ARMENIA

HEALTH SYSTEM PERFORMANCE ASSESSMENT

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The Eight report of Health System Performance Assessment (HSPA) presents the prevalence of risk factors contributing to the development of the most common, non-communicable diseases among the population of Armenia by demographic groups, health esteem, as well as the impact of risk factors on health self-esteem domains, their interconnection with general health, depression and prevalence of chronic illnesses.

Analyses presented in HSPA report are based on 2016 HSPA survey data among the RA population aged 15 and over.

The findings and Conclusions contained in the HSPA report serve as a basis for achieving the objectives and effective implementation of the NCD national programs aimed at reducing and preventing the pravelence of risk factors promoting NCD development.

HSPA report is designed for health system organizers, health experts, clinicians, as well as other specialists interested and involved in health system issues.

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Abbreviations

NIH	National Institute of Health after Academician S. Abdalbekyan, Ministry of Health of the Republic of Armenia
HSPA	Health syster performance assessment
WHO	World health organisation
MoH	Ministry of health
CSD	Circulatory system diseases
CerC	Cervical cancer
NSS	National Statistical Service of Armenia
NHIAC	National Health Information Analytical Centre
a.n.	Absolute number
r.n.	Relative number
AH	Arterial hypertension
DoH	Diseases caused by hypertension
BP	Blood pressure
BC	Breast cancer
MDGs	Millennium Development Goals
NGO	Nongovernmental organization
ICD-10	International statistical classification of diseases and related health problems,10th revision
BMI	Body mass index
DM	Diabetes mellitus
MN	Malignant neoplasmes
SHA	State Health Agency
Pap test	Cervical screening method used to detect potentially pre-cancerous and cancerous processes in the cervix (Papanicolaou test)
RF	Risk factors
IHD	Ischemic heart disease
AMI	Acute myocardial infarction
HH	Household
CerVD	Cerebrovascular disease
NCO	National Center of Oncology

Please refer to ‘Armenia Health System Performance Assessment, 2017, Yerevan, 2017, when you use published data in HSPA

The Armenian Health System Performance Assessment (HSPA) Report was prepared by Ms. Diana Andreasyan, Director of the National Health Information Analytical Center, PhD and Mr. SamvelManukyan, M&E consultant.

HSPA was drafted with technical and financial support of the Ministry of Health of the Republic of Armenia.

This report presents the 2016 data of the HSPA Sampling Survey.

HSPA report is composed of 5 chapters, each of which is thoroughly presented by the pravelence and relevance of th RF promoting the development of NCD by social demographic groups among the RA population aged 15 years and above.

DESCRIPTION OF THE HSPA SAMPLE SURVEY

The prime goal of the HSPA survey was to collect data, through population inquiry, for assessments of health status and mental health of 15 and older population, the NCD burden and prevalence of favoring risk factors, financial and geographic access to health clinics, responsiveness of health system to population needs, population satisfaction with provided medical services. The survey findings are used by the Ministry of Health, World Bank, Health PIU, international donor organizations and other stakeholders.

Methodology

The household sample was created on the basis PPS (Probability Proportional to Size) sample. According to the latter all territorial units of the sample have the same probability to be included in the sample. Given the defined sample size (2500 households) the entire population was divided into 25 clusters (100 households in each).

The first included distribution of all clusters according to marzes based cumulative method in accordance with the population number.

Afterwards (second step) random selection of the geographic location was done. In this case areas corresponding to the number of clusters were selected randomly in every marz and Yerevan city. 100 households were selected on systematic random basis.

Survey participants within the household were selected by 10 quotas defined for gender and age groups.

The survey age groups are as follows: 15-19, 20-34, 35-49, 50-64 and 65 older population.

The sample size in each gender-age group was 250, equal for males and females.

The levelof cholesterol and glucose were measured in risk groups of 35-49, 50-64 and 65 and older. When interviewing a household was impossible (refused to participate in the survey or nobody was at home, also in cases when respondent has refused to participate in glucose and cholesterol measurements during the second visit or failed meeting the measurement requirements) next household was selected through zigzag method.

The sample survey included 2500 households in 10 marzes and Yerevan. In each household one person was selected randomly for an interview.

The following was implemented the first day.

- Face-to-face interviews according to approved questionnaire, blood pressure and heart rate measurements, 4 times, 2 measurements on right and left arms.
- Measurements of participant's height and weight,
- Measurement of participant's waist circumference,
- Measurement of participant's hip circumference.

In addition, blood glucose and cholesterol were measured in households subject to a second visit.

The sample survey questionnaire

The questionnaire comprises two parts.

The first part contains general information on the household, respondent's physical and mental health, health complaints, chronic diseases, risk factors contributing to their development, financial and geographic access to outpatient and inpatient clinics, as well as population satisfaction with received services, etc. Instrumental(measuring blood pressure) and anthropometric measurements (arterial pressure, height, body mass, waist and hip circumference) were also performed.

The second part includes laboratory tests (defining glucose and cholesterol levelin capillary blood).

Laboratory measurements were performedapplying below devices.

- Accutrend Plus test meter with disposable test strips - to define total cholesterol level.
- ACCU-CHECKPerforma glucose test meter with disposable test strips - to define total glucose level.
- OMRON S1 meter – electronic BP monitor – to measure arterial blood pressure.
- SONASHISSC-2211 scale – to calculate body mass index.
- Height measuring board – to take height measurement
- Constant tension tape to measure waist and hip circumferences.

Field works of the sample survey commenced1st November 2015and ended 16 February 2016.

Clusters with corresponding number of households were selected for each community in advance. Groups were provided with addresses of the cluster households and the gender-age quotas. In case no respondent meeting required criteria was found in the household, another eligible household meeting the requirements was selected in accordance with developed methodology.

The survey was conducted in 128 communities of the country and 12 districts of Yerevan city.

Overall, 5627 addresses were selected, of which 2075 was not located, 1037 refused to participate in the survey, or the household did not have a member meeting the gender-age quota. The remaining 2515 households were interviewed and the questionnaire was populated.

Out of the above 2515 households 1519 met the quota for blood test. Consents were collected from all households on day 2, when blood sample was taken. Though respondents agreed to fast 10-12 hours for blood cholesterol and glucose measuring, only 1198 fasted and agreed to undergo the measuring. Their blood measure data were entered into the questionnaire.

Table 1. Sample clusters of HSPA sample survey

COMMUNITY	CLUSTER	NUMBER OF HOUSEHOLDS IN THE CLUSTER
Ajapnyak	1	100
Avan	0	0
Davtashen	1	100
Erebouni	1	100
Kentron	1	100
Malatia-Sebastia	1	100
Nor Nork	1	100
Nork-Marash	1	100
Nubarashen	0	0
Shengavit	1	100
Qanaqer-Zeytun	0	0
Syunik	1	100
VayotsDzor	1	100
Shirak	1	100
Lori	3	300
Kotayk	2	200
Ararat	3	300
Armavir	2	200
Aragatsotn	1	100
Tavoush	1	100
Gegharkunik	1	100
Total	25	2500

Effective interviews and measuring of blood glucose and cholesterol levelensured representation of the survey according project requirements and parameters.

Problems faced during the main survey

During the survey on mean every 5th respondent refused to participate in the survey. The team had to visit at least 6-7 additional households to be able to find gender-age eligible respondents.

The refusal rate was much higher in Yerevan than in marzes.

During the survey the interviewers experienced problems with building door phones in Kentron and Arabkir districts of Yerevan. Residents refused to open the door and let the interviewers in.

Though the interviews were conducted only in households where respondents gave their preliminary consent for fasting cholesterol and glucose test, numerous failures were recorded, leading to additional refusals of blood test. Main reasons of refusal included failure to meet the consent requirement of fasting or the influence of other household members or pressure on the respondent requiring to refuse having blood test. In those cases interviewers tried to reassure the respondent and request to keep preliminary arrangements. In case of failure the household was replaced with another one which helped to collect good number of blood samples.

Problems were faced with taking anthropometric measures. In particular, men mostly refused to have their waist circumference measured and overweight women refused to have their weight measured. Also difficulties occurred with responding to some items of the questionnaire, i.e. several respondents harshly refused to answer sensitive questions. Following the received instructions, in both cases interviewers tried to explain the purpose and importance of those questions.

In case of negative outcomes the specific questions were not populated and the reasons were specified.

The heavy snow of January created serious problems for organization of interviewers' transportation. Some communities, particularly in Shirak and Lori marzes, could not be accessed, resulting in significant waste of time.

Recommendations

Given the aforementioned problems and the accumulated experienced, it is recommended to design and implement similar surveys considering the below notes:

- Consider a big number of refusal cases when estimating the needed sample size which is especially reasonable when designing surveys with anthropometric and blood sampling components.
- If possible avoid conducting surveys during winter months.
- Use a maximally respondent-friendly and tactful wording when asking about personal hygiene, use of alcohol, etc. and envisage a 'No response' option.

- Use special thermoisolated boxes for storage and transportation of blood meters, if blood test is envisaged.
- Ensure at least 20% additional test strips when conducting blood tests.
- Closely cooperate with local authorities and provide them with very detailed information on the goal of the survey.

Recheck survey

Below methods were applied to recheck the survey process and the quality.

- A randomly selected 20% of households that had participated in the survey were telephoned and inquired.
- The interviews and anthropometric measuring, and the following blood cholesterol and glucose tests were performed by different interviewers, thus cross-checking the work.
- Field coordinators perused the populated questionnaires and singled out several with incomplete information, omissions, which were later corrected by coordinators and supervisors through personal interviews with respondents.

Throughout the survey process telephone and face-to-face discussions were held with interviewers and necessary instructions were provided in order to share the gained experience, adjust the current situation and improve the further process.

NCD worldwide

According to the World Health Organization (WHO) data, NCDs are the leading cause of morbidity and mortality globally, including circulatory system diseases (CSD), malignancies, diabetes mellitus (DM), chronic obstructive pulmonary (COPD), mental health disorders. Each year NCDs take nearly 40 million human lives. The NCD mortality burden in the total structure of deaths in the European Region varies from 60% to 85%. Moreover, 75% of deaths (28 million cases) occur in low- to middle-income countries. Over the past years the NCDs mostly affect those within the age range of 30-60, causing early death(1).

In the under-70 age group 17 million deaths (87%) are recorded in low-to middle-income countries.

NCDs also have significant macroeconomic impact and exacerbate poverty (Bloom et al., 2011). Most NCDs are chronic and require repeated interactions with the health system and recurring and continuous medical expenses, often requiring catastrophic, impoverishing expenditure. It has been estimated that the loss of productivity due to NCDs is significant: for every 10% increase in NCD mortality, economic growth is reduced by 0.5% (2).

To reduce the NCD burden and to promote population health, in 2000 WHO adopted the Global strategy for the prevention and control of noncommunicable diseases. In April 2011 the first global ministerial conference on NCD prevention and control was held in Moscow. It called for regulation at all levelincluding multidisciplinary and intersectoral cooperation to reveal and curb NCD risk factors and determinants as well as promotion of healthy lifestyle, adoption of legislation on early detection and prevention of NCD risk factors, as well as improved access to and quality of healthcare. The 'NCD Prevention and Control Declaration' was approved by leaders and representatives of states and governments at the UN General Assembly in September 2011. It is viewed as the main call of the 21st century and the key to achievement of the goals established in the European health strategy Health 2020.

Recognizing the responsibility of the states in responding to the NCD the global community emphasizes the importance of engagement of all levelof the society for the effective NCD prevention and control.

At the 2013 World Health Assembly the 190 Member States adopted the WHO Global Action Plan for NCDs Prevention and Control for 2013-2020. In 2014 the UN General Assembly discussed the NCD prevention and control activities as well as the prior achievements and next steps and goals of the states aimed at reduction of the NCD burden.

Given that nearly all countries across the world face the challenge of increasing NCD prevalence and mortality, the WHO has developed universal approaches to implementation of activities, and priority 9 global NCD targets and 25 indicators for all WHO member states. These targets require cooperation and joint activities involving all stakeholders.

According to evidence-based medicine, NCD development largely depends on lifestyle. Main causes of mortality in the world include hypertension (accounts for 13% of mortality due to all causes),

smoking tobacco (9 %), high level of glucose (6%), physical inactivity (6%), as well as overweight and obesity (5%).

Recognizing the problem of increasing NCD burden and the latter's sizeable economic and social consequences, in 2012 the WHO member states committed to achieve 25% reduction of premature mortality from NCDs by 2025.

In 2017 the WHO conducted a global conference on NCDs aimed at promoting cross-sectoral cooperation and implementation of a unified policy to facilitate achievement of health target 3.4 of the Sustainable Development Goals: "to reduce by one-third pre-mature mortality from non-communicable diseases (NCDs) through prevention and treatment".

NCDs in Armenia

Armenia is a landlocked country surrounded by Georgia, Azerbaijan, Turkey and Iran. It occupies a total of 29743[2] km and comprises 10 provinces (called marz) and the capital city of Yerevan. Marzes, in their turn, include urban (49) and rural (866) communities exercising local governance.

As of 1st January 2016 the permanent population of Armenia was estimated to be 2986.1 thousand. The proportion of urban population was 63.5% and the rural population was 36.5 %. At that, 35.6% of population resided in the capital city of Yerevan. Males comprised 47.8% and females 52.2% of the population. Early 2016 the share of 65 and over population was 11%, which is a sign of aging population.

According to the National Statistical Service (NSS) in 2016 the life expectancy in Armenia was 71.8 years for men and 78.1 years for women (NSS, 2016).

The mortality structure of most common NCD in Armenia is very similar to that in the European region.

According to the National Health Information Analytical Center (NHIAC) and NSS, in 2016 the mortality burden due to most prevalent NCDs comprised 80%, with CSD being the lead cause (48%), followed by malignancies (20.5%), diabetes (4.2%), injuries, poisonings and external causes (4.5%), chronic obstructive pulmonary diseases, including bronchitis, asthma, other chronic pulmonary and bronchoectonic diseases (4%).

The NCD-related premature mortality rate was 29%, with almost 25% of deaths occurring in the 35-65 age group (3).

Below statistical trends for 1990 - 2016 period calculated per 100.000 population, provide an overview of the NCD burden for the past 30 years (10).

- The prevalence of CSD (1312.2 per 100 000 population in 1990vs.2314.8 in 2016) increased 1.8 times and the mortality (305.89 per 100 000 population in 1990vs.453.53 in 2016) - 1.5 times.
- The prevalence of malignancies (588.2 per 100 000 population in 1990vs.1434 in 2016) increased 2.4 and the mortality 2 times (98.3 per 100 000 population in 1990vs.189.2 in 2016).
- The prevalence of DM (183.6 in 1990vs.376.9 in 2016) increased 2 times and the mortality 2.8 times (13.96 in 1990vs.39.13 in 2016).

Thus, the NCD prevalence and related mortality has increased 2-3 times over the past 30 years.

In Armenia eight out of ten major causes of the increase in the lost disability-adjusted life years (DALY) are non-communicable diseases, four of which belong to the cardiovascular diseases group (ischemic heart disease, cerebrovascular disorders, arterial hypertension, and other cardiac diseases), three – to the malignancies group (malignant tumors of the trachea, bronchi and lungs, of the breast and stomach), and one – to the endocrine diseases group (diabetes mellitus).

NCD prevention and control in RA population requires combination of comprehensive strategic directions. It aims at improving and managing the RA population health, through prevention and reduction of the NCD burden as well as prevention of potential complications and disability due to NCDs, improving the quality of life, increasing mean levelof healthy life expectancy, reducing mortality, developing an evidence-based surveillance system that meets newest requirements.

NCD prevention and control, as well as promotion of healthy lifestyle are among priority issues of the RA Government agenda. MoH makes significant efforts to address the NCD burden in the country. NCD prevention and control are dependent on detected risk factors.

NCD prevention and control are contingent on identification of their risk factors. Main approaches to NCD prevention and control in Armenia are presented in the following two documents: (1) 'On approval of the Concept on Prevention, Early detection and Treatment of Most Prevalent Noncommunicable Diseases (NCD) and the list of Actions' approved by the RA Government Protocol Decree №3 of 29 January 2010, and (2) 'National Strategic Programs on the Three Most Deadly Diseases – Circulatory System Diseases (cardiovascular), Malignancies and Diabetes Mellitus and the Timeline of Actions' approved by the RA Government Protocol Decree №11 of 24 March 2011.

Screenings are implemented within the framework the Disease Prevention and Control Project from 1st January 2015 NCD. The project aims at enabling all 35 - 68 years old citizens to undergo free screenings at their outpatient clinic for early detection of arterial hypertension and diabetes. All 30-60 years old women are examined for early detection and diagnoses of cervical cancer.

Nearly 1 million 131 thousand screenings were performed between 1st January 2015 and 31 July 2017.

- A total of 141.478 Pap smear tests were performed in women aged 30-60 years, which resulted in 8% increase of cancer detection at stages I-II.
- Fasting blood glucose test was conducted in 398 751 individuals, which resulted in nearly 9% increase of new case detection rate.
- 592 290 people have undergone arterial hypertension screening.

According to the Health Minister's Decree 3085-A of 24 December 2014 'On approval of the standards for organization of emergency heart surgeries (non drug eluting stent) within the framework of delivery of free healthcare services to the population', from 1st January 2015 all intervention cardiology clinics of Armenia perform emergency heart surgeries (non drug eluting stent) within BBP, which is based on the following diagnosis of the physician – Acute cardiac infarction ECG ST-elevation.

The Healthy Lifestyle Promotion Strategy and Action Plan for 2014-2020 was approved by the Government Decree №50 of 27 October 2014.

The list of activities under the 2016-2020 Program on Control of Most Prevalent Noncommunicable Diseases was approved by the RA Government Protocol Decree No 4 of 3 March 2016. It envisages the following:

- Development of a management system for prevention of NCDs.
- Promotion of activities on control of preventable NCD risk factors.
- Improvement of population awareness of prevention of NCD risk factor development.
- Strengthening of NCD surveillance and risk factor monitoring systems according to socioeconomic factors, etc.

An intersectoral coordination committee on NCD prevention was established by the Prime Minister's Decree of 25 July 2016.

The 'Tobacco Control Strategy and the List of Actions 2017-2020' was approved by the RA Government Protocol Decree of September 2017. The goal is to implement activities aimed at reduction of tobacco use in Armenia, public health promotion, protection of the population from exposure to second-hand tobacco smoke, as well as reduction of the NCD morbidity rates through curbing the prevalence of tobacco use.

Implementation of RA Government strategies and programs require reliable information on the prevalence of NCD risk factors. There was an absolute need of an in-depth review of the prevalence of NCD risk factors among the population of Armenia.

NCD risk factors in RA population

The harmful impact of risk factors on population health is not straightforward: it develops over time. Gradual reduction of the prevalence of risk factors leads to improved health indicatots, in particular increased life expectancy and reduced NCD prevalence and mortality.

The above tendencies apply to Armenia as well. Like elsewhere, in Armenia also NCD growth continues being a priority public health threat.

Evidence-based medicine data suggest that NCD development largely depends on one's lifestyle and specifics of risk factors that can lead to development of NCD. According to WHO data, the overwhelming part of NCD development is associated with harmful impact of tobacco smoking, use of alcohol, unhealthy diet, physical inactivity, hypertension and other factors.

In 2004 and 2008 tobacco surveys were conducted among adolescents (13-15 years of age). As the 2004 survey findings witness, 5.6 of adolescents smoked tobacco and every 4th had tried to smoke some time in their life. No significant differences were recorded between 2008 and 2004 surveys. Most of school-aged children were permanently exposed to secondhand smoke.

Studies on the prevalence of tobacco smoking and raised arterial blood pressure were conducted within the framework of Armenia Demography and Health Survey (ADHS, 2000 (13), 2005 (12), 2010 (12) 2015-16 (11)).

To assess the NCD burden in population of Armenia, in 2007 the country started observing the prevalence of NCD risk factors, their health impact and correlations.

Studies and analysis of NCD risk factor prevalence in 15 and older population were implemented within the framework of Health System Performance Assessment Surveys 2007, 2009, 2012, 2013, 2014, 2015 and 2016 and the findings were published in corresponding HSPA Reports (3, 4, 5, 6, 7, 8, 9).

The 2016 HSPA data show below NCD risk factor prevalence in 15 and older population of Armenia (Figure 1) (3).

- AH prevalence - 28.6%,
- Overweight and obesity - 51.2%,
- Prevalence of smoking - 26.2%, proportion of daily smoking males - 53.4%, females - 2.4%
- Number of males who consume the daily equivalent of 20 g or more of pure - 16.3%,
- Number of physically inactive people - 13.9%,
- High level of cholesterol (>6.2 mm/L) in 35 and older population - 8.5%
- High level of glucose (>6.1 mm/L) in 35 and older population - 18%

Figure 1 Prevalence of risk factors in 15 and older population of Armenia, 2012, 2016

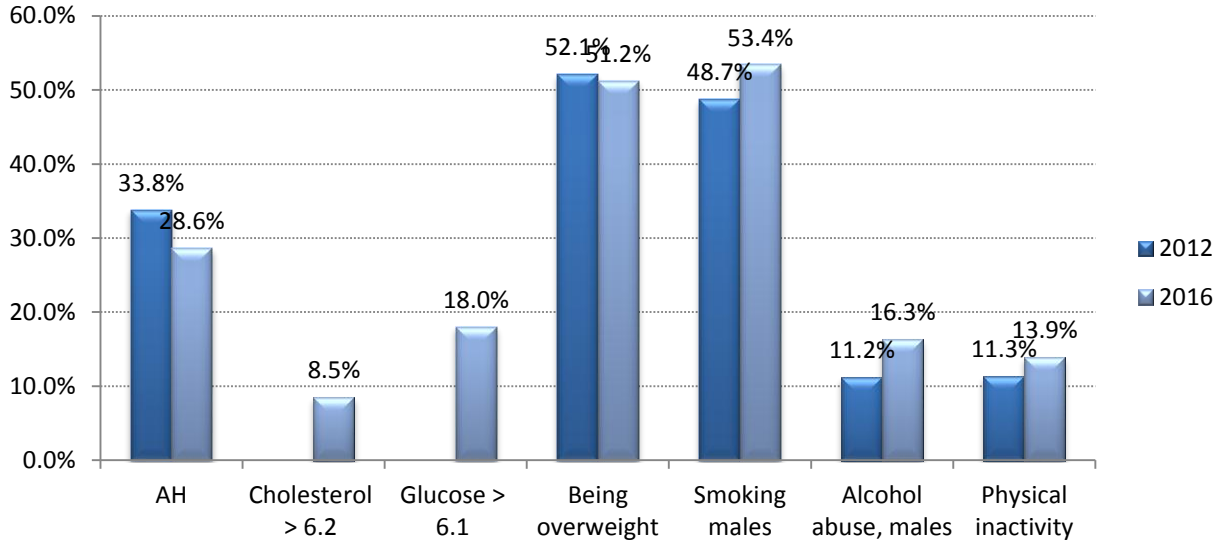


Figure 2 presents public awareness of the harms of risk factors between 2012 and 2016. Awareness was assessed asking the following question, "Do you think that this risk factor affects your health?"The Figure shows the proportion of positive answers.

Very high is the level of awareness of tobacco use (96.3% of respondents) and lack of physical activity (90.5%).

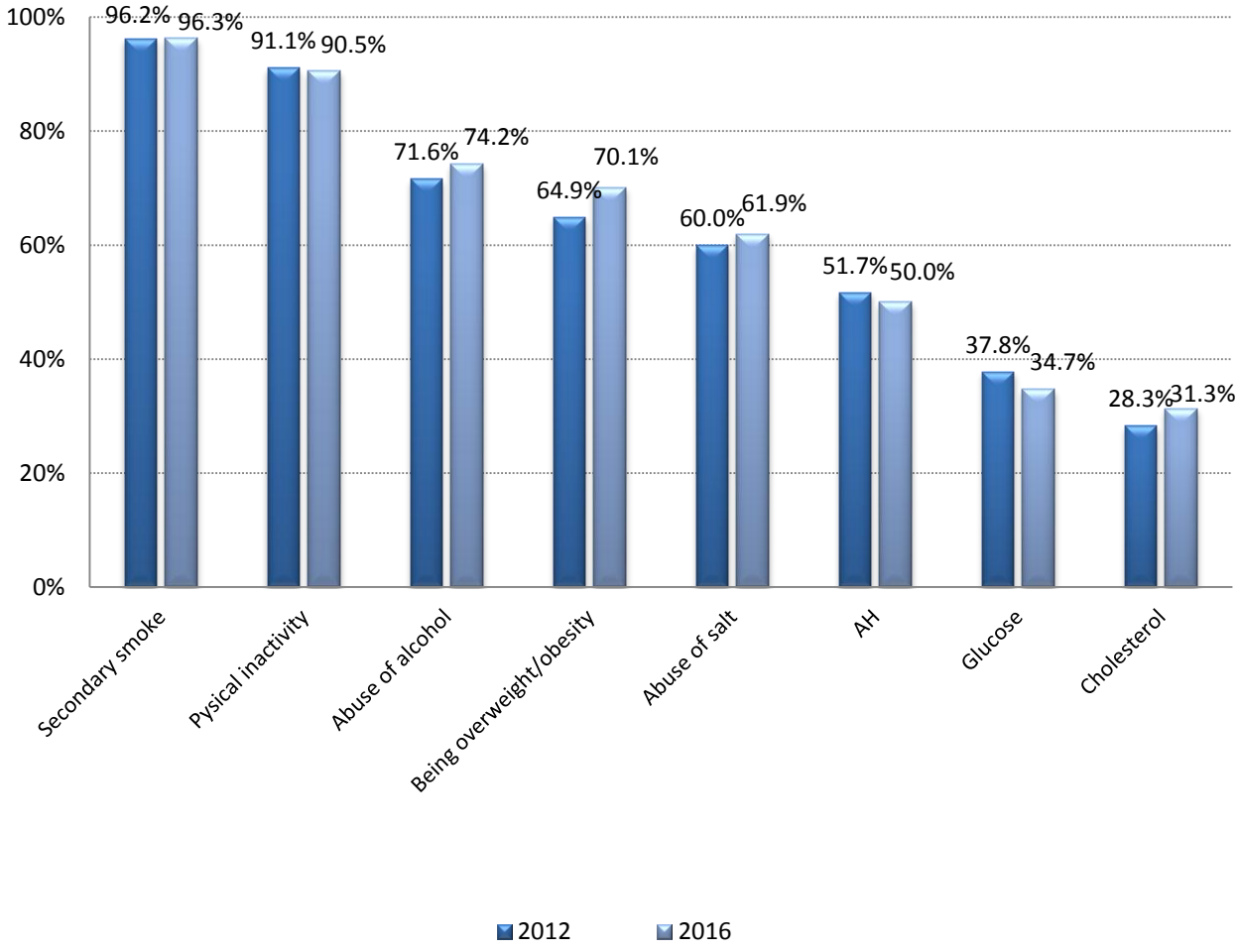
Good level of awareness is recorded for abuse of alcohol (74.2%), being overweight (70.1%) and abuse of salt (61.9%).

Half of participants (50.0%) demonstrated moderate level of awareness of the harmful effect of hypertension.

Low level of awareness was recorded for the harm of high level of glucose (34.7%) and cholesterol (31.3%) in the blood.

The level of awareness of risk factors did not change much between 2012 and 2016. Slight improvement is seen in awareness of alcohol abuse.

Figure 2. Population awareness of the negative impact of risk factors, 2012, 2016



Below is a detailed description of the prevalence of risk factors and related dimensions according to different sociodemographic groups.

Thus, the prevalence of high blood pressure has been reduced in the age group of 15 years and above in 2016 compared to 2012, but the proportion of male and female alcohol users and physically disabled people has increased, when public awareness of the harmful effects of these three risk factors is the highest among other risk factors.

POPULATION HEALTH ASSESSMENT

General assessment of health

General assessment of health is based on the WHO Health and quality of life questionnaire SF-12, which comprises eight components (domains) describing population satisfaction with various aspects of physical and mental health. Respondents assess their own health.

The SF12 12 domains are as follows:

Components of physical health

1. General health (gh)
2. Physical function (functionality) (pf)
3. Role - physical (rp)
4. Bodily pain (bp)

Components of mental health

5. Mental health (mh)
6. Role - emotional (re)
7. Social functioning (sf)
8. Energy/fatigue (vt)

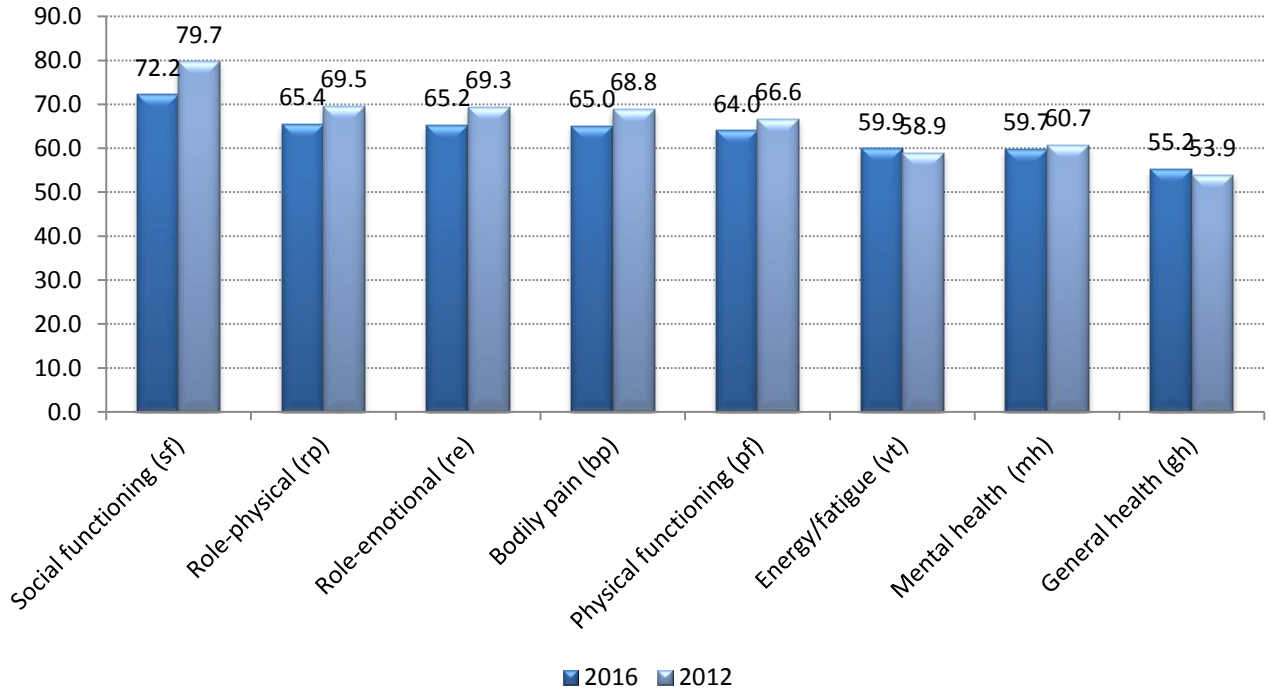
Scores for every component change within (0-100) range, where 0 describes the worst situation and 100 the most favorable.

Population health assessments of 2012 and 2016are presented in Figure 17. Value intervals were divided into 5 domains in order to generalized interpretation of data.

1. Very low range (0-20)
2. Low range(20-40)
3. Moderate range (40-60)
4. High range (60-80)
5. Very high range (80-100)

According to Figure 3 five out of eight components, i.e. role physical (rp), role emotional (re), bodily pain (bp), mental health (mh) and energy/fatigue (vt) are located in the domain of **high values**, and three components, i.e. general health (gh), physical functioning (pf) and social functioning (sf) – in the domain of **mean** values. Nonetheless all these three components are in the top part of mean scores, in other words they are very close to high values. Values for general health and energy have increased between 2012 and 2016. Along with that, a decline tendency is seen in physical functioning, bodily pain, mental health,role-physical, role-emotional and social functioning. In fact, the biggest declineis seen in social functioning-from 79.7% in 2012 to 72.2% in 2016.

