



ISLAMIC REPUBLIC OF IRAN
MINISTRY OF HEALTH AND MEDICAL EDUCATION



THE NATIONAL INSTITUTE FOR HEALTH RESEARCH
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REPUBLIC OF IRAN
MINISTRY OF HEALTH AND MEDICAL EDUCATION

Atlas of Non-Communicable Diseases Risk-Factors Surveillance

in the Islamic Republic of
Iran

STEPs 2016





In The Name of God



**Non-Communicable Diseases Research Center,
Endocrinology and Metabolism Research Institute of
Tehran University of Medical Sciences**



The Manifesto of the Minister of Health and Medical Education

As a leading country in the region, Iran has committed itself to being known as the first country in the region in terms of science and health. Therefore, regarding the international commitments of our nation, Iran's Health Ministry has prioritized controlling and decreasing the death rates caused by non-communicable diseases.

Therefore, regarding the urgent need for a comprehensive plan to control the risk factors for non-communicable diseases, and in line with the goals envisaged in the National Program to Control and Prevent Non-Communicable Diseases, a team consisting of specialists, policy makers, administrators and researchers with the cooperation of the Deputy to the Health Minister and Secretary of Research and Technology in the Health Ministry embarked on a scheme to collect data in order to monitor the progress of this Prevention program at a large scale, leading to the final control of NCDs. The national survey of the risk factors for NCDs in 2016 exploits up-to-date scientific and practical instructions in order to outline the current status of these risk factors and provide precise data about them. These data allow for a careful survey and planning of the risk factors for NCDs and injuries amid the epidemiological changes occurred during the implementation of the survey, and further provide estimates of the expected outcomes of the Program for the Prevention and Control of NCDs.

The National Survey of the Risk Factors for NCDs in 2016 is a remarkable example of a combination of accuracy and speed in field work, which would have been impossible without the cooperation of researchers, the Health Ministry's headquarters and the universities of medical sciences. Hereby, I would like to express my gratitude to Dr. Ali Akbar Sayari, the previous Deputy, Dr. Ali Reza Raeisi, the current Deputy Health Minister, Dr. Bagher Larijani, Deputy Chief of the Iranian National Committee for the Prevention and Control of NCDs, Dr. Reza Majdzadeh, Chair of the National Institute of Health Studies and my nice colleagues the Ministry of Health Headquarters, who helped form the idea and implement it as part of Iran's commitments to WHO. Special thanks to Dr. Farshad Farzadfar, Chair of the Non-Communicable Diseases Research Center, Endocrinology and Metabolism Research Institute of Tehran University of Medical Sciences and the chief investigator in this Survey, and of course his colleagues, who made great contribution to the National Survey of the Risk Factors for NCDs and to the preparation of this atlas. I would also like to invite all administrators in the health sector and the country's researchers to use the data in the collection and give their technical suggestions to the researchers of this study.

I hope that the provision of reliable and accessible data through national and infra-national studies, will allow for planning and surveying of valuable interferences in order to improve the health of the target groups.

Dr. Hasan Ghazizadeh Hashemi
Minister of Health and Medical Education





The Manifesto of Deputy in Health, Ministry of Health and Medical Education

Epidemiological and demographic changes occurred in the past three decades have created new priorities for policy making in the health sector. Today, studies on changing trends of risk factors of NCDs and injuries indicate that NCDs and to some extent injuries are becoming increasingly more prevalent than infectious diseases and have more health consequences.

There are coherent plans devised in the Health Ministry, Department of Prevention and Primary Healthcare, which are strictly being followed. Besides, newly devised plans by the office of the Deputy in Health Affairs will lead to a healthy lifestyle and a reduction in the risk factors of NCDs. In this regard, despite access to information about the burden of some chronic diseases, there is still urgent need for information on the status and distribution of the risk factors of these diseases, in order to devise plans to prevent and control them. The National Survey of the Risk Factors for NCDs in the year 1395 is therefore a meaningful effort in line with the aforementioned goals, which was devised and implemented using the knowledge and expertise of the elite in this area. It is obvious that such a great treasure of information at the national and infra-national level will allow for planning based on the parameters of each university and province, and along with other studies, will encourage the provincial policy makers in the health sector to localize these schemes.

