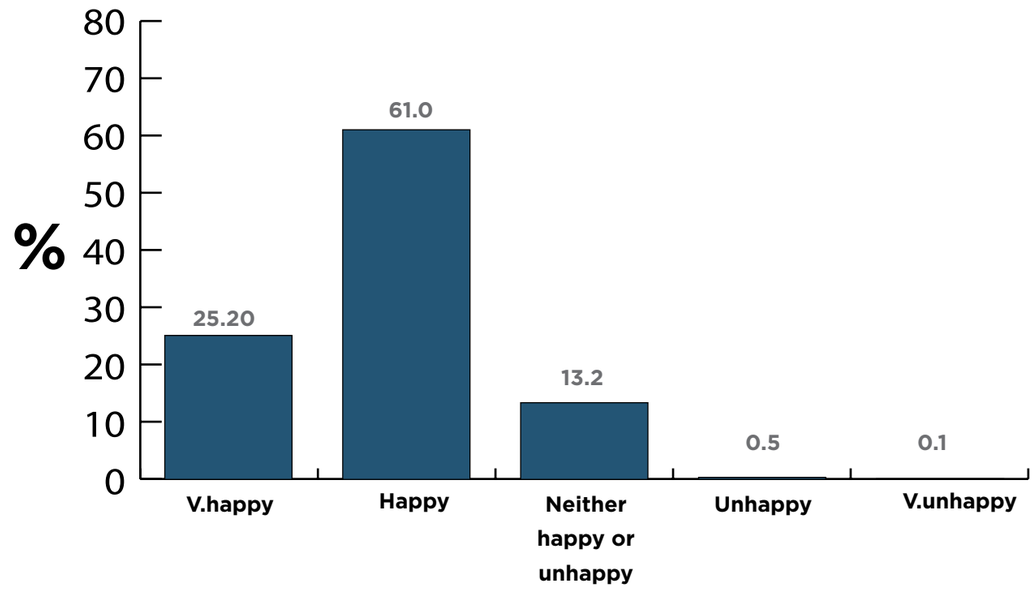


Figure 3.8.3: Overall happiness categories among respondents

4. CONCLUSION & RECOMMENDATIONS

The Bahrain National Health Survey (NHS) has indicated that population have achieved a high health status, high standard of living and high quality of life. This was attributed to healthcare improvement as the Ministry of Health in Bahrain with the other ministries focused on building the basic health infrastructure: establishing a number of hospitals and health centers distributed across the country, public health units as well as a number of standardized laboratories.

Although the main objective of the Bahraini NHS is to provide valid and reliable health information in order to help and direct the development of the country new strategies, development plans and reforming health systems, however, one of its important objectives is to understand the major weaknesses within the health system in Bahrain, population needs in terms of services and health education and the overall responsiveness of the system.

For that the NHS data collection questionnaires were designed to capture information on all aspects of health from a random sample of respondents that were scientifically selected to represent the nation.

This section provides discussion of results and recommendations from the survey on the Bahraini and non-Bahraini population's health, health-related quality of life, the risk factors that influence their health and disease, and the illness patterns experienced.

4.1 Life style / Risk factors

Health risk factors indicate some growing risks facing the population in Bahrain. Results showed that overall, 15% smoke tobacco every day (regularly) compared to 3.9 % smoke on irregular basis, with marked variation between males (27.9%) and females (6.4%) in current smoking and marked difference between wealth quintiles of smokers. Although this bad habit is still considered high but something good is that this prevalence is lower than the one previously reported in the Bahrain step-wise survey 2007[20] since 17.9% were currently daily smokers.

Smoking tobacco is less prevalent among Bahraini (12.2%) than non-Bahraini (22.3%). This difference was compensated unfortunately by the high prevalence of smoking shisha which was higher among non-Bahraini than among Bahrain citizens.

Although the prevalence of tobacco smoking is not very high as mentioned previously. However, other risk factors have been revealed which require special interventions to overcome their negative consequences and implications on health of the population. These factors involve:

- 85% of the population have insufficient intake of fruits and vegetables and thus might weaken their immune system, especially males and Bahraini citizens who are more likely to have insufficient intake of fruits and vegetables.
- Around half of Bahraini citizens are not doing any physical activity, compared to nearly 52% among non-Bahraini.
- About one-third (33.2%) and (42.8%) of the Bahraini citizens and (39.8%) and (25.7%) of the non-Bahraini respondents are either overweight or obese, respectively. Generally, females are more obese while males are more overweight.
- Almost three quarters of participants are centrally obese (obese waist to hip ratio) which imposes higher risk for cardiovascular diseases.

In conclusion: Nearly all the risk factors of non-communicable diseases tend to be high than being mediocre which need several interventions such as media campaigns and health education programs which should be directed to all age groups. Enforcement by laws, raising taxes on and prices of cigarettes and fighting the spread of shisha by restricting their availability will help tackling this epidemic. Encouraging sport in schools and during leisure times and the establishment of more sports clubs will help decreasing the physical inactivity. Nutrition education is also highly recommended, as well as raising the awareness of citizens for screening programs related to lifestyle risk factors.

4.2 Morbidity

Hypertension

The NHS showed decrease of those who suffer from hypertension than what was observed in 2007 step-wise survey (38.2% in 2007). NHS indicated that about 33.6% of Bahrain population suffer from hypertension; 12.1% self-reported and 21.8% newly diagnosed by measurement during the survey. It has to be noted that prevalence of hypertension among males were higher than the percentage among females. Those who are illiterate to primary education are more likely to have high blood pressure than other educational levels. This high percentage can't be neglected. Also, 61% of those reported receiving treatment were uncontrolled, i.e. had high blood pressure.

Diabetes mellitus

Overall, 10.8 % of respondents reported that they are diabetics, while the newly diagnosed cases during the survey is 4.7% giving overall prevalence of 15%. It is worth mentioning that this prevalence is higher than the one reported in the step-wise survey 2007 (14%) and that 41.5% of those reported receiving treatment were uncontrolled, i.e. had high blood glucose levels.

Cholesterol

The NHS showed a decrease of those who suffer from high total cholesterol (31.2%) than what was observed in the step-wise Survey 2007 (40.6% in 2007).

Vision

Results revealed that about 1.9% of Bahraini population reported at least severe degree of difficulty in the far vision and 1.3% in the near vision. These difficulties are among Bahraini citizens only.

In conclusion: Results revealed that high levels of blood glucose and hypertension decreases by the increase in the educational level. Therefore, we should put an eye on the importance of education and its impact on good health as health and education are strongly associated. Also, compliance with treatment is an important health education message which should be taught by different means to the chronic patients, specially hypertension. Tailored nutrition education is also highly recommended for diabetics to control the raising trend.

Males are more likely to suffer from hypercolesterolemia, hypertension and diabetes than females. This is may be due to frequent exposure of the females to the health services during their reproductive period. Men should be encouraged to make periodic checkup for early detection of any abnormality in their biological biomarkers, and these checkups should be offered at work places, or during renewal of the driving licenses.
Further, improving communication skills of healthcare providers is recommended so as to impress the patients regarding right management of their chronic diseases like hypertension and diabetes and compliance with treatment.

4.3 Health System

This section will shed the light on the overall performance of the health system, its responsiveness and population satisfaction with it.

Health service utilization/responsiveness

The vast majority of respondents (93.6%) reported that they needed health care and got it last time which was higher among Bahraini citizens (95.5%) compared to non-Bahraini (89.6%). While the percentage of those who needed and did not get it was 1.7%, which was reported by Bahraini more than non-Bahraini, and it was more among males and those with primary and below education.

Women health care

Results also indicated that women, especially mothers, receive proper care; however, very few women follow-up on breast cancer, especially among non-Bahraini. This needs more efforts and health education programs.

In conclusion: The Bahraini health system responsiveness is high. It is the responsibility of the health sector to encourage women to do mammography every 2 years, especially for high-risk women, those with family history, infertile and obese. This health education message should be present in each health facility and to be told for every woman during any medical consultation. Qualitative research is needed to discover the reasons for inadequate screening.

4.4 Quality of life and happiness

Results revealed that the quality of life in Bahraini is high. On average, the WHO-QOL score is 83.9% which indicates that the vast majority of the respondents are satisfied with their lives. Mean QoL is associated with age and wealth. The QoL decreases as age increases and respondents in Q5 are more likely to be satisfied with various aspects than those in Q1. Added to that, 90% of the respondents rated their quality of life as good to very good. Similar pattern was observed regarding rated health status and having difficulty performing various activities which may indicate that health status of respondents affect their overall satisfaction with their lives.

In general, respondents of the NHS indicated that they are in good health from their own perspective with very limited percentage reporting difficulty in performing daily activities, mainly mild or moderate. Very few respondents reported severe or extreme difficulty. The perceived health status and difficulty in performing various activities was better among young respondents, males and non - Bahraini.

In conclusion: The quality of life and population satisfaction with it is affected to some extent by the health status. Poor and old respondents are more likely to rate their health status lower than their counterparts and at the same time, they are the groups with lower satisfaction with their quality of lives. Thus, elderly respondents and lowest wealth quintiles need special interventions to improve their health status and accordingly their quality of lives.

5. REFERENCES

1. WHO: Bahrain health profile. Available at https://www.who.int/countries/bhr/en/
2. Institute for Health Metrics and Evaluation: Bahrain. Available at: www.healthdata.org/bahrain
3. WHO 2010 . The guideline development group for the diagnosis and pharmacological treatment of hypertension in adults. Available at: https://www.who.int/cardiovascular_diseases/guidelines/hypertension/en/
4. WHO 1999: High cholesterol. Available at: https://www.who.int/publications/cra/chapters/volume1/0391-0496
5. Obesity in Scotland: national clinical guideline for use in Scotland (SIGN 8). Edinburgh: SIGN;1996. Available at: https://www.sign.ac.uk/assets/sign115.pdf
6. WHO 1947 : Definition of health. Available at: www.euro.who.int/__data/assets/pdf_file/.../RD_Dastein_speech_wellbeing_07Oct.
7. WHO 2018. Tobacco fact sheet. Available at: https://www.who.int/news-room/fact-sheets/detail/tobacco
8. World Bank 1999. Global Tobacco Control. Available at: https://www.worldbank.org/en/topic/tobacco
9. WHO 2019: Increasing fruit and vegetable consumption to reduce the risk of of noncommunicable diseases- Feb 11, 2019. Available at: https://www.who.int/elena/titles/fruit_vegetables_ncds/en/
10. WHO 2019. Physical Activity. Available at:https://www.who.int/dietphysicalactivity/pa/en/
11. WHO 2018. Non communicable diseases key facts. Available at: https://www.who.int/news-room/fact-sheets/detail/noncommunicable-diseases
12. WHO 2018. Diabetes : Key facts. https://www.who.int/news-room/fact-sheets/detail/diabetes
13. WHO: End TB strategy . Available at: https://www.who.int/tb/strategy/end-tb/en/
14. WHO 2018: Cancer cervix key facts: https://www.who.int/cancer/prevention/diagnosis-screening/cervical-cancer/en/
15. WHO Breast cancer: prevention and control. Available at: https://www.who.int/cancer/detection/breastcancer/en/index1.html
16. Bray F, Ferlay J, Soerjomataram I, Siegel RL, Torre LA, Jemal A. Global Cancer Statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA Cancer J Clin, in press. The online GLOBOCAN 2018 database is accessible at http://gco.iarc.fr/, as part of IARC's Global Cancer Observatory.
17. Mandelblatt JS, Cronin KA, Bailey S, et al. Effects of mammography screening under different screening schedules: model estimates of potential benefits and harms. Annals of Internal Medicine 2009;151(10):738-747.
18. 15 facts on HIV treatment scale-up and new WHO ARV guidelines 2013. Available at: https://www.who.int/hiv/pub/guidelines/arv2013/15facts/en/
19. Cyrus Vahdatpour , David Collins , and Sheldon Goldberg. Cardiogenic Shock. Journal of the American Heart Association. 2019;8 (vol 8).
20. WHO. STEPwise approach to chronic disease risk factor surveillance. Available at: https://www.who.int/ncds/surveillance/steps/bahrain/en/

6. ANNEX:

6.1 Signing a memorandum of understanding between the Information Authority, eGovernment & Ministry of Health to implement the survey.

أنه في يوم الأحد الموافق 19 نوفمبر 2017 م تم التوقيع على مذكرة التفاهم هذه (ويشار إليها فيما بعد بـ " المذكرة ") بين كل من:

1. وزارة الصحة، وعنوانها: ص. ب. 12، ويمثلها لأغراض هذه المذكرة الدكتور وليد خليفة المانع، وكيل الوزارة، ويشار إليه فيما بعد ب "الوزارة".

و

2. هيئة المعلومات والحكومة الالكترونية، وعنوانها: ص.ب. 33305، ويمثلها لأغراض هذه المذكرة السيد/ محمد علي القائد، الرئيس التنفيذي، ويشار إليه فيما بعد ب "الهيئة".

تمهيد

حيث أن الوزارة تتولى توفير خدمات صحية ذات جودة عالية ومنظمة ومتكاملة وعادلة ومستدامة وفي متناول جميع السكان، وحيث أن الهيئة تتولى الإحصاءات والتعدادات والمسوح، والاشراف على جميع الأعمال الفنية اللازمة لذلك، لهذا التقت رغبة الطرفان للنهوض بمهامهما من خلال تنفيذ المسح الصحي العالمي في المملكة لعامي 2017/ 2018 (ويشار إلى هذا فيما بعد بـ "المسح")، ويرغب الطرفان في ان تتكامل جهودهما بالتعاون المشترك لإنجاز المسح من أجل الخروج بتقارير واحصائيات محدثة وواقعية وصحيحة عن انتشار الأمراض الغير معدية بين سكان البحرين.