Figure 3. Health assessment (SF-12) 2012, 2016



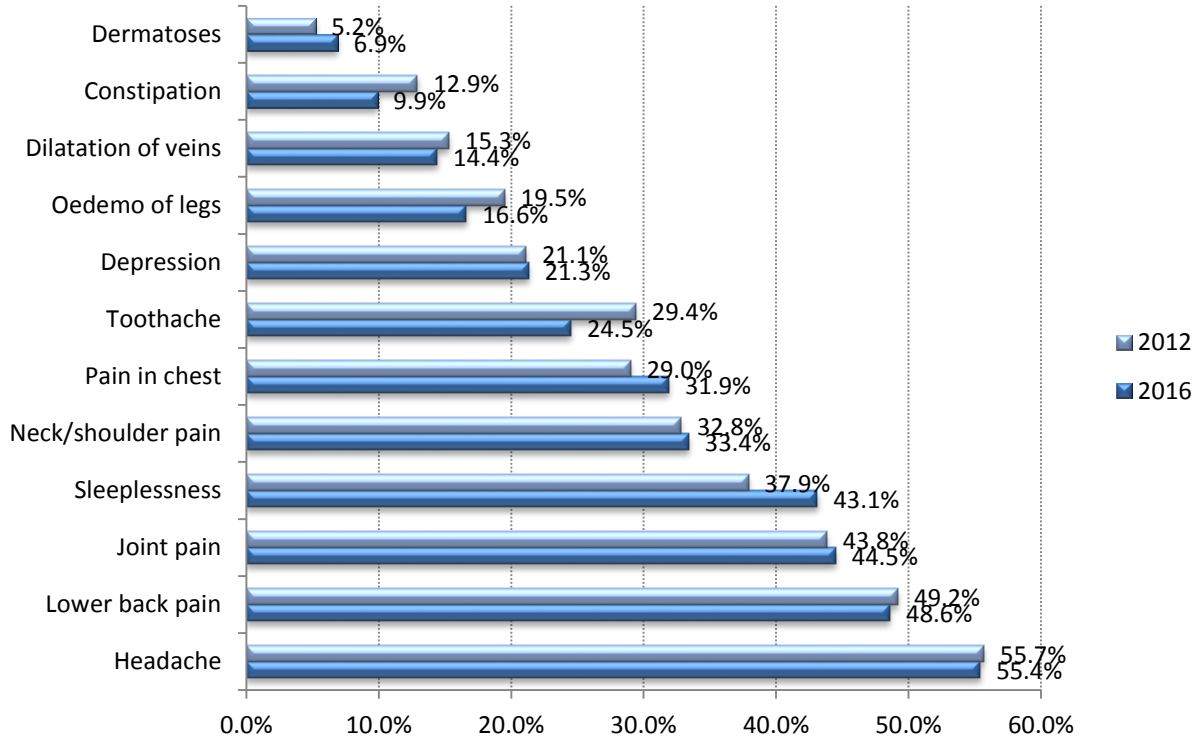
Prevalence of health conditions

The survey studied 12 most common health conditions, symptoms and complaints in 15 and older population during the past months (headache, lower back pain, joint pain, sleeplessness, neck/shoulder pain, pain in the chest when walking or doing other movements, toothache, depression, edema of legs, variceal dilatation of veins, constipation, dermatoses).

Prevalence of observed health conditions and symptoms in Armenia between 2012 and 2016 is presented in Figure 4.

- Headache, back pain, dizziness and insomnia remained as the most common morbid conditions in 2016, as in 2012
- Headache, lower back pain, joint pain and sleeplessness were reported by 40-60% of respondents.
- Some 20-40% complained about neck/shoulder pain, pain in the chest when walking or doing other movements, toothache and depression,
- Another 5-20% reported edema of legs, dilatation of veins, constipation and dermatoses.
- Overall, in 2016 people complain more about sleeplessness (37.9%` 43.1%) and pain in chest when walking or doing other movements (29%` 31.9%).
- On the other hand, less respondents complained about toothache (29.4%` 24.5%), edema of legs (19.5%` 16.6%) and constipation (12.9%` 9.9%).

Figure 4. Pravelence of Health condition 2012, 2016



The prevalence of health conditions and complaints is significantly higher in

- Marz cities and villages
- Among women
- Among 50 and above population
- Low educational attainment groups[1]
- Poor households more often report pain in chest, joint pain, lower back pain and depressionTable 2.

Table 2. Prevalence of health conditions, according to sociodemographic characteristics, %, 2016

Health condition	Residence			Gender		Age				
	Yerevan	Urban	Rural	F	M	15-19	20-34	35-49	50-64	65 +
Pain in chest when walking or doing other movements	28.4	33.7	34	32.8	30.9	12.2	20.3	36.5	44.5	45.2
Joint pain	40.3	44.0	48.7	50.5	37.7	14.5	27.3	49.0	63.0	69.9
Lower back pain	44.3	47.5	53.1	54.3	42.0	26.6	38.5	52.3	61.3	61.1
Neck/shoulder pain	29.8	33.5	36.6	40.8	25.0	10.2	21.7	36.9	47.7	48.7
Edema of legs	13.4	16.6	19.5	20.6	12.1	1.9	7.3	16.7	26.6	33.1
Variceal dilatation of veins	11.8	14.8	16.4	19.6	8.4	1.0	7.8	15.8	20.6	27.1
Dermatoses	6.9	7.9	6.2	6.8	7.0	4.8	6.0	7.8	6.9	8.8
Constipation	9.8	11.0	9.3	13.5	5.8	8.1	6.3	9.7	10.5	19.7
Headache	49.5	59.0	58.6	63.1	46.7	43.1	52.9	59.4	61.2	53.8
Sleeplessness	39.8	44.6	45.2	48	37.5	16.8	30.4	45.3	61.0	59.5
Depression	18.2	23.8	22.5	25.6	16.3	8.7	14.6	26.4	28.3	25.8
Toothache	17.0	26.1	30.4	27.1	21.5	23.2	29.4	26.2	23.5	11.9

Table 3 Prevalence of health conditions, according to sociodemographic characteristics, %, 2016

Condition	Education					Wealth			Total
	IS	Sec	Voc	IH	Higher	Low	Middle	High	
Pain in chest when walking or doing other movements	34.6	35.3	38.4	19.2	23.3	36.2	29.8	28.6	31.9
Joint pain	51.7	46.2	56.7	24.0	36.3	48.1	45.1	39.9	44.5
Lower back pain	55.0	51.2	59.8	25.8	40.4	50.6	49.5	45.4	48.6
Neck/shoulder pain	34.9	35.5	39.6	13.0	31.1	34.2	34.4	31.6	33.4
Edema of legs	21.0	19.1	21.1	7.5	10.0	18.3	16.5	14.8	16.6
Variceal dilatation of veins	18.5	16.2	18.2	5.7	9.5	14.4	14.4	14.2	14.4
Dermatoses	4.7	6.7	9.6	5.8	6.2	6.9	6.9	6.9	6.9
Constipation	20.3	10.1	9.8	7.0	7.8	10.2	10.4	9.2	9.9
Headache	51.5	56.9	62.4	49.7	50.0	53.8	58.2	54.9	55.4
Sleeplessness	44.0	45.8	50.9	26.6	37.0	45.8	41.7	41.2	43.1
Depression	30.4	20.5	28.2	15.6	16.5	24.3	22.4	16.8	21.3
Toothache	25.5	26.5	26.6	21.8	19.8	23.0	24.9	25.9	24.5

[1]It should be noted that most of incomplete higher education respondents are students, that is why data in incomplete higher education group are very close to mean data of 15-19 and 20-29 age groups.

Mental health

The 2016 sample survey questionnaire included a section for assessment of mental health based on Zung self-rating depression scale. It enables monitoring changes in the level of depression over the time. The scale was developed by Duke University psychiatrist William Zung(1929-1992)to assess the level of depression for patients diagnosed with depressive disorder This was the first time Armenia used the translated and adaptedZung questionnaire, whichis widely used as a useful screening tool.

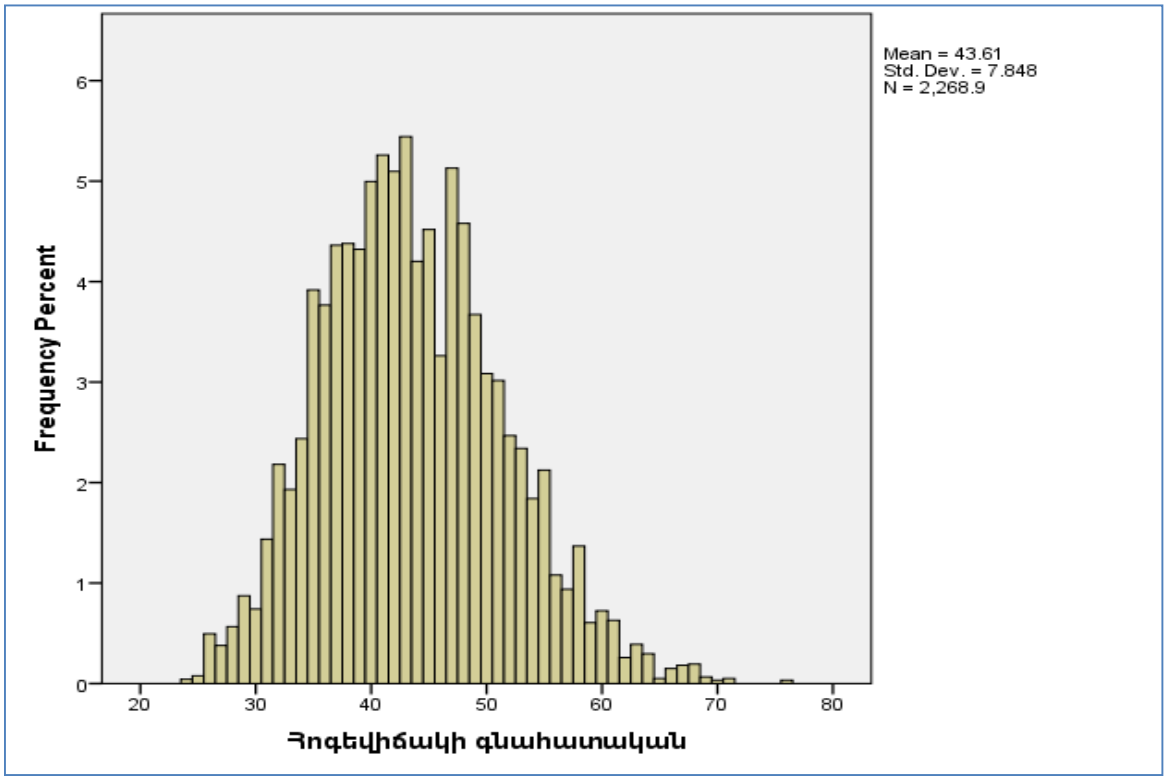
There are 20 items on the scale that rate the affective, psychological and somatic symptoms associated with depression. Each question is scored on a scale of 1 through 4 (based on these replies: "a little of the time", "some of the time", "good part of the time", "most of the time"). Scores on the test range from 20 through 80. The scores fall into four ranges.

- 20-44 Normal Range
- 45-59 Mildly Depressed
- 60-69 Moderately Depressed
- 70 and above Severely Depressed

Distribution of mental health assessment findings for the entire sample is presented in Figure 5. According to statistical data the assessment of 15 and older population mental health shows normal distribution(Kolmogorov-Sirnov test value 0.06, Lillieforce test 0.000). Mean distribution is 43.6 and the standard deviation 7.848.

According to statistical data, mental health assessment in all sociodemographic groups (gender, age, education, wealth, residence) also has normal distribution. Mean values in sociodemographic groups are presented in Figure 6.

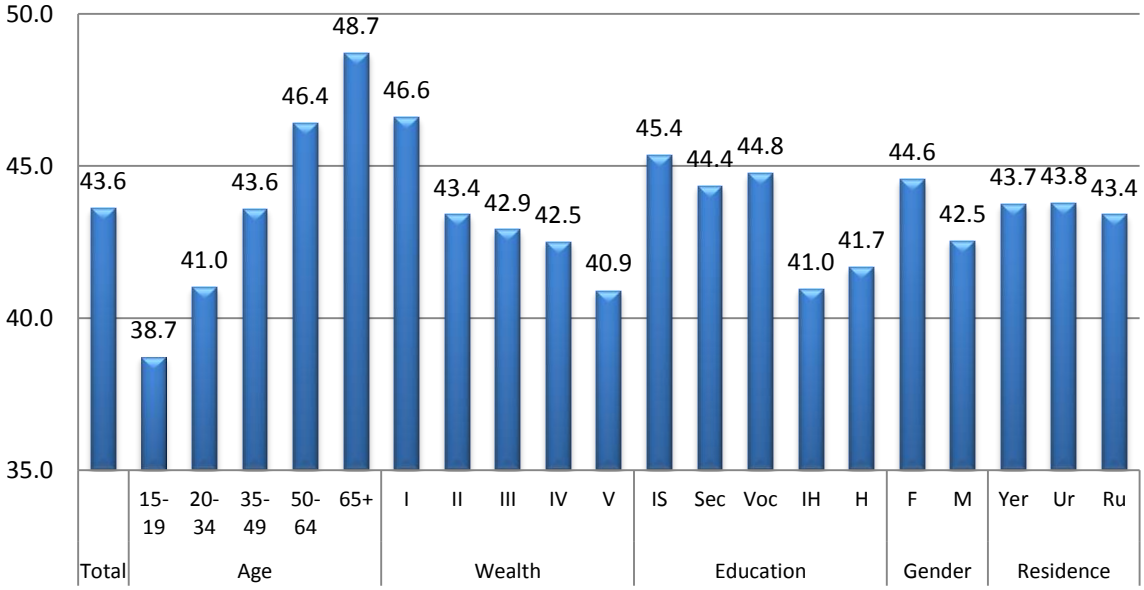
Figure 5. Distribution of depression assessments in 15 and older population (scale changed in 20-100 range), 2016



Mean values of mental health assessment are represented by social demographic groups. (Figure 6), and data shows that:

- The population of Armenia's aged 15 and above, on the mean , is on the threshold of a slight depressive state ,
- Pravelence of depressive state increases according to age
- The pravelence of depressive state is higher in low quintile of wellbeing.
- The pravelence of depressive state is lower among those with a higher education level.
-
- When we look the represented data by gender , we can canclude that the pravelence of depressive state is slightly higher among women than among men.
- There was no significant difference between the indicators of the respondents' mentalh health by the resident place.

Figure 6. Mean value of mental health assessment according to sociodemographic groups, change range 20-100, 2016



Distributions of population mental health, per severity, per different sociodemographic groups are presented in Figure 7. Data shows that:

- Some 40% of Armenia population has mild depression, while 2.9% is moderately and 0.1% is severely depressed.

Prevalence of mild depression in sociodemographic groups has the following picture.

- The level of mild depression is strongly linked to the level of **wealth.**If in low wealth quintile I mild depression is reported by 57.2%, in quintile III it decreases to 38.5% and in the highest quintile accounts for 25.1%.
- Depression depends on**education,** as well.Mild depression is present in 29.8% of respondents with higher education, and 43-47% of those with incomplete secondhand , secondhand and vocational education. Note that respondents with incomplete higher education are the students, so low level of mild depression is due to their age
- Mild depression is more prevalent in women (43.9%) than in men (35.6%).

- Mild depression is a bit higher in Yerevan (42.7%), than in marz cities (38.8%) and villages (38.3%).

Prevalence of moderate depression according to sociodemographic groups has following picture.

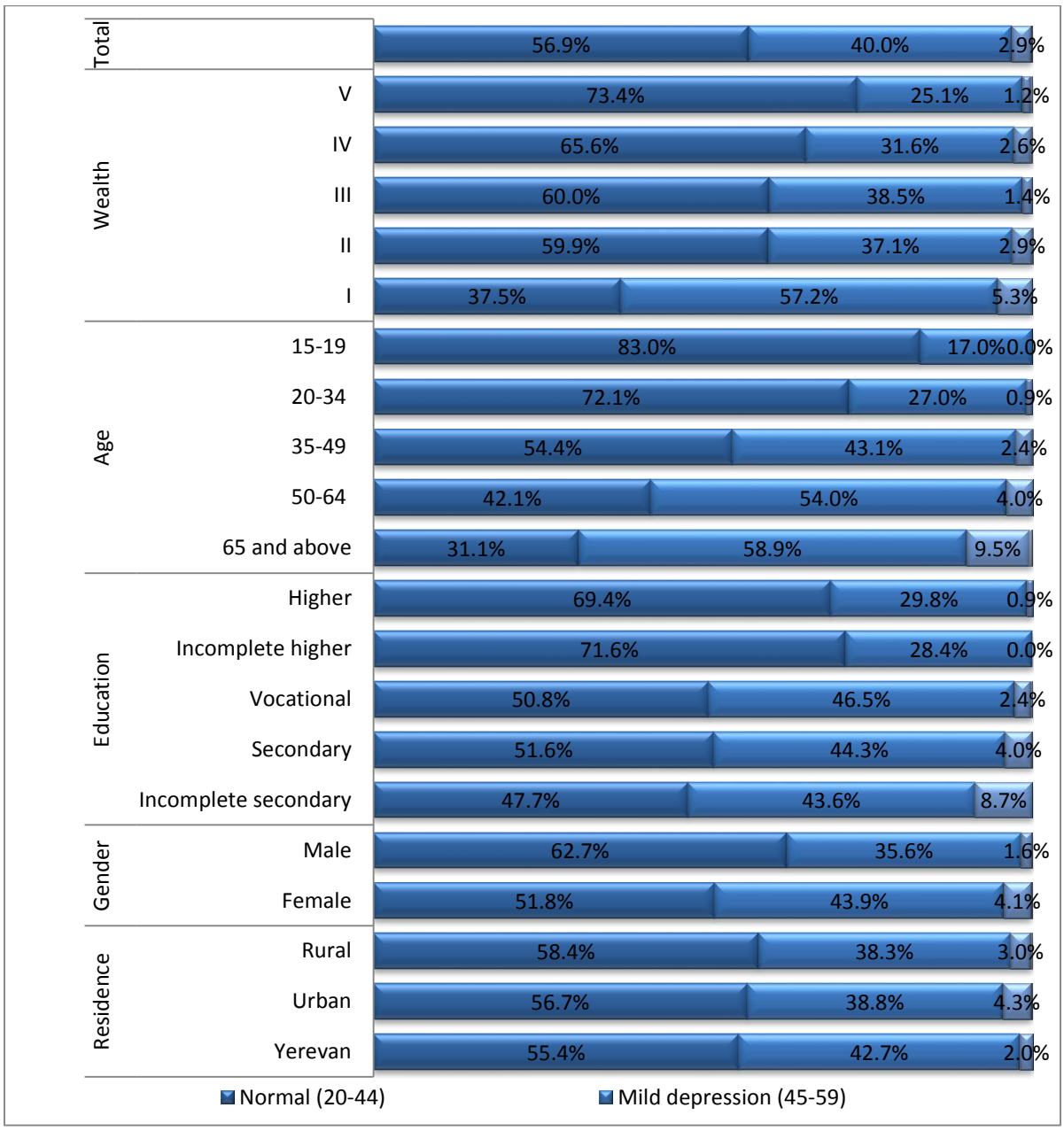
- Prevalence of moderate depression increases in parallel with decreasing wealth
- Prevalence of moderate depression increases in parallel with age
- The prevalence of moderate depression is higher in groups with lower levelof education,
- The proportion of women with moderate depression is about twice as high as the proportion of men,
- The percentage of respondents with moderate depression in the villages and in the provinces is slightly higher.

As for the prevalence of severe depression, the mass sociological survey methodology requires refraining from interviews with people who are sick and/or inadequate/depressive. On the other hand, these people usually avoid interviews. Hence it should be assumed that the prevalence of severe depression is much higher than the formally recorded level.

However the prevalence of severe depression by social and demographic groups has this results:

- severe depression was detected in 0.5% of 65 and older respondents
- among high wealth respondents 0.3%,
- 0.3% of those with vocational education
- 0.2% of rural population.

Figure 7. Prevalence of depression according to sociodemographic groups, 2016



Conclusions

Health assessment: General assessment of health is based on the WHO Health and quality of life questionnaire SF-12, which comprises eight components (domains) describing population satisfaction with various aspects of physical and mental health. Respondents assess their own health.

Values for general health and energy have increased between 2012 and 2016. Along with that, a decline tendency is seen in physical functioning, bodily pain, mental health,role-physical, role-emotional and social functioning. In fact, the biggest declineis seen in social functioning-from 79.7% in 2012 to 72.2% in 2016.

Prevalence of health conditions: Headache, lower back pain, joint pain and sleeplessness were reported by 40-60% of respondents.

In 2016 headache continues being the most common health condition in Armenia, like it was during the previous survey. Every second respondent reported to have headache.

Some 20-40% complained about neck/shoulder pain, pain in the chest when walking or doing other movements, toothache and depression. Another 5-20% reported edema of legs, dilatation of veins, constipation and dermatoses.

Mental health. Some 40% of Armenia population aged 15 years and above has mild depression, while 2.9% is moderately and 0.1% is severely depressed.

Depressive states are relatively more common among valnurable groups (depression, 57%, moderate depression - 5%) and among people aged 65 and above (depression - 59%, moderate depression - 10%).

HEALTH ASSESSMENT INDICATORS

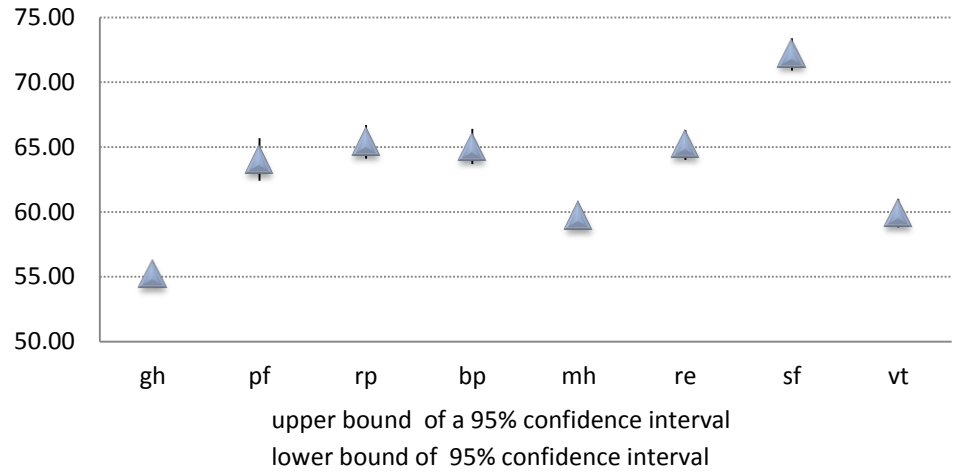
Health and quality life assessment indicators by social demographic groups

This chapter presents (according to SF 12 questionnaires) the assessment of domains characterizing health and quality life according to social-demographic groups and their upper and lower bounds of 0.95% reliabilityy values (confidence interval). (Vertical lignes in Figure 8 shows the upper and lower bounds of confidence itnerval).

Table 4. Self assessment indicators and reliability levelof health domains.

Total	gh	pf	rp	bp	mh	re	sf	vt
Mean	55.2	64.0	65.4	65.0	59.7	65.2	72.2	59.9
lower bound of 95% confidence interval	54.3	62.4	64.1	63.7	58.7	64.0	70.9	58.8
upper bound of a 95% confidence interval	56.1	65.7	66.7	66.4	60.6	66.3	73.4	61.0

Figure 8. Self-assessment indicators and confidence interval of health domains



Assessment indicators of health status domains by age group are given in Table 5and in Figure 9(for each of value/parameter were also calculated theirs upper and lower bounds of a 0.95 confidence interval)

Table 5 Assessment indicators/indicators and confidence intervals of health status domains by age

Age		gh	pf	rp	bp	mh	re	sf	vt
15-19	Mean	73.5	93.5	86.2	85.1	73.5	75.3	85.3	75.3
	lower bound of 95% confidence interval	70.9	91.1	83.5	82.0	70.8	72.0	82.1	72.3
	upper bound of a 95% confidence interval	76.1	96.0	88.9	88.2	76.2	78.6	88.5	78.4
20-34	Mean	63.6	85.3	80.0	79.9	65.7	72.7	79.3	68.4
	lower bound of 95% confidence interval	62.3	83.4	78.3	78.0	64.1	70.9	77.3	66.6
	upper bound of a 95% confidence interval	65.0	87.2	81.8	81.8	67.3	74.5	81.2	70.2
35-49	Mean	55.0	63.8	65.5	63.0	57.0	64.8	72.4	58.9
	lower bound of 95% confidence interval	53.4	60.6	63.1	60.3	55.0	62.4	69.9	56.7
	upper bound of a 95% confidence interval	56.5	67.0	67.9	65.7	59.1	67.1	75.0	61.2
50-64	Mean	44.8	42.7	52.1	51.7	52.8	58.3	65.5	51.0
	lower bound of 95% confidence interval	43.1	39.2	49.3	48.8	50.8	55.8	62.7	48.7
	upper bound of a 95% confidence interval	46.6	46.1	54.9	54.6	54.9	60.8	68.3	53.3
65 +	Mean	39.4	26.4	36.4	39.7	50.8	51.4	55.7	44.8
	lower bound of 95% confidence interval	36.8	22.4	32.9	35.9	48.1	47.8	51.6	41.8
	upper bound of a 95% confidence interval	42.0	30.3	39.9	43.5	53.5	54.9	59.7	47.8

Table 6 presents the differences self assessment indicators of health status domains and 5 age groups with α levelof 0.95 CI. The differences between the estimates were statistically valid, for which the data in table was smaller or equal to 0.05[2]:

Noted, that Table 6 consists of 5 sub-paragraphs, the first column of each section lists CI estimates of differences between self assessment health domains of each age group, the rest of the 4 age groups in the corresponding domain, compared to the values. It means, that you can find repetitive values in sub-paragraphs. For example in the first and second sub-paragraph the estimates (0.864) of emotional condition due to the vitality (re) are repeated in the age group of 15-19 and 20-34, where estimates of the age group of 20-34 are compared with the remaining 4 age groups.

Talbe 5 shows that general health value in the age group of 15-19 years is 73.5, while in 20-34 age group` gh is equal to 63.6: In Figure 9.

CI differences between the gHs of 15-19 and 20-34 age groups is equal to 0.000: <0.05, that is, we deny the zero hypothesis that these indicatorsare not statistically different (otherwise, we consider that general health (gh) indicatorsare statistically different in 15-19 and 20-34 age groups).

Another example is that in Talbe 5 we see that the role-emotional index (re) in 15-19 age group is 75.3, while the age group of 20-34 is equal to re= 72.7.

Table 6-shows the statistical CI differences between the 15-19 and 20-34 age groups, which is conditioned by the emotional state (re), is 0.864, which is greater than 0.05, wo it means that we dont deny the zero hypothesis (values do not differ from each other statistically).

[2]In this and other similar tables, data from sig.≤0.05 is written in red to distinguish them from other data.:

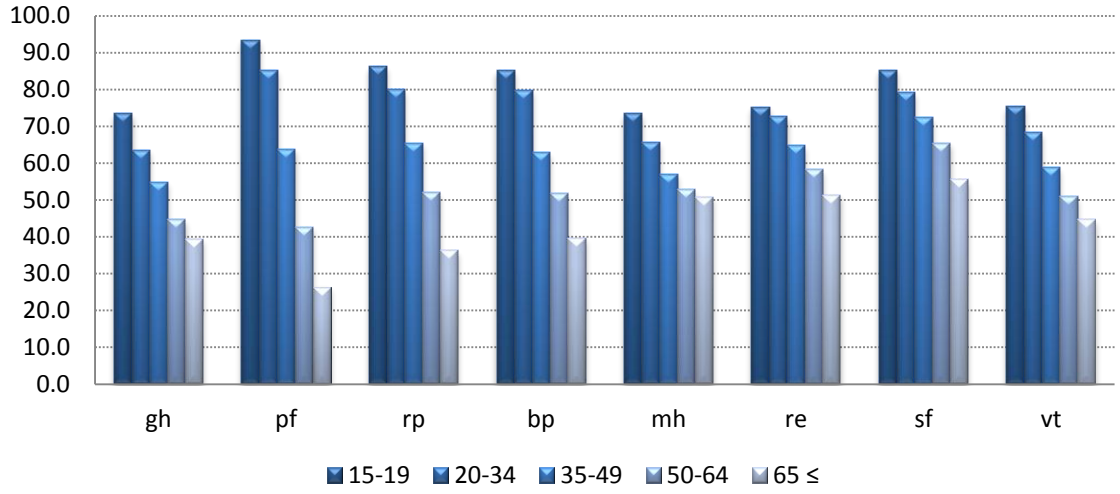
Hereby, data in Table 6 shows that:

- Differences in values of each domain characterizing the health status are statistically valid in the 5 age groups,
- Exceptions the estimates of the mental health domains in 50-64, 65 and above age groups (mh) and emotional condition due to vitality among 15-19 and 20-34 age groups are statistically unreliable.

Table 6. CI estimates differences of Health domains by age groups.

Multiple Comparisons									
(I) Age	(J) Age	Dependent Variable							
		gh	pf	rp	bp	mh	re	sf	vt
(1) 15-19	(2) -20-34	.000	.000	.002	.044	.000	.864	.019	.001
	(3) -35-49	.000	.000	.000	.000	.000	.000	.000	.000
	(4)-50-64	.000	.000	.000	.000	.000	.000	.000	.000
	(5) -65 +	.000	.000	.000	.000	.000	.000	.000	.000
(2) 20-34	(1) -15-19	.000	.000	.002	.044	.000	.864	.019	.001
	(3) -35-49	.000	.000	.000	.000	.000	.000	.000	.000
	(4) -50-64	.000	.000	.000	.000	.000	.000	.000	.000
	(5) -65 +	.000	.000	.000	.000	.000	.000	.000	.000
(3) 35-49	(I) -15-19	.000	.000	.000	.000	.000	.000	.000	.000
	(II) -20-34	.000	.000	.000	.000	.000	.000	.000	.000
	(4) -50-64	.000	.000	.000	.000	.042	.003	.004	.000
	(5) -65 +	.000	.000	.000	.000	.003	.000	.000	.000
(4) 50-64	(I) -15-19	.000	.000	.000	.000	.000	.000	.000	.000
	(II) -20-34	.000	.000	.000	.000	.000	.000	.000	.000
	(III) - 35-49	.000	.000	.000	.000	.042	.003	.004	.000
	(5) -65 +	.007	.000	.000	.000	.926	.018	.001	.012
(5) 65 and above	(I) -15-19	.000	.000	.000	.000	.000	.000	.000	.000
	(II) -20-34	.000	.000	.000	.000	.000	.000	.000	.000
	(III) -35-49	.000	.000	.000	.000	.003	.000	.000	.000
	(4) -50-64	.007	.000	.000	.000	.926	.018	.001	.012

Figure 9. Sel-assessment indicators of health domains by age groups.



The data indicate that age is greatly correlated with health domain self-assessment indicators, parallel to age related increase health domain self-esteem indicators statistically decrease.

Self-assessment indicatorscharacterizing health status domains and upper and lower limits of a CI, by sex are given in

Table 7 and Figure 10, by sex in Table 8.