The department of the Deputy in Health Affairs is proud to present the results of the National Survey of the Risk Factors for NCDs in 1395, conducted by the Non-Communicable Diseases Research Center, Endocrinology and Metabolism Research Institute, Tehran University of Medical Sciences, to all policy makers and executive managers at the national and provincial level. Furthermore, hereby, I would like to thank Dr. Bagher Larijani, the Deputy Chief of the Iranian National Committee for the Prevention and Control of NCDs, Dr. Reza Majdzadeh, the chairman of the National Institute of Health Studies, Dr. Ahmad Kousha, the previous director and Dr. Afshin Ostovar, the current director of the Non-Communicable Diseases Management Office, who all made sincere efforts to form the idea of the study and implement it. I would also like to express my gratitude to Dr. Farshad Farzadfar, the chief investigator in this study and the chair of the Non-Communicable Diseases Research Center, Endocrinology and Metabolism Research Institute of Tehran University of Medical Sciences, and his colleagues for compiling such a great reservoir of information. Moreover, hereby I thank my colleagues in medical universities and in different departments of the Office of the Deputy in Health Affairs, who effectively cooperated with the Non-Communicable Diseases Research Center. I would also like to ask all the members of the medical community, policy makers in the health sector and other areas, managers and researchers to send their suggestions in order to optimize the information in future versions of the database.

Dr. Ali Reza Raeisi

Deputy in Health, Ministry of Health and Medical Education





The Manifesto of the Vice President of the Iranian National Committee for the Prevention and Control of NCDs, Ministry of Health and Medical Education

The general policies communicated by the supreme leader and the goals outlined in Iran 1404 Document have determined the country's outlook for its developmental plans and international commitments in the health sector. Therefore, with regard to the importance of controlling and preventing the risk factors of NCDs and their priority, Iranian National Committee for the Prevention and Control of NCDs was assigned to produce a national document on planning, prioritizing, surveying and assessing all measures needed to be taken in order to control NCDs and their risk factors. Knowledge of the outbreak of diseases, their prevalence and risk factors along with estimating their share are some required information for such macro-scale plans. Thus the Non-Communicable Diseases Research Center, Endocrinology and Metabolism Research Institute, Tehran University of Medical Sciences implemented the National Survey of the Risk Factors for NCDs in the year 1395 with the financial support from the National Institute of Health Studies and in cooperation with offices of deputies in Health Affairs and IT Research of the Health Ministry and so far has prepared the reports with remarkable perseverance. The synchronicity of the presentation of these results with Iran's fulfilling its international commitments to decrease death rates in the 30 to 70-year-old population, dictated by the National Program for the Prevention and Control of NCDs, prepared by the National Committee of NCDs, will allow for the monitoring of medical universities nationwide and will provide enough evidences for setting goals in the relevant provincial committees. Using valuable insights from the leading experts, the Non-Communicable Diseases Research Center, Endocrinology and Metabolism Research Institute, Tehran University of Medical Sciences has made every effort to plan and implement the study and to present the primary results in the form of the present atlas. The following collection is the first of its kind and will be followed by further results and articles about the prevalence and outbreak of diseases and their risk factors so that the national policy makers in the health sector will have the necessary tools for effective planning. Hereby I feel obliged to express my gratitude to the members of the leadership committee, specifically Dr. Hassan Ghazizadeh Hashemi, Minister of Health and Medical Education, Dr. Ali Reza Raeisi, Dr. Ali Akbar Sayari and Dr. Reza Malekzadeh. I would also like to thank my dear colleagues, Dr. Farshad Farzadfar, the leading researcher in this study, and his colleagues in the Non-Communicable Diseases Research Center, Endocrinology and Metabolism Research Institute of Tehran University of Medical Sciences, who dedicated a remarkable share of their time to accurately prepare the required capacities for implementing this study. I hope the following results and the other forthcoming findings will pave the path for further research and effective policy making in the health sector. It is obvious that despite the collaborative efforts made in order to enhance the quality of national studies, opinions given by researchers, policy makers and managers in this sector are always appreciated.