وعليه فقد تم التفاهم بين الوزارة والهيئة على ما يلي:

المادة الأولى

يعتبر التمهيد جزء لا يتجزأ من المذكرة يقرأ ويفسر معاً.

المادة الثانية

يتكفل كلا الطرفين بالتمويل المادي للمسح وبصورة متساوية بمبلغ قدره مئة وتسعة وستون ألف دينار بحريني (169,000 د. ب.)، حيث سيساهم كل طرف بمبلغ أربع وثمانون ألف وخمسمائة دينار بحريني (84,500 د. ب)، وستقوم الوزارة بتحويل مبلغ مساهمتها من الحساب المالي الخاص بالوزارة إلى الحساب المالي الخاص بالهيئة.

المادة الثالثة

تشكل لجنة عمل تضم في عضويتها ممثلين عن الوزارة والهيئة لهذا المسح، على أن يصدر بتنظيمها قرار رسمي من وكيل الوزارة أو رئيس الهيئة وذلك حسب الأنظمة واللوائح والقرارات والقوانين والتوجيهات والتعليمات الخاصة بعمل كلا من الطرفين، وتتولى اللجنة القيام بما يلي:

- الاجتماع بصورة دورية للمتابعة والإشراف على تنفيذ المسح في جميع مراحله وعلى نحو يحقق أهدافه.
- اتخاذ القرارات والتدابير اللازمة وعمل كل ما ينبغي لضمان سير عمل المسح وتنفيذه حسب المتطلبات اللازمة ووفقاً للبرنامج الزمني له.

المادة الرابعة

للهيئة الاستعانة بأي جهات أخرى لإنجاز مهامها في تنفيذ المسح بعد موافقة الوزارة.

المادة الخامسة

تكون هذه المذكرة نافذة من تاريخ التوقيع عليها حتى تاريخ 30 ابريل 2018 م أو حتى تاريخ استكمال تنفيذ المسح أيهما يأتي لاحقاً، مالم يخطر أحد الطرفين الآخر برغبته في الإنهاء بموجب اخطار كتابي قبل ثلاثة شهور من تاريخ انتهاء المذكرة.

المادة السادسة

تم التوقيع على هذه المذكرة من نسختين أصليتين متساويتي الحجية لكل طرف نسخة منها، ويعمل بها اعتباراً من تاريخها.

وزارة الصحة	هيئة المعلومات والحكومة الإلكتروني
الدكتور وليد خليفة المانع	السيد محمد علي القائد
وكيل وزارة الصحة	الرئيس التنفيذي

6.2 Formation of the Supervisory Committee

Kingdom of Bahrain
Ministry of Health
Undersecretary's Office

مملكة البحرين
وزارة الصحة
مكتب الوكيل

قرار رقم (24) لسنة 2017

بشأن إعادة تشكيل اللجنة الاشرافية للمسح الصحي العالمي بمملكة البحرين

وكيل وزارة الصحة:

بعد الاطلاع على المرسوم رقم (67) لسنة 2017 بإعادة تنظيم وزارة الصحة،

وعلى المرسوم رقم (68) لسنة 2017 بتعيين وكيل ووكلاء مساعدين بوزارة الصحة،

وعلى القرار رقم (27) لسنة 2011 بشأن تشكيل اللجنة الاشرافية للمسح الصحي العالمي في مملكة البحرين،

واستناداً إلى مذكرة التفاهم الموقعة بتاريخ 19 نوفمبر 2017 م بين وزارة الصحة وهيئة الحكومة الإلكترونية بشأن مشروع إجراء المسح الصحي العالمي،

وبعد التنسيق مع هيئة الحكومة الإلكترونية،

وبناءً على عرض الوكيل المساعد للصحة العامة،

قرر الآتي :

مادة (1)

تُشكّل لجنة مشتركة تسمى **"اللجنة الإشرافية للمسح الصحي العالمي بمملكة البحرين"** وتكون برئاسة الوكيل المساعد للصحة العامة، و"نائب الرئيس التنفيذي للإحصاء والسجل السكاني بهيئة المعلومات والحكومة الإلكترونية"– نائباً للرئيس، وعضوية كل من:

• مدير إدارة الصحة العامة	وزارة الصحة
• مدير إدارة تعزيز الصحة	وزارة الصحة
• مدير إدارة الموارد المالية	وزارة الصحة
• مدير إدارة الاتصال	وزارة الصحة
• رئيس مكتب المراجعة الطبية	وزارة الصحة
• منسق الإحصاءات بالصحة العامة	وزارة الصحة
• مدير إدارة الإحصاءات الديموغرافية والاجتماعية	هيئة المعلومات والحكومة الإلكترونية
• مدير إدارة الاتصال والتسويق	هيئة المعلومات والحكومة الإلكترونية
• أخصائي الاحصاءات الديموغرافية والسكانية ومقررا)	هيئة المعلومات والحكومة الإلكترونية (عضوا
• ممثل عن شرطة المجتمع	

2030 البحرين BAHRAIN

هاتف : ١٧٧٢٩١٤٩ ، ١٧٧٢٩٠٨٢ (٩٧٣+) فاكس : ١٧٧٢٩٠٨٤ (٩٧٣+) ص.ب : ١٢ المنامة مملكة البحرين
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Website: health.gov.bh

Kingdom of Bahrain
Ministry of Health
Undersecretary's Office

مملكة البحرين
وزارة الصحة
مكتب الوكيل

وبحل نائب الرئيس محل الرئيس في حال غيابه أو وجود مانع لديه، وللجنة أن تستعين بمن تراه من ذوي الخبرة العلمية والمهنية لحضور اجتماعاتها والاستعانة برأيه، ويتولى مقرر اللجنة جميع الأمور الإجرائية الخاصة بأعمال اللجنة تحت إشراف رئيسها.

مادة (2)

تختص اللجنة بتنفيذ المهام التالية:

1- مراجعة واعتماد الخطة العامة ومنهجية البحث والسياسات الخاصة بالمسح الصحي.

2- دراسة المتطلبات المادية اللازمة لإجراء المسح والبحث عن مصادر تمويل إضافية.

3- التعاون والتنسيق مع الجهات الحكومية وغير الحكومية والجهات الدولية ذات العلاقة بتنفيذ المسح.

4- متابعة التقدم المحرز في تنفيذ المسح، والتغلب على الصعوبات والمشاكل التي تواجه العمل.

5- مراجعة واعتماد التقارير المبدئية والنهائية للمسح الصحي ورفعها لوكيل وزارة الصحة لاتخاذ اللازم نحوها.

مادة (3)

تجتمع اللجنة بناءً على دعوة من رئيسها مرة كل شهر أو كلما اقتضت الحاجة لذلك، ويكون اجتماعها صحيحاً بحضور أغلبية أعضائها على أن يكون من بينهم رئيس اللجنة أو نائبه، وترفع اللجنة تقارير دورية كل ثلاثة أشهر تتضمن التقدم المحرز في تنفيذ المسح إلى وكيل وزارة الصحة لاتخاذ اللازم نحوها.

مادة (4)

يلغى القرار رقم (27) لسنة 2011 بشأن تشكيل اللجنة الإشرافية للمسح الصحي العالمي في مملكة البحرين، كما يلغى كل ما يخالف أحكام هذا القرار.

مادة (5)

على الوكيل المساعد للصحة العامة تنفيذ هذا القرار، ويعمل به اعتباراً من تاريخ صدوره.

الدكتور/ وليد خليفة المانع
وكيل وزارة الصحة

صدر في : 13 ربيع الآخر 1439هـ
الموافق : 31 ديسمبر 2017

2030 البحرين BAHRAIN

هاتف : ١٧٧٢٩١٤٩ ، ١٧٧٢٩٠٨٢ (٩٧٣+) فاكس : ١٧٧٢٩٠٨٤ (٩٧٣+) ص.ب : ١٢ المنامة مملكة البحرين
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6.3 Formation of the Executive Committee

قرار رقم (25) لسنة 2017

بشأن إعادة تسمية وتشكيل اللجنة الفنية للمسح الصحي العالمي بمملكة البحرين

وكيل وزارة الصحة :

بعد الاطلاع على المرسوم رقم (67) لسنة 2017 بإعادة تنظيم وزارة الصحة،

وعلى المرسوم رقم (68) لسنة 2017 بتعيين وكيل ووكلاء مساعدين بوزارة الصحة،

وعلى القرار رقم (28) لسنة 2011 بشأن إعادة تشكيل اللجنة الفنية للمسح الصحي العالمي في مملكة البحرين،

وعلى القرار رقم (24) لسنة 2017 بشأن تشكيل اللجنة الإشرافية للمسح الصحي العالمي بمملكة البحرين،

وبناءً على عرض الوكيل المساعد للصحة العامة،

قرر الآتي :

مادة (1)

تُعاد تسمية "اللجنة الفنية للمسح الصحي العالمي في مملكة البحرين" لتكون بمسمى "اللجنة التنفيذية للمسح الصحي بمملكة البحرين"، وتُشكّل برئاسة "رئيس مكتب المراجعة الطبية بوزارة الصحة"، ورئيس المسح الصحي العالمي بهيئة المعلومات والحكومة الإلكترونية - نائباً للرئيس، وعضوية كل من:

وزارة الصحة :

رئيس الخدمات الطبية بالصحة الأولية

رئيس الخدمات التمريضية بالصحة الأولية

رئيس المختبرات بالمراكز الصحية

ممثل عن إدارة المعلومات الصحية

هاتف : ١٧٧٢٩١٤٩، ١٧٧٢٩٠٨٢ (٩٧٣+) فاكس : ١٧٧٢٩٠٨٤ (٩٧٣+) ص.ب : ١٢ المنامة مملكة البحرين
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Kingdom of Bahrain
Ministry of Health
Undersecretary's Office

مملكة البحرين
وزارة الصحة
مكتب الوكيل

ممثل عن إدارة الاتصال

ممثل عن إدارة الموارد المالية

منسق الاحصاءات بالصحة العامة (عضواً ومقرراً)

هيئة المعلومات والحكومة الالكترونية :

مستشار الاحصاء

رئيس الإحصاءات الأسرية

رئيس الإحصاءات الديمغرافية

رئيس نظم جمع المعلومات

محلل نظم

ويحل نائب الرئيس محل الرئيس في حال غيابه أو وجود مانع لديه وللجنة أن تستعين بمن تراه من ذوي الخبرة العلمية والمهنية لحضور اجتماعاتها والاستعانة برأيه، ويتولى مقرر اللجنة جميع الأمور الإجرائية الخاصة بأعمال اللجنة.

مادة (2)

تختص اللجنة بالمهام التالية:

1- اقتراح الخطة العامة وخطة تنفيذ المسح والجدول الزمني اللازم للتنفيذ.

2- اقتراح منهجية البحث المناسبة لتنفيذ المسح الصحي.

3- اقتراح الخطة المالية للمسح.

4- اقتراح وتنفيذ خطة تدريب منسقي المحافظات والمشرفين والباحثين الميدانيين.

5- البدء في تنفيذ خطة العمل حسب الجدول الزمني الموضوع.

6- متابعة المرحلة الميدانية للمسح والتغلب على الصعوبات والمشاكل الفنية التي تواجه العمل.

7- تنفيذ ومتابعة جميع الأمور الفنية الخاصة بجودة البيانات وتحليلها.

8- إعداد التقرير المبدئي والتقرير النهائي للمسح.

هاتف : ١٧٧٢٩١٤٩، ١٧٧٢٩٠٨٢ (٩٧٣+) فاكس : ١٧٧٢٩٠٨٤ (٩٧٣+) ص.ب : ١٢ المنامة مملكة البحرين
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Website: health.gov.bh

Kingdom of Bahrain
Ministry of Health
Undersecretary's Office

مملكة البحرين
وزارة الصحة
مكتب الوكيل

مادة (3)

تجتمع اللجنة بناءً على دعوة من رئيسها مرة أسبوعياً أو كلما اقتضت الحاجة لذلك، ويكون اجتماعها صحيحاً بحضور أغلبية الأعضاء على أن يكون من بينهم الرئيس أو نائبه، وترفع اللجنة تقريراً دورياً كل شهر بنتائج أعمالها وتوصياتها إلى اللجنة الإشرافية للمسح الصحي المشار إليها.

مادة (4)

يلغى القرار رقم (28) لسنة 2011 بشأن إعادة تشكيل اللجنة الفنية للمسح الصحي العالمي في مملكة البحرين، كما يلغى كل ما يخالف أحكام هذا القرار.

مادة (5)

على الوكيل المساعد للصحة العامة تنفيذ هذا القرار، ويعمل به اعتباراً من تاريخ صدوره.