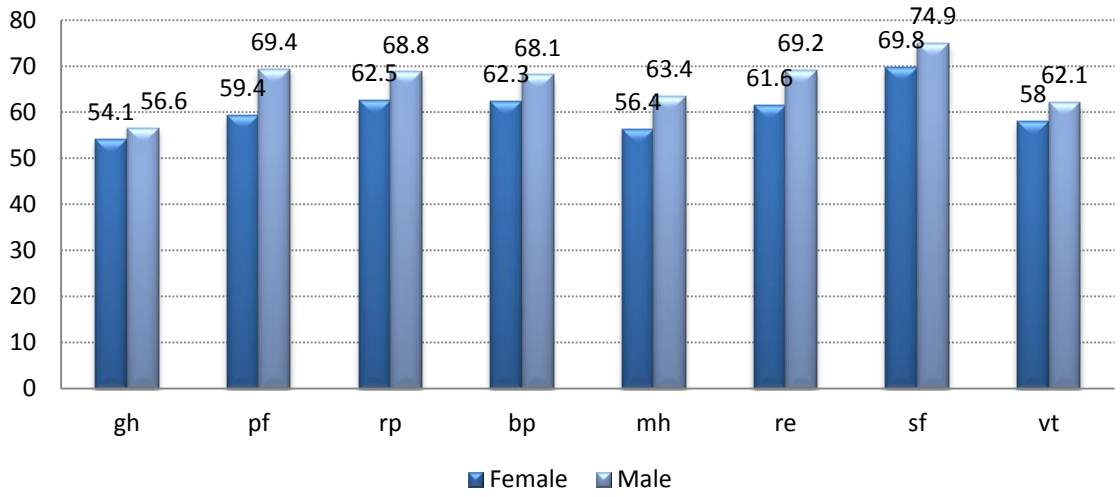
Table 7. Self-assessment indicatorscharacterizing health status domains and upper and lower limits of a CI, by sex

Sex		gh	pf	rp	bp	mh	re	sf	vt
Female	Mean	54.1	59.4	62.5	62.3	56.4	61.6	69.8	58.0
	lower bound of 95% confidence interval	52.9	57.2	60.7	60.4	55.1	60.0	68.1	56.5
	upper bound of a 95% confidence interval	55.3	61.7	64.3	64.2	57.7	63.3	71.6	59.5
Male	Mean	56.6	69.4	68.8	68.1	63.4	69.2	74.9	62.1
	lower bound of 95% confidence interval	55.2	67.1	66.9	66.1	61.9	67.6	73.0	60.5
	upper bound of a 95% confidence interval	57.9	71.6	70.7	70.1	64.8	70.9	76.7	63.7

Table 8 CI differences of self assessment health domains indicatorsby sex.

Independent Samples Test								
t-test for Equality of Means: Sig. (2-tailed)								
	gh	**pf**	**rp**	**bp**	**mh**	**re**	**sf**	**vt**
Equal variances assumed	.007	.000	.000	.000	.000	.000	.000	.000
Equal variances not assumed	.007	.000	.000	.000	.000	.000	.000	.000

Figure 10. self assessment indicators of health domains by sex



The analyzed data shows that self assessment indicators of health domains were relatively higher among men, and all these differences were statistically valid.

Self assessment indicators of health domains by residence represents in Table 9 and its differences in Table 10. To make the results more visial and vivid there are represented also in Figure 11.

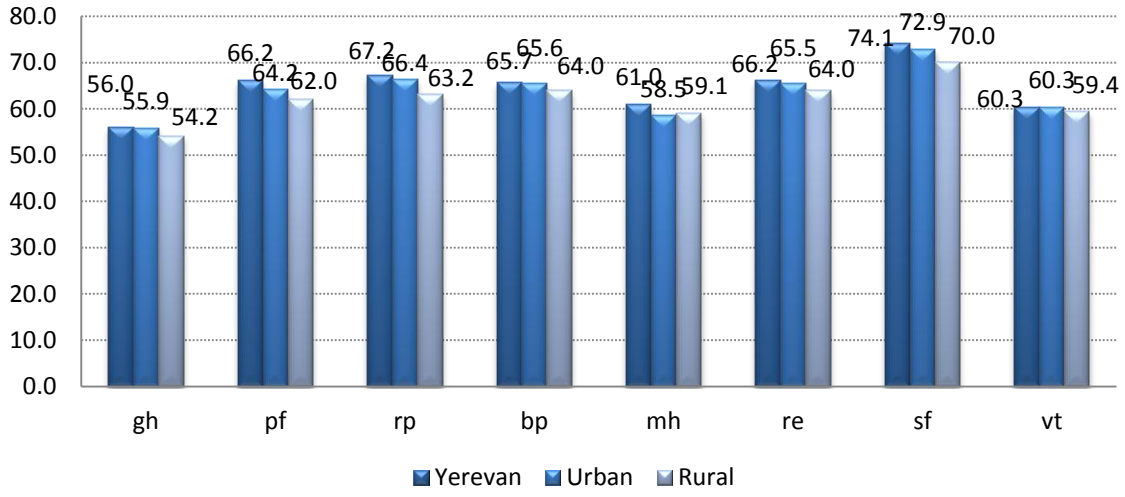
Table 9 Self-assessment indicators characterizing health status domains and upper and lower bounds of a CI, by residence

Residence		gh	pf	rp	bp	mh	re	sf	vt
Yerevan	Mean	56.0	66.2	67.2	65.7	61.0	66.2	74.1	60.3
	lower bound of 95% confidence interval	54.5	63.5	65.2	63.6	59.5	64.3	72.1	58.5
	upper bound of a 95% confidence interval	57.5	68.8	69.3	67.9	62.6	68.1	76.2	62.0
Urban	Mean	55.9	64.2	66.4	65.6	58.5	65.5	72.9	60.3
	lower bound of 95% confidence interval	54.1	60.9	63.8	62.7	56.4	63.2	70.3	58.0
	upper bound of a 95% confidence interval	57.6	67.4	69.1	68.4	60.5	67.8	75.4	62.6
Rural	Mean	54.2	62.0	63.2	64.0	59.1	64.0	70.0	59.4
	lower bound of 95% confidence interval	52.7	59.4	61.0	61.8	57.5	62.1	67.9	57.6
	upper bound of a 95% confidence interval	55.6	64.6	65.3	66.3	60.7	65.9	72.0	61.2

Table 10. CI differences of self assessment health domains indicators by residence

Multiple comparison									
(I) Residence	(J) Residence type	Dependent variable							
		gh	pf	rp	bp	mh	re	sf	vt
1 Yerevan	2) Urban	.999	.716	.957	1.000	.139	.953	.835	1.000
	3) Rural	.224	.081	.021	.630	.242	.282	.015	.882
2 Urban	1) Yerevan	.999	.716	.957	1.000	.139	.953	.835	1.000
	3) Rural	.381	.677	.170	.786	.943	.701	.231	.916
3 Rural	1) Yerevan	.224	.081	.021	.630	.242	.282	.015	.882
	2) Urban	.381	.677	.170	.786	.943	.701	.231	.916

Figure 11. Self assessment indicators of health domains by residence



By reviewing the data, we can conclude that.

- *From health domains assessment indicators only physical viability (rp) and social fonctionality (sf) indicators in Yerevan and villages were statistically valid.*
- *The overall data configuration allows us to suppose that from all health domain assessment indicators were higher in Yerevan, relatively low in urban places and lowest in rural places.*

The self assessment of health domains by education level is represented in. In order to make the differences more visually, they are also presented in Figure 12.

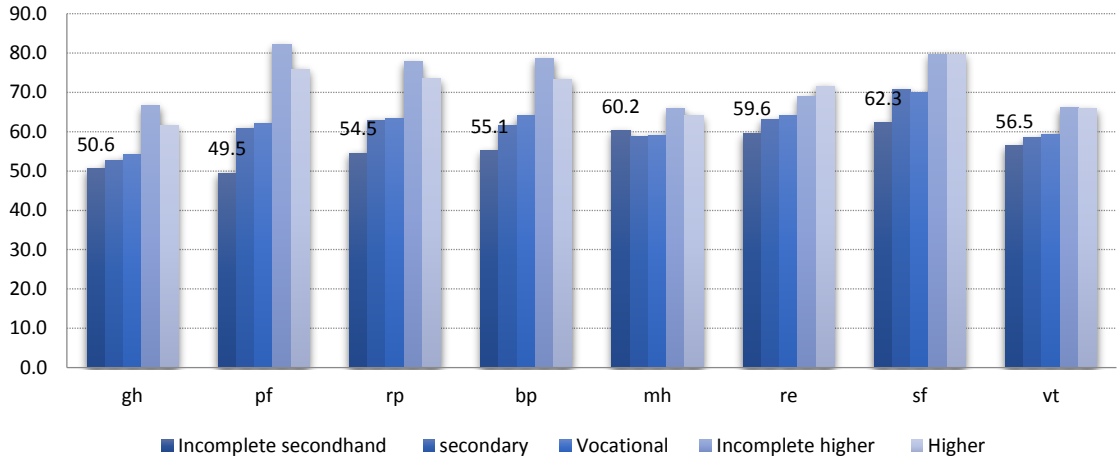
Table 11. Self assessment indicators and CI of health domains by respondents education level

Education level		gh	pf	rp	bp	mh	re	sf	vt
Incomplete secondhand	Mean	50.6	49.5	54.5	55.1	60.2	59.6	62.3	56.5
	lower bound of 95% confidence interval	46.3	42.8	48.8	49.2	56.4	54.5	56.8	51.7
	upper bound of a 95% confidence interval	54.9	56.3	60.1	61.0	64.1	64.7	67.9	61.2
secondary	Mean	52.7	60.9	62.9	61.5	58.7	63.1	70.7	58.4
	lower bound of 95% confidence interval	51.3	58.4	60.9	59.4	57.2	61.3	68.8	56.7
	upper bound of a 95% confidence interval	54.0	63.3	64.9	63.7	60.2	64.9	72.7	60.1
Vocational	Mean	50.6	54.8	60.3	61.3	54.0	62.8	66.9	55.1
	lower bound of 95% confidence interval	48.7	50.9	57.2	58.0	51.8	60.1	63.8	52.5
	upper bound of a 95% confidence interval	52.6	58.6	63.5	64.5	56.2	65.5	69.9	57.6
Incomplete higher	Mean	66.6	82.1	77.8	78.6	65.9	68.9	79.7	66.1
	lower bound of 95% confidence interval	63.4	77.5	74.1	74.5	62.1	64.9	75.5	62.1
	upper bound of a 95% confidence interval	69.8	86.6	81.6	82.7	69.7	73.0	83.8	70.1
Higher	Mean	61.5	75.9	73.5	73.3	64.0	71.5	79.7	65.8
	lower bound of 95% confidence interval	59.9	72.9	71.1	70.8	62.1	69.3	77.4	63.6
	upper bound of a 95% confidence interval	63.2	78.9	75.8	75.8	65.9	73.7	82.0	67.9

Table 12. CI differences of health domain`s self assessment indicators by respondents education level

Multiple comparisons									
(I) Education	(J) Education Type	Dependent variable							
		gh	pf	rp	bp	mh	re	sf	vt
1 Incomplete secondhand	secondary	.988	.020	.060	.355	.998	.898	.053	.998
	vocational	1.000	.869	.541	.523	.055	.960	.822	1.000
	incomplete higher	.000	.000	.000	.000	.347	.047	.000	.022
	Higher	.000	.000	.000	.000	.599	.000	.000	.005
2 Secondary	secondary	.988	.020	.060	.355	.998	.898	.053	.998
	vocational	.622	.085	.871	1.000	.005	1.000	.317	.286
	incomplete higher	.000	.000	.000	.000	.006	.090	.002	.005
	Higher	.000	.000	.000	.000	.000	.000	.000	.000
3 Vocational	secondary	1.000	.869	.541	.523	.055	.960	.822	1.000
	vocational	.622	.085	.871	1.000	.005	1.000	.317	.286
	Incomplete higher	.000	.000	.000	.000	.000	.127	.000	.000
	Higher	.000	.000	.000	.000	.000	.000	.000	.000
4. Incomplete higher	secondary	.000	.000	.000	.000	.347	.047	.000	.022
	vocational	.000	.000	.000	.000	.006	.090	.002	.005
	incomplete higher	.000	.000	.000	.000	.000	.127	.000	.000
	Higher	.058	.231	.404	.261	.992	.964	1.000	1.000
5 Higher	secondary	.000	.000	.000	.000	.599	.000	.000	.005
	vocational	.000	.000	.000	.000	.000	.000	.000	.000
	incomplete higher	.000	.000	.000	.000	.000	.000	.000	.000
	Higher	.058	.231	.404	.261	.992	.964	1.000	1.000

*Figure 12. S*elf assessment indicators of health domains according to education level.



The presented data shows that the higher is persons education level the better is his health domains self assessment indicators.

Health domains self assessment indicators by wealth quintiles presented in Table 13 and the values of statistical differences presented in Table 14. In order to make the differences more visually, they are also presented in Figure 13.

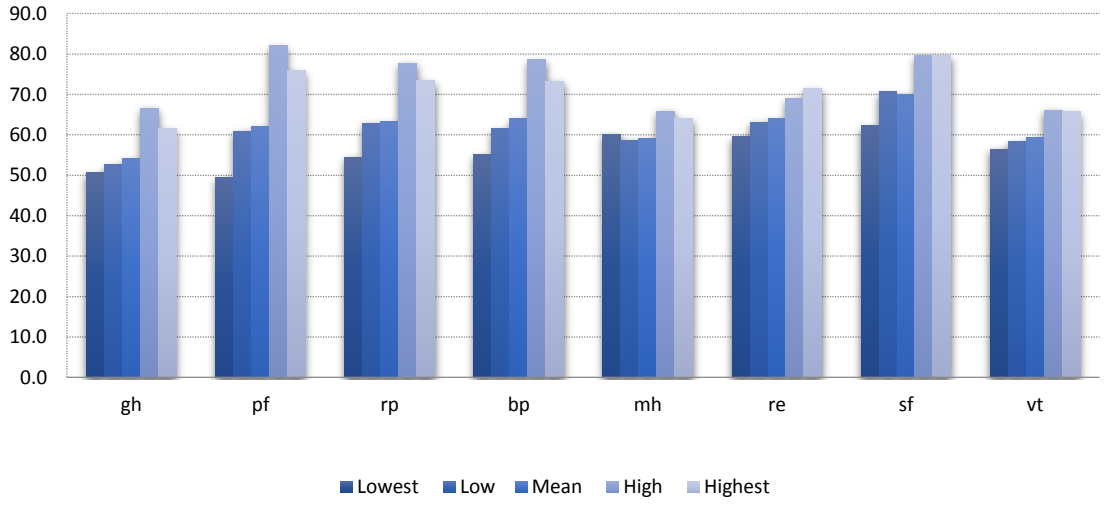
Table 13. Self assessment indicators and CI of health domains by wealth quintiles.

Wealth quintiles		gh	pf	rp	bp	mh	re	sf	vt
I.Lowest	Mean	49.3	51.5	54.1	54.2	54.2	56.6	64.3	50.7
	lower bound of 95% confidence interval	47.6	48.3	51.7	51.6	52.5	54.4	61.9	48.7
	upper bound of a 95% confidence interval	51.0	54.7	56.6	56.7	56.0	58.7	66.8	52.8
II.Low	Mean	55.5	64.4	66.2	65.3	59.3	68.6	74.7	60.4
	lower bound of 95% confidence interval	53.6	60.8	63.3	62.2	57.0	66.0	72.0	58.0
	upper bound of a 95% confidence interval	57.4	68.0	69.1	68.4	61.5	71.2	77.4	62.9
III. Mean	Mean	54.9	67.6	68.7	69.5	61.5	67.7	73.5	63.6
	lower bound of 95% confidence interval	52.9	64.0	65.8	66.5	59.3	65.1	70.5	61.1
	upper bound of a 95% confidence interval	56.9	71.2	71.6	72.5	63.7	70.3	76.4	66.1
IV.High	Mean	58.1	70.4	70.7	71.1	62.2	68.5	75.0	63.9
	lower bound of 95% confidence interval	55.8	66.7	67.7	67.7	59.7	65.7	72.0	61.2
	upper bound of a 95% confidence interval	60.3	74.2	73.7	74.4	64.7	71.3	78.1	66.6
V.Highest	Mean	62.5	74.0	74.3	71.7	64.6	69.1	77.9	66.6
	lower bound of 95% confidence interval	60.5	70.3	71.4	68.4	62.3	66.2	75.1	63.9
	upper bound of a 95% confidence interval	64.6	77.6	77.3	75.0	67.0	72.0	80.8	69.3

Table 14. CI differences of health domain`s assessment indicators by wealth quintiles.

Multiple comparisons									
(I) Wealth quintiles	(J) Wealth quintiles	Dependent variables							
		gh	pf	rp	bp	mh	re	sf	vt
I. Lowest	II. Low	.000	.000	.000	.000	.006	.000	.000	.000
	III. Mean	.000	.000	.000	.000	.000	.000	.000	.000
	IV. High	.000	.000	.000	.000	.000	.000	.000	.000
	V. Highest	.000	.000	.000	.000	.000	.000	.000	.000
II. Low	I. Lowest	.000	.000	.000	.000	.006	.000	.000	.000
	III. Mean	1.000	.908	.927	.454	.822	1.000	1.000	.539
	IV. High	.613	.204	.299	.128	.611	1.000	1.000	.487
	V. Highest	.000	.002	.001	.055	.013	1.000	.689	.008
III. Mean	I. Lowest	.000	.000	.000	.000	.000	.000	.000	.000
	II. Low	1.000	.908	.927	.454	.822	1.000	1.000	.539
	IV. High	.338	.967	.985	.999	1.000	1.000	.998	1.000
	V. Highest	.000	.141	.073	.982	.444	.999	.291	.691
IV. High	I. Lowest	.000	.000	.000	.000	.000	.000	.000	.000
	II. Low	.613	.204	.299	.128	.611	1.000	1.000	.487
	III. Mean	.338	.967	.985	.999	1.000	1.000	.998	1.000
	V. Highest	.042	.869	.623	1.000	.826	1.000	.855	.822
5 Highest	I. Lowest	.000	.000	.000	.000	.000	.000	.000	.000
	II. Low	.000	.002	.001	.055	.013	1.000	.689	.008
	III. Mean	.000	.141	.073	.982	.444	.999	.291	.691
	IV. High	.042	.869	.623	1.000	.826	1.000	.855	.822

Figure 13. Health domains assessment indicators by wealth quintiles.



The data presented generally show that if the well-being of person is higher the better the self-assessment indicators of his health and quality of life domains are.

Interconnection of NCD risk factors with health domains assessment indicators.

Interconncetion of tobacco consumtion among men with health domains assessment indicators.

Based on that fact that the percentage of tobacco use among women is lower (2.3%), the interconnection of health and life quality assessment indicators is estmaited only for men.

Men's self-assessment domains were analyzed according to smoking frequency daily and regular (not daily) and the negative impact of secondhand smoke on home and workplace was assessed among all respondents.

Health assessment domains indicators and CI are presented in Table 15 and Figure 14 and the differences of statstical CI presented in Table 15.

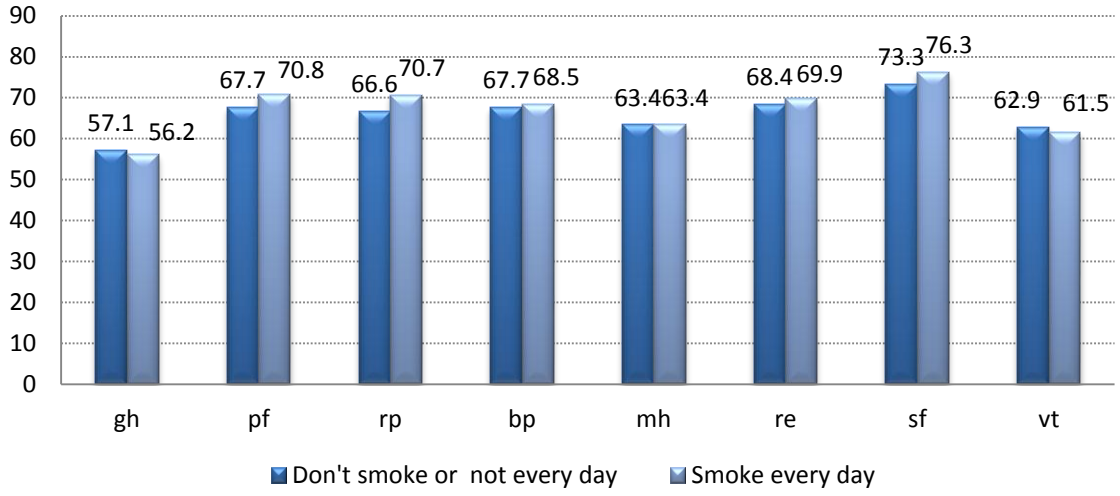
Table 15. Health domains self-assessment indicators and CI by tabacoo use.

Male		gh	pf	rp	bp	mh	re	sf	vt
Don't smoke or not every day	Mean	57.1	67.7	66.6	67.7	63.4	68.4	73.3	62.9
	lower bound of 95% confidence interval	55.0	64.3	63.7	64.8	61.3	65.9	70.5	60.5
	upper bound of a 95% confidence interval	59.2	71.1	69.4	70.6	65.5	70.9	76.0	65.2
Smoke every day	Mean	56.2	70.8	70.7	68.5	63.4	69.9	76.3	61.5
	lower bound of 95% confidence interval	54.4	67.8	68.2	65.8	61.4	67.7	73.9	59.3
	upper bound of a 95% confidence interval	58.0	73.9	73.2	71.2	65.4	72.1	78.7	63.8

Table 16. CI differences of health domain`s assessment indicators by tabacoo use

Independent Samples Test								
Medium equilibrium test t-test. Significance level is bilateral								
	gh	pf	rp	bp	mh	re	sf	vt
Supposedly dispersions are equal	.527	.180	.030	.712	.991	.380	.104	.424
Dispersion equation is not assumed	.529	.181	.031	.712	.991	.381	.105	.423

Figure 14. Self assessment indicators of health domains by tabacoo use.



Data show that Health domains assessment indicators of non smokers or no daily smokers hasn`t statistical different from every day smokers.

An exception is only the role of physical vitality (rp), which is higher among daily men smokers.

Exposure of secondhand smoke at home.

The indicators of this chapter are calculated for those, who indicated that they have been exposed second hand smoke at home. In Table 17 and in Figure 15 you can find self assessment indicators of health domains and CI by the exposure of second hand smoke at home and the differences of CI level presented in Table 18.

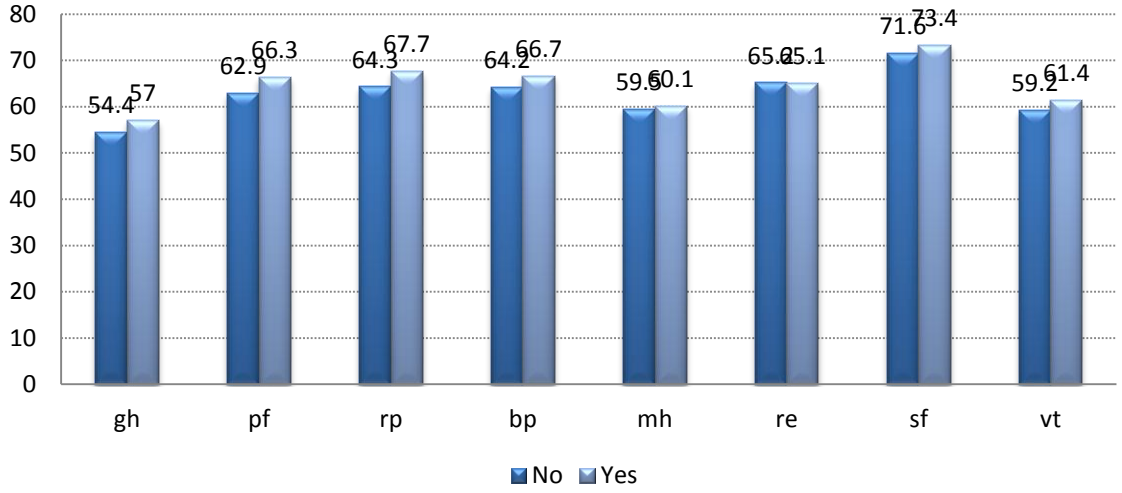
Table 17. Health assessment indicators and CI by exposure and impact of second hand smoke at home.

Exposure of Second hand smoke at home		gh	pf	rp	bp	mh	re	sf	vt
No	Mean	54.4	62.9	64.3	64.2	59.5	65.2	71.6	59.2
	lower bound of 95% confidence interval	53.2	60.9	62.7	62.5	58.2	63.7	70.0	57.8
	upper bound of a 95% confidence interval	55.5	64.9	65.9	65.9	60.7	66.6	73.1	60.6
Yes	Mean	57.0	66.3	67.7	66.7	60.1	65.1	73.4	61.4
	lower bound of 95% confidence interval	55.6	63.6	65.6	64.4	58.5	63.2	71.2	59.5
	upper bound of a 95% confidence interval	58.5	69.0	69.9	69.0	61.7	67.1	75.5	63.2

Table 18. CI differences of health domains assessment indicators by exposure and impact of second hand smoke at home.

Independent Samples Test								
Medium equilibrium test t-test. Significance level is bilateral								
	gh	**pf**	**rp**	**bp**	**mh**	**re**	**sf**	**vt**
Supposedly, the dispersions are equal	**.006**	**.051**	**.013**	.089	.536	.984	.199	.074
Dispersion equation is not assumed	**.005**	**.047**	**.012**	.084	.529	.984	.197	.069

Figure 15. Self assessment indicators of health domains by exposure of second hand smoke at home



Data show that among people , who exposed to second hand tobacco smoke exposure at home self assessment indicators are statistically significant higher in general health (gh) , physical functionality (pf) and and role physical condition (rp) domains indicators.

Expsure of second hand smoke at home or at working place.

During the study period, the self-assessment indicators of health domains and confidence intervals were examined by the exposure and impact of secondhand smoke at home or workplace over the past 30 days, which were presented in Table 19 and in Figure 16 and differences of confidence intervals presented in Table 20.

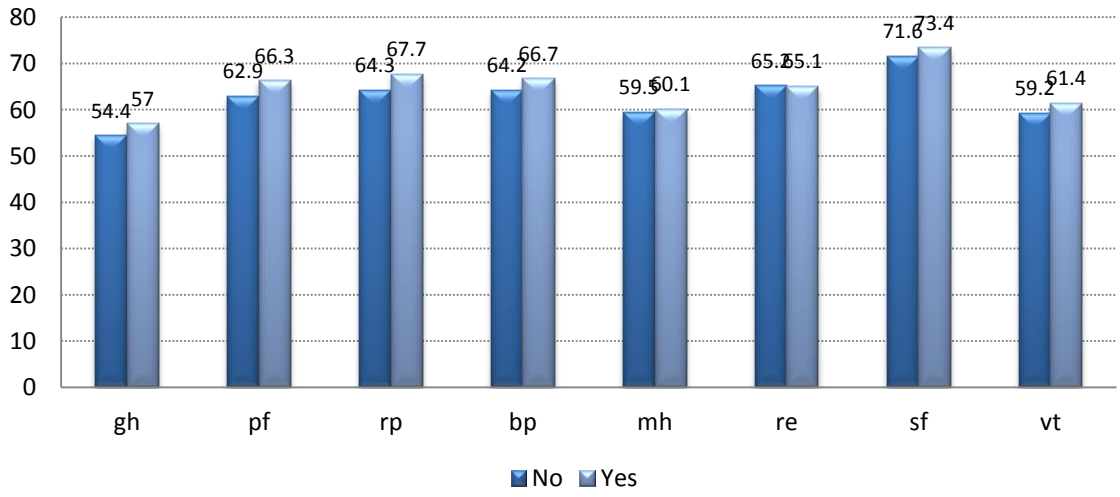
Table 19. Self assessment of health domains indicators and confidence intervals by the exposure and impact of secondhand smoke at home or workplace over the past 30 days

Exposure of second hand smoke at home or working place.		gh	pf	rp	bp	mh	re	sf	vt
No	Mean	54.0	61.9	63.5	63.4	59.3	64.5	71.1	58.8
	lower bound of 95% confidence interval	52.8	59.9	61.8	61.7	58.0	63.0	69.5	57.3
	upper bound of a 95% confidence interval	55.2	64.0	65.1	65.2	60.5	65.9	72.7	60.2
Yes	Mean	57.4	67.6	68.7	67.8	60.3	66.4	74.0	61.9
	lower bound of 95% confidence interval	56.0	65.1	66.7	65.6	58.7	64.5	71.9	60.2
	upper bound of a 95% confidence interval	58.8	70.1	70.8	69.9	61.9	68.2	76.0	63.7

Table 20. CI differences of health domains assessment indicators by the exposure and impact of secondhand smoke at home or workplace over the past 30 days

Independent Samples Test								
Medium equilibrium test t-test. Significance level is bilateral								
	gh	**pf**	**rp**	**bp**	**mh**	**re**	**sf**	**vt**
Supposedly, the dispersions are equal	**.000**	**.001**	**.000**	**.003**	.320	.115	**.034**	**.007**
Dispersion equation is not assumed	**.000**	**.001**	**.000**	**.002**	.316	.110	**.033**	**.006**

Figure 16. Self assessment indicators of health domains by the exposure and impact of secondhand smoke at home or workplace over the past 30 days



The data indicate that among those who exposed secondhand smoke at home or at work, all self assessment indicators are statistically significant higher, except for mental health (mh) and role emotional (re) domains indicators.

Interconnection of health domain`s self assessment indicators with alcohol consumption.

Based on the fact that alcohol consumption and especially abuse of alcohol (consumption of alcohol beverage equivalent to 20 grams and more of pure alcohol per day) among women aged 15 years and above in Armenia and is quite small (0.7%), in this chapter the influence of alcohol on health domain self-assessment indicators analyzed only for men.

Self assessment indicators of health domains and the confidence intervals by consumption of alcohol beverages (equivalent to 20 gram and more of pure alcohol per day) among men aged 15 and above population presented in Table 21 and Figure 17, and the differences of confidence intervals presented in Table 22.

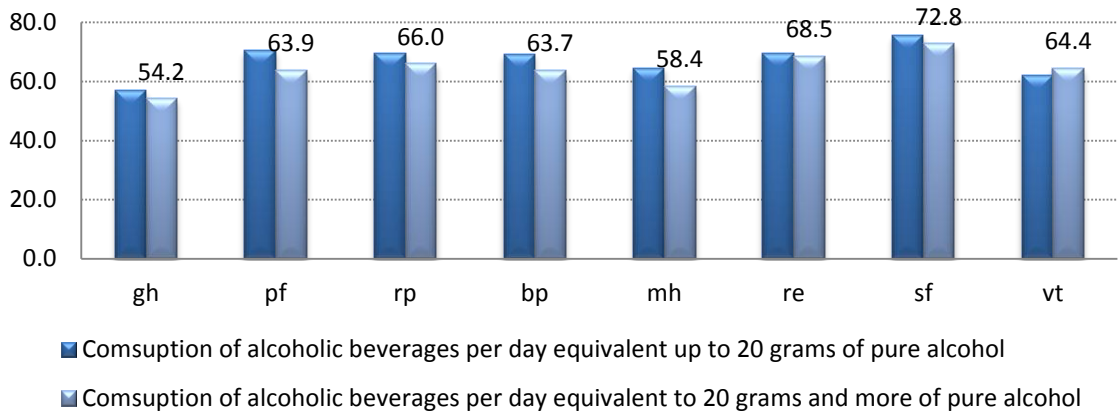
Table 21. Self-assessment of health domains indicators and confidence intervals among men aged 15 and above, according to the level of alcohol consumption (equivalent to 20 grams and more of pure alcohol per day).

Consumption of alcohol beverages		gh	pf	rp	bp	mh	re	sf	vt
Comsuption of alcoholic beverages per day equivalent up to 20 grams of pure alcohol	Mean	57.1	70.6	69.6	69.3	64.6	69.7	75.6	62.0
	lower bound of 95% confidence interval	55.6	68.2	67.6	67.1	63.0	67.9	73.6	60.2
	upper bound of a 95% confidence interval	58.6	73.1	71.7	71.4	66.2	71.5	77.5	63.8
Comsuption of alcoholic beverages per day equivalent to 20 grams and more of pure alcohol	Mean	54.2	63.9	66.0	63.7	58.4	68.5	72.8	64.4
	lower bound of 95% confidence interval	50.7	58.0	61.2	58.5	54.6	64.3	68.1	60.2
	upper bound of a 95% confidence interval	57.7	69.8	70.8	69.0	62.1	72.8	77.5	68.5

Table 22. CI differences of health domains assessment indicators by the level of alcohol consumption (equivalent to 20 grams and more of pure alcohol per day) among among men aged 15 and above.

Independent Samples Test								
Medium equilibrium test t-test. Significance level is bilateral								
	gh	pf	rp	bp	mh	re	sf	vt
Supposedly, the dispersions are equal	.120	.033	.168	.043	.002	.613	.276	.295
Dispersion equation is not assumed	.126	.039	.172	.055	.003	.616	.287	.303

Figure 17. Self assessment indicators of health domains among men aged 15 and above, according to the level of alcohol consumption (equivalent to 20 grams and more of pure alcohol per day).



The data show that among abusing alcohol, self assessment indicators of health domains are statistically significant lower in physical functionality (pf) and body pain (bp) domains.

Interconnection of body mass index with health domains assessment indicators.