Dr. Bagher Larijani

The Vice President of the Iranian National Committee for the Prevention and Control of NCDs, Ministry of Health and Medical Education



Foreword to readers

The System for Controlling the Risk Factors of Non-Communicable Diseases started its operation in the year 1383 with primary studies and with the contribution and cooperation of all universities and faculties of medical sciences in the country. Through continuous studies, this system has embarked on collecting, processing and analyzing the data of the most important risk factors of NCDs and it will further publish relevant information in order to influence the plans dedicated to controlling and preventing NCDs. The National Survey of the Risk Factors for NCDs in 1395 is the seventh round of these studies in the country. This round of the study is designed in a way so that it can provide accurate estimates with maximum population coverage of the prevalence of the risk factors for NCDs and their distribution by age and gender throughout the country.

An analytical inspection of the features of the study in consecutive years reveals the most significant features of it as being continuous and repeated. Being aware of the risk factors of NCDs plays a vital role in preventing and controlling these diseases. Therefore, although the study has experienced some changes in its methods and some other details throughout time, its general stability can be considered as its major strong point. Also, regarding the various confrontations and results at the infra-national level, providing information at the provincial level will allow for a stronger analysis.

In this round of the study, following the formulation of comprehensive scientific and executive protocols, information technology mechanisms were implemented for the first time and the sampling was conducted in a way to offer maximum coverage of provincial towns (386 towns had samples). Participants in the study were also given online training and testing.

These are some of the distinctive features of this study in the year 2016:

The cascading empowerment of the groups conducting the study at universities, web-based monitoring and supervision along with personal visits, the role of the GPS system in the supervision process and further recording of the geographical features as being valuable information components, quality control during and after the study, planning and leading the processes according to up-to-date project management standards, designing a systematic random sampling proportionate to the volume, using the individuals' national ID code along with their other accurate details in the cluster, calibrating the anthropometric and lab equipment, using the highest quality equipment with similar features, concentrated procurement of all equipment used in the study and coding them in the headquarters, measuring the ALT, HbA1c and the sodium of the urine for all the individuals, measuring the sodium and potassium of the urine 24 hours a day for a selected number of samples, a cold chain transportation, standard up-to-date mechanisms to transport and analyze biological samples in the headquarters of the project and a step-by-step evaluation of a subset of the sample.

What follows as the results of the National Survey of the Risk Factors for NCDs in 2016 is the result of convergent efforts of a group of experts and intellectuals in technical and executive fields, which has been arranged according to executive and scientific instructions. Therefore, according to the step-by-step approach to controlling the risk factors of chronic non-communicable diseases, the results of the study are presented in three steps consisting of questioning through questionnaires (step 1), completion of the information through physical evaluations (step 2) and lab measurements (step 3) in 8 parts including general information about the study, ecological information, lifestyle, metabolic risk factors, risk factors relating to accidents and injuries, a service-providing system for controlling NCDs, physical evaluations and biological evaluations. Besides presenting the results at a national and provincial level, statistical illustrations such as graphs, maps and tables were used to show gender distributions. This atlas is published in 30 provincial and one national volume. To prevent repetition, the first and second parts, which include general information about the conducting of the study and ecological data, are only included in the national volume. Furthermore, information regarding all age groups has also been reported.