الدكتور/ وليد خليفة المانع
وكيل وزارة الصحة

صدر في : 13 ربيع الآخر 1439هـ
الموافق : 31 ديسمبر 2017

2030
البحرين
BAHRAIN

هاتف : ١٧٧٢٩١٤٩، ١٧٧٢٩٠٨٢ (٩٧٣+) فاكس : ١٧٧٢٩٠٨٤ (٩٧٣+) ص.ب : ١٢ المنامة مملكة البحرين
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6.4 Time plan

Month	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6
Year	**2017**					**2018**												**2019**					
-Preparation for the survey Prerequisites & Administrative procedures	■	■	■	■	■																		
-Scrutiny and data preparation	■	■	■	■	■																		
-Training survey employees -Obtaining field required equipment etc					■																		
-Field work						■	■	■	■	■	■	■	■	■									
- Data analysis and Tabulation															■	■	■	■	■	■	■		
- Report writing and dissemination																						■	■

6.5 Individual Questionnaire

World Health Survey 2017/2018

Kingdom of Bahrain
Individual Questionnaire

Q0001	Questionnaire number				
Q0001a	Respondent row number				

Identification data					
			Q0004b	CPR of the respondent	
Q0002a	Governorate	---	Q0005c	Tele. No.	
Q0002b	Block		Q0005d	Tele. No. 2	
Q0002c	Road / no.				
Q0002d	Building / Villa		Q0002e	flat	
Q0003	Health Centre code	--- ---			

Q0008a	Date of visit:	/ /
Q0008b	Date of second visit:	/ /
Q0008c	Date of third visit:	/ /
Q0006d	Researcher code:	

DD / MM / YYYY

Q0009 Visit results:

Accomplished	1
Partly Accomplished	2
Not Cooperative	3
Others (Specify).....	8

Section 1000: Socio-Demographic Characteristics

Serial	Question	Answer codes			skip
Q1000	Time Begin	:			
Q1008	What is your mother tongue? By mother tongue, we mean the language you learned first, the language that you can express yourself fully in, or voluntarily identify with.	Arabic English Urdu / Indian Persian Other (specify)	1 2 3 4 8		
Q1009	INTERVIEWER: Record sex of the respondent	Male Female	1 2		
Q1010	What day, month and year were you born? DD / MM / YYYY Check birth certificate if available or I.D.	-------/-------/---------- Don›t know	98	→ 	1012
Q1011	How old are you now? INTERVIEWER: If don›t know - probe.				
Q1012	What is your current marital status?	Never married currently married separated/divorced widowed	1 2 3 4	 → → 	 1019 1014
Q1013	For how many years have you been separated, divorced or widowed? INTERVIEWER: if less than 1 year, enter «00»			→	1019
Q1014	For how many years have you been married (years since your first marriage)? INTERVIEWER: if less than 1 year, enter «00»				

Serial	Question	Answer codes			skip
Q1019	Do you belong to a religious denomination? INTERVIEWER: allow the respondent to reply without reading categories. Clarify as needed.	Islam Christianity Other , specify Refused	1 2 8 9		
Q1020	Have you always lived in Bahrain?	Yes No	1 2	→ 	1501
Q1021	How long have you been living (continuously) in Bahrain? Interviewer: If less than 1 year, enter “00”	years			
Q1033	Time End	:			

- Thank you, that ends this section – we will return to questions about you in the next section

Section 1500: Work History and Benefits

Serial	Question	Answer codes			skip
Q1500	Time Begin				
Now I would like to ask you some questions about any work you may be doing now or have done in the past. I will ask some questions about the type and amount of your current or past work, benefits, if any, you may be receiving or have received from your work, and the reasons for why you may not be working currently.					
Q1501	Have you ever in your life done any type of work for pay?	Yes No	1 2	→ 	 1502
Q1501a	What is the main reason that you have never worked? INTERVIEWER: select one only	Homemaker / caring for family Could not find a job In Studies / training Health problems/Disabled / medical retirement Have to take care of family member ..... Do not have the economic need Other, specify:	1 2 3 4 5 6 8	┐ | | → | | ┘	 2000
Q1502	At what age did you start working for pay?	□□ years			
Q1503	Have you worked in the last 7 days?	Yes No	1 2	→ 	 1509
Q1504	What is the main reason you are not currently working? Interviewer: Only one answer allowed	Homemaker / caring for family Cannot find a job In studies / training Health problems/Disabled Have to take care of family member Do not have the economic need Retired / too old to work Vacation / sick leave / voluntary & temporary time off Other, specify:	1 2 3 4 5 6 7 8 87	 → 	 1509

Serial	Question	Answer codes			skip
Q1505	At what age did you stop working?	□□			
Q1506	Are you actively looking for work at this time?	Yes No	1 2		
Now I will ask you some questions about your current work or your most recent work. Please answer these questions thinking about your current work, or if you are not working currently, think about your most recent work.					
First, I would like to ask you about your most recent or current MAIN job.					
Q1509	Who is/was your employer in your current/most recent MAIN job?	Public sector Private Sector Joint Sector Self-employed Other (specify)	1 2 3 4 8		
Q1510	In the last 12 months, for your main job, what has been your main occupation? INTERVIEWER: Write exactly what the respondent says - clarify if you do not understand - write clearly in capital letters.	..... Not applicable	□□ 77		
Q1512	On average, how many hours a day do/ did you work in your main job?	□□ Hours			
In this main job, do/did you receive any of the following benefits in addition to your payment in cash or in kind? INTERVIEWER: Read each benefit and circle all that apply.					
Q1514a	Retirement or pension	Yes No	1 2		
Q1514b	Medical services/health care	Yes No	1 2		
Q1514c	Food or provisions	Yes No	1 2		
Q1514d	Cash bonuses	Yes No	1 2		
Q1514f	Other, specify:	Yes No	1 2		
Q1520	Time End	□□ : □□			

Section 2000: Health State Descriptions

Serial	Question	Answer codes				skip
Q2000a	Time Begin	□□:□□				
Now we will switch to questions specifically about your health. The first questions are about your overall health, including both your physical and your mental health						
Serial	**Question**	**Very good**	**good**	**Moderate**	**bad**	**very bad**
2000	In general, how would you rate your health today?	1	2	3	4	5
Now I would like to review the different functions of your body. When answering these questions, I would like you to think about the last 30 days, taking both good and bad days into account. When I ask about difficulty, I would like you to consider how much difficulty you have had, on average, in the last 30 days, while doing the activity in the way that you usually do it. By difficulty I mean requiring increased effort, discomfort or pain, slowness or changes in the way you do the activity						
Serial	**Question**	**None**	**Mild**	**Moderate**	**Severe**	**Extreme**
Q2001	Overall in the last 30 days, how much difficulty did you have with work or household activities?	1	2	3	4	5
Mobility Overall in the last 30 days, how much difficulty did you have						
Q2002	with moving around?	1	2	3	4	5
Q2003	in vigorous activities (‹vigorous activities› require hard physical effort and cause large increases in breathing or heart rate)?	1	2	3	4	5
Self-Care Overall in the last 30 days, how much difficulty did you have						
Q2004	with self-care, such as bathing/washing or dressing yourself?	1	2	3	4	5
Q2005	in taking care of and maintaining your general appearance (for example, grooming, looking neat and tidy)?	1	2	3	4	5
Q2006	in staying by yourself for a few days(3 – 7 days)?	1	2	3	4	5
Pain and Discomfort Overall in the last 30 days, how much						
Q2007	of bodily aches or pains did you have?	1	2	3	4	5
Q2008	bodily discomfort did you have?	1	2	3	4	5
If both Q2007 and Q2008 = 1 → 2010						
Q2009	how much difficulty did you have in your daily life because of your pain?	1	2	3	4	5
Cognition Overall in the last 30 days, how much difficulty did you have						
Q2010	with concentrating or remembering things?	1	2	3	4	5
Q2011	in learning a new task (for example, learning how to get to a new place, learning a new game, learning a new recipe)?	1	2	3	4	5
Interpersonal Activities Overall in the last 30 days, how much difficulty did you have						
Q2012	with personal relationships or participation in the community?	1	2	3	4	5
Q2013	With dealing with conflicts and tensions with others	1	2	3	4	5
Q2014	with making new friendships or maintaining current friendships?	1	2	3	4	5
Q2015	with dealing with strangers?	1	2	3	4	5

Serial	Question	None	Mild	Moderate	Severe	Extreme
Sleep and Energy Overall in the last 30 days, how much of a problem did you have						
Q2016	with sleeping, such as falling asleep, waking up frequently during the night or waking up too early in the morning?	1	2	3	4	5
Q2017	due to not feeling rested and refreshed during the day (for example, feeling tired, not having energy)?	1	2	3	4	5
Affect Overall in the last 30 days, how much of a problem did you have						
Q2018	with feeling sad, low or depressed?	1	2	3	4	5
Q2019	with worry or anxiety?	1	2	3	4	5
Vision: (respondent should answer as when wearing glasses/contact lenses if used)						
Serial	**Question**	**Answer codes**				**skip**
Q2020	When was the last time you had your eyes examined by a medical professional? Interviewer: enter ‹00› if less than 1 month ago.	□□ Months □□ Years Never	99			
Q1021	Do you use eyeglasses or contact lenses to see far away (for example, across the street and for watching TV)?	Yes..... No.....	1 2			
Q1022	Do you use eyeglasses to see up close (for example at arm's length, like when you are reading)?	Yes..... No.....	1 2			

Serial	Question	None	Mild	Moderate	Severe	Extreme
Overall in the last 30 days, how much of a problem did you have						
Q2023	in seeing and recognising an object or a person you know across the road (from a distance of about 20 meters)?	1	2	3	4	5
Q2024	in seeing and recognising an object at arm›s length (for example, reading)?	1	2	3	4	5

Functioning assessment

These next questions ask about difficulties due to health conditions. Health conditions include diseases or illnesses, other health problems that may be short or long lasting, injuries, mental or emotional problems, and problems with alcohol or drugs.

Think back over the last 30 days and answer these questions thinking about how much difficulty you had doing the following activities. Some of these questions may seem repetitive, but we do need your attention and it is important to give us answers to each question.

Interviewer: For each question, please circle only one response.

Serial	Question	None	Mild	Moderate	Severe	Extreme/ Cannot do
Q2025	in sitting for long periods?	1	2	3	4	5
Q2026	in walking 100 meters?	1	2	3	4	5
Q2027	in standing up from sitting down?	1	2	3	4	5
Q2028	in standing for long periods?	1	2	3	4	5
Q2029	with climbing one flight of stairs without resting?	1	2	3	4	5
Q2030	with stooping, kneeling or crouching?	1	2	3	4	5
Q2031	picking up things with your fingers (such as picking up a coin from a table)?	1	2	3	4	5
Q2032	in taking care of your household responsibilities?	1	2	3	4	5
Q2033	in joining in community activities (festivities, religious or other activities) in the same way as anyone else can?	1	2	3	4	5
Q2034	in extending your arms above shoulder level?	1	2	3	4	5
Q2035	concentrating on doing something for 10 minutes?	1	2	3	4	5
Q2036	in walking a long distance such as a kilometer?	1	2	3	4	5
Q2037	in bathing/washing your whole body?	1	2	3	4	5
Q2038	in getting dressed?	1	2	3	4	5
Q2039	in your day to day work?	1	2	3	4	5
Q2040	with carrying things?	1	2	3	4	5
Q2041	with moving around inside your home (such as walking across a room)?	1	2	3	4	5
Q2042	with eating (including cutting up your food)?	1	2	3	4	5
Q2043	with getting up from lying down?	1	2	3	4	5
Q2044	with getting to and using the toilet?	1	2	3	4	5
Q2045	with getting where you want to go, using private or public transport if needed?	1	2	3	4	5

Serial	Question	None	Mild	Moderate	Severe	Extreme / cannot do
In the last 30 days, how much difficulty did you have						
Q2046	getting out of your home?	1	2	3	4	5
Q2047	In the last 30 days, how much have you been emotionally affected by your health condition(s)?	1	2	3	4	5
Q2048	Overall, how much did these difficulties interfere with your life?	1	2	3	4	5
Serial	**Question**	**Answer codes**	**skip**			
Q2049	Besides any vision aids (eyeglasses or contact lenses) mentioned above, do you use any other assistive devices (cane, walker or other) for any difficulties you experience?	Yes..... No.....	1 2			
Q2050	Time End	☐☐ : ☐☐				

Section 2500: Anthropometrics, Performance Tests and Biomarkers

Serial	Question	Answer codes	skip		
Q2500	Time Begin	☐☐ : ☐☐			
Before we ask you more questions, this time about your own health and well-being, we would like to measure a few things, like your blood pressure, your weight and height. We›ll also ask you to participate in a few tests to determine your health status.					
Blood Pressure: First I would like to measure your blood pressure and pulse rate. Stay seated, and once I put this on your wrist keep it steady. It will squeeze your wrist a bit, but won›t hurt. Relax. INTERVIEWER: respondent should remain seated. Place the monitoring device on the wrist and have the respondent hold it at heart level against his/her chest. Collect the blood pressure and pulse 2 times with one minute between each measurement. Demonstrate to the respondent how to hold their arm while the machine is measuring.					
Q2501	Time 1 BP	Refused ..... Systolic ☐☐☐ /diastolic ☐☐☐	999	→	2504
Q2501a	Time 1 Pulse	☐☐☐ / minute			
INTERVIEWER: Ask the respondent to release the arm and relax. Wait for one minute before time 2. Okay, now we can get your second measurement for your blood pressure.					
Q2502	Time 2 BP	Refused ..... Systolic ☐☐☐ /diastolic ☐☐☐	999	→	2504
Q2502a	Time 2 Pulse	☐☐☐ / minute			
Notes:					
Q2504	INTERVIEWER: Can respondent stand up, yes or no?	Yes..... No.....	1 2	→	2514
Anthropometric Measurements HEight: In case of difficulty or refusal write notes after Q 2509 I would now like to measure how tall you are. To measure your height I need you to please take off your shoes. Put your feet and heels close together, stand straight and look forward standing with your back and head touching the wall. Look straight ahead.					
Q2506	Measured height in centimetres	☐☐☐ Cm Refused	999		

Serial	Question	Answer codes			skip
Weight: Now we want to measure your weight - could you please keep your shoes off and step on this scale. We will also measure your waist and hips using a tape measure					
Q2507	Measured weight In kilograms	☐☐☐ Kg Pregnant ..... Refused.....	777 999	→	2514
Q2508	Waist circumference. INTERVIEWER: identify the top of the hip bone - and make sure the tape measure is parallel to the floor all the way around the body	☐☐☐ Cm Refused	999		
Q2509	Hip circumference. INTERVIEWER: measure at the mid point of the hips - and make sure the tape measure is parallel to the floor all the way around the body	☐☐☐ Cm Refused	999		
Now you can put your shoes back on, if you wish, and we can continue.					
Notes:.....					