Self assessment indicators of health doamins by body mass index is presented in Table 23 and Figure 18, also the differences of CI is in Table 24.

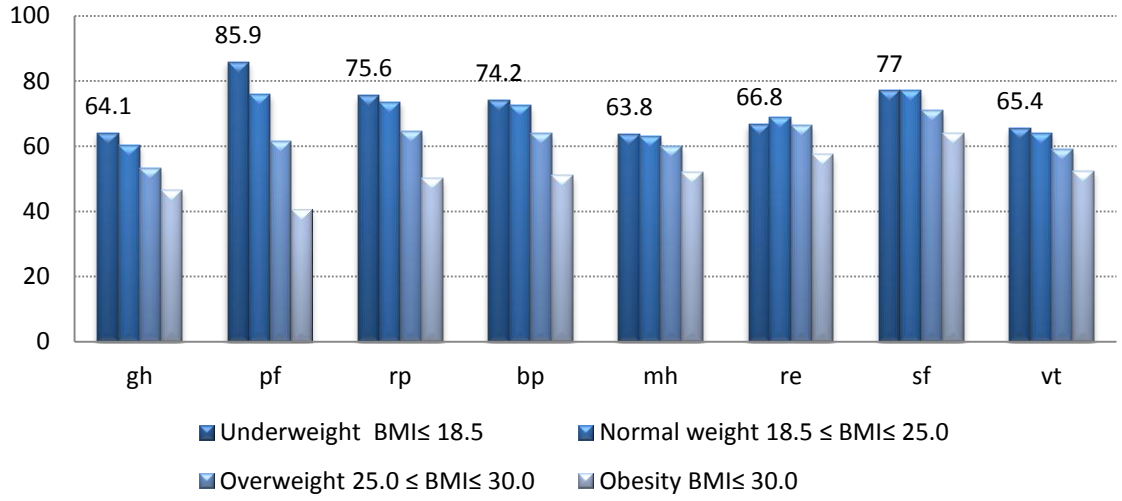
Table 23. self -assessment of health domains indicators and confidence intervals by BMI

BMI		gh	pf	rp	bp	mh	re	sf	vt
Underweight` BMI ≤ 18.5	Mean	64.1	85.9	75.6	74.2	63.8	66.8	77.0	65.4
	lower bound of 95% confidence interval	60.5	81.1	70.8	69.2	59.8	62.4	71.8	60.9
	upper bound of a 95% confidence interval	67.6	90.8	80.5	79.2	67.8	71.2	82.1	70.0
Normal 18.5 ≤ BMI ≤ 25.0	Mean	60.2	75.9	73.5	72.6	63.0	68.8	77.2	64.0
	lower bound of 95% confidence interval	58.8	73.7	71.7	70.7	61.5	67.2	75.4	62.3
	upper bound of a 95% confidence interval	61.5	78.0	75.3	74.5	64.4	70.5	79.0	65.7
Overweight 25.0 ≤ BMI ≤ 30.0	Mean	53.4	61.6	64.5	63.9	60.0	66.4	70.9	59.2
	lower bound of 95% confidence interval	51.7	58.6	62.0	61.3	58.2	64.1	68.6	57.1
	upper bound of a 95% confidence interval	55.0	64.6	66.9	66.5	61.8	68.6	73.3	61.2
Obesity ` BMI ≤ 30.0	Mean	46.6	40.5	50.0	51.0	52.1	57.4	63.9	52.4
	lower bound of 95% confidence interval	44.8	36.9	47.2	48.0	50.0	54.7	61.0	50.1
	upper bound of a 95% confidence interval	48.3	44.0	52.8	54.1	54.3	60.0	66.8	54.7

Table 24. CI differences of health domains assessment indicators by BMI

Multiple Comparisons									
Tamhane									
Sig.									
(I) Body mass index	**(J) Body mass index**	**Dependent Variable**							
		gh	**pf**	**rp**	**bp**	**mh**	**re**	**sf**	**vt**
(1) Underweight BMI≤ 18.5	**(2) Normal 18.5 ≤ BMI≤ 25.0**	.225	.001	.960	.992	.999	.951	1.000	.993
	(3) Overweight25.0 ≤ BMI≤ 30.0	.000	.000	.000	.002	.426	1.000	.206	.084
	(4) Obesity` BMI≤ 30.0	.000	.000	.000	.000	.000	.002	.000	.000
(2) Normal weight 18.5 ≤ BMI≤ 25.0	**(1) UnderweightBMI≤ 18.5**	.225	.001	.960	.992	.999	.951	1.000	.993
	(3) Overweight25.0 ≤ BMI≤ 30.0	.000	.000	.000	.000	.074	.398	.000	.002
	(4) Obesity BMI≤ 30.0	.000	.000	.000	.000	.000	.000	.000	.000
(3) Overweight 25.0 ≤ BMI≤ 30.0	**(1) underweight BMI≤ 18.5**	.000	.000	.000	.002	.426	1.000	.206	.084
	(2) Normal weight 18.5 ≤ BMI≤ 25.0	.000	.000	.000	.000	.074	.398	.000	.002
	(4) Obesity BMI≤ 30.0	.000	.000	.000	.000	.000	.000	.002	.000
(4) Obesity BMI≤ 30.0	**(1) UnderweightBMI≤ 18.5**	.000	.000	.000	.000	.000	.002	.000	.000
	(2) Normal weight 18.5 ≤ BMI≤ 25.0	.000	.000	.000	.000	.000	.000	.000	.000
	(3) Overweight25.0 ≤ BMI≤ 30.0	.000	.000	.000	.000	.000	.000	.002	.000

Figure 18. Self assessment indicators of health domains according BMI.



Data indicate that:

- *Among overweight respondents , all the health domains assessment indicators were lower*
- *Among espondents Underweight and Normal weight groups the differences of indicators were statistical not valid (with probability of 0.95 and the α = 0.05 CI) except for the physical fonctionality (pf), which were higher in the Underweight group of individuals.*

Interconnection of physical activity level with self assessment indictaors of health domains.

The self assessment indicators of health domains and CI by physhical activity level presented in Table 25 and Figure 19. Differences of CI levelpresentedin Table 26.

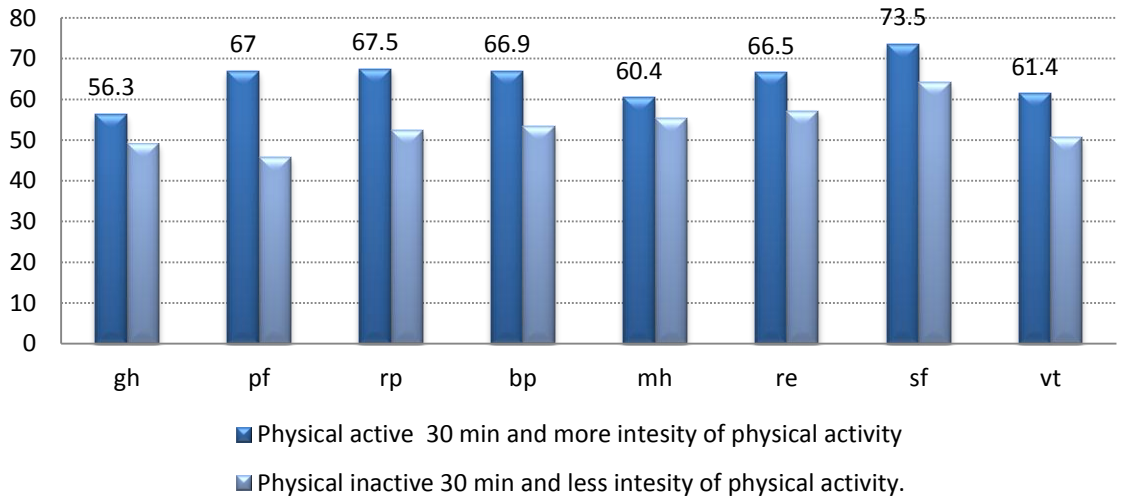
Table 25. Self assessment of health domains indicators and CI according to the level of physical activity.

PHYSICAL ACTIVITY		gh	pf	rp	bp	mh	re	sf	vt
Physical active 30 min and more intesity of physical activity	Mean	56.3	67.0	67.5	66.9	60.4	66.5	73.5	61.4
	lower bound of 95% confidence interval	55.3	65.3	66.2	65.5	59.3	65.2	72.1	60.3
	upper bound of a 95% confidence interval	57.2	68.7	68.9	68.3	61.4	67.7	74.8	62.6
Physical inactive 30 min and less intesity of physical activity.	Mean	49.1	45.9	52.3	53.4	55.4	57.2	64.2	50.6
	lower bound of 95% confidence interval	46.3	41.2	48.2	49.3	52.5	53.6	60.3	47.3
	upper bound of a 95% confidence interval	51.8	50.6	56.4	57.5	58.3	60.7	68.2	53.9

Table 26. CI differences of health domains assessment indicators according to the level of physical activity.

Independent Samples Test								
Medium equilibrium test t-test. Significance level is bilateral								
	gh	**pf**	**rp**	**bp**	**mh**	**re**	**sf**	**vt**
Supposedly, the dispersions are equal	.000	.000	.000	.000	.001	.000	.000	.000
Dispersion equation is not assumed	.000	.000	.000	.000	.002	.000	.000	.000

Figure 19. Self assessment indicators of health domains according to the level of physical activity.



Data indicate that all the domains of health self-assessment are lower among those who are physically inactive.

Interconnection of physical activity with self assessment indicators of health domains also analysed according to WHO recommendations: that is, "physically is active, who made 150 or more minutes moderate or vigorous intensity physical activity per week."

Self assessment indicators of health domains and CI presented in Table 27. CI differences of health domains assessment indicators presented in Table 28.

The figure shows the comparison of two criteria for physical intesity, and the first and second criteria are esitmated (ie the first two columns for each domain are the same as in Figure 19):

Table 27. Self assessment indicators of health domains and CI according to intesity of physcial activity

Physcial activity		gh	pf	rp	bp	mh	re	sf	vt
Physical inactivity Less than 150 min of moderate of vigorous intensity of physical activity per week	Mean	54.5	61.3	63.7	63.9	60.4	64.7	72.2	58.6
	lower bound of 95% confidence interval	53.3	59.2	62.0	62.2	59.1	63.2	70.6	57.2
	upper bound of a 95% confidence interval	55.6	63.3	65.4	65.7	61.6	66.2	73.8	60.0
Physical active more than 150 min of moderate of vigorous intensity of physical activity per week	Mean	56.7	69.3	68.7	67.1	58.3	66.1	72.1	62.5
	lower bound of 95% confidence interval	55.3	66.8	66.7	65.0	56.7	64.3	70.1	60.8
	upper bound of a 95% confidence interval	58.1	71.9	70.6	69.3	59.9	67.9	74.2	64.3

Table 28. CI differences of health domains assessment indicators according to the level of physical activity.

Independent Samples Test								
Medium equilibrium test t-test. Significance level is bilateral								
	gh	**pf**	**rp**	**bp**	**mh**	**re**	**sf**	**vt**
Supposedly, the dispersions are equal	.020	.000	.000	.029	.046	.238	.958	.001
Dispersion equation is not assumed	.015	.000	.000	.023	.040	.218	.957	.001

Data show that:

- *From the data presented in Figure 20, we can conclude that physical inactive people have health problems (diseases) that lower their physical activity*
- *For those who made moderate of vigorous physical activity up to 150 minutes, the self-assessment indicators of health domains also show that individuals who were physical inactive have a lower self-esteem. However, in this case emotional condition due to vitality and social fonctionality domains indicators are not statistical reliable/valid (according to our deicded standards).*

Interconnection of blood pressure levels with the self assessment indicators of heath domains.

Self assessment indicators of health domains and confidence intervals presented in Table 29 and the difference in these indicators(0.95) CI ($\alpha = 0.05$) presented in Table 30, and the graphic of these data presented in Figure 20.

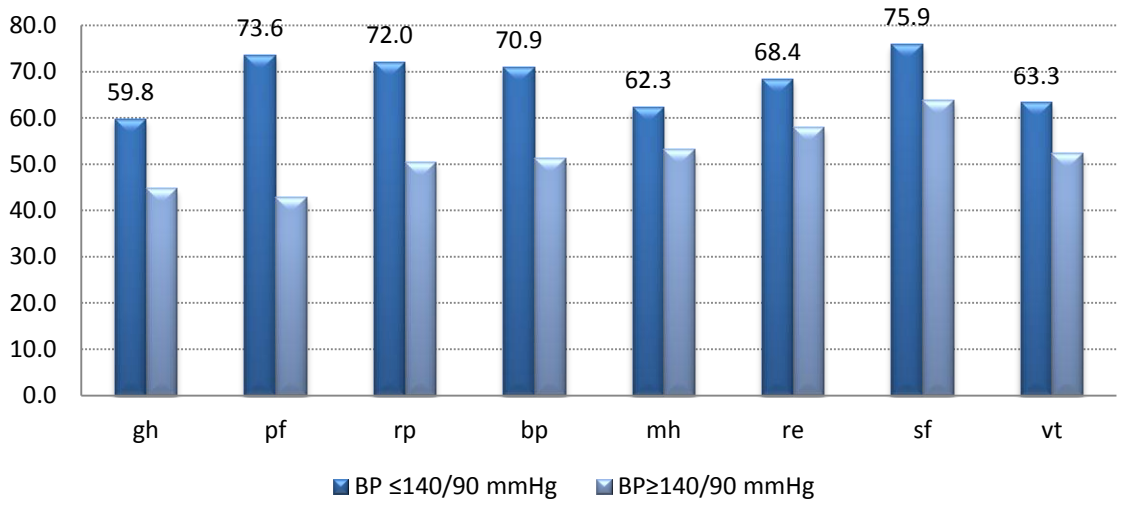
Table 29. Self assessment indicators of health domains and CI according to levels of Blood pressure.

Blood pressure levels		gh	pf	rp	bp	mh	re	sf	vt
BP ≤140/90 mmHg	Mean	59.8	73.6	72.0	70.9	62.3	68.4	75.9	63.3
	lower bound of 95% confidence interval	58.8	71.9	70.6	69.4	61.2	67.0	74.5	62.0
	upper bound of a 95% confidence interval	60.7	75.3	73.4	72.5	63.5	69.7	77.4	64.6
BP≥140/90 mmHg	Mean	44.8	42.8	50.5	51.3	53.2	57.9	63.9	52.4
	lower bound of 95% confidence interval	43.0	39.7	47.9	48.6	51.4	55.6	61.3	50.2
	upper bound of a 95% confidence interval	46.6	46.0	53.0	53.9	55.1	60.2	66.5	54.5

Table 30. CI differences of health domains assessment indicators according to BP.

Independent Samples Test								
Medium equilibrium test t-test. Significance level is bilateral								
	gh	**pf**	**rp**	**bp**	**mh**	**re**	**sf**	**vt**
Supposedly, the dispersions are equal	.000	.000	.000	.000	.000	.000	.000	.000
Dispersion equation is not assumed	.000	.000	.000	.000	.000	.000	.000	.000

Figure 20. Self assessment indicators of health domains according to levels of Blood pressure.



Data shows that all health domains assessment indicators are statistically lower, in case of high blood pressure.

Interconnection of health domains assessment indicators with capillary glucose level among population aged 35 years and above.

Health domains assessment indicators and CI according to capillary glucose level(≤5.5 mmol/l; from 5.5 to 6.5 mmol / l; ≥6.5 mmol / l;) are presented in Table 31, Figure 21, CI differences of health domains assessment indicators presented in Table 32.

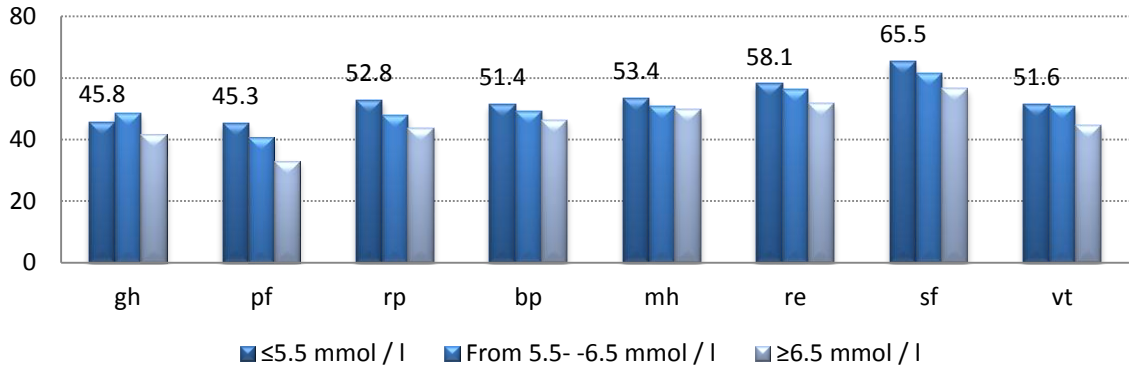
Table 31. Self assessment indicators of health domains and CI according to capillary glucose level among population aged 35 years and above

Glucose level in Capillary blood		gh	pf	rp	bp	mh	re	sf	vt
≤5.5 mmol / l	Mean	45.8	45.3	52.8	51.4	53.4	58.1	65.5	51.6
	lower bound of 95% confidence interval	44.3	42.3	50.4	48.9	51.7	55.9	63.0	49.6
	upper bound of a 95% confidence interval	47.4	48.3	55.2	53.9	55.1	60.3	67.9	53.6
From 5.5- 6.5 mmol / l	Mean	48.5	40.9	47.9	49.3	50.9	56.5	61.7	50.8
	lower bound of 95% confidence interval	45.6	35.5	43.4	44.6	47.6	52.5	56.9	46.9
	upper bound of a 95% confidence interval	51.4	46.4	52.5	54.0	54.2	60.5	66.4	54.7
≥6.5 mmol / l	Mean	41.7	33.1	43.7	46.4	49.8	51.8	56.6	44.5
	lower bound of 95% confidence interval	38.0	27.0	38.8	40.9	46.1	47.0	51.1	40.4
	upper bound of a 95% confidence interval	45.3	39.2	48.7	51.9	53.5	56.7	62.1	48.6

Table 32. CI differences of health domains assessment indicators according to capillary glucose level among the population aged 35 years and above

Multiple Comparisons									
Tamhane									
Sig.									
(I) Glucose levels	**(J) Glucose levels**	**Dependent Variable**							
		gh	**pf**	**rp**	**bp**	**mh**	**re**	**sf**	**vt**
1. ≤5.5 mmol / l	2. from 5.5 to 6.5 mmol / l	.312	.432	.179	.820	.465	.865	.415	.976
	3.≥6.5	.112	**.002**	**.004**	.283	.221	.058	**.012**	**.007**
2. from 5.5 to 6.5 mmol / l	1. ≤5.5 mmol / l	.312	.432	.179	.820	.465	.865	.415	.976
	3.≥6.5	**.012**	.171	.524	.815	.960	.365	.428	.086
3. ≥6.5 mmol / l	1. ≤5.5 mmol / l	.112	**.002**	**.004**	.283	.221	.058	**.012**	**.007**
	2. from 5.5 to 6.5 mmol / l	**.012**	.171	.524	.815	.960	.365	.428	.086

Figure 21. Self assessment indicators of health domains according to capillary glucose levelamong the population aged 35 years and above



Data indicate that:

- *Health domains assessment indicators were not statistically significant among the respondents those glucose levelin capillary blood were from ≤5.5 mmol / l and 5.5 mmol / l to 6.5 mmol / l*
- *The General health (gh), physical fonctionality (pf), role viability conditioned by physical state(rp) and social fonctionality (sf) domains indicators were statistically higher among the respondentswith normal glucose level (≤5.5 mmol / l) compared with those have glucose level more of equal to 6.5 mmol / l (≥6.5 mmol / l)*
- *The proportion of patients with hyperglycemia (≤ 6.5 mmol / l) is larger than the other two groups, as these indicators include the two previous clauses.*

Helaht domains assessment indicators and CI , according to capillary glucose level(less than 6.1 mmol / l- and more than 6.1 mmol / l) among 335 years and above population are presented in 5 Table 33 and Figure 22. The CI differences of health domains assessment indicators presented in Table 34.

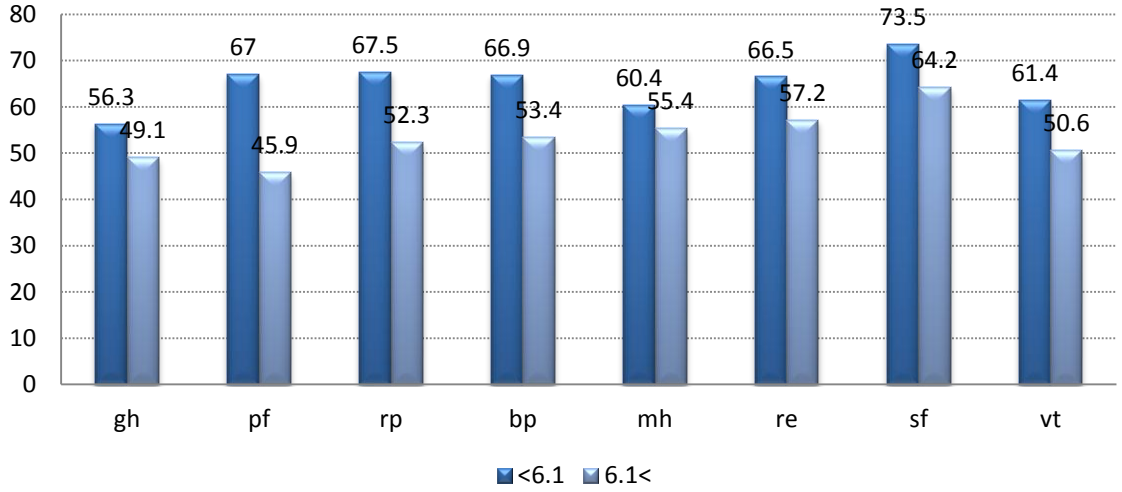
Table 33. Self assessment indicators of health domains and CI according to capillary glucose levelamong the population aged 35 years and above

Glucose levels		gh	pf	rp	bp	mh	re	sf	vt
<6.1	Mean	46.5	44.7	52.5	51.4	53.0	57.9	65.0	51.6
	lower bound of 95% confidence interval	45.0	42.0	50.3	49.1	51.4	56.0	62.8	49.8
	upper bound of a 95% confidence interval	47.9	47.5	54.7	53.7	54.5	59.9	67.2	53.4
6.1<	Mean	42.3	33.4	42.8	45.9	49.8	53.1	57.1	45.3
	lower bound of 95% confidence interval	39.1	28.0	38.3	41.0	46.5	48.7	52.2	41.5
	upper bound of a 95% confidence interval	45.6	38.9	47.2	50.7	53.1	57.5	62.0	49.1

Table 34. CI differences of health domains assessment indicators according to capillary glucose levelamong 35 years and above population

Independent Samples Test								
Medium equilibrium test t-test. Significance level is bilateral								
	gh	**pf**	**rp**	**bp**	**mh**	**re**	**sf**	**vt**
Supposedly, the dispersions are equal	.015	.000	.000	.039	.080	.038	.003	.003
Dispersion equation is not assumed	.022	.000	.000	.043	.087	.047	.004	.003

Figure 22. Self assessment indicators of health domains according to capillary glucose levelamong the population aged 35 years and above



Data shows that the self assessment indicators of health domains are statistically higher among the respondents those glucose level was less than 6.1Smmol/l compared with those whose glucose level was more than 6.1 mmol/l.

Health domains assessment indicators and CI according to WHO classification(<5.5; 5.5-6.09; 6.10<) of glucose levelin capillary blood (among the population aged 35 and above) are presented in Table 35*and* Figure 23*, the CI differences of health domains assessment indicators presented in* Table 36.

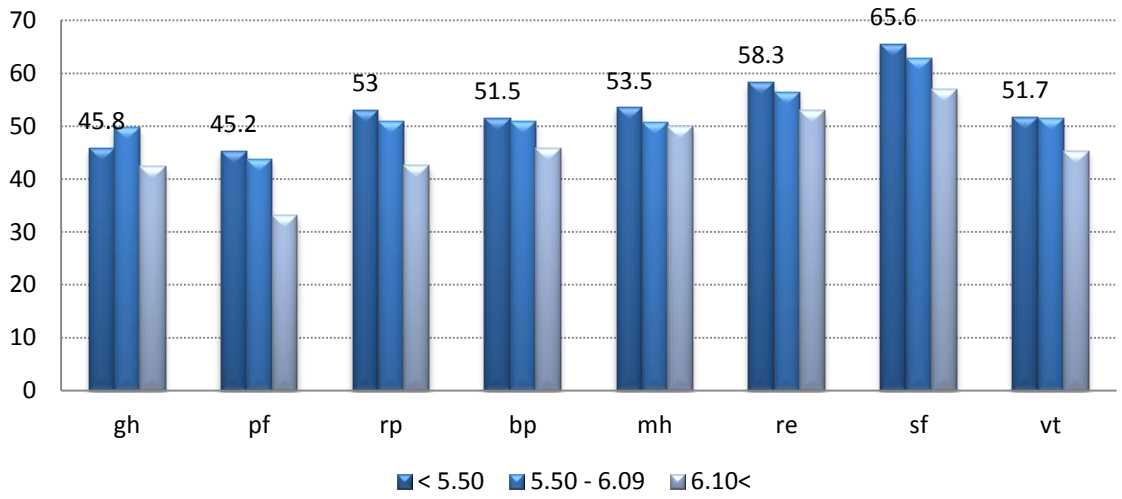
Table 35. Self assessment indicators of health domains and CI according to capillary glucose level among 35 years and above population

Glucose level By WHO (Binned)		gh	pf	rp	bp	mh	re	sf	vt
<5.50	Mean	45.8	45.2	53.0	51.5	53.5	58.3	65.6	51.7
	lower bound of 95% confidence interval	44.2	42.1	50.5	49.0	51.8	56.1	63.1	49.7
	upper bound of a 95% confidence interval	47.4	48.2	55.4	54.1	55.2	60.5	68.0	53.6
5.50-6.09	Mean	49.8	43.7	50.9	51.0	50.7	56.5	62.9	51.5
	lower bound of 95% confidence interval	46.5	37.4	45.6	45.7	46.9	52.0	57.5	47.1
	upper bound of a 95% confidence interval	53.1	50.0	56.1	56.4	54.6	61.0	68.3	55.9
6.10<	Mean	42.3	33.1	42.6	45.8	50.0	53.0	56.9	45.3
	lower bound of 95% confidence interval	39.1	27.7	38.2	41.0	46.7	48.7	52.0	41.6
	upper bound of a 95% confidence interval	45.5	38.5	47.0	50.6	53.3	57.3	61.8	49.1

Table 36. CI differences of health domains assessment indicators according to capillary glucose levelamong 35 years and above population

Multiple Comparisons									
Tamhane									
Sig.									
(I) Glucose level by WHO (Binned)	**(J) Glucose level by WHO (Binned)**	**Dependent Variable**							
		gh	**pf**	**rp**	**bp**	**mh**	**re**	**sf**	**vt**
1) <5.50	**2) 5.50-6.09**	.092	.966	.852	.998	.497	.855	.753	1.000
	3) 6.10<	.159	**.000**	**.000**	.111	.193	.088	**.006**	**.010**
2) 5.50-6.09	**1) <5.50**	.092	.966	.852	.998	.497	.855	.753	1.000
	3) 6.10<	**.004**	**.036**	**.050**	.391	.989	.599	.278	.105
3) 6.10<	**1) <5.50**	.159	**.000**	**.000**	.111	.193	.088	**.006**	**.010**
	2) 5.50-6.09	**.004**	**.036**	**.050**	.391	.989	.599	.278	.105

Figure 23. Self assessment indicators of health domains according to capillary glucose levelamong the population aged 35 years and above



Data show that:

- *Health domains self-assessment indicators are not statistically significant in groups with levelof glucose lower than 5.5 and groups with 5.50 to 6.10 glucose levels.*
- *The General health (gh), physical fonctionality (pf), role viability conditioned by physical state(rp) domains indicators were statistically lower among the respondentswhose glucose level were higher than 6.10 mmol / l compared with those whose glucose level were 5.50 – 6.10 mmol / l .*
- *The physical fonctionality (pf), role viability conditioned by physical state(rp) and social fonctionality (sf) domains indicators were statistically lower among the respondents whose glucose level were higher than 6.10 mmol / l compared with those whose glucose level were less than of equal to 6.5 mmol / l (≥6.5 mmol / l).*

Health domains assessment indicators and CI according to WHO classification(<5.5; 5.5-6.09; 6.10<) of cholestrol level among the population aged 35 and above presented in Table 37and Figure 24. *CI differences of health domains assessment indicators among the population aged 35 years and above in*Table 38.

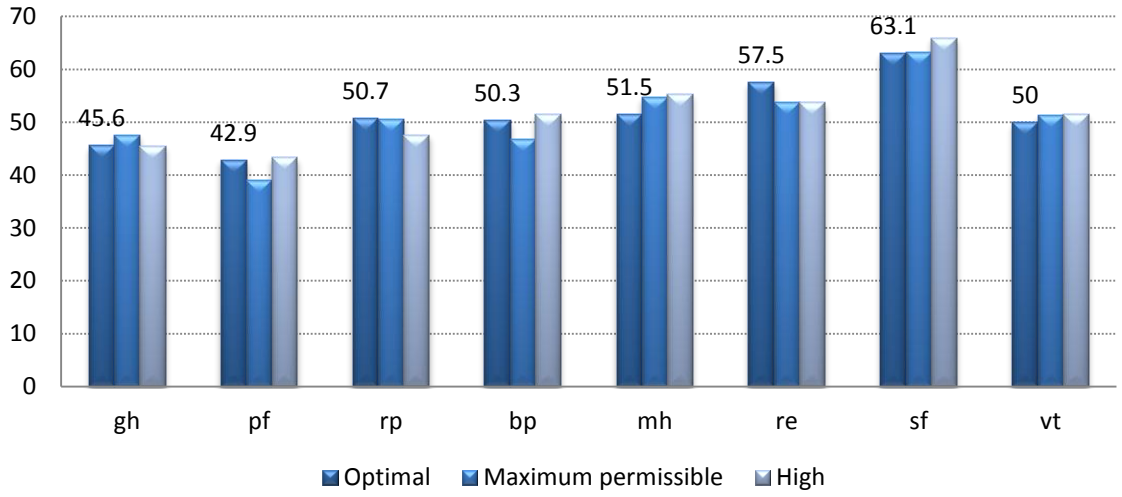
Table 37. Self assessment indicators of health domains and CI according to cholesterol level among population aged 35 years and above.

Cholesterol level		gh	pf	rp	bp	mh	re	sf	vt
Optimal	Mean	45.6	42.9	50.7	50.3	51.5	57.5	63.1	50.0
	lower bound of 95% confidence interval	44.1	40.1	48.5	48.0	50.0	55.5	60.8	48.2
	upper bound of a 95% confidence interval	47.0	45.6	52.9	52.6	53.1	59.5	65.3	51.8
Max permissable	Mean	47.6	39.0	50.6	46.7	54.7	53.7	63.3	51.2
	lower bound of 95% confidence interval	43.6	31.3	44.0	40.3	49.9	47.8	56.7	45.6
	upper bound of a 95% confidence interval	51.6	46.7	57.2	53.1	59.5	59.6	69.9	56.8
High	Mean	45.5	43.3	47.6	51.5	55.3	53.7	65.9	51.6
	lower bound of 95% confidence interval	41.0	35.0	41.6	44.9	50.7	47.7	59.4	46.5
	upper bound of a 95% confidence interval	49.9	51.6	53.6	58.1	59.9	59.7	72.3	56.7

Table 38. CI differences of health domains assessment indicators according to cholesterol levelamong 35 years and above population

Multiple Comparisons									
Tamhane									
Sig.									
(I) Cholesterol level	(J) Cholesterol level	**Dependent Variable**							
		gh	**pf**	**rp**	**bp**	**mh**	**re**	**sf**	**vt**
1 Optimal	2 Maximum permissible	.736	.727	1.000	.647	.511	.539	1.000	.972
	3 High	1.000	.999	.709	.983	.323	.560	.808	.920
2 Maximum permissible	1 Optimal	.736	.727	1.000	.647	.511	.539	1.000	.972
	3 High	.862	.836	.875	.662	.997	1.000	.926	.999
3 High	1 Optimal	1.000	.999	.709	.983	.323	.560	.808	.920
	2 Maximum permissible	.862	.836	.875	.662	.997	1.000	.926	.999

Figure 24. Self assessment indicators of health domains according to cholesterol levelamong the population aged 35 years and above



Health domains assessment indicators and Confidence intervals for cholesterol level among the population aged 35 years and above (3 groups` up to 5.2, 5.2-6.2 and more than 6.2) according to WHO are presented in Table 39 and Table 40, CI differences of health domains assessment indicators presented in Table 40.