Non-Communicable Diseases Research Center, Endocrinology and Metabolism Research Institute, Tehran University of Medical Sciences has conducted the National Survey of the Risk Factors for NCDs with close cooperation with the Health Ministry's Headquarters specially its deputy in Health Affairs and the Non-Communicable Diseases Management Office, the National Institute of Health Studies, World Health Organization, Medical Universities throughout the country, research institutes and centers in the medical field, statistical institutes (quantitative) and hundreds of researchers throughout the country.

Besides providing practical data for policy makers in the health sector, conducting such valuable studies will be effective in creating technical and scientific capacities in the community of researchers. We hope that major policy-making organizations in the country such as Budget and Planning Organization, the Policy-making Assembly of the Ministry of Health and Medical Education, Ministry of Welfare, the Research Center of Iran's Parliament, the Parliament's Commission of Health and Medical Education, the Office of the President's Deputy in Scientific and Technological Affairs and eminent researchers of the country in medical and science universities will support the conducting of this study and other national valuable studies in the future.

As the leading researcher of the National Survey of the Risk Factors for NCDs in 2016, I hereby feel obliged to express my gratitude to the following: Dr. Hassan Ghazizadeh Hashemi, the Minister of Health and Medical Education, Dr. Ali Reza Raeisi, Deputy in Health Affairs, Dr. Ali Akbar Sayari, the former deputy in Health Affairs, without whose support the conducting of this study would be impossible; Dr. Bagher Larijani, Chairman of the Endocrinology and Metabolism Research Institute, Tehran University of Medical Sciences and the vice chairman of the National Committee for the Prevention and Control of NCDs, whose support has always shed light on the path ahead of the Non-Communicable Diseases Research Center; Dr. Afshin Ostovar, the director of the NCDs Management Office in the Health Ministry, Dr. Ahmad Koosha, the former director of the NCDs Management Office of the Health Ministry, Dr. Reza Majdzadeh, the chairman of the National Institute of Health Studies, members of the Leadership Committee, Scientific Committee, Executive Committee, the primary staff of the project, faculty members, the Health Ministry staff, Staff of the Medical Universities, Staff of the research institutes, who have been beside us and supported us in carrying out this project.

Furthermore, special thanks go to Dr. Shirin Djalalinia, the National Administrator of the study, who made all her efforts to carry out the study in the best and the most precise manner, and also to our staff in the Non-Communicable Diseases Research Center, whose relentless work greatly helped the completion of the study. I hope that the following results and the study's findings will facilitate future practical studies in the health sector. It goes without saying that the Non-Communicable Diseases Research Center, Endocrinology and Metabolism Research Institute of Tehran University of Medical Sciences will welcome criticism put forward by any of the readers of the following collection.

Dr. Farshad Farzadfar

The chief investigator of the study

Chair of the Non-Communicable Diseases Research Center,
Endocrinology and Metabolism Research Institute, Tehran University of Medical Sciences



A Summary of the Execution of the Large-Scale Cross-Sectional Studies of Surveillance of Risk Factors of Non-Communicable Diseases in Iran: STEPs 2016

As the seventh round of the studies to control the risk factors of NCDs, the National Survey of the Risk Factors for NCDs in 2016 is designed in a way to present precise estimates of the prevalence rate of the risk factors for NCDs with a maximum coverage of the population and by their distribution in terms of age and gender nationwide.

An analytical inspection of the features of the study in consecutive years reveals the most significant features of it as being continuous and repeated. Being aware of the trends of the NCDs risk factors is of vital importance in schemes to prevent and control them. Therefore, although the study has experienced some changes in its methods and some other details throughout time, its general stability can be considered as its major strong point. Also, regarding the various confrontations and results at the infra-national level, providing information at the provincial level will allow for a stronger analysis. As Non-Communicable Diseases Research Center, Endocrinology and Metabolism Research Institute, Tehran University of Medical Sciences had previously designed and conducted former studies, one of which being designing and implementing the study on social workers, the results of these experiences were incorporated in the current survey. In this round of the study, following the formulation of comprehensive scientific and executive protocols, information technology mechanisms were implemented for the first time and the sampling was conducted in a way to offer maximum coverage of provincial towns (386 towns had samples). Participants in the study were also given online training and testing.