Serial	Question	Answer codes			skip
Vision Test: We are now going to test your distance vision and near vision. INTERVIEWER: Invite the respondent to sit again - in a chair positioned so that the respondent›s head will be 3 meters from the eye chart. Make sure the person does not lean in closer to the chart during the test. To measure acuity in the left eye, the right eye is covered with right palm or an eye patch and the subject is asked to respond to each «E» in a row slowly, letter by letter, with your guidance. Only one reading of a given «E» is allowed. When the subject has difficulty, he or she is encouraged to guess. Responses can be verbal (Up, Down, Left, Right) or the respondent can indicate with a finger. The right eye can then be tested in the same way.					
1-Distance vision INTERVIEWER: Start with the distance vision chart - using the 3 meters measured out for the timed walk. If the respondent makes 2 errors or more in one row, their result is read as the previous row. You will select and record the result from the column labeled «DECIMAL» on the left side of the chart. We will start with your distance vision - and with your left eye. Would you please cover your right eye with the palm of your right hand. Please read					
Q2514	Distance Vision - Left Eye	☐.☐☐ Refused / problem Notes:.....	999		
Now cover your left eye with left hand so we can test your right eye. Please read					
Q2515	Distance Vision - Right Eye	☐.☐☐ Refused / problem Notes:.....	999		

Lung function INTERVIEWER: Make sure to show the respondent that you are using a clean mouthpiece on the spirometer before starting. Demonstrate how to do the lung function test. Now we will do a test of your breathing to find out how well your lungs are functioning. We will use a device called a spirometer - this can show how much air you can breathe in and out. It also shows how fast you can breathe in and out. A good effort during the testing is important to get good results. I will ask you to take in the deepest possible breath, then blowing out as hard and as fast as you can into the device. It is important that you continue blowing until you have no breath left in your lungs. Let me explain the steps before you attempt. Take a deep breath - fill your lungs and stomach. Seal lips around the mouthpiece Blow out – hard and fast – in one continuous blow, until there is nothing left to blow. Okay, are you ready? Take a deep breath; seal your lips around the mouthpiece and BLOW, BLOW, BLOW!		
Q2538	FVC	☐☐☐☐
Q2539	FEV1	☐☐☐☐
Q2540	PEF	☐☐☐☐
Q2541	FEV1%	☐☐☐☐
Q2542	FEF25-75	☐☐☐☐
Q2543	FET	☐☐☐☐
Okay, return to normal breathing, while I record the results		

Section 3000: Risk Factors and Preventive Health Behaviors

Serial	Question	Answer codes			skip
Q3000	Time Begin	☐☐ : ☐☐			
We would now like to ask you some questions about your habits, health behaviors and awareness about health. This includes things like smoking, drinking alcohol, eating enough fruits and vegetables as part of your diet and your levels of physical activity. I will start with questions about smoking habits. Tobacco and other smoking (see appendix A3000A)					
Q3001	Have you ever smoked tobacco or used smokeless tobacco?	Yes..... No.....	1 2	→ 	3012
Q3002	Do you currently use (smoke, sniff or chew) any tobacco products such as cigarettes, cigars, pipes, chewing tobacco, shisha or snuff?	Yes daily..... Yes but not daily..... No, not at all.....	1 2 3	┐ → ┘	3005
Q3003	For how long have you been smoking or using tobacco daily? INTERVIEWER: If less than one month – enter "00" for months.	☐☐ Months ☐☐ Years			
On average, how many of the following products do you smoke or use each day?					
Q3004a	Manufactured cigarettes (count cigarettes not packet)	☐☐		┐	
Q3004b	Hand-rolled cigarettes (count piece)	☐☐		|	
Q3004c	Pipe full of tobacco (count piece)	☐☐		|	
Q3004d	Cigars, cheroots, cigarillos, bidis (count piece, not packet)	☐☐		→	3012
Q3004e	Smokeless tobacco (count piece)	☐☐		|	
Q3004f	Shisha / masel (narjeeleh)	☐☐		|	
Q3004g	Other (specify)	☐☐		┘	
Q3005	In the past, did you ever smoke tobacco or use smokeless tobacco daily?	Yes..... No.....	1 2		3012
Q3006	How old were you when you stopped smoking or using tobacco daily?	☐☐ Don't Know.....	 8		3012
Q3006a	How long ago did you stop smoking or using tobacco daily? INTERVIEWER: If less than one month – enter "00" for months.	☐☐ Months. ☐☐ Years		→	

Serial	Question	Answer codes			skip
Nutrition Studies have shown that nutrition and life-style are very important health factors. I want to ask you a few questions about your diet. I am going to ask you about the fruit and vegetables you usually eat. INTERVIEWER: (Show Nutrition card to respondent)					
Q3012	How many servings of fruit do you eat on a typical day?	☐☐			
Q3013	How many servings of vegetables do you eat on a typical day?	☐☐			
Q3014a	During the last 12 months, was there a time when you (or any other adult in the household) were worried you would not have enough food to eat because of a lack of money or other resources?	Yes..... No..... Refused.....	1 2 3		
Q3014b	Still thinking about the last 12 months, was there a time when you (or any other adult in the household) were unable to eat healthy and nutritious food because of lack of money or other resources?	Yes..... No..... Refused.....	1 2 3		
Q3014c	And was there a time when you (or any other adult in the household) ate only a few kinds of foods because of a lack of money or other resources?	Yes..... No..... Refused.....	1 2 3		
Q3014d	Was there a time when you (or any other adult in the household) had to skip a meal because there was not enough money or other resources to get food?	Yes..... No..... Refused.....	1 2 3		
Q3014e	Still thinking about the last 12 months, was there a time when you (or any other adult in the household) ate less than you thought you should because of a lack of money or other resources?	Yes..... No..... Refused.....	1 2 3		
Q3014f	And was there a time when your household ran out of food because of a lack of money or other resources?	Yes..... No..... Refused.....	1 2 3		
Q3014g	Was there a time when you (or any other adult in the household) were hungry but did not eat because there was not enough money or other resources for food?	Yes..... No..... Refused.....	1 2 3		
Q3014h	Finally, was there a time when you (or any other adult in the household) went without eating for a whole day because of a lack of money or other resources?	Yes..... No..... Refused.....	1 2 3		

Physical Activity

Next I am going to ask you about the time you spend doing different types of physical activity in a typical week

Think of work as the things that you have to do such as paid or unpaid work, household chores, harvesting food/crops, fishing or hunting for food, providing care or seeking employment.

In answering the following questions ‹vigorous activities› require hard physical effort and cause large increases in breathing or heart rate, ‹moderate activities› require moderate physical effort and cause small increases in breathing or heart rate.

Q3016	Does your work involve vigorous-intensity activity that causes large increases in breathing or heart rate, [like heavy lifting, digging or chopping wood] for at least 10 minutes continuously? INTERVIEWER: Insert examples and use show cards	Yes..... No..... Refused.....	1 2	→	3019
Q3017	In a typical week, on how many days do you do vigorous-intensity activities as part of your work?	☐ Days			
Q3018	How much time do you spend doing vigorous-intensity activities at work on a typical day?	☐☐ Minutes ☐☐ Hours			

Serial	Question	Answer codes			skip
Q3019	Does your work involve moderate-intensity activity that causes small increases in breathing or heart rate [such as brisk walking, carrying light loads, cleaning, cooking, or washing clothes] for at least 10 minutes continuously? INTERVIEWER: Insert examples and use show cards	Yes..... No.....	1 2	→ 	3022
Q3020	In a typical week, on how many days do you do moderate-intensity activities as part of your work?	☐ Days			
Q3021	How much time do you spend doing moderate intensity activities at work on a typical day?	☐☐ Minutes ☐☐ Hours			
The next questions exclude the physical activities at work that you've already mentioned. Now I would like to ask you about the usual way you travel to and from places. For example to work, for shopping, to market, to place of worship. Interviewer: [Insert other examples if needed]					
Q3022	Do you walk or use a bicycle (pedal cycle) for at least 10 minutes continuously to get to and from places?	Yes..... No.....	1 2	→ 	3025
Q3023	In a typical week, on how many days do you walk or bicycle for at least 10 minutes continuously to get to and from places?	☐ Days			
Q3024	How much time would you spend walking or bicycling for travel on a typical day?	☐☐ Minutes ☐☐ Hours			
The next questions exclude the work and transport activities that you have already mentioned. Now I would like to ask you about sports, fitness, leisure and recreational activities [insert relevant terms].					
Q3025	Do you do any vigorous intensity sports, fitness or recreational (leisure) activities that cause large increases in breathing or heart rate [like running or football], for at least 10 minutes continuously? *INTERVIEWER: Insert examples and use show cards*	Yes..... No.....	1 2	→ 	3028
Q3026	In a typical week, on how many days do you do vigorous intensity sports, fitness or recreational (leisure) activities?	☐ Days			
Q3027	How much time do you spend doing vigorous intensity sports, fitness or recreational activities on a typical day?	☐☐ Minutes ☐☐ Hours			

Serial	**Question**	**Answer codes**			**skip**
Q3028	Do you do any moderate-intensity sports, fitness or recreational (leisure) activities that causes a small increase in breathing or heart rate [such as brisk walking, cycling or swimming] for at least 10 minutes at a time? INTERVIEWER: Insert examples and use show cards	Yes..... No.....	1 2	→ 	3031
Q3029	In a typical week, on how many days do you do moderate-intensity sports, fitness or recreational (leisure) activities?	☐ Days			
Q3030	How much time do you spend doing moderate intensity sports, fitness or recreational (leisure) activities on a typical day?	☐☐ Minutes ☐☐ Hours			
The following question is about sitting or reclining at work, at home, getting to and from places, or with friends including time spent [sitting at a desk, sitting with friends, travelling in car, bus, train, reading, playing cards or watching television], but do not include time spent sleeping. INTERVIEWER: Insert examples and use show cards					
Q3031	How much time do you spend sitting without any physical activity on a typical day?	☐☐ Minutes ☐☐ Hours			
Q3032	Time End	☐☐ : ☐☐			

Section 4000: Chronic Conditions and Health Services Coverage

Serial	Question	Answer codes			skip
Q4000	Time Begin	☐☐ : ☐☐			
Now I would like to read you questions about some health problems or health care needs that you may have experienced, and the treatment or medical care that you may have received.					
Arthritis					
Q4001	Have you ever been diagnosed with/told you have arthritis (or by other names rheumatism or osteoarthritis)?	Yes..... No.....	1 2	→	4003
Have you been taking medications or other treatment for it					
Q4002a	during the last 2 weeks?	Yes..... No.....	1 2		
Q4002b	during the last 12 months?	Yes..... No.....	1 2		
Q4003	During the last 12 months have you experienced, pain, aching, stiffness or swelling in or around the joints (like arms, hands, legs or feet) which were not related to an injury and lasted for more than a month?	Yes..... No.....	1 2		
Q4004	During the last 12 months have you experienced, stiffness in the joint in the morning after getting up from bed, or after a long rest of the joint without movement ?	Yes..... No.....	1 2	→	4007
If Q4003 = 2 & Q4004 = 2 "no" (no symptoms of arthritis) → 4008					
Q4005	How long did this stiffness last?	About 30 minutes or less . More than 30 Minutes . . .	1 2		
Q4006	Did this stiffness go away after exercise or movement in the joint?	Yes. . . . . No	1 2		
Q4007	These symptoms that you have said you experienced in the last 12 months, have you experienced them in the last 2 weeks?	Yes. . . . . No	1 2		
Q4008	Have you experienced back pain during the last 30 days?	Yes. . . . . No	1 2	→	4010
Q4009	On how many days did you have this back pain during the last 30 days?	ŸŸ Days			

Serial	**Question**	**Answer codes**			**skip**
Now I would like to read you questions about some health problems or health care needs that you may have experienced, and the treatment or medical care that you may have received.					
Stroke					
Q4010	Have you ever been told by a health professional that you have had a stroke?	Yes..... No.....	1 2	→	4012
Have you been taking any medications or other treatment for it					
Q4011a	during the last 2 weeks?	Yes..... No.....	1 2		
Q4011b	during the last 12 months?	Yes..... No.....	1 2		
Q4012	Have you ever suffered from sudden onset of paralysis or weakness in your arms or legs on one side of your body for more than 24 hours?	Yes..... No.....	1 2		
Q4013	Have you ever had, for more than 24 hours, sudden onset of loss of feeling on one side of your body, without anything having happened to you immediately before?	Yes..... No.....	1 2		
Angina					
Q4014	Have you ever been diagnosed with angina or angina pectoris (a heart disease due to coronary arteries insufficiency) (chest pain)?	Yes..... No.....	1 2	→	4016
Have you been taking any medications or other treatment for it					
Q4015a	during the last 2 weeks?	Yes..... No.....	1 2		
Q4015b	during the last 12 months?	Yes..... No.....	1 2		
Q4016	During the last 12 months, have you experienced any pain or discomfort in your chest when you walk uphill or hurry?	Yes..... No..... Never walks uphill or hurries	1 2 3		
Q4017	During the last 12 months, have you experienced any pain or discomfort in your chest when you walk at an ordinary pace on level ground?	Yes..... No.....	1 2	→	4022
Q4018	What do you do if you get that pain or discomfort when you are walking? Read choices	Stop or slow down..... Carry on after taking a pain relieving medicine that dissolves in your mouth..... Carry on walking	1 2 3		