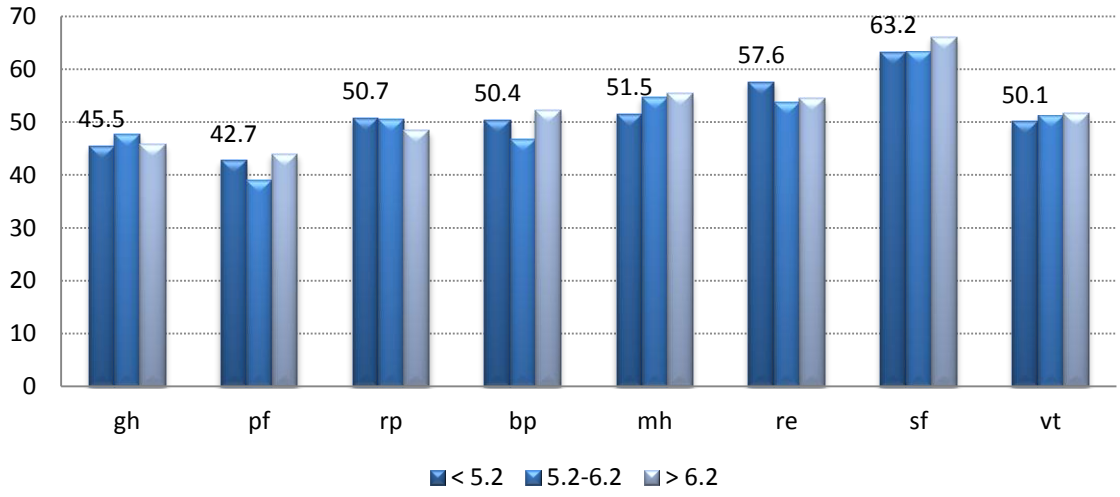
Table 39. Self assessment indicators of health domains and CI according to cholesterol level among the population aged 35 years and above

Cholesterol level		gh	pf	rp	bp	mh	re	sf	vt
<5.2	Mean	45.5	42.7	50.7	50.4	51.5	57.6	63.2	50.1
	lower bound of 95% confidence interval	44.0	40.0	48.6	48.0	50.0	55.6	60.9	48.3
	upper bound of a 95% confidence interval	46.9	45.4	52.9	52.7	53.1	59.5	65.4	51.9
5.2-6.2	Mean	47.6	39.0	50.6	46.7	54.7	53.7	63.3	51.2
	lower bound of 95% confidence interval	43.6	31.3	44.0	40.3	49.9	47.8	56.7	45.6
	upper bound of a 95% confidence interval	51.6	46.7	57.2	53.1	59.5	59.6	69.9	56.8
>6.2	Mean	45.8	44.0	48.4	52.3	55.4	54.6	66.1	51.6
	lower bound of 95% confidence interval	41.3	35.6	42.4	45.7	50.8	48.7	59.5	46.4
	upper bound of a 95% confidence interval	50.3	52.4	54.3	58.9	60.1	60.5	72.7	56.8

Table 40. CI differences of health domains assessment indicators according to cholesterol levelamong 35 years and above population

Multiple Comparisons									
Tamhane									
Sig.									
(I) Cholesterol level	**(J) Cholesterol level**	**Dependent Variable**							
		gh	**pf**	**rp**	**bp**	**mh**	**re**	**sf**	**vt**
1) < 5.2	**2) 5.2-6.2**	.702	.749	1.000	.641	.512	.524	1.000	.974
	3) > 6.2	.999	.988	.844	.924	.317	.725	.785	.923
2) 5.2-6.2	**1) < 5.2**	.702	.749	1.000	.641	.512	.524	1.000	.974
	3) > 6.2	.912	.766	.943	.536	.996	.995	.906	.999
3) > 6.2	**1) < 5.2**	.999	.988	.844	.924	.317	.725	.785	.923
	2) 5.2-6.2	.912	.766	.943	.536	.996	.995	.906	.999

Figure 25. Self assessment indicators of health domains according to cholesterol level among the population aged 35 years and above



The data indicate that the health domain self-assessment indicators, according to the cholesterol level, did not statistically differ from each other.

Conclusions

Interconnection with social demographic groups

- *The data indicate that age is greatly correlated with health domain self-assessment indicators, parallel to age related increase, health domain self-esteem indicators statistically decrease.*
- *The analyzed data shows that self assessment indicators of health domains are relatively higher among men, and all these differences were statistically valid .*
- *The overall data configuration allows us to suppose that from all health domain assessment indicators are higher in Yerevan, relatively low in urban places and lowest in rural places.*
- *The presented data shows that the higher is persons education level the better is his health domains self assessment indicators*
- *The data presented generally show that the higher if the well-being of person, the better the self-assessment indicators of his health and quality of life domains but the correlation of these two variables is statistically significant, with I-III and III and IV quintiles.*

Interconnection of NCD risk factors with health domains assessment indicators.

- *Data show that Health domains assessment indicators of non smokers or no daily smokers hasn`t statistical different from every day smokers. An exception is only the role of physical vitality (rp), which is higher among daily smoking men : It is noteworthy that smokers' self-esteem is higher. This can be explained by the fact that most men smoke and stop smoking because of a doctor's advice or because of poor health.*
- *Data show that among people , who exposed to secondhand tobacco smoke exposure at home self assessment indicators are statistically significant higher in general health (gh) , physical functionality (pf) and and role-viability due to physical condition (rp) domains indicators. This Conclusions s may sound strange, but it also could be caused by the fact that the effects of secondhand smoke are relatively more among young people, resulting is that health domains self assessment indicators are higher in that group.*
- *The data show that among abusing alcohol, self assessment indicators of health domains are statistically significant lower in physical functionality (pf) and body pain (bp) domains.*
- *Among overweight respondents , all the health domains assessment indicators were lower Comparison of these variables is evident in the observation of Normal and Overweight categories and when considering Overweight's obesity categories.*
  Data show that all self assessment indicators of health domains were accordingly low among the physical disability respondents (less than 30 min of physical activity per week).
- *Data shows that all health domains assessment indicators are statistically lower, in case of high blood pressure . HBP decreases the self-assessment indicators of physical functionality and role functioning domains..*
- *Data shows that the self assessment indicators of health domains are statistically higher among the respondents those glucose level was less than 6 . 1Smmol / l compared with those whose glucose level was more than 6.1 mmol / l. According to WHO standards, the correlation of variables is also observed but with statistically lower accuracy.*
- *The data indicate that the health domain self-assessment indicators, according to the cholesterol level, did not statistically differ from each*

MENTAL HEALTH

Mental health according to social demographic groups.

The 2015 sample survey questionnaire included a section for assessment of mental health based on Zung self-rating depression scale. It enables monitoring changes in the level of depression over the time. The scale was developed by Duke University psychiatrist William Zung(1929-1992)to assess the level of depression for patients diagnosed with depressive disorder.

This was the first time Armenia used the translated and adapted Zung questionnaire, whichis widely used as a useful screening tool.

There are 20 items on the scale that rate the affective, psychological and somatic symptoms associated with depression. Each question is scored on a scale of 1 through 4 (based on these replies: "a little of the time", "some of the time", "good part of the time", "most of the time"). Scores on the test range from 20 through 80. The scores fall into four ranges.

- 20-44 Normal Range
- 45-59 Mildly Depressed
- 60-69 Moderately Depressed
- 70 and above Severely Depressed

According to statistical data the assessment of 15 and older population mental health shows normal distribution(Kolmogorov-Sirnov test value 0.06, Lillieforce test 0.000). Mean distribution is 43.6 and the standard deviation 7.848.

According to statistical data, mental health assessment in all sociodemographic groups (gender, age, education, wealth, residence) also has normal distribution. Mean values in sociodemographic groups are presented in Figure 27 :

Figure 26. Distribution of depression assessments in 15 and older population (scale changed in 20-100 range)

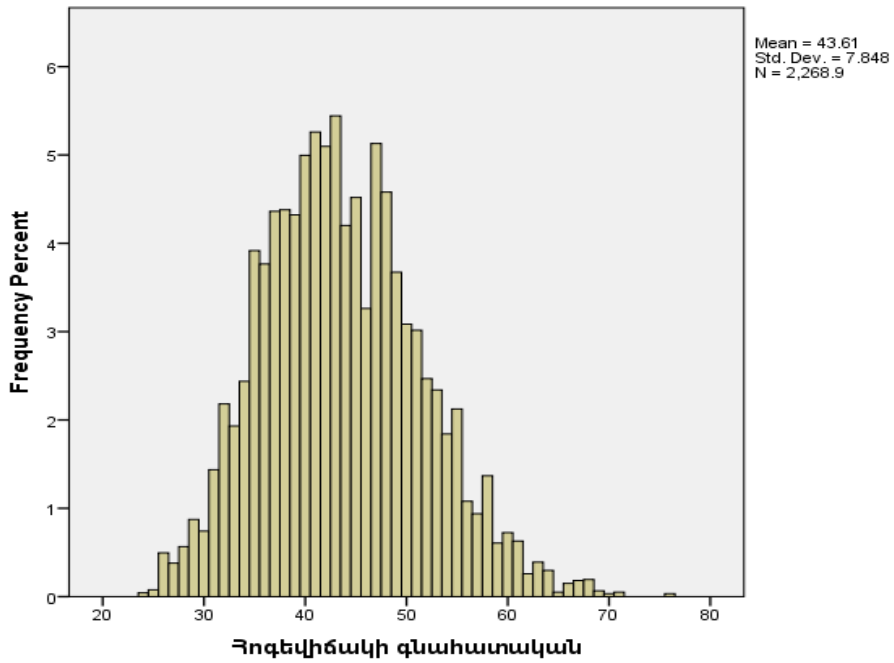
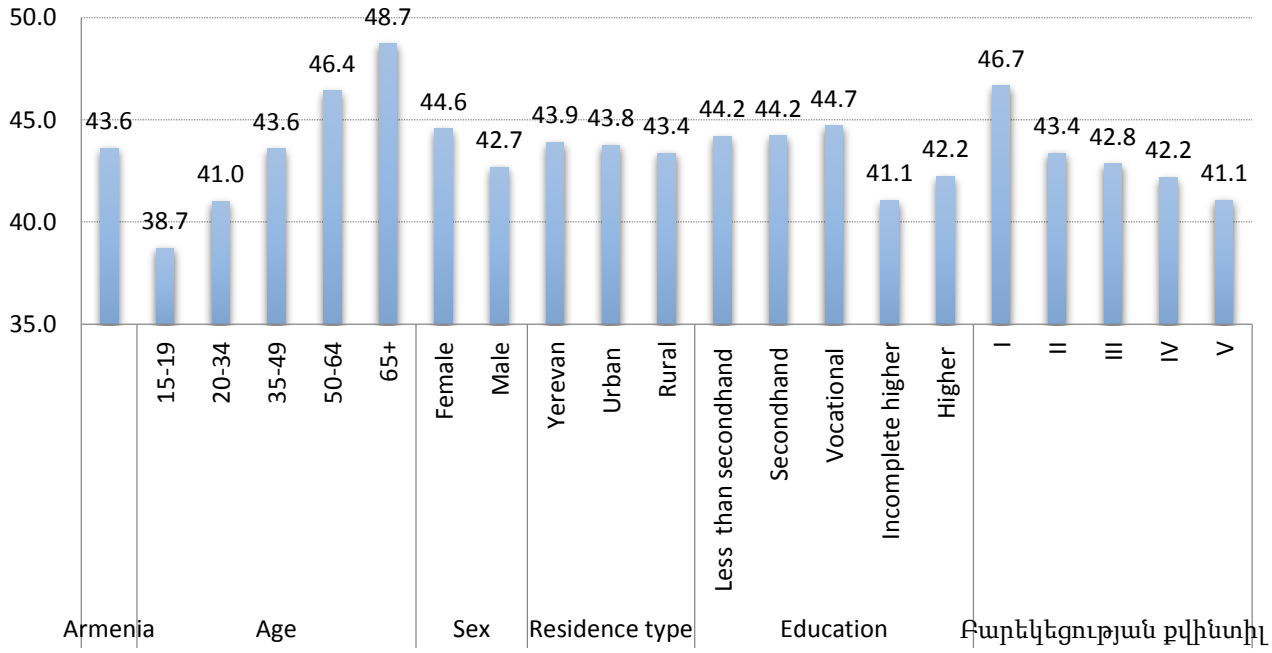


Figure 27. Mean value of mental health assessment according to sociodemographic groups, change range 20-100.



Data presented from Table 41 to Table 50 presents the mean value of mental health assessment in different social demographic groups, the upper and the lower boundaries of reliability values of 0.95 and the statistical reliability levels of the differences in the indicators of the given social and demographic groups.

Table 41. Mean value of mental health assessment by age

Age	Mean	lower bound of 95% confidence interval	upper bound of 95% confidence interval
15-19	38.8	38.2	39.4
20-34	41.0	40.4	41.6
35-49	43.6	42.9	44.3
50-64	46.4	45.7	47.1
65 +	48.5	47.8	49.3

Table 42. CI differences of mean value of mental health assessment indicators according to age

Multiple comparisons					
Dependent Variable: Mental health assessment					
Tamhane					
Sig.					
(I) Age	**(J) Age group**				
	15-19	**20-34**	**35-49**	**50-64**	**65 +**
15-19	-	.000	.000	.000	.000
20-34	.000	-	.000	.000	.000
35-49	.000	.000	-	.000	.000
50-64	.000	.000	.000	-	.000
65 +	.000	.000	.000	.000	-

Table 43. Mean value of mental health assessment by sex

sex	Mean	lower bound of 95% confidence interval	upper bound of 95% confidence interval
female	44.57	44.11	45.04
Male	42.69	42.23	43.15

Table 44. CI differences of mean value of mental health assessment indicators according to sex

Independent Samples Test	
Medium equilibrium test t-test. Significance level is bilateral	
	Assessment of mental health
Supposedly, the dispersions are equal	.000
Dispersion equation is not assumed	.000

Table 45. Mean value of mental health assessment indicators by residence

Residence type	Mean	lower bound of 95% confidence interval	upper bound of 95% confidence interval
Yerevan	43.9	43.4	44.4
Urban cities	43.8	43.1	44.5
Villages	43.4	42.8	43.9

Table 46CI differences of mean value of mental health assessment indicators according to residence

Multiple comparisons			
Dependent Variable: Mental health assessment			
Tamhane			
Sig.			
(I) Residence type	**(J) residence type**		
	Yerevan	**Urban cities**	**Villages**
Yerevan	-	.978	.422
Urban cities	.978	-	.799
Villages	.422	.799	-

Table 47. Mean value of mental health assessment indicators indicators according to level of education

Education	Mean	lower bound of 95% confidence interval	upper bound of 95% confidence interval
Less than secondhand	44.2	42.8	45.6
Secondhand	44.2	43.7	44.7
Vocational	44.7	44.0	45.4
Incomplete higher	41.1	40.2	41.9
Higher	42.2	41.6	42.9

Table 48.CI differences of mean value of mental health assessment indicators according to level of education

Multiple comparisons					
Dependent Variable: Mental health assessment					
Tamhane					
Sig.					
(I) Education	(J) Կրթություն				
	Less than secondhand	**Secondhand**	**Vocational**	**Incomplete higher**	**Higher**
Less than secondhand	_	1.000	.999	**.002**	.139
Secondhand	1.000	_	.969	**.000**	**.000**
Vocational	.999	.969	_	**.000**	**.000**
Incomplete higher	**.002**	**.000**	**.000**	_	.259
Higher	.139	**.000**	**.000**	.259	_

Table 49. Mean value of mental health assessment indicators according to wealth quintiles.

Wealth quintiles	Mean	lower bound of 95% confidence interval	upper bound of 95% confidence interval
Lowest ≤4.00	46.7	46.1	47.3
Low 5.00 - 6.00	43.4	42.6	44.1
Mean 7.00 - 8.00	42.8	42.2	43.5
High 9.00 - 10.00	42.2	41.4	43.0
Highest 11.00 +	41.1	40.3	41.8

Table 50. CI differences of mean value of mental health assessment indicators according to wealth quintiles.

Multiple comparisons					
Dependent Variable: Mental health assessment					
Tamhane					
Sig.					
(I) Wealth quintiles	**Wealth quintiles**				
	Lowest ≤ 4.00	**Low 5.00-6.00**	**Mean 7.00-8.00**	**High 9.00–10.00**	**Highest 11.00+**
Lowest ≤ 4.00	_	**.000**	**.000**	**.000**	**.000**
Low 5.00 - 6.00	**.000**	_	.974	.286	**.000**
Mean 7.00 – 8.00	**.000**	.974	_	.910	**.005**
High 9.00 - 10.00	**.000**	.286	.910	_	.342
Highest 11.00+	**.000**	**.000**	**.005**	.342	_

Data indicate that:

- · In each age group, the mean value of mental health assessment indicators is statistically lower (ie, the mental health situation is better) than in older age groups.
- Mean value of menatl health among men is lower that among women, that is, men's mental health is relatively better.
- Differences of mean value of mental health assessment indicators by residence type is not statistically reliable.
- Mental health assessment indicators are divided into two groups: population with relatively low educational level (less than secondhand , secondhand and vocational) and relatively higher (incomplete higher and higher). In the first group, the mean values of the mental health assessment indicators are worse, the values are higher than in second group (Table 47): However, the differences of values in these groups are not statistically significant (the difference of mean value of mental health assessment indicators in high and secondary education groups is very high, but it is not statistically reliable, because of the small number of people with lower level of education, 168 persons).
- Mean value of mental health assessment indicators according to wealth quintiles are devided into three groups.
    - I (lowest) wealth quintile - the mental health status in this group is statistically significantly worse than in the remaining quintiles of wealth.
    - II, III and IV (mean) wealth quintiles- there is not significant differences bewteen these mental health assessment indicators.
    - However, the mental health status in this group is statistically more accurate than in I quintile and statistically more poor compared to the V (most valnurable) quintile, except for the IV quintile, where the mean value of mental health assessment indicator are not statistically different from V quintile.

Interconnection of NCD with mental health assessment indicators.

Below are the impact of NCD risk factors indicators on the mental health status.

In situations where the risk factor has two levels of correlations, the statistical reliability levels are estimated by T-test. The level of statistical reliability α was estimated when $\alpha \leq 0.05$, then the mean value of mental health indicators is statistically different in groups with different risk factors.

In that case when one risk factors has more than two levels, it has been used dispersive analysis. In these tables $\alpha \leq 0.05$ values are given in red color.

Interconnection of the tobacco consumtion with mental health indicators.

Based on the fact that in Armenia the proportion of women who smoke cigarrete is very small almost 2,3%, the mental health indicators by tobacco consumtion was analysed only in men.

Table 51. Mental health indicators and the levels of CI by cigarette consumption.

Cigarette consumtion (male)	Mean	lower bound of 95% confidence interval	upper bound of 95% confidence interval
Dont smoke or not every day	42.3	41.6	43.0
Smoke every day	43.0	42.3	43.6

The level of significance differences of the mean values of the mental health indicators is α=0.867

The mean value of mental health indicators of daily smokers, non smokers or not daily smokers were not statisically significantly different from each other

Interconnection of seondhand smoke exposure and mental health indicators.

Table 52. Mental health indicators and CI levels by exposure and impact of second hand smoke.

Second hand smoke exposure at home or at work (at workplace` in past 30 days)	Mean	lower bound of 95% confidence interval	upper bound of 95% confidence interval
No	43.9	43.5	44.35
Yes	43.1	42.6	43.58

The level of significance differences of the mean values of the mental health indicators is α=0.012

The mean value of mental health according to the exposure of secondhand smoke at home or at workp is statistically significantly lower (bad) than those that are not exposed to the impact of secondhand smoke.

Interconnection of alcohol consumption with mental health indicators.

Table 53. Mental health indicators and CI levels by the levels of alcohol consumption.

Alcohol consumption (men)	Mean	lower bound of 95% confidence interval	upper bound of 95% confidence interval
Use less than 20 grams of alcohol(spirit) per day	42.36	41.84	42.87
Use less than 20 grams of alcohol(spirit) per day	43.07	42.11	44.02

The level of significance differences of the mean values of the mental health indicators is α=0.269

Mean value of mental health indicators among men who abuse or doesn't abuse alcohol were not significantly different.

Interconnection of physical inactivity with mental health indicators.

Table 54. Mental health indicators and CI levels by physical activity

Inactive: up to 30 min moderate physical activity per week	Mean	lower bound of 95% confidence interval	upper bound of 95% confidence interval
Physical active 30 min and more intesity physical activity	43.23	42.89	43.57
Physical inactive 30 min and less intesity physical activity.	45.93	44.96	46.9

The level of significance differences of the mean values of the mental health indicators is α=0.000

Among physically active respondents, the mental health indicators were statistically significant better than in physically inactive respondent`s group.

Interconnection of body mass index with mental health indicators.

Table 55. Mental health indicators and CI levels by BMI

	N	Mean	St. Deviaton	Std. Error	lower bound of 95% confidence interval	upper bound of 95% confidence interval
Underweight ` BMI ≤18.5	138	41.53	7.995	0.682	40.18	42.88
Normal` 18.5≤ ы ≤ 25	958	42.40	7.526	0.243	41.92	42.88
Overweight 25≤ ы ≤30	643	43.45	7.558	0.298	42.87	44.04
Obesity` BMI 30≤	493	46.51	7.907	0.356	45.81	47.21
Total	2,231	43.56	7.823	0.166	43.23	43.88

Table 56. CI differences of mental health indicators according BMI

Multiple Comparisons				
Dependent variable.: Mental health assessment				
Tamhane				
Sig.				
(I) BMI	(J) Body mass index			
	Underweight BMI ≤18.5	Normal 18.5≤ and ≤ 25	Overweight 25≤ ы ≤30	Obesity BMI 30≤
Underweight ` BMI ≤18.5	-	.795	.061	.000
Normal ` 18.5≤ and ≤ 25	.795	-	.036	.000
Overweight 25≤ ы ≤30	.061	.036	-	.000
Obesity ` BMI 30≤	.000	.000	.000	-

The mean values of mental health indicators in groups of people with underweight and normal weight are statistically more reliable (lower) than those with an overweight and obesity weight.

The mean value of mental health indicator in overweight group is statistically significantly better than in obesity group.

Interconnection of blood pressure with mental health indicators.

Table 57. Mental health indicators and CI according to levels of Blood pressure.

Blood pressure	Mean	lower bound of 95% confidence interval	upper bound of 95% confidence interval
Dond have HBP (BP ≤140/90 mmHg)	42.4	42.0	42.8
Have HBP (BP≥140/90 mmHg)	46.3	45.7	47.0

The level of significance differences of the mean values of the mental health indicators is α=0.000

The mental state of people with high blood pressure is statistically significantly bad (the mean mental health indicator is higher).

Interconnection of glucose levels with mental health indicators.

Table 58. Mental health indicators and CI according to GL

	N	Mean	St. Deviation	Std. Error	lower bound of 95% confidence interval	upper bound of 95% confidence interval
Normal` GL <5.5 mmol / l	675	46.12	7.243	0.279	45.57	46.67
Glicemia GL ≥5.5 և ≤6.5 mmol / l	193	47.36	8	0.576	46.22	48.5
High` GL ≥6.5	152	48.55	7.713	0.625	47.32	49.79
Total	1,020	46.72	7.509	0.235	46.26	47.18

Table 59. CI differences of mental health indicators according to GL

Multiple Comparisons			
Dependent variable.: Mental health assessment			
Tamhane			
Sig.			
(I) Glucose levels	(J) Glucose levels		
	Normal` GL <5.5 mmol / l	Glycemia GL ≥5.5 և ≤6.5 mmol / l	High GL ≥6.5
Normal` GL <5.5 mmol / l	-	.152	**.001**
Glycemia GL ≥5.5 և ≤6.5 mmol / l	.152	-	.410
High` GL ≥6.5	**.001**	.410	-

People with HGL (GM ≥6.5) mental health indicators were statistically significantly worse than those with NGL and mental health indicators were not statistically significantly different from GM≥5.5 and ≤6.5 mmol / l levels.

Interconnection of cholesterol level and mental health indicators.

Table 60. Mental health indicators and CI according to CHL

	N	Mean	St. Deviaton	Std. Error	lower bound of 95% confidence interval	upper bound of 95% confidence interval
Normal	842	46.80	7.539	0.260	46.29	47.31
Max permissible	95	46.75	7.373	0.758	45.25	48.26
High	86	46.58	7.266	0.783	45.02	48.13
Total	1,023	46.78	7.494	0.234	46.32	47.24

Table 61. CI differences of mental health indicators according to CHL

Multiple Comparisons			
Dependent variable.: Mental health assessment			
Tamhane			
Sig.			
(I) Cholesterol level	(J) Cholesterol level		
	Normal	Max permissible	High
Normal	-	1.000	.990
Max permissible	1.000	-	.998
High	.990	.998	-

The mean value of mental health indicators is not statistically different in groups with different levels of cholesterol.

Interconnection of cigarette and alcohol consumption with mental health indicators.

Interconneciton of cigarette and alcohol consumtion with mental health idnicators were also analyzed by linear regression, but only among men, and no correlation were found between these indicators. The analysis was performed for different groups of age variables. Drawing regression table we obtained the correlations shown in Table 62.

Table 62. Interconnection of alcohol and cigarette consumtion with mental health indicators.

Correlations				
		Mental health indicator	**Smoke every day**	**Consumption of 20 gr and more alcohol (pure spirit) per day**
Persson correlation	Mental health indicator	-	.045	.049
	Smoke every day	.045	-	.212
	Consumption of 20 gr and more alcohol (pure spirit) per day	.049	.212	-
Significance level` one-sided	Mental health indicator	.	.070	.052
	Smoke every day	.070	.	.000
	Consumption of 20 gr and more alcohol (pure spirit) per day	.052	.000	.
N	Mental health indicator	1,089	1,089	1,089
	Smoke every day	1,089	1,089	1,089
	Consumption of 20 gr and more alcohol (pure spirit) per day	1,089	1,089	1,089

Table 62 *indicate that tobacco consumption is statistically significantly, correlated with alcohol consumption and abuse:*

Mean value of mental health indicators according to consumption of cigarette and more than 20 gr of spirits per day among mens age groups is presented in Table 63.

Table 63. Men's mental health indicators in different groups of cigarette and alcohol consumption, by age groups.

OLAP Cubes							
Mental health indicator							
Age	**Smoke every day**	**N**			**Mean**		
		Consumption of 20 gr and more alcohol (pure spirit) per day			Consumption of 20 gr and more alcohol (pure spirit) per day		
		No	**Yes**	**Total**	**No**	**Yes**	**Total**
15-19	**Dont smoke or smoke but not every day**	180	4	184	37.39	43.50	37.53
	Smoke every day	28	9	37	38.82	42.44	39.70
	Total	208	13	221	37.59	42.77	37.89
20-34	**Dont smoke or smoke but not every day**	72	5	77	39.54	42.40	39.73
	Smoke every day	116	19	135	40.34	40.47	40.36
	Total	188	24	212	40.04	40.87	40.13
35-49	**Dont smoke or smoke but not every day**	73	10	83	43.03	41.60	42.86
	Smoke every day	109	34	143	42.60	42.76	42.64
	Total	182	44	226	42.77	42.50	42.72
50-64	**Dont smoke or smoke but not every day**	88	9	97	45.35	44.89	45.31
	Smoke every day	91	38	129	46.48	44.13	45.79
	Total	179	47	226	45.93	44.28	45.58
65 +	**Dont smoke or smoke but not every day**	120	20	140	47.93	45.25	47.55
	Smoke every day	44	20	64	45.43	45.85	45.56
	Total	164	40	204	47.26	45.55	46.93
Total	**Dont smoke or smoke but not every day**	533	48	581	42.14	43.98	42.29
	Smoke every day	388	120	508	42.88	43.33	42.99
	Total	921	168	1,089	42.45	43.51	42.62

Table 63 data indicate that in every men`s age group «patterns» of the alcohol and smoking consumtion were not identical, ie, there was no correlation between risk factors, even when visually viewing data.

Conclusions

The mean value of mental health indicators of daily smokers, non smokers or not daily smokers were not statisically significantly different from each other.

The mean value of mental health according to the exposure of secondhand smoke at home or at workp is statistically significantly lower (bad) than those that are not exposed to the impact of secondhand smoke

Mean value of mental health indicators among men who abuse or doesn't abuse alcohol

were not significantly different

Among physically active respondents, the mental health indicators were statistically significant better than in physically inactive respondent`s group.

The mean values of mental health indicators in groups of people with underweight and normal weight are statistically more reliable (lower) than those with an overweight and obesity weight.

The mean value of mental health indicator in overweight group is statistically significantly better than in obesity group.

The mental state of people with high blood pressure is statistically significantly bad (the mean mental health indicator is higher).

People with HGL (GM ≥6.5) mental health indicators were statistically significantly worse than those with NGL and mental health indicators were not statistically significantly different from GM≥5.5 and ≤6.5 mmol / l levels.

The mean value of mental health indicators is not statistically different in groups with different levels of cholesterol.

The tobacco consumption is statistically correlated with alcohol consumption and abuse.

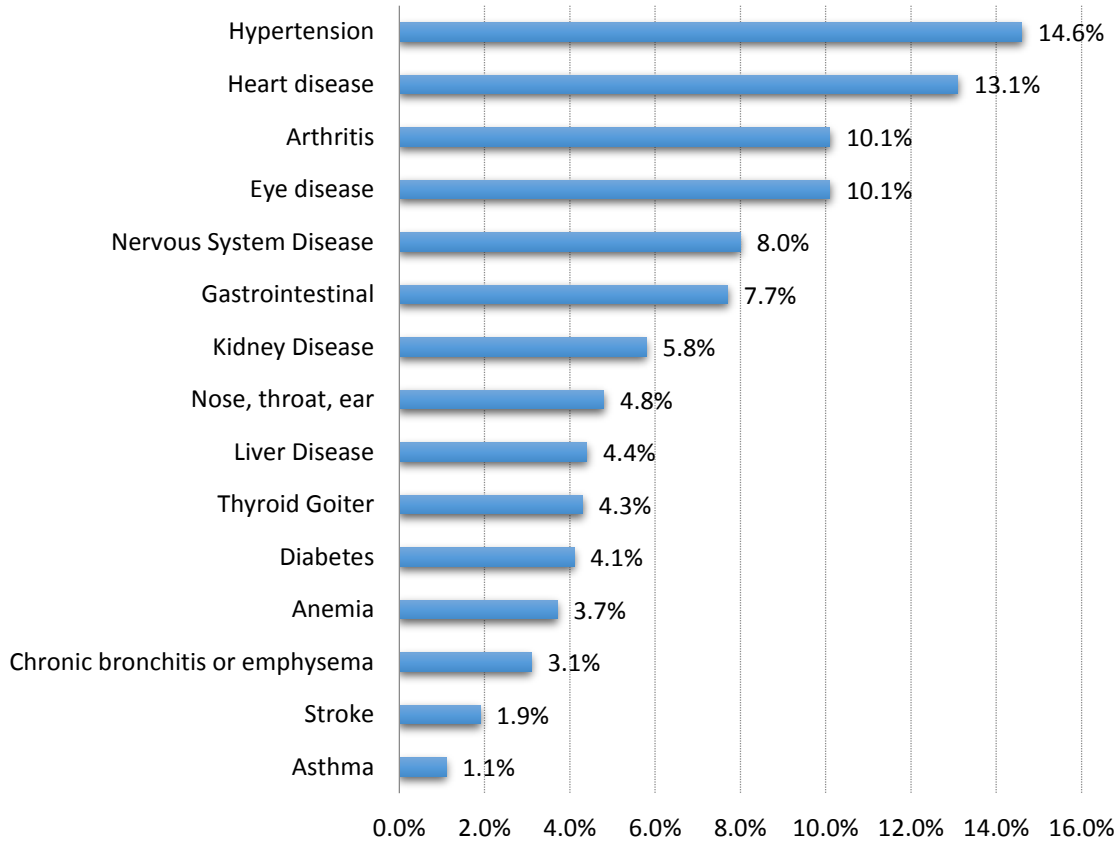
INTERCONNECTION BEWTEEN RISK FACTORS AND CHRONIC DISEASES (35-64.Y.O.)