Serial	Question	Answer codes			skip
Q4019	If you stand still, what happens to the pain or discomfort? Interviewer : Read choices	Relieved ..... Not relieved.....	1 2		
Q4020	Will you show me where you usually experience the pain or discomfort? Interviewer : Circle number in each of the boxes in the areas of body mentioned or shown by the respondent	Upper or middle part of the chest..... Lower part of the chest ..... Left arm ..... Other (Specify).....	1 2 3 8		
Q4021	These symptoms that you have said you experienced in the last 12 months, have you experienced them in the last 2 weeks?	Yes..... No.....	1 2		
Diabetes:					
Q4022	Have you ever been diagnosed with diabetes (high blood sugar)? (Not including diabetes during pregnancy)	Yes..... No.....	1 2	→	4025
Have you been taking insulin or other blood sugar lowering medications					
Q4023a	during the last 2 weeks?	Yes..... No.....	1 2		
Q4023b	during the last 12 months?	Yes..... No.....	1 2		
Q4024	Have you been following a special diet, exercise regime or weight control program for diabetes during the last 2 weeks? (As recommended by health professional)	Yes..... No.....	1 2		
Chronic Lung Disease					
Q4025	Have you ever been diagnosed with chronic lung disease , COPD (emphysema , chronic bronchitis) ?	Yes..... No.....	1 2	→	4027
Have you been taking any medications or other treatment (like oxygen) for it					
Q4026a	during the last 2 weeks?	Yes..... No.....	1 2		
Q4026b	during the last 12 months?	Yes..... No.....	1 2		
Q4027	During the last 12 months, have you experienced any shortness of breath at rest? (while awake)	Yes..... No.....	1 2		

Serial	Question	Answer codes			skip
Q4028	During the last 12months, have you experienced any coughing or wheezing for ten minutes or more at a time?	Yes..... No.....	1 2		
Q4029	During the last 12 months, have you experienced any coughing up sputum or phlegm for most days of the month for at least 3 months?	Yes..... No.....	1 2	→	4032
Q4030	Have you had blood in your phlegm or have you coughed blood?	Yes..... No.....	1 2		
Q4031	These symptoms that you said you experienced in the last 12 months, have you experienced them in the last 2 weeks?	Yes..... No.....	1 2		
Q4032	In the last 12 months, have you had a tuberculosis (TB) test? I mean, has a doctor examined your sputum (taken a sample of the substance spit out from a deep cough and sent it to a laboratory for analysis) or made an x-ray of your chest?	Yes..... No.....	1 2	→	4033
Q4032a	Have you been taking any medications or other treatment for it during the last 2 weeks?	Yes..... No.....	1 2		
Q4032b	Have you been taking any medications or other treatment for it during the last 12 months?	Yes..... No.....	1 2		
Asthma					
Q4033	Have you ever been diagnosed with asthma (an allergic respiratory disease)?	Yes..... No.....	1 2	→	4035
Have you been taking any medications or other treatment for it					
Q4034a	during the last 2 weeks?	Yes..... No.....	1 2		
Q4034b	during the last 12 months?	Yes..... No.....	1 2		
During the last 12 months, have you experienced any of the following					
Q4035	Attacks of wheezing or whistling breathing?	Yes..... No.....	1 2		
Q4036	Attack of wheezing that came on after you stopped exercising or some other physical activity?	Yes..... No.....	1 2		

Serial	Question	Answer codes			skip
Q4037	A feeling of tightness in your chest?	Yes..... No.....	1 2		
Q4038	Have you woken up with a feeling of tightness in your chest in the morning or any other time?	Yes..... No.....	1 2		
Q4039	Have you had an attack of shortness of breath that came on without obvious cause when you were not exercising or doing some physical activity?	Yes..... No.....	1 2		
IF Q4035 to Q4039 are all ‹No›, skip to → Q4040					
Q4039a	These symptoms that you said you experienced in the last 12 months, have you experienced them in the last 2 weeks?	Yes..... No.....	1 2		
Depression					
Q4040	Have you ever been diagnosed with depression?	Yes..... No.....	1 2	→	4042
Have you been taking any medications or other treatment for it (Other treatment can include attending therapy or counseling sessions.					
Q4041a	during the last 2 weeks?	Yes..... No.....	1 2		
Q4041b	during the last 12 months?	Yes..... No.....	1 2		
Q4042	During the last 12 months, have you had a period lasting several days (> 3)when you felt sad, empty or depressed?	Yes..... No.....	1 2		
Q4043	During the last 12 months, have you had a period lasting several days when you lost interest in most things you usually enjoy such as personal relationships, work or hobbies/ recreation?	Yes..... No.....	1 2		
Q4044	During the last 12 months, have you had a period lasting several days when you have been feeling your energy decreased or that you are tired all the time?	Yes..... No.....	1 2		
If all 3 (Q4042, Q4043 AND Q4044) are «No» Skip to → Q4060					
Q4045	Was this period [of sadness/loss of interest/low energy] for more than 2 weeks?	Yes..... No.....	1 2	→	4060

Serial	Question	Answer codes			skip
Q4046	Was this period [of sadness/loss of interest/low energy] most of the day and nearly every day?	Yes..... No.....	1 2		
Q4047	During this period, did you lose your appetite?	Yes..... No.....	1 2		
Q4048	Did you notice any slowing down in your thinking?	Yes..... No.....	1 2		
Q4049	Did you notice any problems falling asleep?	Yes..... No.....	1 2		
Q4050	Did you notice any problems waking up too early?	Yes..... No.....	1 2		
Q4051	During this period, did you have any difficulties concentrating; for example, listening to others, working, watching TV, listening to the radio?	Yes..... No.....	1 2		
Q4052	Did you notice any slowing down in your moving around?	Yes..... No.....	1 2		
Q4053	During this period, did you feel anxious and worried most days?	Yes..... No.....	1 2		
Q4054	During this period, were you so restless or jittery nearly every day that you paced up and down and couldn't sit still?	Yes..... No.....	1 2		
Q4055	During this period, did you feel negative about yourself or like you had lost confidence?	Yes..... No.....	1 2		
Q4056	Did you frequently feel hopeless - that there was no way to improve things?	Yes..... No.....	1 2		
Q4057	During this period, did your interest in sex decrease?	Yes..... No.....	1 2		
Q4058	Did you think of death, or wish you were dead?	Yes..... No.....	1 2		
Q4059	During this period, did you ever try to end your life?	Yes..... No.....	1 2		

Serial	Question	Answer codes			skip
Hypertension					
Q4060	Have you ever been diagnosed with hypertension?	Yes..... No.....	1 2	→	4062
Have you been taking any medications or other treatment for it (Other treatment might include weight loss program or change in eating habits.)					
Q4061a	during the last 2 weeks?	Yes..... No.....	1 2		
Q4061b	during the last 12 months?	Yes..... No.....	1 2		
Cataracts					
Q4062	In the last 5 years, were you diagnosed with a cataract in one or both of your eyes (a cloudiness in the lens of the eye)?	Yes..... No.....	1 2	→	4064
Q4063	In the last 5 years, have you had eye surgery to remove this cataract(s)?	Yes..... No.....	1 2		
In the last 12 months have you experienced any of the following					
Q4064	cloudy or blurry vision?	Yes..... No.....	1 2		
Q4065	vision problems with light, such as glare from bright lights, or halos around lights?	Yes..... No.....	1 2		
Oral Health Now I would like you to tell me about the condition of your mouth and teeth					
Q4066	Have you lost all of your natural teeth?	Yes..... No.....	1 2		
Q4067	During the last 12 months, have you had any problems with your mouth and/or teeth (this includes problems with swallowing)?	Yes..... No.....	1 2	→	4069
Have you received any treatment from a dentist or other oral health specialist during					
Q4068a	the last 2 weeks?	Yes..... No.....	1 2		
Q4068b	the last 12 months?	Yes..... No.....	1 2		

Serial	Question	Answer codes			skip
Injuries					
Q4069	In the last 12 months, have you been involved in a road traffic accident where you suffered from bodily injury? PROBE: This could have been an accident in which you were involved either as the occupant of a motor vehicle, or when you were riding a motorcycle/scooter, rickshaw or bicycle or walking.	Yes..... No.....	1 2	→	4073
(If more than one accident; select the most recent to ask about in more detail below)					
Q4071	Did you receive any medical care or treatment for your injuries?	Yes..... No.....	1 2		
Q4072	Did you suffer a physical disability as a result of being injured? INTERVIEWER: Disability is any restriction or lack of ability to perform an activity as before the injury.	Yes..... No.....	1 2	→	4073
Q4072a	In what ways were you physically disabled? INTERVIEWER: Circle all that respondent selects.	Unable to use hand or arm..... Difficulty to use hand or arm..... Walk with a limp..... Loss of hearing (partial/total) ..... Loss of vision (partial/total)..... Weakness or shortness of breath ..... Inability to remember things..... Inability to chew..... Other, specify:	1 2 3 4 5 6 7 8 87		
Q4073	In the last 12 months, have you had any other event where you suffered from bodily injury? (other than road traffic accident) Interviewer: If more than one, ask respondent to think of the most recent event.	Yes..... No.....	1 2	→	4078
(If more than one event; select the most recent to ask about in more detail below)					

Serial	Question	Answer codes			skip
Q4073a	Where were you when you were injured?	Home School/college Work Other, specify :	1 2 3 8		
Q4074	What was the cause of this injury?	Fall Struck/hit by person or object Stabbed Gun shot Fire, flames or heat Near-drowning Poisoning Animal bite Electricity shock Other, specify:	1 2 3 4 5 6 7 8 9 98		
Q4076	Did you receive any medical care or treatment for your injuries?	Yes No	1 2		
Q4077	Did you suffer a physical disability as a result of being injured? INTERVIEWER: disability is any restriction or lack of ability to perform an activity as before the injury.	Yes No	1 2	→	4078
Q4077a	In what ways were you physically disabled? INTERVIEWER: Circle all that respondent selects.	Unable to use hand or arm Difficulty to use hand or arm Walk with a limp Loss of smell Loss of vision Weakness or shortness of breath Inability to remember things Inability to chew Loss of hearing. (partial/ total) Other, specify:	1 2 3 4 5 6 7 8 9 87		

Serial	Question	Answer codes			skip
	Cervical cancer and breast cancer screening (Women only) Questions to be asked to FEMALE respondents only. Female → Q4080 Male → Go to next section Q5000 Now I would like to ask you about some of the kinds of medical care or tests that you may have received.				
Q4080	When was the last time you had a mammography, if ever? (That is, an x-ray of your breasts taken to detect breast cancer at an early stage.) Interviewer : Enter «00» if less than 1 year ago.	☐☐ Years Never examine:	99		
Q4078	When was the last time you had a vaginal examination, if ever? (By pelvic examination, I mean when a doctor or nurse examined your vagina and uterus?) Interviewer : Enter «00» if less than 1 year ago.	☐☐ Years Never examined: Not applicable (never married)	99 77	┐ → ┘	Filter1
Q4079	The last time you had the vaginal examination, did you have a PAP smear test? (By PAP smear test, I mean did a doctor or nurse use a swab or stick to wipe from inside your vagina, take a sample and send it to a laboratory?)	Yes No	1 2		

Serial	Question	Answer codes			skip
The following questions to be asked to women of reproductive age (18 -49 years) with a live birth in last 5 years only. CHECK Q1011 for woman age and Q1012 for martial status: If her age is between 18 -49 and ever married continue If her age is more than 49 or never married 5000					
Filter1	Have you ever give birth to a live baby?	Yes..... No.....	1 2	→	4115
Filter2	Did you give birth to a live baby within the last 5 years?	Yes..... No.....	1 2	→	4114
Q4096	What is the name of the youngest child, born to you in the last 5 years? Interviewer: Use this name for the following questions.	.....			
Q4096a	Person (HH member) number from the Household Roster (Section 0400) in the HH Questionnaire	☐☐			
Q4097	Date of birth of this child	Day ☐☐ / Month ☐☐ / Year ☐☐			
Q4098a	Place of birth of this child	In Bahrain ..... Outside Bahrain	1 2		
Q4098c	When you were pregnant with [name], did you see a doctor, nurse or midwife to have your pregnancy checked?	Yes..... No.....	1 2	→	4111
Q4099	How many times during your pregnancy with [name] did you see a medical doctor, nurse or midwife?	☐☐			
Q4100	In which month of your pregnancy, did you have your first visit with a medical doctor, nurse or midwife or traditional birth attendant?	First..... Second ..... Third..... Fourth month or later.....	1 2 3 4		
Q4101	Whom did you see most of the time?	Doctor (including specialists such as gynecologist, obstetrician, surgeon Family Physician)..... Nurse or midwife ..... Auxiliary nurse or midwife (including student nurse) ..... Traditional birth attendant ..... Other.....	1 2 3 4 5		
During your pregnancy with [NAME], when you were visiting a health care provider, was any of the following done at least once:					
Q4102	Was your blood pressure measured?	Yes..... No.....	1 2		
Q4103	Did you give a blood sample (I mean, was blood taken from you for sending to a laboratory for analysis)?	Yes..... No.....	1 2		
Q4104	Did you give a urine sample (I mean, was urine collected for sending to a laboratory for analysis)?	Yes..... No.....	1 2		