Table 64-presents the results of the prevalence of chronic diseases prevalence among 35-64 year-olds based on the results of the 2015 field survey. The table lists not only percentage values, but also the weighted number of people in each group. As shown in Figure 28, these values are sorted in descending prevalence of diseases.

Table 64. Pravelence of chronic disease among 35-64 year-old population, 2015

Diseases diagnosed by a doctor within the last 1 year	No		Yes		Total	
	Row N %	Count	Row N %	Count	Row N %	Count
Anemia	96.3%	1411	3.7%	54	100.0%	1465
Heart disease	86.9%	1274	13.1%	193	100.0%	1466
Hypertension	85.4%	1252	14.6%	214	100.0%	1467
Stroke	98.1%	1435	1.9%	28	100.0%	1464
Chronic bronchitis or emphysema	96.9%	1422	3.1%	45	100.0%	1467
Asthma	98.9%	1451	1.1%	16	100.0%	1467
Diabetes	95.9%	1406	4.1%	60	100.0%	1466
Eye disease	89.9%	1317	10.1%	149	100.0%	1466
Gastrointestinal	92.3%	1354	7.7%	113	100.0%	1467
Liver Disease	95.6%	1402	4.4%	65	100.0%	1467
Kidney Disease	94.2%	1382	5.8%	85	100.0%	1467
Arthritis	89.9%	1319	10.1%	148	100.0%	1466
Thyroid Goiter	95.7%	1403	4.3%	63	100.0%	1466
Nose, throat, ear	95.2%	1395	4.8%	71	100.0%	1465
Nervous System Disease	92.0%	1348	8.0%	117	100.0%	1465

Figure 28. Respondents who were diagnosed with a given disease by the physician, over the past year, 2015



In the 4th column of the table below, it is given the percentage of individuals with a given chronic illness among those with the same risk factors, and in 5 th column among those without risk factors The column 6 shows the statistical CI level α of the difference between the aforementioned two indices. In cases where $\alpha \leq 0.05$ the difference is statistically valid. Figure shows statistically significantly different prevalence of diseases in case of HBP .

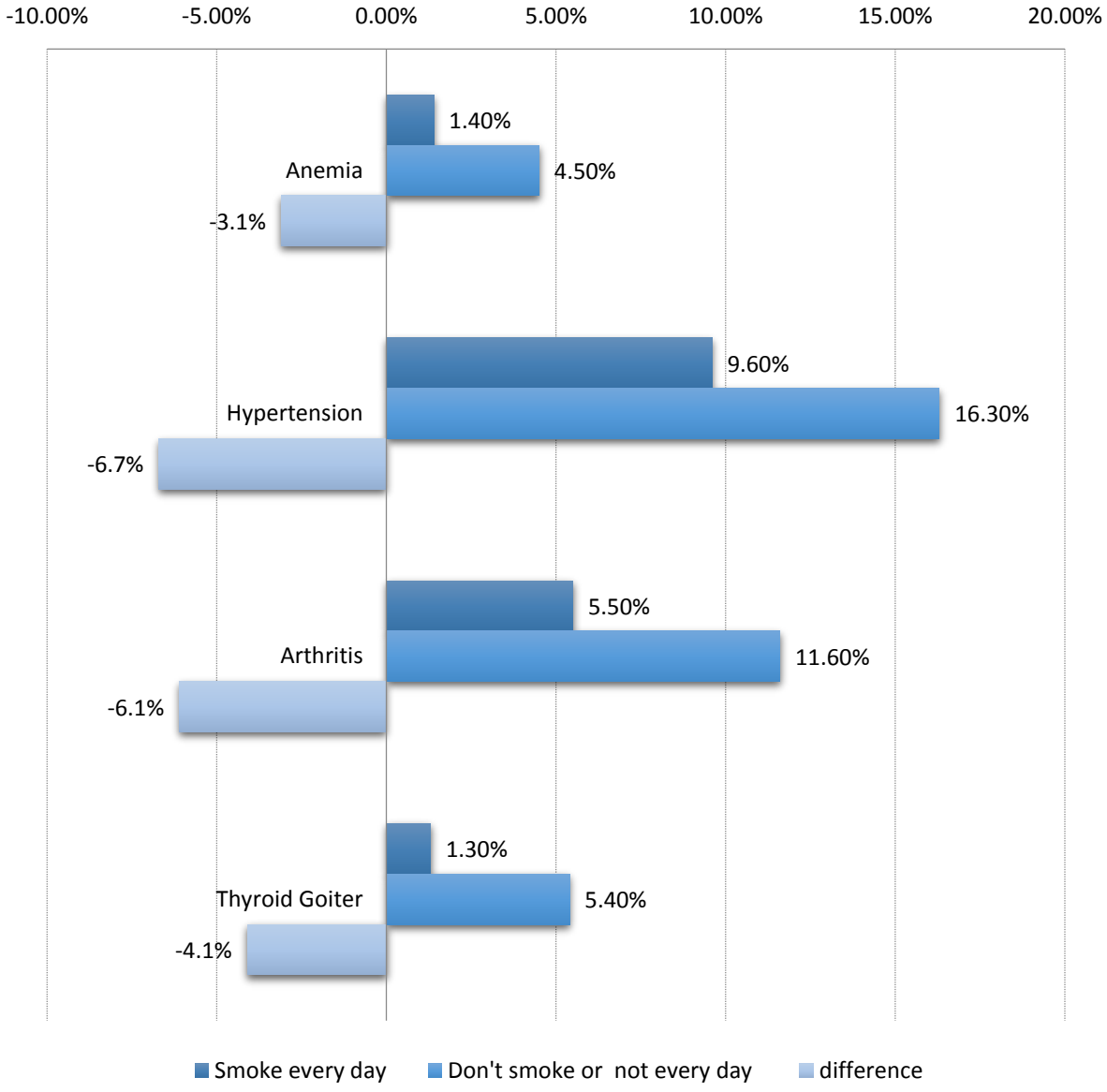
Interconnection between tobacco consumption and chronic diseases.

Table 65. Tobacco consumption interconnection with chronic diseases diagnosed by a physician (35-64 y.o, men and women[3])

	N		Mean		Significance level: two-sided	Average differences	Standard error	CI differences (95%)	
Diseases diagnosed by a doctor within the last 1 year	Smoke every day	Dont smoke or smoke not every day	Smoke every day	Dont smoke or smoke not every day				Lower	Upper
Anemia	377	1087	1.4%	4.5%	**0.007**	-3.1%	1.1%	-5.3%	-0.9%
Heart disease	377	1087	10.6%	14.0%	0.095	-3.4%	2.0%	-7.3%	0.6%
Hypertension	377	1088	9.6%	16.3%	**0.001**	-6.7%	2.1%	-10.9%	-2.6%
Stroke	376	1086	2.4%	1.8%	0.491	0.6%	0.8%	-1.1%	2.2%
Chronic bronchitis or emphysema	377	1089	3.2%	3.1%	0.891	0.1%	1.0%	-1.9%	2.2%
Asthma	377	1089	0.9%	1.2%	0.618	-0.3%	0.6%	-1.5%	0.9%
Diabetes	377	1087	2.8%	4.5%	0.137	-1.8%	1.2%	-4.1%	0.6%
Eye disease	376	1089	9.3%	10.5%	0.499	-1.2%	1.8%	-4.8%	2.3%
Gastrointestinal	377	1089	8.6%	7.4%	0.459	1.2%	1.6%	-1.9%	4.3%
Liver Disease	377	1089	3.4%	4.7%	0.268	-1.4%	1.2%	-3.8%	1.0%
Kidney Disease	377	1089	4.6%	6.2%	0.254	-1.6%	1.4%	-4.3%	1.1%
Arthritis	377	1088	5.5%	11.6%	**0.001**	-6.1%	1.8%	-9.6%	-2.6%
Thyroid Goiter	377	1088	1.3%	5.4%	**0.001**	-4.1%	1.2%	-6.4%	-1.7%
Nose, throat, ear	377	1087	4.7%	4.9%	0.907	-0.1%	1.3%	-2.7%	2.4%
Nervous System Disease	377	1086	5.9%	8.8%	0.074	-2.9%	1.6%	-6.1%	0.3%

[3]There were not observed onnly men, as it was considered the factor of every day smoking.

Figure 29. Tobacco consumption interconnection with chronic diseases diagnosed by a physician



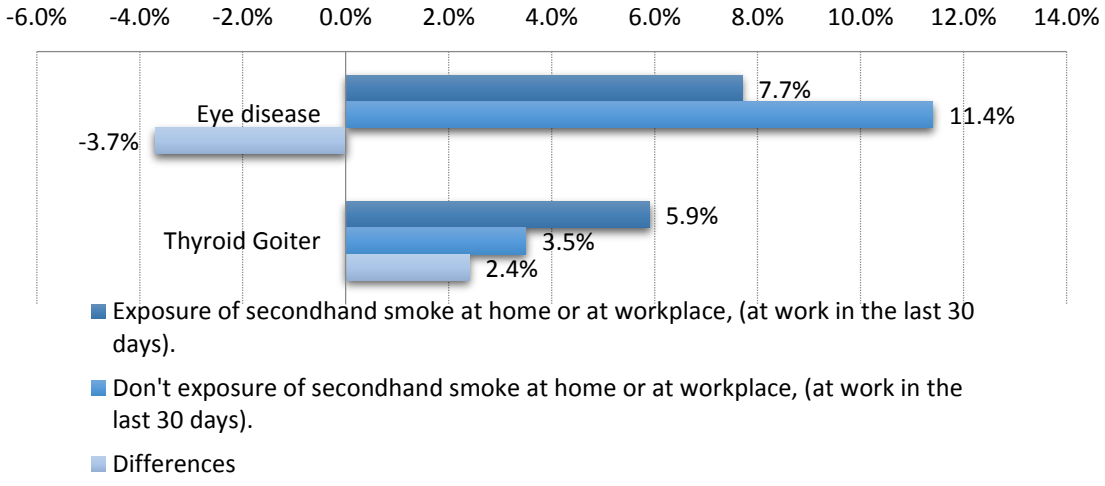
Smokers have statistically lower pravelence levels of anemia, hypertension, arthritis, and thyroid Goiter.

Interconnection of secondhand smoke exposure with the pravelence of chronic diseases.

Table 66. Interconnection of secondhand semoke exposure with chronic diseases diagnosed by a physician (35-64 y.o.)

Exposure of secondhand smoke at home or at workplace, (at work in the last 30 days).	N		Mean		Significance level: two-sided	Average differences	Standard error	CI differences (95%)	
	Yes	No	Yes	No				Lower	Upper
Anemia	495	970	4.2%	3.4%	0.457	0.8%	1.0%	-1.3%	2.8%
Heart disease	494	972	11.2%	14.1%	0.125	-2.9%	1.9%	-6.5%	0.8%
Hypertension	495	972	14.1%	14.9%	0.671	-0.8%	2.0%	-4.7%	3.0%
Stroke	494	970	1.7%	2.1%	0.638	-0.4%	0.8%	-1.9%	1.1%
Chronic bronchitis or emphysema	495	972	3.0%	3.2%	0.835	-0.2%	1.0%	-2.1%	1.7%
Asthma	495	972	1.3%	1.0%	0.613	0.3%	0.6%	-0.8%	1.4%
Diabetes	495	971	4.3%	4.0%	0.834	0.2%	1.1%	-1.9%	2.4%
Eye disease	495	971	7.7%	11.4%	0.029	-3.6%	1.7%	-6.9%	-0.4%
Gastrointestinal	495	972	6.9%	8.2%	0.369	-1.3%	1.5%	-4.2%	1.6%
Liver Disease	495	972	5.0%	4.1%	0.424	0.9%	1.1%	-1.3%	3.1%
Kidney Disease	495	972	6.3%	5.6%	0.567	0.7%	1.3%	-1.8%	3.3%
Arthritis	495	971	10.3%	10.0%	0.874	0.3%	1.7%	-3.0%	3.5%
Thyroid Goiter	495	971	5.9%	3.5%	0.029	2.4%	1.1%	0.2%	4.6%
Nose, throat, ear	495	970	4.5%	5.0%	0.701	-0.5%	1.2%	-2.8%	1.9%
Nervous System Disease	494	971	7.5%	8.3%	0.631	-0.7%	1.5%	-3.7%	2.2%

Figure 30. Interconnection of secondhand smoke exposure with chronic diseases diagnosed by a physician



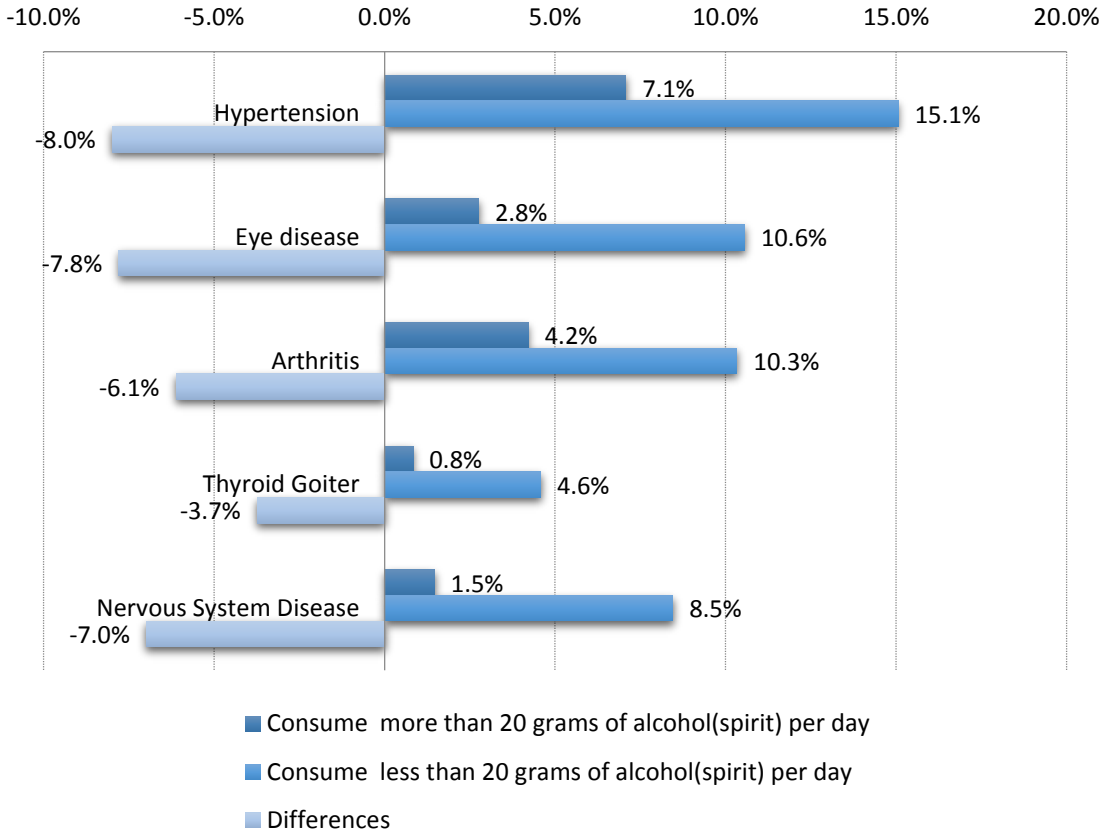
Among those who exposed secondhand smoke the pravelence of eye diseases was statistically significantly lower and higher in pravelence of thyroid goiter.

Interconnection of alcohol abuse with prevalence of chronic diseases.

Table 67. Interconnection of alcohol consumption with chronic diseases diagnosed by a physician (35-64 y.o.)

Consume more than 20 grams of alcohol(spirit) per day	N		Mean		Significance level: two-sided	Average differences	Standard error	CI differences (95%)	
	More than 20gr.	Less than 20 gr.	More than 20gr.	Less than 20 gr.				Lower	Upper
Anemia	140	1310	2.0%	3.8%	0.291	-1.7%	1.7%	-5.0%	1.5%
Heart disease	140	1312	9.7%	13.3%	0.231	-3.6%	3.0%	-9.5%	2.3%
Hypertension	140	1312	7.1%	15.1%	0.010	-8.0%	3.1%	-14.1%	-1.9%
Stroke	139	1310	0.0%	2.2%	0.080	-2.2%	1.2%	-4.6%	0.3%
Chronic bronchitis or emphysema	140	1312	3.6%	3.1%	0.725	0.5%	1.5%	-2.5%	3.6%
Asthma	140	1312	1.2%	1.1%	0.885	0.1%	0.9%	-1.7%	1.9%
Diabetes	140	1311	1.5%	4.4%	0.108	-2.8%	1.8%	-6.3%	0.6%
Eye disease	139	1312	2.8%	10.6%	0.003	-7.8%	2.6%	-13.0%	-2.6%
Gastrointestinal	140	1312	6.2%	7.8%	0.519	-1.5%	2.4%	-6.1%	3.1%
Liver Disease	140	1312	2.7%	4.6%	0.289	-1.9%	1.8%	-5.5%	1.6%
Kidney Disease	140	1312	2.4%	6.3%	0.064	-3.9%	2.1%	-8.0%	0.2%
Arthritis	140	1311	4.2%	10.3%	0.020	-6.1%	2.6%	-11.3%	-1.0%
Thyroid Goiter	140	1311	0.8%	4.6%	0.037	-3.7%	1.8%	-7.2%	-0.2%
Nose, throat, ear	140	1311	2.8%	4.9%	0.246	-2.2%	1.9%	-5.9%	1.5%
Nervous System Disease	140	1310	1.5%	8.5%	0.003	-7.0%	2.4%	-11.7%	-2.3%

Figure 31. Interconnection of alcohol consumption with chronic diseases diagnosed by a physician



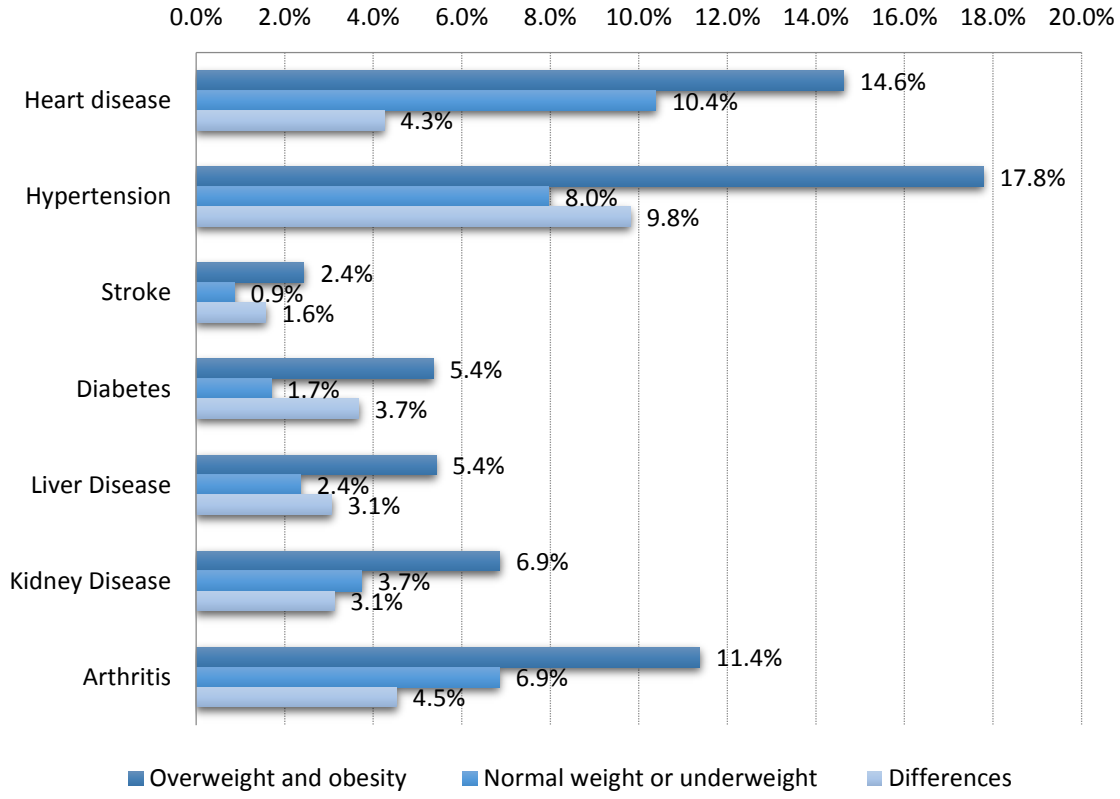
Hypertension, eye diseases , arthritis, thyroid goiter and nervous system diseases were significantly less common among alcohol abuse individuals.

Interconnection of overweight with the prevalence of chronic diseases.

Table 68. Interconnection of overweight with chronic diseases diagnosed by a physician (35-64 y.o.)

Overweight of obesity	N		Mean		Significance level: two-sided	Average differences	Standard error	CI differences (95%)	
	Available	Not avail.	Available	Not avail.				Lower	Upper
Anemia	980	455	4.2%	2.8%	0.205	1.4%	1.1%	-0.8%	3.5%
Heart disease	980	455	14.6%	10.4%	0.027	4.2%	1.9%	0.5%	8.0%
Hypertension	981	455	17.8%	8.0%	0.000	9.8%	2.0%	5.9%	13.7%
Stroke	980	454	2.4%	0.9%	0.045	1.6%	0.8%	0.0%	3.1%
Chronic bronchitis or emphysema	981	456	3.7%	1.9%	0.069	1.8%	1.0%	-0.1%	3.7%
Asthma	981	456	1.0%	1.2%	0.763	-0.2%	0.6%	-1.3%	1.0%
Diabetes	981	455	5.4%	1.7%	0.001	3.7%	1.1%	1.4%	5.9%
Eye disease	981	455	10.8%	9.5%	0.478	1.2%	1.7%	-2.2%	4.6%
Gastrointestinal	981	456	8.0%	7.4%	0.721	0.5%	1.5%	-2.4%	3.5%
Liver Disease	981	456	5.4%	2.4%	0.009	3.1%	1.2%	0.8%	5.3%
Kidney Disease	981	456	6.9%	3.7%	0.019	3.1%	1.3%	0.5%	5.7%
Arthritis	980	456	11.4%	6.9%	0.008	4.5%	1.7%	1.2%	7.9%
Thyroid Goiter	981	455	4.1%	4.5%	0.715	-0.4%	1.1%	-2.7%	1.8%
Nose, throat, ear	979	456	4.9%	4.8%	0.976	0.0%	1.2%	-2.4%	2.4%
Nervous System Disease	979	456	8.0%	8.4%	0.769	-0.5%	1.5%	-3.5%	2.6%

Figure 32. Interconnection of overweight with chronic diseases diagnosed by a physician



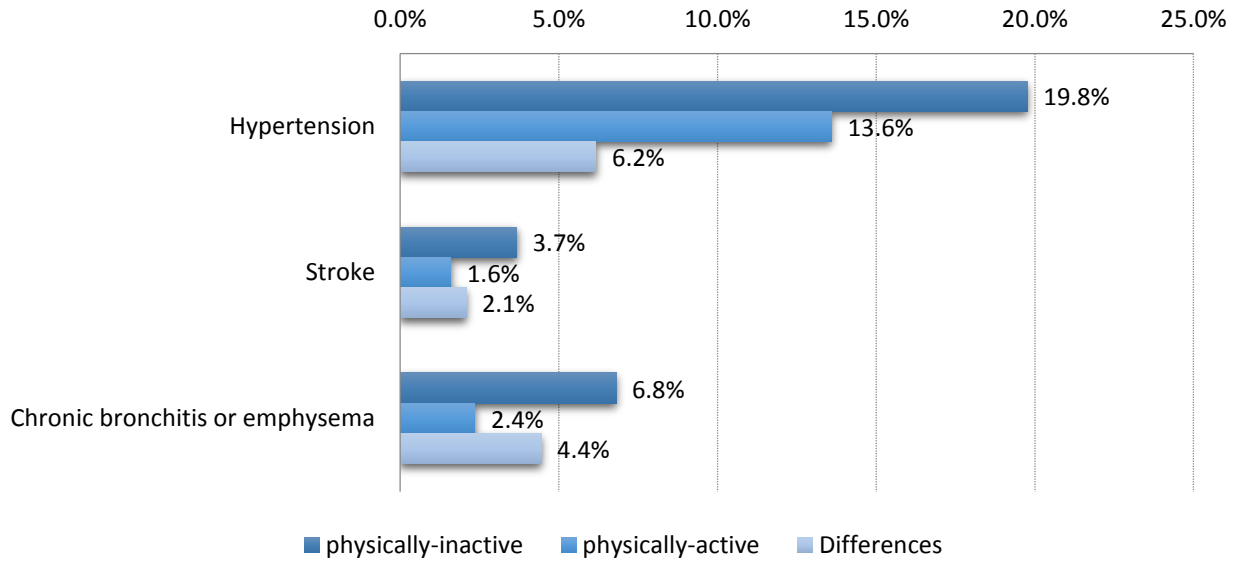
Among the respondents with overweight and obesity the hypertension, stroke, diabete, liver and kidney diseases were statistically more common.

Interconnection of physical inactivity with pravalence of chronic diseases.

Table 69. Interconnection of physical inactivity with chronic diseases diagnosed by a physician (35-64 y.o.)

Physical inactive` don't perform up to 30 minutes of weekly light intensity physical activity	N		Mean		Significance level: two-sided	Average differences	Standard error	CI differences (95%)	
	Inactive	Not inactive	Inactive	Not inactive				Lower	Upper
Anemia	243	1222	5.5%	3.3%	0.095	2.2%	1.3%	-0.4%	4.8%
Heart disease	243	1223	12.9%	13.2%	0.917	-0.2%	2.4%	-4.9%	4.4%
Hypertension	243	1223	19.8%	13.6%	0.013	6.2%	2.5%	1.3%	11.0%
Stroke	243	1221	3.7%	1.6%	0.033	2.1%	1.0%	0.2%	4.0%
Chronic bronchitis or emphysema	243	1224	6.8%	2.4%	0.000	4.4%	1.2%	2.1%	6.8%
Asthma	243	1224	0.4%	1.2%	0.281	-0.8%	0.7%	-2.2%	0.6%
Diabetes	243	1223	5.3%	3.9%	0.312	1.4%	1.4%	-1.3%	4.1%
Eye disease	243	1223	9.4%	10.3%	0.680	-0.9%	2.1%	-5.0%	3.3%
Gastrointestinal	243	1224	6.5%	8.0%	0.445	-1.4%	1.9%	-5.1%	2.2%
Liver Disease	243	1224	6.2%	4.1%	0.152	2.1%	1.4%	-0.8%	4.9%
Kidney Disease	243	1224	7.9%	5.4%	0.134	2.5%	1.6%	-0.8%	5.7%
Arthritis	243	1224	11.7%	9.8%	0.351	2.0%	2.1%	-2.2%	6.1%
Thyroid Goiter	243	1223	4.0%	4.4%	0.775	-0.4%	1.4%	-3.2%	2.4%
Nose, throat, ear	242	1223	4.3%	4.9%	0.694	-0.6%	1.5%	-3.6%	2.4%
Nervous System Disease	242	1223	7.2%	8.2%	0.605	-1.0%	1.9%	-4.7%	2.8%

Figure 33. Interconnection of physical inactivity with chronic diseases diagnosed by a physician



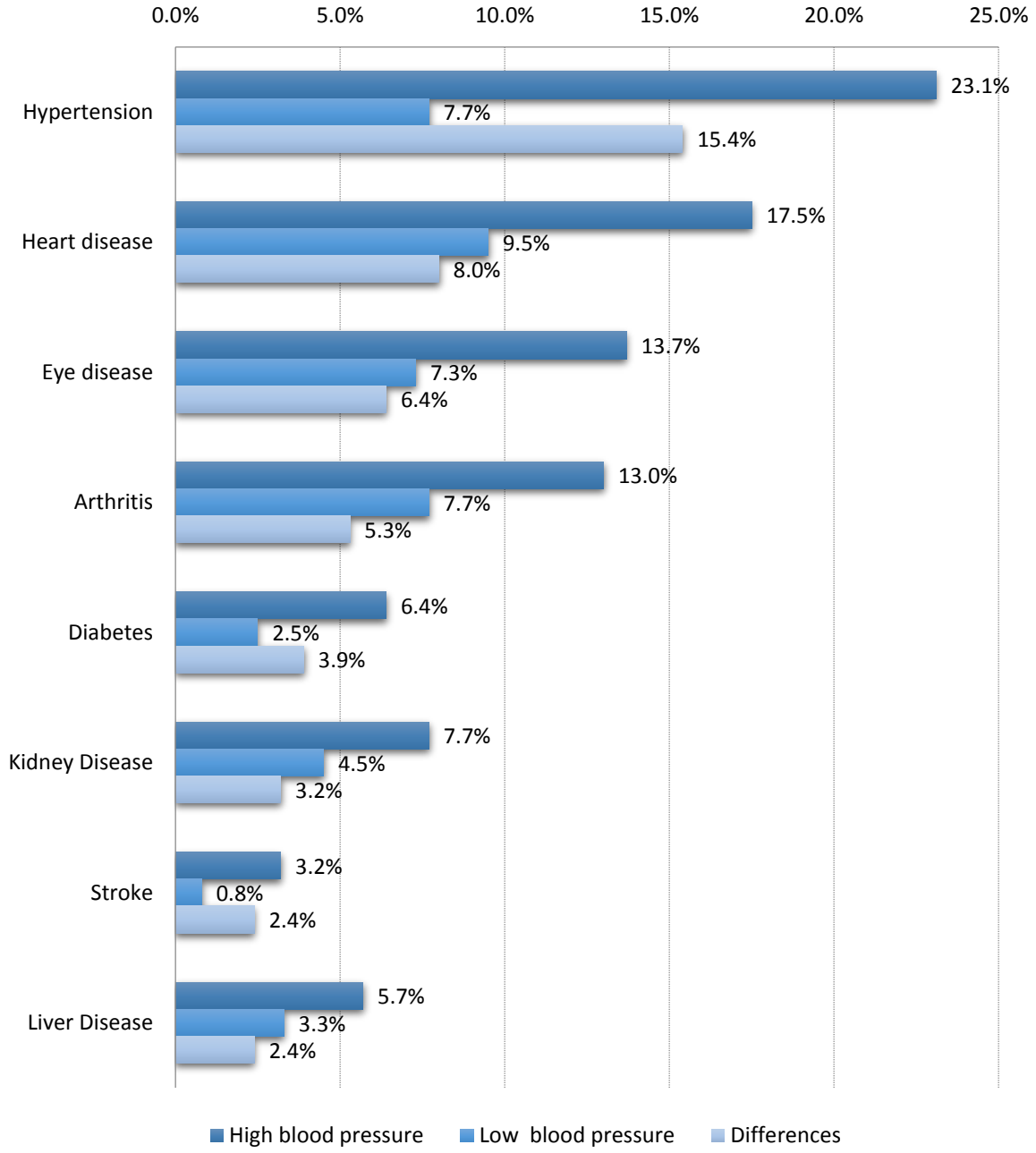
Among physically-inactive persons, statistically were more common hyperstension, stroke, and chronic bronchitis.

Interconnection between HBP and pravelence of chronic diseases.

Table 70. Interconnection of HBP with chronic diseases diagnosed by a physician (35-64 y.o.)