Serial	Question	Answer codes			skip
Q4105	Did you have an ultrasound scan (I mean, did a doctor or nurse use a device on your stomach to look at the baby)?	Yes..... No.....	1 2		
Q4106	Were you told about the signs of pregnancy complications and what you should do if they occur?	Yes..... No.....	1 2		
Q4107	During your antenatal care visits for your pregnancy with [NAME], were you given any information or counseled about HIV, the virus that causes AIDS?	Yes..... No.....	1 2		
Q4108	Was HIV testing offered to you at any time during your visits? (Please remember that whatever you say is confidential and will only be used for research purposes.)	Yes..... No.....	1 2	→	4111
Q4109	I don›t want you to tell me the results, but did you agree to be tested for HIV during any of your visits?	Yes..... No.....	1 2	→	4111
Q4110	Did you receive the results of the test? (I don›t want to know the results.)	Yes..... No.....	1 2		
Q4111	When you gave birth to [NAME], who assisted in the delivery? Anyone else? Interviewer: Probe and record for all persons assisting.	Doctor..... Nurse or midwife..... Auxiliary nurse or midwife (including student nurses, nurses› aides) . Traditional birth attendant ..... Relative/friend with no medical training ..... Other..... None..... Don›t Know.....	1 2 3 4 5 6 7 98		
Q4112	Where did you give birth to [NAME]?	Hospital or maternity house ..... Other type of health facility..... At home ..... Outside such as field, transport, street, market, etc.....	1 2 3 4	→	4116
Q4113	Was that health facility governmental or private?	Governmental ..... Private	1 2		

If she has a child aged 6-24 month → continue If no → 4114					
Q4116	Did you breast fed your baby in the first 24 hours after delivery?	Yes..... 1 No..... 2		→	4118
Q4117	What was the period you exclusively breast-fed your baby (excluding the medicines)?	Less than 2 months ..... 1 2 months..... 2 4 months ..... 3 6 months 4			
Q 4118	When did you start feeding your baby added safe food?	Less than 4 months..... 1 4-6 months..... 2 6 months and above 3			
If she is married → continue If she is divorced/widowed → 5000					

Serial	**Question**	**Answer codes**			**skip**
Q4114	How many living children do you have today? Interviewer: if she has no children enter “00” in all fields.	☐☐ Males ☐☐ Females ☐☐ Total			
Q4115	Are you currently pregnant?	Yes..... 1 No..... 2		→	4119a
Q4115a	Would you like to have (a/another) child?	Yes..... 1 No..... 2		→	4115c
Q4115b	How long would you like to wait from now before the birth of(a/another) child?	Now . . . . . 1 Afterwards . . . . . 2 Not sure. 3			
Q4115c	Are you or your husband currently doing something or using any method to delay or avoid getting pregnant?	Yes..... 1 No..... 2		→	4119a

Q4115d	What method are you using now to delay or avoid getting pregnant?	Periodic abstinence/ rhythm..... 1 Breast feeding ..... 2 Withdrawal ..... 3 Male condom ..... 4 Diaphragm ..... 5 Foam/jelly..... 6 Pills..... 7 Injectable..... 8 Implants ..... 9 Hormonal patches..... 10 IUD ..... 11 Female fertilization / Male sterilization .. 12 Others..... 87			
Q4119a	Would you say that using (or not using) contraception is mainly your decision, mainly your husband›s decision, or did you both decide together?	Mainly you..... 1 Mainly your husband ..... 2 You and your husband jointly..... 3 Other (Specify) 8			
Q4119b	Can you say no to your husband if you do not want to have sexual intercourse?	Yes..... 1 No..... 2		→	4119d
Q4119c	Why did you say “No” in the previous question?	Contradicts with customs and traditions.. 1 Religious beliefs ..... 2 Fear ..... 3 Other (Specify)..... 8			
Q4119d	Who usually makes decisions about health care for yourself?	You..... 1 Your husband ..... 2 You and your husband jointly..... 3 Other (Specify)..... 8			
Q4119e	Who takes the decision on when you can go to seek reproductive health care, for example, if you experience a painful or burning sensation when urinating?	You ..... 1 Your husband ..... 2 You and your husband jointly..... 3 Other (Specify)..... 8			

Section 5000: Health Care Utilization

Serial	Question	Answer codes			skip
Q5000	Time Begin	☐☐ : ☐☐			
I would now like to know about your recent experiences with obtaining health care from health care workers, hospitals, clinics and the health care system. I want to know if you needed health care recently, and if so, why you needed health care and what type of health care provider you received care from					
Q5001	When was the last time that you needed health care? INTERVIEWER: this can be inpatient or outpatient or casualty care. If less than one month ago, enter "00" for months	☐☐ Months ☐☐ Years Never	 99	┐ → ┘ →	 5002 5053
Q5001a	If ‹don't know›, Was it more than 3 years ago?	Don›t Know..... Yes..... No.....	98 1 2	→ 	5053
Q5002	The last time you needed health care, did you get health care?	Yes..... No.....	1 2	→	5004
Q5003a	What was the main reason you needed care, even if you did not get care? Interviewer: Respondent can select ONLY one main reason for visit.	Communicable disease (infections, malaria, tuberculosis, HIV)Maternal , pregnancy and delivery conditions ..... Nutritional deficiencies.....Acute conditions (diarrhoea, fever, flu, headaches, cough, other)Injury (not work related, see 8 below) .....Surgery Sleep problems..... Occupation/work related condition/injury . Chronic pain in your joints/arthritis (joints, back, neck) Diabetes or related complications ..... Problems with your heart including unexplained pain in chest..... Problems with your mouth, teeth or swallowing ..... Problems with your breathing ..... High blood pressure / hypertension..... Stroke/sudden paralysis of one side of body Generalized pain (stomach, muscle or other nonspecific pain) ..... Psychiatric illness (Depression or anxiety) . Cancer ..... Other, specify.....	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 87		

Q5003b	Which reason(s) best explains why you did not get health care? Interviewer: *Circle all that the respondent indicates.*	Could not afford the cost of the visit..... No transport available..... Could not afford the cost of transport ..... You were previously badly treated..... Could not take time off work or had other commitments..... The health care provider›s drugs or equipment were inadequate ..... The health care provider›s skills were inadequate ..... You did not know where to go ..... You tried but were denied health care ..... You thought you were not sick enough ..... Other, specify:	0 1 2 3 4 5 6 7 8 9 87	┐ │ │ │ │ → │ │ │ │ ┘	5053

Serial	Question	Answer codes			skip
Q5004	Thinking about health care you needed in the last 3 years, where did you go most often when you felt sick or needed to consult someone about your health? interviewer: Only one answer allowed.	Private clinic or health care facility Private hospital Public clinic or health care facility Public hospital Traditional healer [use local term] Pharmacy Other, specify:	1 2 3 4 5 6 8		
inpatient hospital care The next 2 questions ask about any overnight stay in a hospital you have had in the last 3 years.					
Q5005	In the last 3 years, have you ever stayed overnight in a hospital?	Yes No	1 2	→	5026
Q5006	When was the last overnight stay in a hospital? INTERVIEWER: If less than one month ago, enter “00” for years and «00» for months.	☐☐ Months ☐☐ Years			
Now I would like to know about more recent times - if you›ve had any overnight stays in a hospital in the last 12 months.					
Q5007	Over the last 12 months, how many different times were you a patient in a hospital for at least one night?	☐☐ No overnight stay	00	→	5026
I want to know more about why you needed an overnight stay in a hospital. Starting with the most recent stay, I want to know more about your overnight stays. But first I would like you to come back to thinking about your last overnight hospital stay only.					
Q5008	What type of hospital or facility was it? Remember we are asking now about your last (most recent) overnight stay. INTERVIEWER: One answer only.	Public hospital Private hospital Other, specify:	1 2 8		

Serial	Question	Answer codes			skip
Q5008b	Which reason best describes why you were last hospitalized? Interviewer: Respondent can select only ONE main reason for visit.	Communicable disease (infections, malaria, tuberculosis, HIV) Maternal and perinatal conditions (pregnancy) Nutritional deficiencies Acute conditions (diarrhoea, fever, flu, headaches, cough, other) Injury (not work related, see 8 below) Surgery Sleep problems Occupation/work related condition/injury Chronic pain in your joints/arthritis (joints, back, neck) Diabetes or related complications Problems with your heart including unexplained pain in chest Problems with your mouth, teeth or swallowing Problems with your breathing High blood pressure / hypertension Stroke/sudden paralysis of one side of body Generalized pain (stomach, muscle or other nonspecific pain) Psychiatric illnesses (Depression or anxiety) Cancer Other, specify	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 87		
Q5010	Who paid for this hospitalization? interviewer: Circle all responses. Probe to see if anyone else paid or contributed to paying for the care?	Respondent or family member Non-family member Private Insurance Hospitalization was free by Gov Other, specify	1 2 3 4 8	→	5013

Serial	Question	Answer codes			skip
INPATIENT HOSPITAL CARE … Thinking about your last [hospital] stay, how much did you or your family/household members pay out-of-pocket for: Interviewer: write «0» if the service was free - If a person did not have medicines or tests, enter 99999 for "Not applicable, did not have".					
Q5011a	Health care provider›s fees (Write whole number)	☐ BD Don't Know.....	98		
Q5011b	Medicines	☐ BD Don't Know.....	98		
Q5011c	Tests	☐ BD Don't Know.....	98		
Q5011d	Transport	☐ BD Don't Know.....	98		
Q5011e	Surgery	☐ BD Don't Know.....	98		
Q5011f	Other Specify	☐ BD Don't Know.....	98		
Q5012	About how much in total did you or a family/household member pay out-of-pocket for this hospitalization?	☐ BD Don't Know.....	98		
Q5013	Overall, how satisfied were you with the care you received during your last [hospital] stay?	Very satisfied ..... Satisfied ..... Neither satisfied nor dissatisfied..... Dissatisfied ..... Very dissatisfied	1 2 3 4 5		
Q5014	What was the outcome or result of your visit to the [hospital]? Did your condition…	Get much better ..... Get better..... No change..... Get worse..... Get much worse	1 2 3 4 5		
Q5015	Was this the outcome or result you had expected?	Yes..... No.....	1 2		

Serial	Question	Answer codes			skip
I would like to ask you about your impressions of your last overnight stay.					
Serial	**Question**	**Very good**	**good**	**Moderate**	**bad**	**very bad**
I would like you to rate your experiences using the following questions						
Q5018	The amount of time you waited before being attended to?	1	2	3	4	5
Q5019	Your experience of being treated respectfully?	1	2	3	4	5
Q5020	How clearly health care providers explained things to you?	1	2	3	4	5
Q5021	Your experience of being involved in making decisions for your treatment?	1	2	3	4	5
Q5022	The way the health services ensured that you could talk privately to providers?	1	2	3	4	5
Q5023	The ease with which you could see a health care provider you were happy with?	1	2	3	4	5
Q5024	The cleanliness in the health facility?	1	2	3	4	5

Serial	Question	Answer codes				skip
Outpatient care and Care at Home Now I will shift away from questions about overnight stays – to questions about health care you received that did not include an overnight hospital stay. The following questions are about care you received at a hospital, health center, clinic, private office or at home from a health care worker, but where you did not stay overnight.						
Q5026	Over the last 12 months, did you receive any health care NOT including an overnight stay in hospital?	Yes..... No.....	1 2		5053	
Q5027	In total, how many times did you receive health care or consultation in the last 12 months?	☐☐				
Now I would like you to think about the most recent visit - and to ask you specifically about your last or most recent visit.						

Q5028	What was the last (most recent) health care facility / service you visited in the last 12 months? interviewer: read out responses, circle one option only	Private clinic or health care facility	1			
		Private hospital	2			
		Public clinic or health care facility	3			
		Public hospital	4			
		Home visit	5			
		Other, specify:	8			
Q5029	Which was the last (most recent) health care provider you visited or have been visited by? Interviewer: After Q5030 substitute the type of health care provider selected by the patient when you see [health care provider] in parentheses	Medical doctor (including surgeon, gynecologist, psychiatrist, ophthalmologist , General practitioner)	1			
		Nurse/Midwife	2			
		Dentist	3			
		Physiotherapist or chiropractor	4			
		Traditional medicine practitioner (use local name)	5			
		Pharmacist	6			
		Home health care worker	7			
		Don›t know his job	98			
Q5029a	What was the sex of the [health care provider]?	Male	1			
		Female	2			
Q5029b	Was this visit to [health care provider] for a chronic (ongoing) condition, new condition or both?	Chronic	1			
		New	2			
		Both	3			

Serial	Question	Answer codes			skip
Outpatient care and Care at Home: continued					
Q5029c	Which reason best describes why you needed this visit? Interviewer: Respondent can select only ONE main reason for visit. use a display card	Communicable disease (infections, malaria, tuberculosis, HIV)	1		
		Maternal and perinatal conditions (pregnancy)	2		
		Nutritional deficiencies	3		
		Acute conditions (diarrhoea, fever, flu, headaches, cough, other)	4		
		Injury (not work related, see 8 below)	5		
		Surgery	6		
		Sleep problems	7		
		Occupation/work related condition/injury	8		
		Chronic pain in your joints/arthritis (joints, back, neck)	9		
		Diabetes or related complications	10		
		Problems with your heart including unexplained pain in chest	11		
		Problems with your mouth, teeth or swallowing	12		
		Problems with your breathing	13		
		High blood pressure / hypertension	14		
		Stroke/sudden paralysis of one side of body	15		
		Generalized pain (stomach, muscle or other nonspecific pain)	16		
		Depression or anxiety	17		
		Cancer	18		
		Other, specify.....	87		
Q5032	Who paid for this most recent visit? interviewer: Circle all responses. Probe to see if anyone else paid or contributed to paying for the care?	Respondent or family member	1		5034
		Non-family member	2		
		Private Insurance	3		
		Free by Gov	4		
		Other, specify.....	8		

Serial	Question	Answer codes				skip
Outpatient care and Care at Home continued…						
Thinking about your last visit, how much did you or your household pay for:						
Interviewer: Only write «0» if the service was free. If a person did not have tests or drugs, enter 99999 for "Not applicable, did not have".						
Q5033a	Health care provider›s fees	☐ BD Don't Know	98			
Q5033b	Medicines	☐ BD Don't Know	98			
Q5033c	Tests	☐ BD Don't Know	98			
Q5033d	Transport	☐ BD Don't Know	98			
Q5033e	Other Specify	☐ BD Don't Know	98			
Q5033f	Total costs?	☐ BD				
Q5034	Overall, how satisfied were you with the care you received during your last visit?	Very satisfied Satisfied Neither satisfied nor dissatisfied Dissatisfied Very dissatisfied	1 2 3 4 5			
Q5035	What was the outcome or result of your visit to the health care provider? Did your condition…	Get much better Get better No change Get worse Get much worse	1 2 3 4 5			
Q5036	Was this the outcome or result you had expected?	Yes No	1 2			

Serial	Question	Answer codes				skip
I want to know your impressions of your most recent visit for health care. I would like you to rate your experiences using the following questions.						
Serial	**Question**	**Very good**	**good**	**Moderate**	**bad**	**very bad**
For your last visit to a health care provider, how would you rate the following						
Q5039	The amount of time you waited before being attended to?	1	2	3	4	5
Q5040	Your experience of being treated respectfully?	1	2	3	4	5
Q5041	How clearly health care providers explained things to you?	1	2	3	4	5

Q5042	Your experience of being involved in making decisions for your treatment?	1	2	3	4	5
Q5043	The way the health services ensured that you could talk privately to providers?	1	2	3	4	5
Q5044	The ease with which you could see a health care provider you were happy with?	1	2	3	4	5
Q5045	The cleanliness in the health facility? (no answer if home care)	1	2	3	4	5

RESPONSIVENESS OF HEALTH SERVICES:

We would like to finish this section by asking you two questions about your satisfaction with the health system in Bahrain. Think about the health care service(s) you received in the last 12 months when answering the questions

Q5053	In general, how satisfied are you with how the health care services are run in Bahrain – are you….	Very satisfied Satisfied Neither satisfied nor dissatisfied Dissatisfied Very dissatisfied	1 2 3 4 5		
Q5054	How would you rate the way health care in your country involves you in deciding what services it provides and where it provides them?	Very satisfied Satisfied Neither satisfied nor dissatisfied Dissatisfied Very dissatisfied	1 2 3 4 5		
Q5055	Time End	☐☐ : ☐☐			

Section 7000: Subjective Well-Being and Quality of Life

Serial	Question	Answer codes				skip
Q7000	Time Begin	☐☐ : ☐☐				
Now, we›d like to ask for your thoughts about your life and life situation. We want to know how you feel about your health and quality of life						
Q7001	Do you have enough energy for everyday life?	Completely	1			
		Mostly	2			
		Moderately	3			
		A little:	4			
		None at all:	5			
Q7002	Do you have enough money to meet your needs?	Completely	1			
		Mostly	2			
		Moderately	3			
		A little:	4			
		None at all:	5			
Now, we›d like to ask for your thoughts about your life and life situation. We want to know how you feel about your health and quality of life						
Serial	**How satisfied are you with...**	**Very satisfied**	**Satisfied**	**Neither satisfied nor dissatisfied**	**Dissatisfied**	**Very Dissatisfied**
Q7003	your health?	1	2	3	4	5
Q7004	yourself?	1	2	3	4	5
Q7005	your ability to perform your daily living activities?	1	2	3	4	5
Q7006	your personal relationships?	1	2	3	4	5
Q7007	the conditions of your living place?	1	2	3	4	5
Q7008	Taking all things together, how satisfied are you with your life as a whole these days?	1	2	3	4	5
Serial	**Question**	**Answer codes**	**skip**			
Q7008a	How often have you felt that you were unable to control the important things in your life? *Interviewer: Read responses*	Never	1			
		Almost never	2			
		Sometimes	3			
		Fairly often	4			
		Very often:	5			
Q7008b	How often have you found that you could not cope with all the things that you had to do? Interviewer: Read responses	Never	1			
		Almost never.	2			
		Sometimes	3			
		Fairly often	4			
		Very often:	5			

Q7009	How would you rate your overall quality of life? Interviewer: Read responses	Very Good	1			
		Good	2			
		Moderate	3			
		Bad	4			
		Very Bad:	5			
Q7010	Taking all things together, how would you say you are these days? Interviewer: Read responses	Very happy	1			
		Happy	2			
		Neither happy nor unhappy	3			
		Unhappy	4			
		Very unhappy	5			

Blood tests:

I would like to get your consent/agreement to give a blood sample
If you decide not to have the test done, it is your right and we will respect your decision.

Q2547	INTERVIEWER: Indicate whether the respondent agrees or not.	Agree Not agree	1 2	→	2549
Q2548	Lab: circle one	Sample was taken Sample was not taken	1 2		
Q2549	Time End	☐☐ : ☐☐			

INTERVIEWER: This is the end of the interview. Complete section 9000 when you have finished with the respondent. This completes the interview. We thank you for your time and answers. I have your contact details and may be in touch again. Should you have any questions or concerns please do not hesitate to contact my supervisor [give supervisor›s name and mobile number].

Section 9000: Interviewer Assessment

Serial	Questions	Yes	No
Q9001	Was someone else present during the interview?	1	2
Q9002	Did respondent have hearing problem?	1	2
Q9003	Did respondent have vision problem?	1	2
Q9004	Did respondent use wheelchair?	1	2
Q9005	Did respondent use cane/crutches/walker?	1	2
Q9006	Did respondent have difficulties walking?	1	2
Q9007	Did respondent have paralysis?	1	2
Q9008	Did respondent cough continually?	1	2
Q9009	Did respondent have shortness of breath?	1	2
Q9010	Did respondent have mental problems?	1	2
Q9011	Did respondent have amputated limb (arm or leg)?	1	2
Q9012	Other health problem? (specify).	1	2

Serial	Question	Answer codes			skip
Q9013	What is your assessment of the respondent›s cooperation?	Very good	1		
		Good	2		
		Moderate	3		
		Bad.....	4		
		Very bad	5		
Q9014	What is your evaluation of the accuracy and completeness of the respondent›s answers?	Very high	1		
		High	2		
		Average.....	3		
		Low	4		
		Very low.....	5		

Serial	Question	Question number	Notes
Q0915	Questions with doubtful answers		
Q0916	Questions needing follow-up or clarification from supervisor		
Q0917	Other problems or issues		
Q0918	What questions did respondent find difficult, embarrassing or confusing?		
Q0919	What questions did you the interviewer find difficult, embarrassing or confusing?		

INTERVIEWER NOTES .....

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6.6 Household Questionnaire

World Health Survey 2017/2018
Kingdom of Bahrain
Household Questionnaire

Q0001	Questionnaire number				

Identification data					
			Q0004a	CPR of the informant of the HH questionnaire	
Q0002a	Governorate		Q0005a	Tele. No.	
Q0002b	Block		Q0005b	Tele. No. 2	
Q0002c	Road / no.				
Q0002d	Building / Villa		Q0002e	flat	
Q0003	Health Centre code				

Q0006a	Date of visit:	/ /
Q0006b	Date of second visit:	/ /
Q0006c	Date of third visit:	/ /
Q0006d	Researcher code:	

DD / MM / YYYY

Q0007 Visit results:

Accomplished	1
Partly Accomplished	2
Not Cooperative	3
Others (Specify).....	8

Section 0500: Housing

Serial	Question	Answer codes	skip		
Q0500	Time Begin	☐☐ : ☐☐			
I would like to ask you some questions about your dwelling or home.					
Q0501	Is this dwelling where you live...?	Owned ..... 1 Rented ..... 2 Provided free by employer ..... 3 Other (specify): 8			
Q0503	How many rooms does this dwelling have in total, without counting the bathrooms or hallways?	☐☐			
environmental risk factors / water and sanitation					
Q0504	What the main type of floor does your dwelling have? (Circle main type)	Hard Floor (Tile, Cement, Brick, Wood) ..... 1 Earth Floor 2			
Q0505	What main type of wall does your dwelling have? (Circle main type)	Cement, Brick, Stone or wood ..... 1 Mud/ Mud brick ..... 2 Other (specify): 8			

Serial	Question	Answer codes			skip
Q0506	What is the main source of drinking water for members of this household?	Public water system ..... 1 Bottled water ..... 2 Purchased sweet water ..... 3 Purification system ..... 4 Other (specify): 8			
Q0506a	What is the main source of water used by your household for other purposes such as hand washing?	Public water system ..... 1 Purchased sweet water ..... 2 Purification system ..... 3 Other (specify): 8			
Q0508a	Sewer connection?	Connected ..... 1 Not Connected 2			
Q0509	Do you share Bathroom/Toilet facility with other households?	Yes ..... 1 No 2			
Q0510	What type of fuel does your household mainly use for cooking?	Gas ..... 1 Electricity ..... 2 Other (specify): 8			
Q0513	Where is cooking usually done?	In a room used for living or sleeping ..... 1 In a separate room used as kitchen ..... 2 In a separate building used as kitchen ..... 3 No cooking ..... 4 Other (specify): 8			
Q0514	Time End	☐☐			

Section 0400: Household Roster

Serial	Question	Answer codes			skip
Q0400	Time Begin :	☐☐ Hours ☐☐ Minutes			
In order to determine who to interview, I need to know who lives at this address. Let me assure you that any information you provide is strictly confidential. By asking "who lives at this household?", I mean those who share meals ('eat out of the same pot') and usually stay here for at least four months (continuous or intermittent) a year. I would like to know the age, sex, marital status, educational level and relationship to the household head of each of the members of this household who live here. Please include people who may presently be in an institution due to their health (for example, in hospital or old people›s home)					
Q0401	What is the total number of people who live in this household?	☐☐			
We want to start with the person who is the head of the household. By head of the household we mean the main decision maker in the household. The head can be either male or female. If two people are equal decision-makers, take the oldest person. *Interviewer: Use the first line in the household roster for household head as identified*					

- Complete one raw for each household member in the table on the following pages.
- *INTERVIEWER: remember to include people who may presently be in an institution for a short time due to their health.*
-

Serial	Q0404 Name	Q0405 Nationality	Q0406 Relation to the head of H.H	Q0407 Sex	Q0408 Age in years	Q0409 Education level (completed)
		Bahraini .....1 Non-Bah.....2 Specify	Head of HH .....0 wife-husband .....1 son-daughter .....2 son-daughter in-law.....3 grandson-daughter .....4 father-mother./law.....5 brother-sister .....6 grand father- mother.....7 other relative.....8 not relative.....9 Servants.....10	Male .....1 Female.....2	If < one year enter 00	Illiterate/ Read only.....1 Read & write .....2 Primary.....3 Preparatory.....4 Secondary.....5 Above secondary/ Diploma.....6 B.Sc. or BA.....7 High Diploma.....8 Masters.....9 Doctorate .....10 Do not know.....99
1				0		
2						
3						
4						
5						
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Serial	Q0410	Q0411	Q0412a	Q0412b	Q0412c
	Martial status	Health insurance	Do you have difficulty seeing, even if wearing glasses?	Do you have difficulty hearing, even if using a hearing aid?	Do you have difficulty walking or climbing steps?
	Never married....1 Married .....2 Divorced / separated .....3 Widowed 4	No insurance .....1 insurance from employer. .....2 self-paid insurance .....3 Do not know 9	No, no difficulty .....1 Yes, some difficulty 2 Yes, a lot of difficulty .....3 Cannot do it at all ...4	No, no difficulty .....1 Yes, some difficulty ...2 Yes, a lot of difficulty 3 Cannot do it at al 4	No, no difficulty .....1 Yes, some difficulty .....2 Yes, a lot of difficulty .....3 Cannot do it at all 4
1					
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- 1007 number of the individual who fill the individual questionnaire from the roster table above (Respondent row number)

Serial	Q0412d	Q0412e	Q0412f	Q0415	Q0416	Q0417
	Do you have difficulty remembering or concentrating?	Do you have difficulty (with self-care such as) washing all over or dressing?	Using your usual language, do you have difficulty communicating, (for example understanding or being understood by others)?	Does [name] needs care due to his/her health condition such as a long-term physical or mental illness or disability, or because he/she is getting old and weak?	* How much care does he/she need?	* Is [name] presently in an institution (hospital, home for the aged, hospice) due to his/her health condition?
	No, no difficulty .....1 Yes, some difficulty.....2 Yes, a lot of difficulty.....3 Cannot do it at all.....4	No, no difficulty 1 Yes, some difficulty..2 Yes, a lot of difficulty..3 Cannot do it at all.....4	No, no difficulty ..1 Yes, some difficulty.....2 Yes, a lot of difficulty.....3 Cannot do it at all 4	Yes.....1 No.....2 Go next or 0600	Needs help/watching all the time (day and night) .....1 Cannot be without help / watching or be left alone at home for more than an hour .....2 Can be left on his/her own at home for several hours but requires accompaniment when leaving home .....3 Needs some help at home and sometimes needs to be accompanied when leaving home 4	Yes..... 1 No.....2
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Section 0600: Household and Family Support Networks and Transfers

INTERVIEWER: The first part of this section is intended to collect information about sources of transfers into the household from those outside the household.

The next questions are about your family and friends, specifically those not living with you in this household. The next questions are about help received by your household in the last 12 months (from inside Bahrain only).

INTERVIEWER: entre 00 if does not receive

Serial	Question	Answer codes	skip
Q0600	Time Begin	☐☐:☐☐	
Q0601a	In the last 12 months, what is the total amount received by all members in the household (in B.D.) from transfers from individuals (Inside Bahrain) ?	☐☐☐☐	
Q0601b	In the last 12 months, what is the total amount received by all members in the household (in B.D.) from transfers from individuals (Abroad) ?	☐☐☐☐	
Q0601c	In the last 12 months, what is the total amount received by all members in the household (in B.D.) from government support (Financial support/ Insurance for job seekers....etc.) ?	☐☐☐☐	
Q0601d	In the last 12 months, what is the total amount received by all members in the household (in B.D.) from non-profit organizations?	☐☐☐☐	
Q0616	Time End	☐☐☐☐	

Section 0700: Assets and Household Income

I will ask about the total income for the household in the last 12 months (previous to today) from paid work or other sources. I would like to know about all sources of income. I know it may be difficult to calculate that figure, but please do try to give as accurate an amount as possible. Remember that all information will be kept strictly confidential. This information is important to assess overall health and well-being of people in your household compared to other similar households.