HBP	N		Mean		Significance level: two-sided	Average differences	Standard error	CI differences (95%)	
	Exist HBP	Doesnt exist HBP	Exist HBP	Doesnt exist HBP				Lower	Upper
Anemia	626	790	3.0%	4.3%	0.194	-1.3%	1.0%	-3.3%	0.7%
Heart disease	626	790	17.5%	9.5%	0.000	8.1%	1.8%	4.6%	11.6%
Hypertension	627	790	23.1%	7.7%	0.000	15.4%	1.8%	11.8%	19.0%
Stroke	626	788	3.2%	0.8%	0.001	2.4%	0.7%	0.9%	3.8%
Chronic bronchitis or emphysema	627	790	3.7%	2.4%	0.155	1.3%	0.9%	-0.5%	3.1%
Asthma	627	790	1.2%	0.8%	0.396	0.4%	0.5%	-0.6%	1.5%
Diabetes	627	789	6.4%	2.5%	0.000	3.8%	1.1%	1.7%	5.9%
Eye disease	626	790	13.7%	7.3%	0.000	6.4%	1.6%	3.3%	9.6%
Gastrointestinal	627	790	7.7%	7.9%	0.919	-0.1%	1.4%	-3.0%	2.7%
Liver Disease	627	790	5.7%	3.3%	0.027	2.4%	1.1%	0.3%	4.6%
Kidney Disease	627	790	7.7%	4.5%	0.011	3.2%	1.3%	0.7%	5.6%
Arthritis	627	790	13.0%	7.7%	0.001	5.3%	1.6%	2.2%	8.5%
Thyroid Goiter	627	789	4.6%	4.1%	0.704	0.4%	1.1%	-1.7%	2.5%
Nose, throat, ear	627	789	5.2%	4.7%	0.696	0.5%	1.2%	-1.8%	2.7%
Nervous System Disease	627	788	7.8%	8.3%	0.749	-0.5%	1.5%	-3.3%	2.4%

Figure 34. Interconnection of HBP with chronic diseases diagnosed by a physician



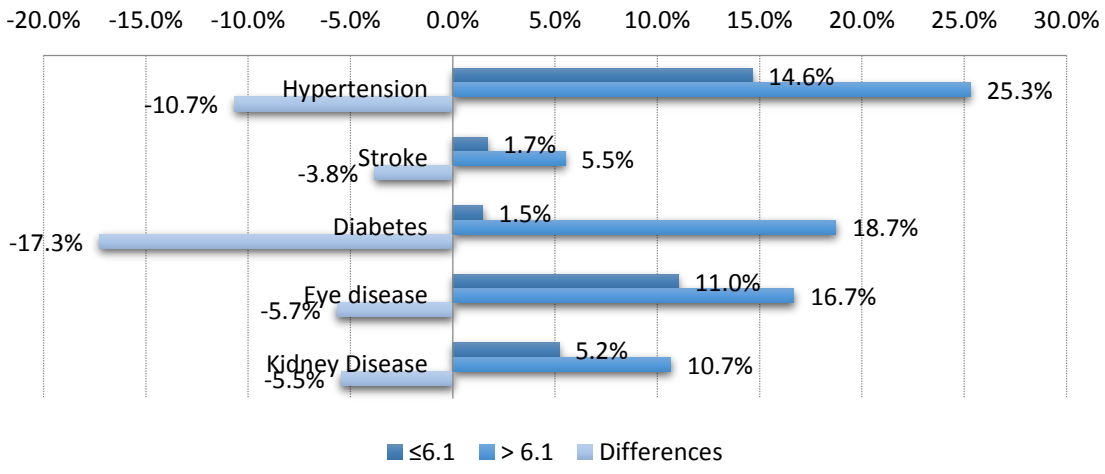
High blood pressure was statistically correlated with hypertension, heart disease, eye disease,arthritis , diabetes, kidney disease, stroke, and liver disease.

Interconnection between Glucose level and pravelence of chronic diseases.

Table 71. Interconnection of glucose level with chronic diseases diagnosed by a physician (35-64 y.o.)

Glucose level	N		Mean		Significance level: two-sided	Average differences	Standard error	CI differences (95%)	
	≤6.1	>6.1	≤6.1	>6.1				Lower	Upper
Anemia	896	211	3.6%	4.8%	0.415	-1.2%	1.5%	-4.1%	1.7%
Heart disease	897	210	14.3%	18.5%	0.125	-4.2%	2.7%	-9.6%	1.2%
Hypertension	897	211	14.6%	25.3%	0.000	-10.7%	2.8%	-16.2%	-5.1%
Stroke	896	211	1.7%	5.5%	0.001	-3.8%	1.2%	-6.1%	-1.5%
Chronic bronchitis or emphysema	898	211	3.6%	2.0%	0.234	1.6%	1.4%	-1.0%	4.3%
Asthma	898	211	1.3%	0.9%	0.608	0.4%	0.9%	-1.2%	2.1%
Diabetes	898	211	1.5%	18.7%	0.000	-17.3%	1.5%	-20.3%	-14.2%
Eye disease	897	211	11.0%	16.7%	0.024	-5.6%	2.5%	-10.5%	-0.8%
Gastrointestinal	898	211	7.7%	8.9%	0.563	-1.2%	2.1%	-5.2%	2.9%
Liver Disease	898	211	5.0%	6.8%	0.307	-1.8%	1.7%	-5.1%	1.6%
Kidney Disease	898	211	5.2%	10.7%	0.003	-5.5%	1.8%	-9.1%	-1.8%
Arthritis	897	211	11.2%	12.6%	0.583	-1.3%	2.4%	-6.1%	3.4%
Thyroid Goiter	897	211	5.0%	3.8%	0.463	1.2%	1.6%	-2.0%	4.4%
Nose, throat, ear	896	211	5.1%	6.6%	0.369	-1.5%	1.7%	-4.9%	1.8%
Nervous System Disease	897	210	8.1%	6.8%	0.502	1.4%	2.1%	-2.7%	5.4%

Figure 35. Interconnection of glucose level with chronic diseases diagnosed by a physician.



Among those with a high level of glucose (> 6.1) hypertension, stroke, diabetes, eye diseases, and kidney disease were statistically more common.

Interconnection bewteen cholesterol level and pravelenc of chronic diseases.

Table 72. The prevalence of chronic diseases among people with different levels of cholesterol (35-64 years old)

	Levels of cholesterol	N	Mean	Standard deviation	Standard Error	CI differences (95%)	
						Lower	Upper
Anemia	< 5.2	910	3.9%	19.4%	0.6%	2.7%	5.2%
	5.2-6.2	106	3.2%	17.6%	1.7%	-0.2%	6.5%
	> 6.2	93	3.2%	17.8%	1.8%	-0.4%	6.9%
	Total	1110	3.8%	19.1%	0.6%	2.7%	4.9%
Heart Diseases	< 5.2	911	14.9%	35.7%	1.2%	12.6%	17.3%
	5.2-6.2	106	13.3%	34.1%	3.3%	6.7%	19.8%
	> 6.2	94	18.6%	39.1%	4.0%	10.6%	26.6%
	Total	1111	15.1%	35.8%	1.1%	13.0%	17.2%
Hypertension	< 5.2	911	16.1%	36.8%	1.2%	13.7%	18.5%
	5.2-6.2	106	18.6%	39.1%	3.8%	11.1%	26.2%
	> 6.2	94	20.3%	40.5%	4.2%	12.0%	28.7%
	Total	1111	16.7%	37.3%	1.1%	14.5%	18.9%
Stroke	< 5.2	909	2.0%	13.9%	0.5%	1.1%	2.9%
	5.2-6.2	106	4.7%	21.3%	2.1%	0.6%	8.8%
	> 6.2	94	4.7%	21.3%	2.2%	0.3%	9.1%
	Total	1110	2.5%	15.5%	0.5%	1.6%	3.4%
Chronic bronchitis or emphysema	< 5.2	911	3.1%	17.4%	0.6%	2.0%	4.3%
	5.2-6.2	106	5.1%	22.1%	2.1%	0.9%	9.4%
	> 6.2	94	3.2%	17.7%	1.8%	-0.4%	6.8%
	Total	1112	3.3%	17.9%	0.5%	2.3%	4.4%
Asthma	< 5.2	911	1.4%	11.9%	0.4%	0.7%	2.2%
	5.2-6.2	106	1.5%	12.2%	1.2%	-0.9%	3.8%
	> 6.2	94	0.0%	0.0%	0.0%	0.0%	0.0%
	Total	1112	1.3%	11.4%	0.3%	0.6%	2.0%
Diabetes	< 5.2	911	4.1%	19.8%	0.7%	2.8%	5.4%
	5.2-6.2	106	8.1%	27.4%	2.7%	2.8%	13.4%
	> 6.2	94	7.8%	26.9%	2.8%	2.3%	13.3%
	Total	1112	4.8%	21.4%	0.6%	3.5%	6.1%
	< 5.2	910	12.2%	32.7%	1.1%	10.1%	14.3%

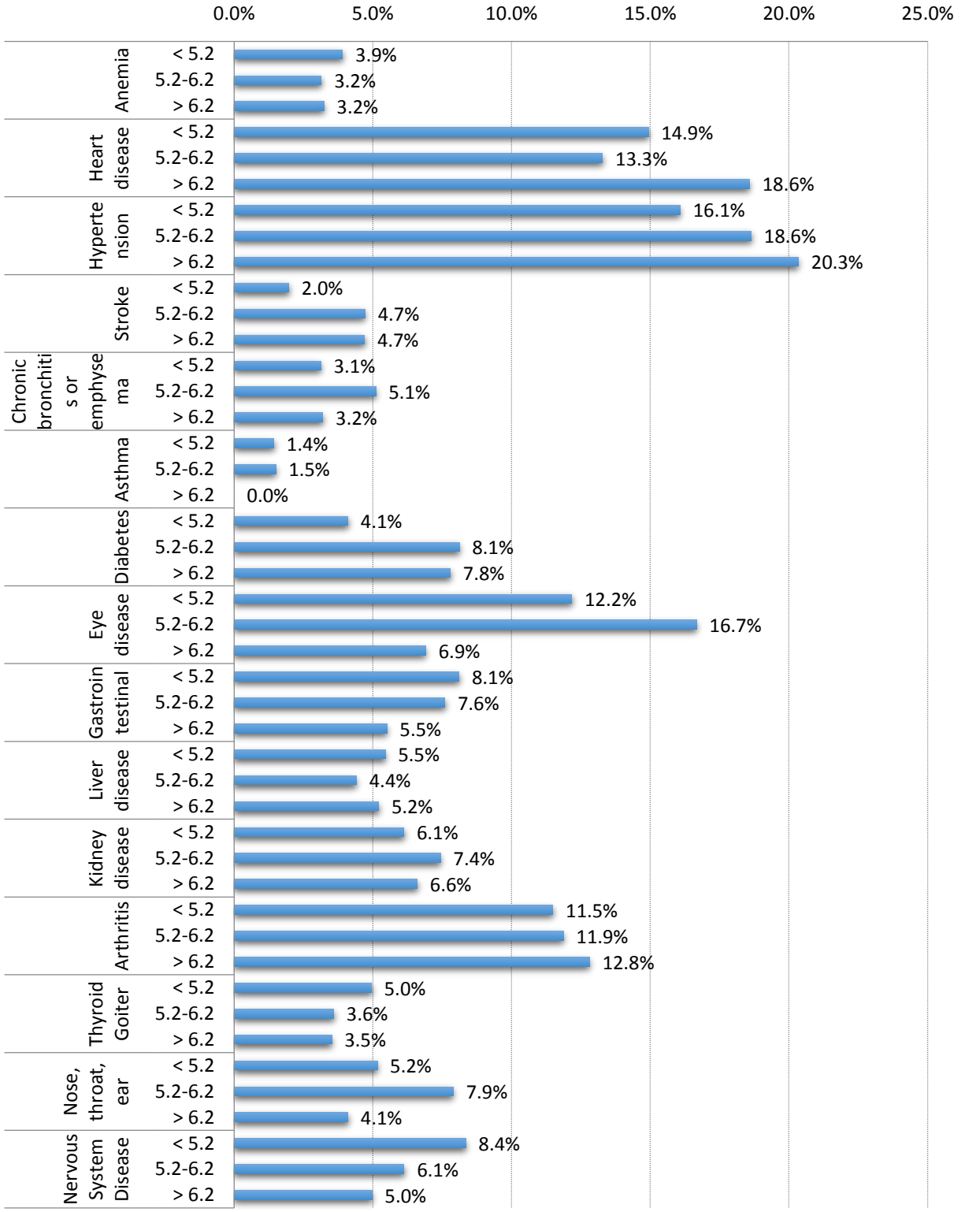
Eye disease							
	5.2-6.2	106	16.7%	37.4%	3.6%	9.5%	23.9%
	> 6.2	94	6.9%	25.5%	2.6%	1.7%	12.1%
	Total	1111	12.2%	32.7%	1.0%	10.2%	14.1%
Gastrointestinal	< 5.2	911	8.1%	27.3%	0.9%	6.3%	9.9%
	5.2-6.2	106	7.6%	26.6%	2.6%	2.5%	12.7%
	> 6.2	94	5.5%	22.9%	2.4%	0.8%	10.2%
	Total	1112	7.8%	26.9%	0.8%	6.3%	9.4%
Liver Disease	< 5.2	911	5.5%	22.7%	0.8%	4.0%	6.9%
	5.2-6.2	106	4.4%	20.6%	2.0%	0.4%	8.4%
	> 6.2	94	5.2%	22.3%	2.3%	0.6%	9.8%
	Total	1112	5.3%	22.5%	0.7%	4.0%	6.7%
Kidney Disease	< 5.2	911	6.1%	24.0%	0.8%	4.6%	7.7%
	5.2-6.2	106	7.4%	26.4%	2.6%	2.4%	12.5%
	> 6.2	94	6.6%	25.0%	2.6%	1.5%	11.7%
	Total	1112	6.3%	24.3%	0.7%	4.9%	7.7%
Arthritis	< 5.2	911	11.5%	31.9%	1.1%	9.4%	13.6%
	5.2-6.2	106	11.9%	32.5%	3.2%	5.6%	18.1%
	> 6.2	94	12.8%	33.6%	3.5%	5.9%	19.7%
	Total	1111	11.6%	32.1%	1.0%	9.8%	13.5%
Thyroid Goiter	< 5.2	911	5.0%	21.7%	0.7%	3.5%	6.4%
	5.2-6.2	106	3.6%	18.7%	1.8%	0.0%	7.2%
	> 6.2	94	3.5%	18.5%	1.9%	-0.3%	7.3%
	Total	1111	4.7%	21.2%	0.6%	3.5%	5.9%
Nose, throat, ear	< 5.2	910	5.2%	22.1%	0.7%	3.7%	6.6%
	5.2-6.2	106	7.9%	27.1%	2.6%	2.7%	13.1%
	> 6.2	94	4.1%	19.9%	2.1%	0.0%	8.2%
	Total	1110	5.3%	22.5%	0.7%	4.0%	6.7%
Nervous System Disease	< 5.2	910	8.4%	27.7%	0.9%	6.6%	10.2%
	5.2-6.2	106	6.1%	24.1%	2.3%	1.5%	10.8%
	> 6.2	93	5.0%	21.8%	2.3%	0.5%	9.5%
	Total	1110	7.9%	26.9%	0.8%	6.3%	9.4%

Table 73. Statistical reliability levels of differences in chronic diseases prevalence indicators for different cholesterol levels (35-64 y.o.).

Dependent variable	(I) Cholesterol levels	(J) Cholesterol levels	Mean differences (I-J)	Standard error	Significance level: two-sided	CI differences (95%)	
						Lower	Upper
Anemia	<5.2	5.2-6.2	0.8%	1.8%	0.967	-4.0%	5.0%
		> 6.2	0.7%	2.0%	0.981	-4.0%	5.0%
	5.2-6.2	< 5.2	-0.8%	1.8%	0.967	-5.0%	4.0%
		> 6.2	-0.1%	2.5%	1.000	-6.0%	6.0%
	>6.2	< 5.2	-0.7%	2.0%	0.981	-5.0%	4.0%
		5.2-6.2	0.1%	2.5%	1.000	-6.0%	6.0%
Heart disease	<5.2	5.2-6.2	1.6%	3.5%	0.953	-7.0%	10.0%
		> 6.2	-3.7%	4.2%	0.771	-14.0%	7.0%
	5.2-6.2	< 5.2	-1.6%	3.5%	0.953	-10.0%	7.0%
		> 6.2	-5.3%	5.2%	0.674	-18.0%	7.0%
	>6.2	< 5.2	3.7%	4.2%	0.771	-7.0%	14.0%
		5.2-6.2	5.3%	5.2%	0.674	-7.0%	18.0%
Hypertension	<5.2	5.2-6.2	-2.6%	4.0%	0.891	-12.0%	7.0%
		> 6.2	-4.3%	4.4%	0.700	-15.0%	6.0%
	5.2-6.2	< 5.2	2.6%	4.0%	0.891	-7.0%	12.0%
		> 6.2	-1.7%	5.6%	0.987	-15.0%	12.0%
	>6.2	< 5.2	4.3%	4.4%	0.700	-6.0%	15.0%
		5.2-6.2	1.7%	5.6%	0.987	-12.0%	15.0%
Stroke	<5.2	5.2-6.2	-2.7%	2.1%	0.482	-8.0%	2.0%
		> 6.2	-2.7%	2.2%	0.538	-8.0%	3.0%
	5.2-6.2	< 5.2	2.7%	2.1%	0.482	-2.0%	8.0%
		> 6.2	0.0%	3.0%	1.000	-7.0%	7.0%
	>6.2	< 5.2	2.7%	2.2%	0.538	-3.0%	8.0%
		5.2-6.2	0.0%	3.0%	1.000	-7.0%	7.0%
Chronic bronchitis or emphysema	<5.2	5.2-6.2	-2.0%	2.2%	0.756	-7.0%	3.0%
		> 6.2	-0.1%	1.9%	1.000	-5.0%	5.0%
	5.2-6.2	< 5.2	2.0%	2.2%	0.756	-3.0%	7.0%
		> 6.2	1.9%	2.8%	0.874	-5.0%	9.0%
	>6.2	< 5.2	0.1%	1.9%	1.000	-5.0%	5.0%
		5.2-6.2	-1.9%	2.8%	0.874	-9.0%	5.0%
Asthma	<5.2	5.2-6.2	-0.1%	1.2%	1.000	-3.0%	3.0%
		> 6.2	1.4%	0.4%	0.001	0.0%	2.0%
	5.2-6.2	< 5.2	0.1%	1.2%	1.000	-3.0%	3.0%
		> 6.2	1.5%	1.2%	0.505	-1.0%	4.0%
	>6.2	< 5.2	-1.4%	0.4%	0.001	-2.0%	0.0%
		5.2-6.2	-1.5%	1.2%	0.505	-4.0%	1.0%
Diabetes	<5.2	5.2-6.2	-4.0%	2.7%	0.376	-11.0%	3.0%
		> 6.2	-3.7%	2.9%	0.486	-11.0%	3.0%
	5.2-6.2	< 5.2	4.0%	2.7%	0.376	-3.0%	11.0%
		> 6.2	0.3%	3.8%	1.000	-9.0%	10.0%
	>6.2	< 5.2	3.7%	2.9%	0.486	-3.0%	11.0%
		5.2-6.2	-0.3%	3.8%	1.000	-10.0%	9.0%

Eye disease	<5.2	5.2-6.2	-4.5%	3.8%	0.558	-14.0%	5.0%
		> 6.2	5.3%	2.8%	0.187	-2.0%	12.0%
	5.2-6.2	< 5.2	4.5%	3.8%	0.558	-5.0%	14.0%
		> 6.2	9.8%	4.5%	0.090	-1.0%	21.0%
	>6.2	< 5.2	-5.3%	2.8%	0.187	-12.0%	2.0%
		5.2-6.2	-9.8%	4.5%	0.090	-21.0%	1.0%
Gastrointestinal	<5.2	5.2-6.2	0.5%	2.7%	0.997	-6.0%	7.0%
		> 6.2	2.6%	2.5%	0.665	-4.0%	9.0%
	5.2-6.2	< 5.2	-0.5%	2.7%	0.997	-7.0%	6.0%
		> 6.2	2.1%	3.5%	0.909	-6.0%	11.0%
	>6.2	< 5.2	-2.6%	2.5%	0.665	-9.0%	4.0%
		5.2-6.2	-2.1%	3.5%	0.909	-11.0%	6.0%
Liver disease	<5.2	5.2-6.2	1.0%	2.1%	0.948	-4.0%	6.0%
		> 6.2	0.2%	2.4%	1.000	-6.0%	6.0%
	5.2-6.2	< 5.2	-1.0%	2.1%	0.948	-6.0%	4.0%
		> 6.2	-0.8%	3.1%	0.991	-8.0%	7.0%
	>6.2	< 5.2	-0.2%	2.4%	1.000	-6.0%	6.0%
		5.2-6.2	0.8%	3.1%	0.991	-7.0%	8.0%
Kidney disease	<5.2	5.2-6.2	-1.3%	2.7%	0.947	-8.0%	5.0%
		> 6.2	-0.5%	2.7%	0.997	-7.0%	6.0%
	5.2-6.2	< 5.2	1.3%	2.7%	0.947	-5.0%	8.0%
		> 6.2	0.8%	3.6%	0.994	-8.0%	10.0%
	>6.2	< 5.2	0.5%	2.7%	0.997	-6.0%	7.0%
		5.2-6.2	-0.8%	3.6%	0.994	-10.0%	8.0%
Arthritis	<5.2	5.2-6.2	-0.4%	3.3%	0.999	-8.0%	8.0%
		> 6.2	-1.3%	3.6%	0.977	-10.0%	7.0%
	5.2-6.2	< 5.2	0.4%	3.3%	0.999	-8.0%	8.0%
		> 6.2	-0.9%	4.7%	0.996	-12.0%	10.0%
	>6.2	< 5.2	1.3%	3.6%	0.977	-7.0%	10.0%
		5.2-6.2	0.9%	4.7%	0.996	-10.0%	12.0%
Thyroid Goiter	<5.2	5.2-6.2	1.4%	2.0%	0.866	-3.0%	6.0%
		> 6.2	1.4%	2.0%	0.863	-4.0%	6.0%
	5.2-6.2	< 5.2	-1.4%	2.0%	0.866	-6.0%	3.0%
		> 6.2	0.1%	2.6%	1.000	-6.0%	6.0%
	>6.2	< 5.2	-1.4%	2.0%	0.863	-6.0%	4.0%
		5.2-6.2	-0.1%	2.6%	1.000	-6.0%	6.0%
Nose, throat, ear	<5.2	5.2-6.2	-2.7%	2.7%	0.683	-9.0%	4.0%
		> 6.2	1.1%	2.2%	0.948	-4.0%	6.0%
	5.2-6.2	< 5.2	2.7%	2.7%	0.683	-4.0%	9.0%
		> 6.2	3.8%	3.3%	0.589	-4.0%	12.0%
	>6.2	< 5.2	-1.1%	2.2%	0.948	-6.0%	4.0%
		5.2-6.2	-3.8%	3.3%	0.589	-12.0%	4.0%
Nervous System Disease	<5.2	5.2-6.2	2.2%	2.5%	0.760	-4.0%	8.0%
		> 6.2	3.4%	2.4%	0.425	-3.0%	9.0%
	5.2-6.2	< 5.2	-2.2%	2.5%	0.760	-8.0%	4.0%
		> 6.2	1.2%	3.3%	0.978	-7.0%	9.0%
	>6.2	< 5.2	-3.4%	2.4%	0.425	-9.0%	3.0%
		5.2-6.2	-1.2%	3.3%	0.978	-9.0%	7.0%

Figure 36. The prevalence of chronic diseases among people with different levels of cholesterol



During the statistical analyses interconnection between chronic diseases and cholesterol levels has not been found.

Conclusions

Smokers have statistically lower pravelence levels of anemia, hypertension, arthritis, and thyroid Goiter.

Among those who exposed secondhand smoke the pravelence of eye diseases was statistically significantly lower and higher in pravelence of thyroid goiter.

Hypertension, eye diseases , arthritis, thyroid goiter and nervous system diseases were significantly less common among alcohol abuse individuals.

Among the respondents with overweight and obesity the hypertension, stroke, diabete, liver and kidney diseases were statistically more common.

Among physically-inactive persons, statistically were more common hyperstension, stroke, and chronic bronchitis.

High blood pressure was statistically correlated with hypertension, heart disease, eye disease,arthritis diabetes, kidney disease, stroke, and liver disease.

Among those with a high level of glucose (> 6.1) hypertension, stroke, diabetes, eye diseases, and kidney disease were statistically more common.

The prevalence of chronic diseases and the level of cholesterol were not statistically correlated.

THE PREVALENCE OF RISK FACTORS AND THEIR CORRELATIONS BY SEX AND AGE GROUPS

The pravelnce of risk factors by sex and age groups.

From Table 79-Table 81presents the pravelnce of risk factors by sex and age groups: the following risk factors were observed:

- HBP
- Daily cigratte use
- Secondhand smoke exposure at home and at workplace
- Alcohol consumption Abuse more than 20 gr of pure alcohol per day
- Overweight and obesity
- Physical inactivity (up to 30 minutes of weekly light intensity physical activity),
- HGL (>6.1),
- High levels of cholesterol (>6.2):

In this section, the 2012 age categories were used to calculate the 2015 survey data , so that the data should be comparable with the charts presented in HSPA 2013 publication on pages 73-76.

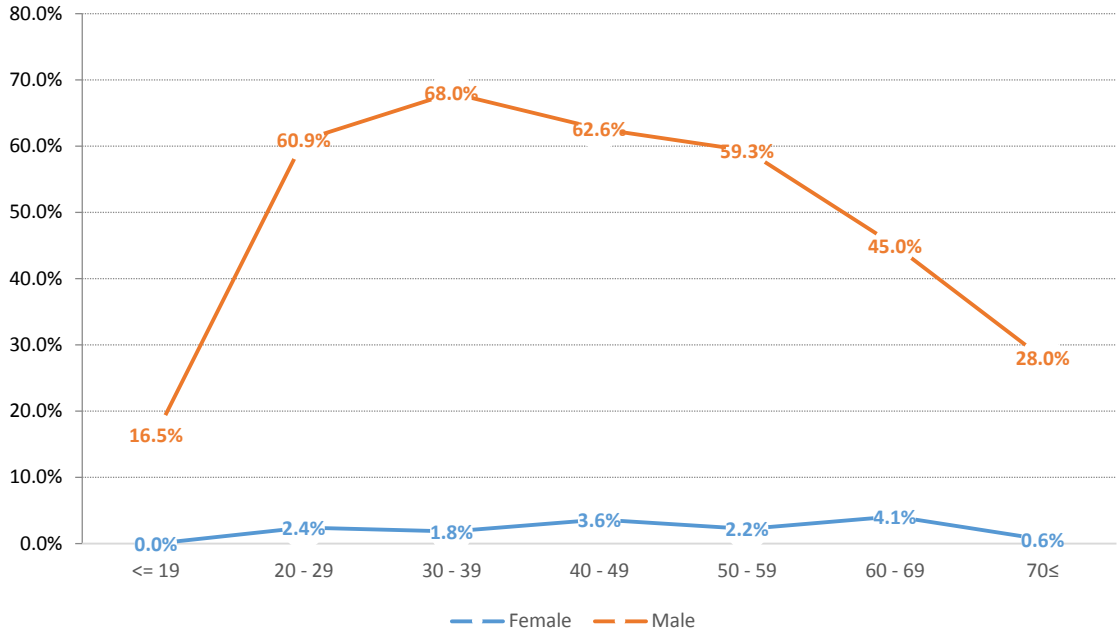
The data reliability charts also provide the number of respondents for each age/sex group , whom that observed RF considered.

Pravelence of daily smokers by sex/age groups is shown in Table 74 and Figure 37.

Table 74. Proportion of daily smokers in sex/age groups.

Smoke every day									
			Age						
			≤19	20 -29	30 -39	40 -49	50 -59	60 -69	70≥
Sex	Female	Row N %	0.0%	2.4%	1.8%	3.6%	2.2%	4.1%	0.6%
		Count	0	6	5	7	5	6	1
	Male	Row N %	16.5%	60.9%	68.0%	62.6%	59.3%	45.0%	28.0%
		Count	20	165	146	115	108	52	24
	Total	Row N %	8.4%	32.4%	30.9%	32.0%	28.6%	21.4%	11.8%
		Count	20	171	151	122	113	59	24

Figure 37. Proportion of daily smokers in sex/age groups.



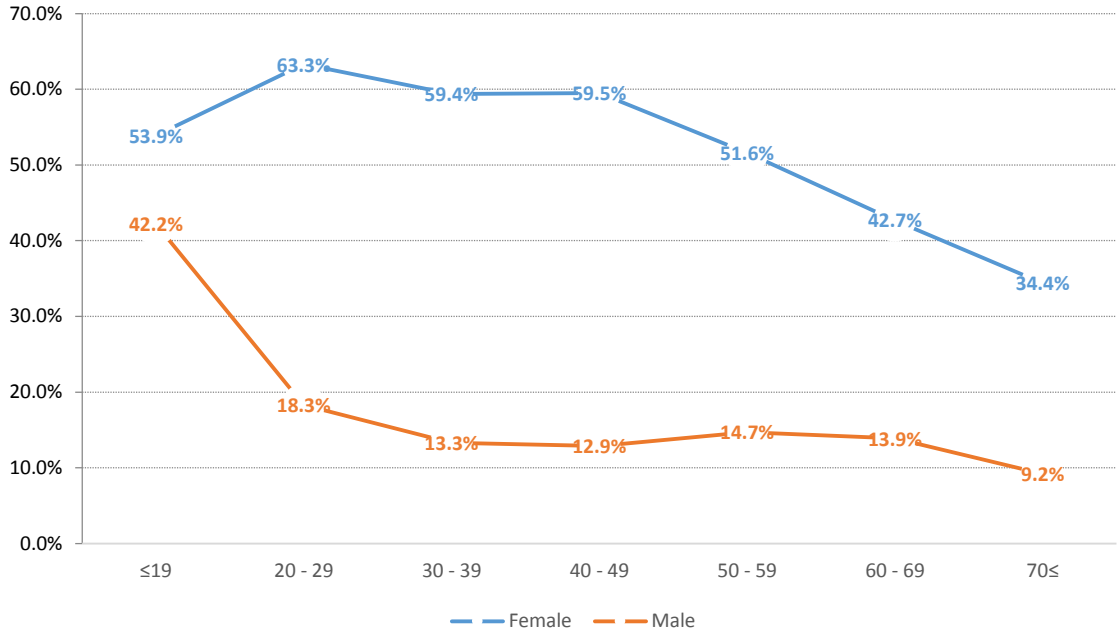
The proportion of daily smokers among men aged 20-29 years was growing rapidly. From the 40-49 age group the proportion of daily smokers mens was decreasing, which could be related to health status, along with age when smokers realised about harmfull effects of smoking.

Proportion of secondhand smoke exposure in sex/age groups is shown in Table 75 and Figure 39.

Table 75. The proportion of secondhand smoke exposure by sex/age groups.

SHS exposure at home or at workplace (at work, in the last 30 days)										
			Age							
Age			≤19	20 -29	30 -39	40 -49	50 -59	60 - 69	70≥	Total
Sex	Female	Row N %	53.9%	63.3%	59.4%	59.5%	51.6%	42.7%	34.4%	54.2%
		Count	64	163	163	118	109	68	42	727
	Male	Row N %	42.2%	18.3%	13.3%	12.9%	14.7%	13.9%	9.2%	17.4%
		Count	51	50	29	24	27	16	8	204
	Total	Row N %	48.0%	40.3%	39.2%	37.1%	34.6%	30.5%	24.0%	37.0%
		Count	115	212	192	142	136	84	50	931

Figure 39. The proportion of secondhand smoke exposure by sex/age groups.



The proportion of the impact of SHS exposure relatively greater among young men groups , it could be explained by the fact that the daily cigarette consumption rate is higher among older age groups, and women are often exposed to the impact of secondhand smoke as a result of the presence of a smoking member in the family.

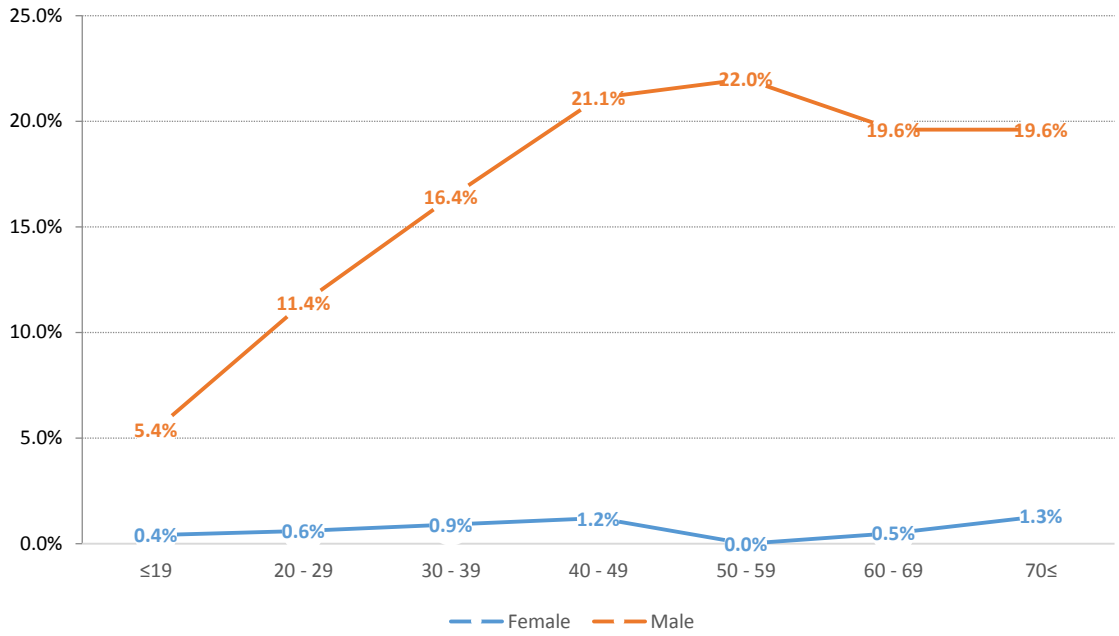
It is noteworthy that as presented in the previous Figure 38, the daily use of cigarettes decreases parallel with the growth of age, the picture is the same, with the increase in age, the proportion of those exposed to the impact of secondhand smoke.

The proportion of Alcohol consumption (Abuse)` more than 20 gr of pure alcohol per day by sex/age groups is shown in Table 76 and Figure 40.

Table 76. The proportion of alcohol consumption `more than 20 gr of pure alcohol per day by sex/age groups

more than 20 gr of pure alcohol per day										
Age			≤19	20-29	30-39	40-49	50-59	60-69	70≥	Total
Sex	Female	Row N %	0.4%	0.6%	0.9%	1.2%	0.0%	0.5%	1.3%	0.7%
		Count	0	2	2	2	0	1	2	9
	Male	Row N %	5.4%	11.4%	16.4%	21.1%	22.0%	19.6%	19.6%	16.3%
		Count	7	30	35	38	40	22	16	189
	Total	Row N %	2.9%	6.1%	7.7%	10.8%	10.2%	8.5%	8.8%	7.9%
		Count	7	32	37	41	40	23	18	198

Figure 40. The proportion of Alcohol consumption ' more than 20 gr of pure alcohol per day by sex/age groups



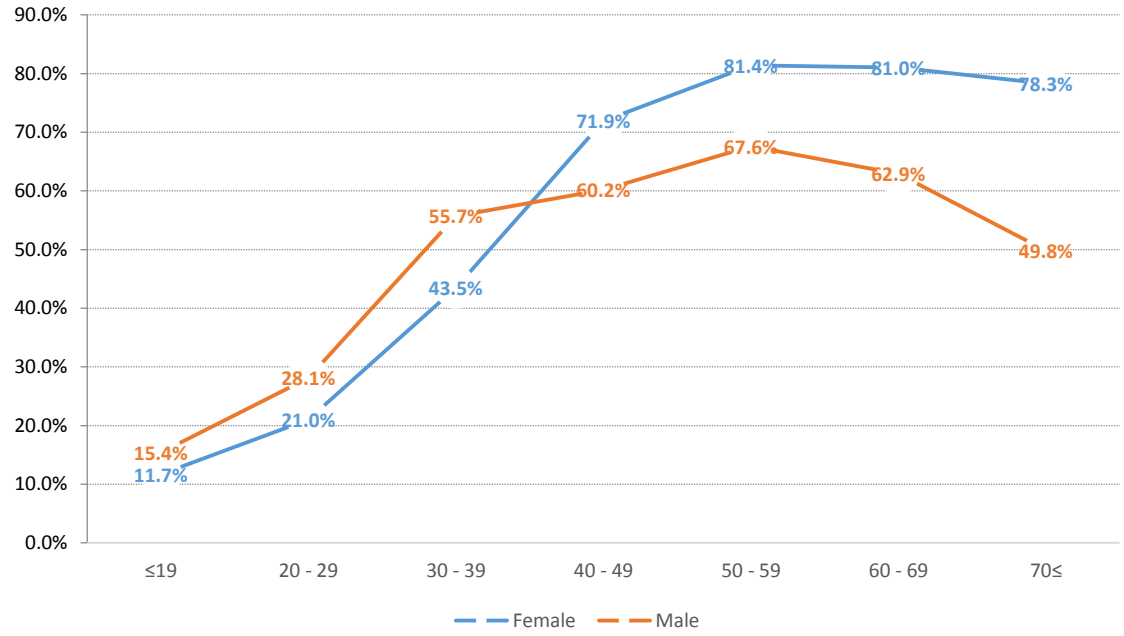
The alcohol consumption and abuse among men is much more higher. It grows parallel to the age and actually reaches its peak among men aged 40-49 years, after which in remains at the same level (among the older men, the decline of the indicator is insignificant and statistically uncertain).

The proportion of people with overweight or obese, according to sex and age groups is shown in Table 77 and in Figure 41.

Table 77. The proportion of people with overweight or obese, according to sex and age groups

overweight or obese										
Age			≤19	20-29	30-39	40-49	50-59	60-69	70≥	Total
Sex	Female	Row N %	11.7%	21.0%	43.5%	71.9%	81.4%	81.0%	78.3%	54.1%
		Count	14	53	116	142	170	127	89	711
	Male	Row N %	15.4%	28.1%	55.7%	60.2%	67.6%	62.9%	49.8%	48.0%
		Count	19	75	119	110	121	73	40	555
	Total	Row N %	13.5%	24.6%	48.9%	66.3%	75.1%	73.3%	66.6%	51.2%
		Count	32	128	235	251	290	200	129	1266

Figure 41. The proportion of people with overweight or obese, according to sex and age groups



The proportion of people with overweight or obese in *low-age groups is relatively higher among males, and among women aged 40-49 years.*

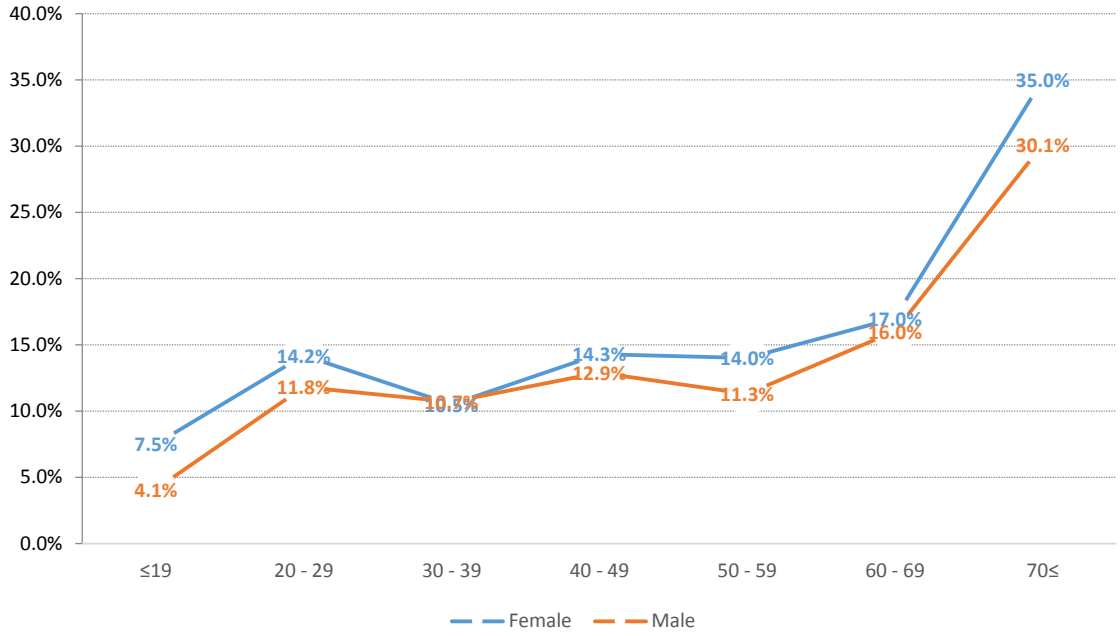
It is also interesting to note that the prevalence of owerweight or obesity in men aged 70 and over is statistically declining, and among female the coefficient remains the same.

The pravelence of physical inactivity (less than 30 minutes of light intesity physical work per week) by sex and age groups is presented in Table 78 and Figure 42.

Table 78. The pravelence of physical inactivity by sex and age groups

Physical inactive										
Age			≤19	20-29	30-39	40-49	50-59	60-69	70≥	Total
Sex	Female	Row N %	7.5%	14.2%	10.5%	14.3%	14.0%	17.0%	35.0%	15.0%
		Count	9	36	29	28	30	27	43	202
	Male	Row N %	4.1%	11.8%	10.7%	12.9%	11.3%	16.0%	30.1%	12.6%
		Count	5	32	23	24	21	19	26	149
	Total	Row N %	5.8%	13.0%	10.6%	13.6%	12.7%	16.6%	33.0%	13.9%
		Count	14	68	52	52	50	46	68	351

Figure 42. The pravelence of physical inactivity by sex and age groups



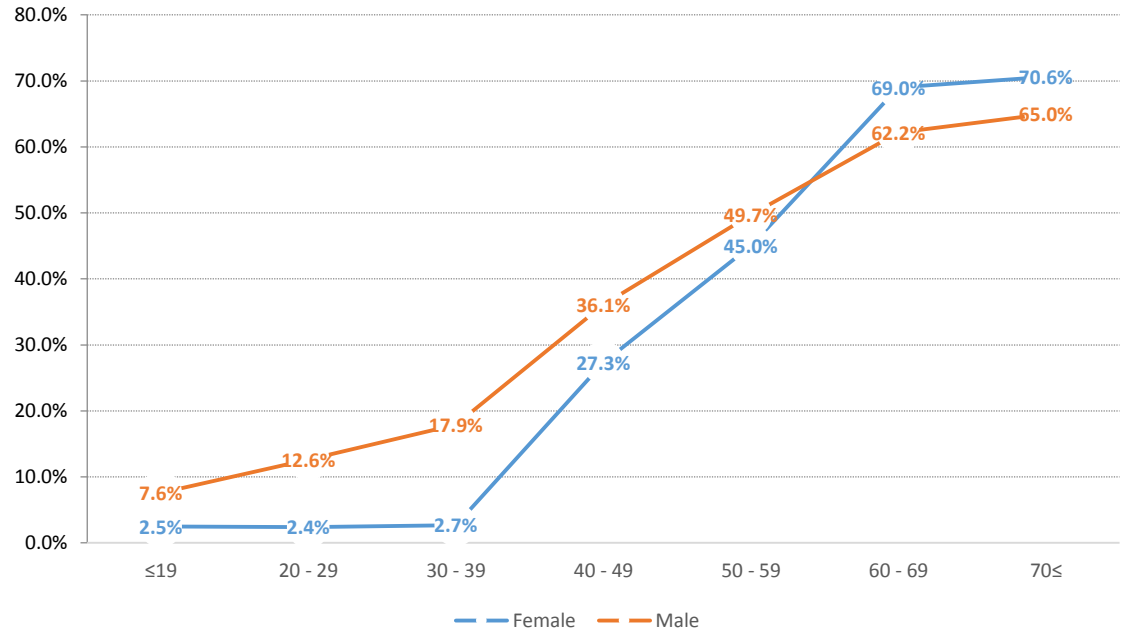
Physical inactivity is a little more common among women in all age groups. This difference is statistically valid when considering the entire sample.

The pravelance of HBP according to sex and age groups is shown in Table 79 and to make the data more perceptable presetned in Figure 43.

Table 79. The pravelance of HBP according to sex and age groups

HBP										
Age			≤19	20-29	30-39	40-49	50-59	60-69	70≥	Total
Sex	Female	Row N %	2.5%	2.4%	2.7%	27.3%	45.0%	69.0%	70.6%	26.6%
		Count	3	6	7	53	92	108	81	351
	Male	Row N %	7.6%	12.6%	17.9%	36.1%	49.7%	62.2%	65.0%	30.9%
		Count	9	34	37	64	87	71	50	352
	Total	Row N %	5.1%	7.6%	9.3%	31.5%	47.2%	66.1%	68.3%	28.6%
		Count	12	40	45	118	179	178	131	702

Figure 43 The pravelance of HBP according to sex and age groups



High blood pressure is more common in younger male age groups and among female from 60 years old. The prevalence of high blood pressure increases dramatically in the age group of 40-49 and grows substantially parallel to the age.

The pravelence og HGL (> 6.1 mmol/l) according to sex and age groups presented in Glucose levels measured among 35 years and above.

Table 80 ***and in Figure 44.***

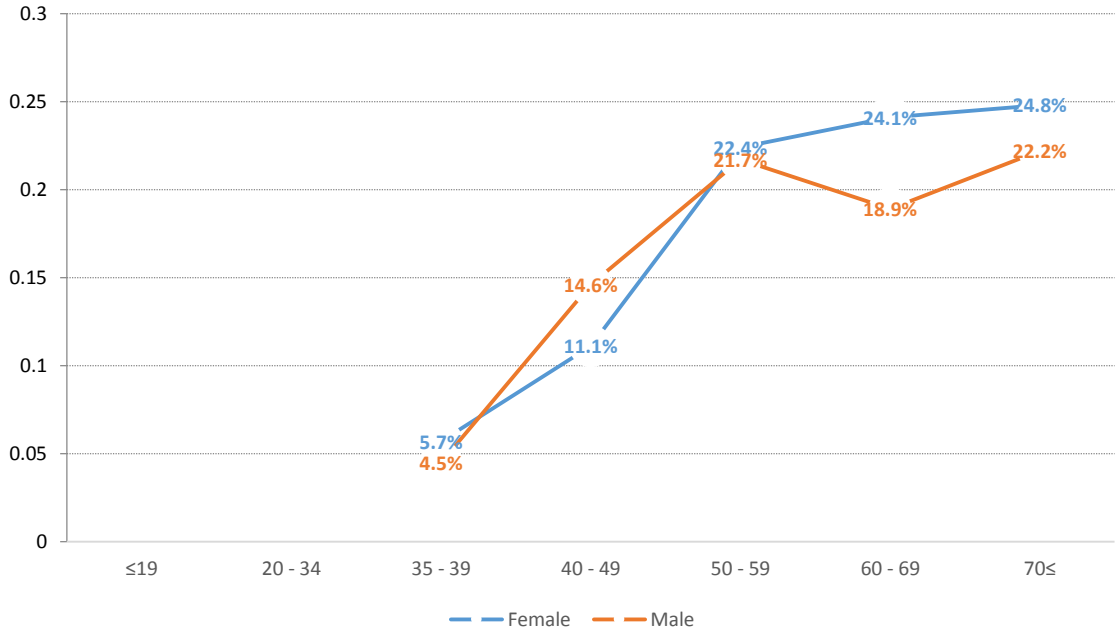
Glucose levels measured among 35 years and above.

Table 80. The pravelence of HGL (> 6.1 mmol) according to sex and age groups.

Age			≤19	20-29	**35-39***	40-49	50-59	60-69	70≤	Total
Sex	Female	Row N %	-	-	5.7%	11.1%	22.4%	24.1%	24.8%	19.8%
		Count	-	-	2	14	46	35	29	125
	Male	Row N %	-	-	4.5%	14.6%	21.7%	18.9%	22.2%	18.9%
		Count	-	-	1	14	37	21	17	91
	Total	Row N %	-	-	5.3%	12.6%	22.1%	21.8%	23.8%	19.4%
		Count	-	-	3	28	83	56	46	216

**The Glucose levels was not measured among 30-34 aged group, that's why it was mentioned not 30-39 age group , but 35-39.*

Figure 44. The pravelence of HGL (> 6.1 mmol) according to sex and age groups.



The proportion of HGL increases parrarel to age and it reaches its peak in 50-59 age group.

It can be assumed that HGL is most common among women aged 60 years and above.

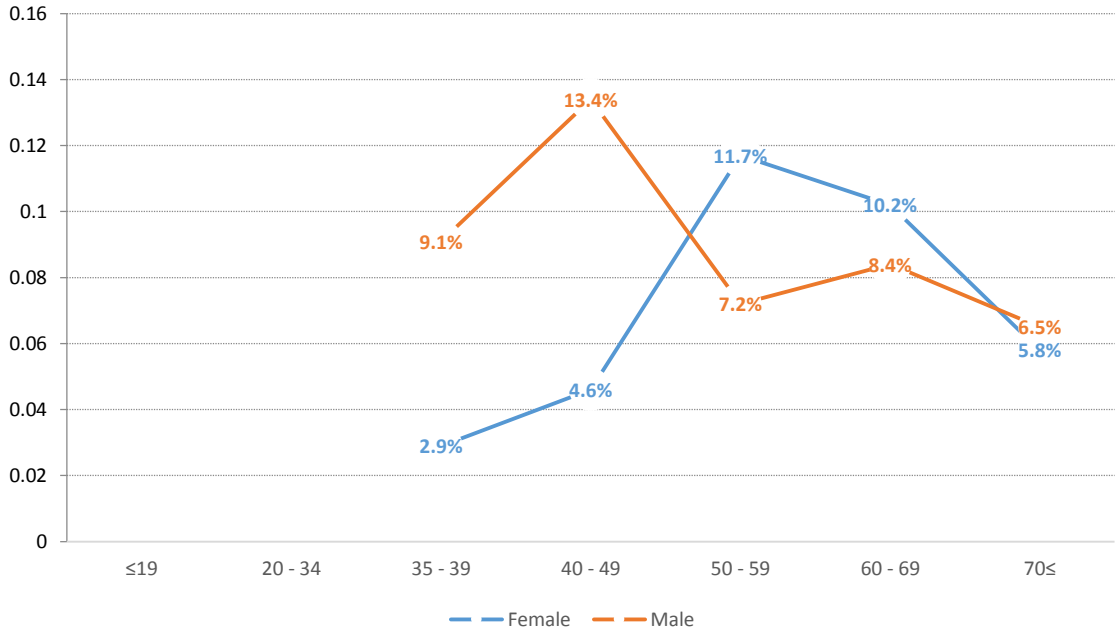
The pravelence of HCHL according to sex and age groups is shown in Table 81 and Figure 45.

Table 81. The pravelence of HCHL according to sex and age groups

Age			≤19	20-29	**35–39***	40-49	50-59	60-69	70≤	Total
Sex	Female	Row N %	0.0%	0.0%	2.9%	4.6%	11.7%	10.2%	5.8%	8.3%
		Count	0	0	1	6	24	15	7	52
	Male	Row N %	0.0%	0.0%	9.1%	13.4%	7.2%	8.4%	6.5%	8.6%
		Count	0	0	2	12	12	10	5	42
	Total	Row N %	0.0%	0.0%	5.2%	8.3%	9.7%	9.4%	6.1%	8.4%
		Count	0	0	3	18	36	24	12	94

**The CHL was not measured among 30-34 aged group, that's why it was mentioned not 30-39 age group , but 35-39.*

Figure 45. The pravelence of HCHL according to sex and age groups



HGL is more common among men aged 35-49 years and among women aged 50-69 years.

Correlation Analysis Of Risk Factors.

The matrix between RF correlations is shown in Table 82, and in Table 83 is presented the Statistical reliabilites α leveles of these correlations. We consider that correlation is statistically valid if $\alpha \leq 0.05$. Statistically reliable correlations are given in the table in red color.

There are two types of correlations.

- Pearson's correlation for each pair of risk factors
- Pearson's partial correlations between each pair of risk factors, if the age factor is constant.

Partial correlations have been calculated as the data indicate that the risk factors are significantly dependent on age. Thus, partial correlations more precisely reflect the correlation of risk factors.

Therefore, it is possibble that among the two risk factors, 0 degrees (Pierson) and 1st class partial correlation not only differ from each other, but also statistically significant correlations become non significant correlations and vice versa.

Table 82. Correlations between risk factors (0 degrees is Pearson's correlation , «Age» line shown partial correlations ` when the effect of the "Age" variable is removed)

	Control Variables	HBP	SM.	SHS	Alc.	BMI	Obesity	Phy. inactive	Gl.	Chol.	Age
HBP	0 degree	1	0.011	-0.110	0.056	0.306	0.273	0.051	0.100	0.063	0.510
	Age	1	0.042	-0.061	0.030	0.111	0.094	-0.032	0.057	0.074	
Daily smoking	0 degree	0.011	1	-0.457	0.325	-0.060	-0.064	-0.029	0.000	0.014	-0.049
	Age	0.042	1	-0.467	0.329	-0.043	-0.048	-0.022	0.005	0.014	
Impact of SHS exposure at home or at workplace	0 degree	-0.110	-0.457	1	-0.174	-0.009	-0.004	-0.014	-0.035	0.018	-0.114
	Age	-0.061	-0.467	1	-0.168	0.045	0.044	0.003	-0.024	0.018	
Alcohol abuse	0 degree	0.056	0.325	-0.174	1	-0.058	-0.050	-0.010	-0.012	-0.051	0.061
	Age	0.030	0.329	-0.168	1	-0.094	-0.081	-0.019	-0.018	-0.051	
BMI	0 degree	0.306	-0.060	-0.009	-0.058	1	0.879	0.085	0.170	0.124	0.432
	Age	0.111	-0.043	0.045	-0.094	1	0.855	0.021	0.140	0.138	
Overweigh ot obese	0 degree	0.273	-0.064	-0.004	-0.050	0.879	1	0.065	0.121	0.112	0.390
	Age	0.094	-0.048	0.044	-0.081	0.855	1	0.005	0.089	0.122	
Physical inactive` don't perform up to 30 minutes of weekly light intensity physical activity.	0 degree	0.051	-0.029	-0.014	-0.010	0.085	0.065	1	0.037	0.002	0.154
	Age	-0.032	-0.022	0.003	-0.019	0.021	0.005	1	0.022	0.002	
High glucose level	0 degree	0.100	0.000	-0.035	-0.012	0.170	0.121	0.037	1	0.110	0.101
	Age	0.057	0.005	-0.024	-0.018	0.140	0.089	0.022	1	0.110	
High cholesterol level	0 degree	0.063	0.014	0.018	-0.051	0.124	0.112	0.002	0.110	1	-0.001
	Age	0.074	0.014	0.018	-0.051	0.138	0.122	0.002	0.110	1	
Reposndent`s age	0 degree	0.510	-0.049	-0.114	0.061	0.432	0.390	0.154	0.101	-0.001	1

Table 83. Statistical reliability levels of correlations between risk factors (red are shown $\alpha \leq 0.05$ level bilateral reliability values)

	Control Variables	HBP	SM.	SHS	Alc.	BMI	Obesity	Phy. inactive	Gl.	Chol.	Age
HBP	0 degree	.	0.598	**0.000**	**0.005**	**0.000**	**0.000**	**0.011**	**0.001**	**0.038**	**0.000**
	Age	.	**0.039**	**0.003**	0.144	**0.000**	**0.000**	0.112	0.063	**0.015**	
Daily smoking	0 degree	0.598	.	**0.000**	**0.000**	**0.003**	**0.002**	0.140	0.994	0.629	**0.013**
	Age	**0.039**	.	**0.000**	**0.000**	**0.033**	**0.016**	0.268	0.861	0.630	
Impact of SHS exposure at home or at workplace	0 degree	**0.000**	**0.000**	.	**0.000**	0.652	0.843	0.478	0.238	0.554	**0.000**
	Age	**0.003**	**0.000**	.	**0.000**	**0.026**	**0.028**	0.861	0.422	0.554	
Alcohol abuse	0 degree	**0.005**	**0.000**	**0.000**	.	**0.004**	**0.013**	0.631	0.689	0.090	**0.002**
	Age	0.144	**0.000**	**0.000**	.	**0.000**	**0.000**	0.336	0.543	0.089	
BMI	0 degree	**0.000**	**0.003**	0.652	**0.004**	.	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**
	Age	**0.000**	**0.033**	**0.026**	**0.000**	.	**0.000**	0.299	**0.000**	**0.000**	
Overweigh ot obese	0 degree	**0.000**	**0.002**	0.843	**0.013**	**0.000**	.	**0.001**	**0.000**	**0.000**	**0.000**
	Age	**0.000**	**0.016**	**0.028**	**0.000**	**0.000**	.	0.796	**0.003**	**0.000**	
Physical inactive` don't perform up to 30 minutes of weekly light intensity physical activity.	0 degree	**0.011**	0.140	0.478	0.631	**0.000**	**0.001**	.	0.213	0.943	**0.000**
	Age	0.112	0.268	0.861	0.336	0.299	0.796	.	0.462	0.939	
High glucose level	0 degree	**0.001**	0.994	0.238	0.689	**0.000**	**0.000**	0.213	.	**0.000**	**0.001**
	Age	0.063	0.861	0.422	0.543	**0.000**	**0.003**	0.462	.	**0.000**	
High cholesterol level	0 degree	**0.038**	0.629	0.554	0.090	**0.000**	**0.000**	0.943	**0.000**	.	0.975
	Age	**0.015**	0.630	0.554	0.089	**0.000**	**0.000**	0.939	**0.000**	.	
Reposndent`s age	0 degree	**0.000**	**0.013**	**0.000**	**0.002**	**0.000**	**0.000**	**0.000**	**0.001**	0.975	.

The relation between chronic diseases and the number of risk factors

Three risk factors, daily smoking, physical inactivity and overweight, have been studied with chronic diseases and risk factor index has been developed for this purpose.

The index values are changed in the range of 0-3. The value of the index is equal to the number of RF mentioned by person. The distribution of index values is given in Figure 46, and the presence, (or probability) of chronic diseases in the different index values is shown in Figure 47.

Figure 46. Distribution of RF index values according to daily smoking, physical inactivity and overweight of obese body index.

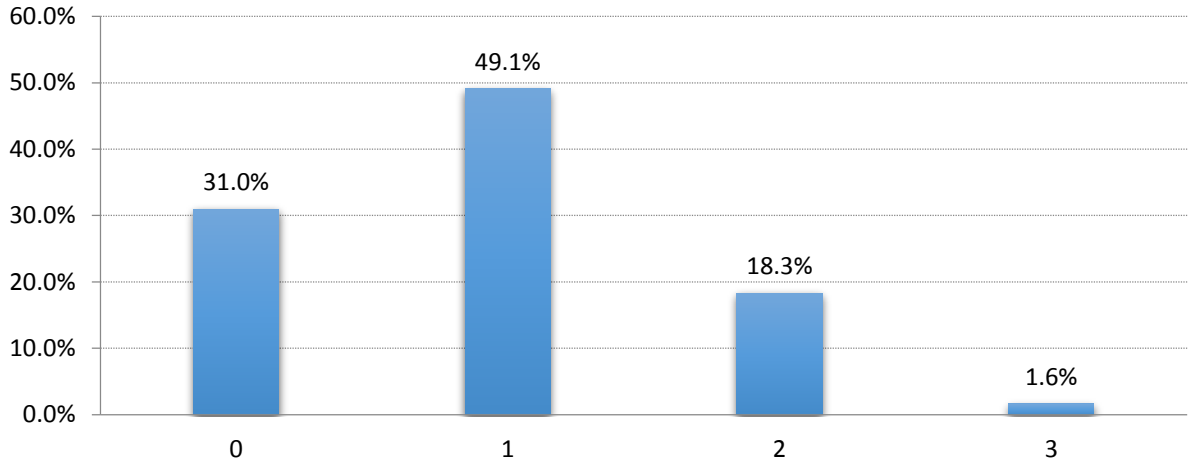
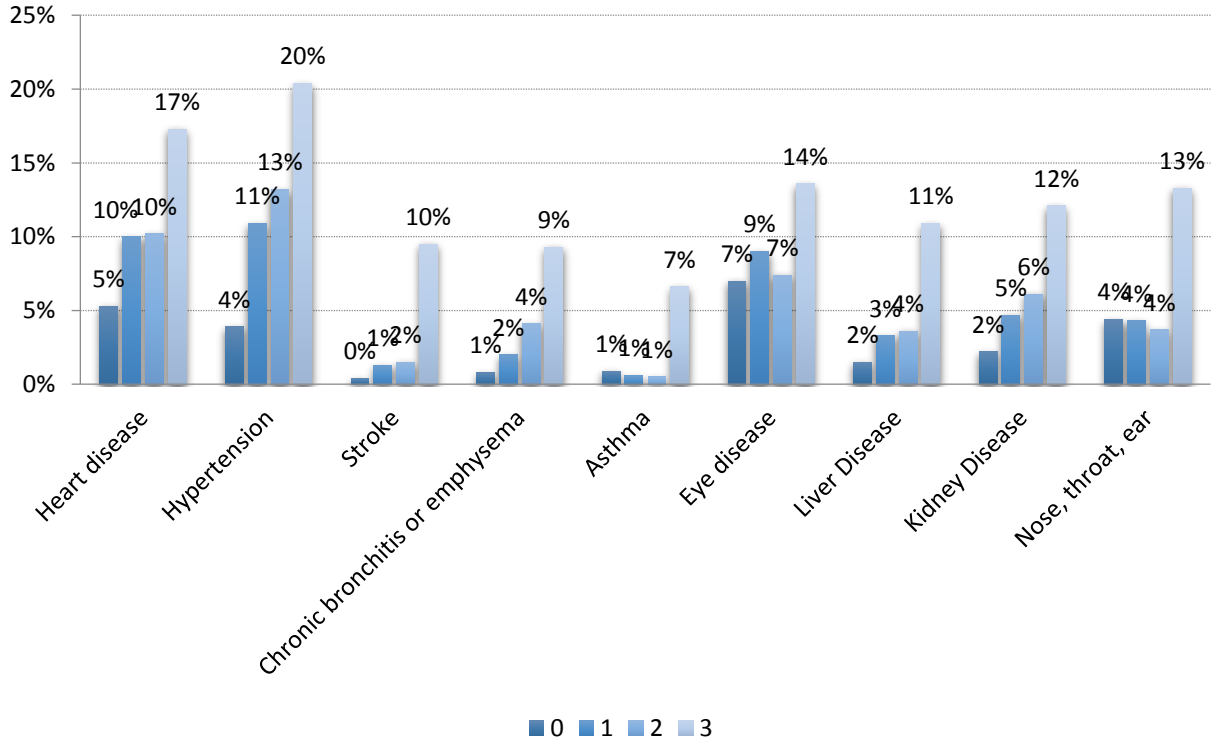


Figure 47. The presence of chronic diseases in the different values of the RF



Conclusions

The proportion of daily smokers among men aged 20-29 years was growing rapidly. From the 40-49 age group the proportion of daily smokers mens was decreasing, which could be related to health status, along with age when smokers realised about harmfull effects of smoking.

The proportion of the impact of SHS exposure relatively greater among young men groups , it could be explained by the fact that the daily cigarette consumption rate is higher among older age groups, The alcohol consumption and abuse among men is much more higher. It grows parallel to the age and actually reaches its peak among men aged 40-49 years, after which in remains at the same level (among the older men, the decline of the indicator is insignificant and statistically uncertain).

The proportion of people with overweight or obese in *low-age groups is relatively higher among males, and among women aged 40-49 years.*

It is also interesting to note that the prevalence of owerweight or obesity in men aged 70 and over is statistically declining, and among female the coefficient remains the same.

Physical inactivity is a little more common among women in all age groups. This difference is statistically valid when considering the entire sample.

High blood pressure is more common in younger male age groups and among female from 60 years old. The prevalence of high blood pressure increases dramatically in the age group of 40-49 and grows substantially parallel to the age.

The proportion of HGL increases parrarel to age and it reaches its peak in 50-59 age group.

It can be assumed that HGL is most common among women aged 60 years and above.

HGL is more common among men aged 35-49 years and among women aged 50-69 years.

The likelihood of Heart diseases and hypertension increases in case of one RF. The next increase occurs in case of three RF.

The likelihood of stroke, chronic bronchitis, asthma, eye illness, liver and kidney diseases and nose, throat and ear disease is rising if there are three risk factors.

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