INTERVIEWER: entre 00 if does not receive

Serial	Question	Answer codes			skip
I am now going to read you a list of possible sources of income. Thinking over the last 12 months, can you tell me what the average earnings of the household have been or per month or per year? Please tell me whichever time period that is easier for you.					
Q0724a	Wages, salary from job? (Including allowances, overtime, bonus, etc.)	Monthly ☐☐☐☐☐☐☐☐ Yearly ☐☐☐☐☐☐☐☐ No	1 2 3		
		Refused	9		
Q0724b	Net income from enterprises and freelance occupations?	Monthly ☐☐☐☐☐☐☐☐ Yearly ☐☐☐☐☐☐☐☐ No	1 2 3		
		Refused	9		
Q0724c	Net Income from rental of property? (Land, buildings, houses, etc.)	Monthly ☐☐☐☐☐☐☐☐ Yearly ☐☐☐☐☐☐☐☐ No	1 2 3		
		Refused	9		
Q0724d	Pension Retirement Fund and Social Insurance?	Monthly ☐☐☐☐☐☐☐☐ Yearly ☐☐☐☐☐☐☐☐ No	1 2 3		
		Refused	9		
Q0725	So to verify this information, your approximate total household income from ALL sources is about how much in BD?	Monthly ☐☐☐☐☐☐☐☐ Yearly ☐☐☐☐☐☐☐☐ No	1 2 3		
		Refused	9		
Q0727	Does your household or any member of the household have current debt or outstanding loans?	Yes No	1 2	|→	0728
		Refused	9	–	
Q0727a	What is the approximate total amount of this debt or loan(s)? B.D (as of today)	Monthly ☐☐☐☐☐☐☐☐ Yearly ☐☐☐☐☐☐☐☐ No	9		
		Refused			
Q0728	Thinking about the income for this household, do you believe that it is enough money to cover your daily living needs and obligations?	Yes No	1 2		
Q0730	Time End	☐☐:☐☐			

Section 0800: Household Expenditure

Serial	Question	Answer codes			skip
I would like to ask you more specific questions about how much your household and all its members spent in cash or in-kind on all health care and services that did not require an overnight stay. Again, we want expenses in the last 30 days. INTERVIEWER: entre 00 if does not spend					
In the last 30 days, how much did your household spend on:					
Q0804	Registration and consultation fees by doctors, (except dentists), nurses, or trained midwives that did not require an overnight stay?	☐☐☐☐☐ B.D			
Q0805	Health care by traditional or alternative healers (use other local names)?	☐☐☐☐☐ B.D			
Q0806	Diagnostic and laboratory tests such as X-rays or blood tests?	☐☐☐☐☐ B.D			
Q0807	Medications or drugs (prescription, non-prescription, traditional, homeopathic…)?	☐☐☐☐☐ B.D			
Q0808	Dentists or dental care?	☐☐☐☐☐ B.D			
Q0809	Ambulance?	☐☐☐☐☐ B.D			
Q0810	Any other health care products or services that were not included above? Specify:	☐☐☐☐☐ B.D			

Serial	Question	Answer codes			skip
I know these questions may be difficult to answer - try to give us the best estimate of expenses. Now I want you to focus on household expenses over the last 12 months. These are expenses that may be more periodic or «big purchases». I would like to ask how much money was spent by all household members for the following items in the last 12 months. INTERVIEWER: entre 00 if does not spend					
In the last 12 months, how much did your household spend on:					
Q0816	Health insurance or pre-paid health plans?	☐☐☐☐☐ B.D			
Q0818	Health-related items (prescription glasses, contact lenses, hearing aids, canes, prosthetic devices…)?	☐☐☐☐☐ B.D			
Q0819	All costs associated with overnight stays in a hospital? Please exclude any reimbursements from insurance.	☐☐☐☐☐ B.D			
Q0820	All costs associated with a long-term care facility? Please exclude any reimbursements from insurance.	☐☐☐☐☐ B.D			

- INTERVIEWER: If no health expenditures, (Q0804 to Q0810 = «0» and Q0818 to Q0820 = «0») SKIP TO 0829

Serial	Question	Answer codes			skip
Finally, we want you to think of how you paid for your health care expenditures over the last 12 months. This includes costs for all fees, services and goods, including overnight stays.					
In the last 12 months, which of the following financial sources did your household use to pay for any and all health expenditures?					
Q0822	Current income of any household members (salaries, pensions, paid benefits…)?	Yes..... 1 No..... 2			
Q0823	Savings?	Yes..... 1 No..... 2			
Q08242	Payment or reimbursement from a health insurance plan (including community health schemes)?	Yes..... 1 No..... 2			
Q0825	Sold items (land, property, furniture, livestock, jewellery…)?	Yes..... 1 No..... 2			
Q0826	Relatives or friends from outside the household?	Yes..... 1 No..... 2			
Q0827	Loans?	Yes..... 1 No..... 2			
Q0828	Other, specify:	Yes..... 1 No..... 2			
Last, we want you to think of a typical month and the expenditures for your household. We want to know an average total amount your household spends on all items. This includes the total amount your household and all its members spent on everything, for example, clothing, transport, rent and rates, school fees, food, drink, entertainment, health care and all other expenses.					
Q0829	In general, what is your household›s average overall monthly spending?	☐☐☐☐☐ B.D			
Q0831	Time End	☐☐ : ☐☐			

Serial	Question	Answer codes			skip
Interviewer Assessment					
Q0901	Was someone else present during the interview?	Yes…………………… No………………………	1 2		
Q0902	What is your evaluation of the accuracy and completeness of the respondent›s answers?	high…………………… average …………………… low ……………………	1 2 3		

Notes: ……………………………………………………………………………………………………

6.7 Annex x: list of indicators, survey modules, data sources and responsible program

	EMR Indicators	Survey module	Data source (proposed survey)	Program
A	Health Determinants and risks			
1	Population size (1000s)		Administrative records	iga
2	Population growth (%)	calculation	Administrative records	iga
3	Total fertility (per woman)	HH information	Administrative records/HES	mch
4	Adolescent fertility, 15-19 years (1000 girls) add girls aged 10- 14 years	HH information	Administrative records/HES	mch
5	Net primary School enrolment ratio	HH Education	Administrative records/HES	moe
6	Population below the international poverty line (%)	HH expenduture	HH income and expenduture survey	IGA
7	Adult literacy rate, 15-24 years (%)	HH Education	census/ HES	moe-iga-moh
8	Low birth weight (%)	Children under 5	Administrative records/HES	HIS
9	Exclusive Breastfeeding 0-5 months (%)	women	HES-Administrative records in screening program	mch
10	Children under 5 who are stunted (%)	children Under 5 Anthropometry	Administrative records/ HES+child module	mch
11	Children under 5 who are wasted (%)	children Under 5 Anthropometry	Administrative records/ HES+child module	mch
12	Children under 5 who are overweight (%)	children Under 5 Anthropometry	Administrative records/HES	mch
13	Children under 5 who are obese (%)	children Under 5 Anthropometry	Administrative records/HES	mch
14	Overweight, 13-18 years (%)	Children age 13-18	Administrative records pre-intermediate & pre-secondary school examination/GSHS	school health-nutrition
15	Obesity, 13-18 years (%)	Children age 13-18	Administrative records pre-intermediate & pre-secondary school examination/GSHS	school health-nutrition
16	Overweight, 18+ years (%)	Adult Anthropometry	HES-Administrative records	nutrition-ncd
17	Obesity, 18+ years (%)	Adult Anthropometry	HES- administrative reords	nutrition-ncd
18	Tobacco use, 13-15 years (%)	13-18 tobacco	GHSH 13-17 (2016/2017) GYTS-(13-15) Administrative records pre-intermediate & pre-secondary school examination	school health
19	Tobacco use, 15+ years (%)	adult tobacco	HES	

20	Insufficient physical activity, 13-18 years (%)	Children age 13-18	GHSH (2016/2017)- admin	school health-nutrition
21	Insufficient physical activity, 18+ years (%)	adult physical activity	HES	nutrition-ncd
22	Raised blood glucose, 18+ years (%)	adult lab test	HES-admin	ncd
23	Raised blood pressure, 18+ years (%)	adult lab test	HES-admin	ncd
24	Anaemia among women of reproductive age (%)	adult lab test	HES-admin for pregnant ladies	mch
25	Access to improved drinking-water (%)	HH information	HES-admin	ewa
26	Access to improved sanitation facilities (%)	HH information	HES-admin	ewa
B	Health Status			
27	Life expectancy at birth (years)	NA	IGA+Birth & Death Directorate	HIS
28	Neonatal mortality (per 1000 live births)	NA	Birth & Death Directorate	HIS
29	Infant mortality (per 1000 live births) delete and	NA	Birth & Death Directorate	HIS
30	Under-5 mortality (per 1000 live births)	NA	Birth & Death Directorate	HIS
31	Maternal mortality ratio (per 100 000 live births)	NA	Birth & Death Directorate	HIS
32	Mortality rate by main cause of death, age standardized (per 100 000 population)	NA	Birth &Death Directorate	HIS
33	Mortality between ages 30 and 70 from NCDs (per 100 000 population)	NA	IPD (HID)	HIS
34	Mortality rate due to road traffic injuries (per 100 000 population)	NA	IPD(HID) +IGA+ Birth & Death Directorate	HIS
35	Mortality rate attributed to household and ambient air pollution	Household information HES	IPD (HID)	HIS
36	Mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene (exposure to unsafe WASH services)	Household information HES	IPD (HID)	HIS
37	Cancer incidence by type (per 100 000 population)	NA	National Cancer registry	NCD
38	Tuberculosis case notification (per 100 000 population)	NA	IPD (HID)/TB committee	DSC/comm./ Surveilliance
39	Estimated number of new HIV infections	HIV survey/lab module	HIV committee	DSC/comm./ Surveilliance
40	Number of newly reported HIV cases	NA	HIV committee	DSC/comm./ Surveilliance
41	Incidence of confirmed malaria cases (per 1 000 population)	NA		DSC/comm./ Surveilliance
42	Incidence of measles cases (per 1000 000 population)	NA		DSC/comm./ Surveilliance

43	Hepatitis B incidence per 100,000 population	lab. Module	IPD (HID)	
44	Number of people requiring interventions against neglected tropical diseases (leprosy)	NA	IPD (HID)	Surveilliance
C	Health System Response			
45	General government expenditure on health as % of general government expenditure	NA	directorate of finance	directorate of finance
46	Per capita total health expenditure (US$)	NA	directorate of finance	directorate of finance
47	Out-of-pocket expenditure as % of total health expenditure	household health expendoture modules	HES	directorate of finance
48	Population with catastrophic health expenditure (%)	household health expendoture modules	HES	directorate of finance
49	Population impoverished due to out-of-pocket health expenditure (%)	household health expendoture modules	HES	directorate of finance
50	Density of health workers (per 1 000 population)	NA	Admin data	HID
51	Density of recent graduates of registered health profession educational institutions (per 1 000 population)	NA	NEHRA	HID
52	IHR technical areas	NA	national rview	HID
53	Birth registration coverage	NA	HIS	HID
54	Death registration coverage	NA	HIS	HID
55	Availability of selected essential medicines health facilities (%)	Admin data	Admin data	HID
56	Density per million population of six selected medical devices in public and private health facilities (per 1 000 000 population)	Admin data	Admin data	HID
57	Density of primary health care facilities (public per 10 000 population)	Admin data	Admin data	HID
58	Density of inpatient beds (hospitals) Public and Private	Admin data	Admin data	HID
59	Surgical wound infection rate (%)	Hosp Surveillance	infection control	HID
60	Annual number of outpatient department visits, per capita	Admin/ Indvidual module Survey	HIS	Public heath directorate
C7	Service coverage			
61	Need for contraception satisfied with modern use (%)	adult women/ Admistrative record	HES	MCH
62	Antenatal care coverage (1+)	adult women/ Admistrative record	HES	MCH

63	Antenatal care coverage (4+)	adult women/ Admistrative record	HES	MCH
64	Skilled birth attendance (%)	adult women/ Admistrative record	HES	MCH
65	DPT3/pentavalent coverage among children under 1 year of age (%)	AR/ Childeren under 5 immunization program	HES	Expanded immunization program
66	Measles immunization coverage, MCV1 (%)	AR/Childeren under 5 immunization	HES	Expande programme immunization
67	Percentage of suspected malaria cases that have had a diagnostic test (%)	AR	admin Records	communicable diseases
68	Percentage of individuals who slept under an ITN the previous night (%)	Not applicable (we	we don’t have the mosqito	
69	Percentage of key populations at higher risk (People Who Inject Drugs, sex workers, men who have sex with men) who have received an HIV test in the past 12 months and know their results(%)	HIV high risk module	HIV survey	HIV comitte
70	Adults and children currently receiving ARV therapy among all adults and children living with HIV (%)	HIV committee/HIV History	HIV survey	HIV comitte
71	Treatment success rate of new bacteriologically confirmed tuberculosis (%)	records	Records	TB comitte
72	Children under 5 with diarrhea receiving oral rehydration therapy (%)	??? Childeren under 5	HES	MCH
73	Service coverage group for severe mental disorders (%)	mental health disorder	mental health survey/ HES	Mental health/ psychiateric hospital
74	Treatment coverage for opioid dependence	Records	psychiateric hospital	substances use disorders


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