These are some of the distinctive features of this study in the year 2016:

The cascading empowerment of the groups conducting the study at universities, web-based monitoring and supervision along with personal visits, the role of the GPS system in the supervision process and further recording of the geographical features as valuable information components, quality control during and after the study, planning and leading the processes according to up-to-date project management standards, designing a systematic random sampling proportionate to the size, using the individuals' national ID code along with their other accurate details in the cluster, calibrating the anthropometric and lab equipment, using the highest quality equipment with similar features, concentrated procurement of all equipment used in the study and coding them in the headquarters, measuring the ALT, HbA1c and the sodium of the urine for all the individuals, measuring the sodium and potassium of the urine 24 hours a day for a selected number of the samples, a cold chain transportation, standard up-to-date mechanisms to transport and analyze biological samples in the headquarters of the project and a step-by-step evaluation of a subset of the sample.

The sample size of the study in the whole country was 31050 individuals, who were concentrated in 3105 urban and rural clusters. The study officially started on April 2, 2016 along with the start of educational training. The sampling in universities/faculties was on April 26, 2016 and the first biological samples were received in the headquarters on April 29, 2016. At the end of the study (Nov. 20, 2016), out of the 31050 samples, 30560 were collected. As for the expected 490 samples which did not participate in the study, 440 samples belonged to Qom's University of Medical Sciences, which did not contribute to the study despite persistent follow-ups. The remaining 50 were the ones who refused to participate in the study. Also, 20560 biological samples were received by the study's headquarters and all biochemical tests were done on the samples that had sufficient quality and quantity. The primary practical results of the study are presented in the form of maps and diagrams in the following collection, which facilitates comparison and analysis.

Overall, the results of this study, which indicate the prevalence of obesity and excess weight, increase in blood fat levels, the remarkable prevalence of diabetes and high blood pressure, emphasize the need to pay more attention to and serious planning in the field of the risk factors for metabolic diseases. Besides, in terms of lifestyle, insufficient physical activity, high rate of smoking and low consumption of fruits, vegetables and dairy products are all remarkable.



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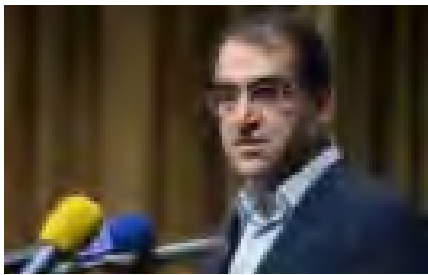
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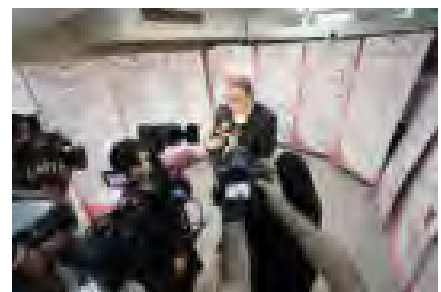
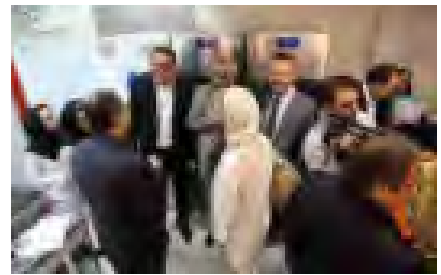
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Abbreviation

ALT	Alanine Transaminase
bpm	Beats Per Minute
EMRI	Endocrinology and Metabolism Research Institute
FPG	Fasting Plasma Glucose
GPS	Global Positioning System
HbA1c	Hemoglobin A1c
HDL	High-Density Lipoprotein
HTTPS	Hyper Text Transfer Protocol Secure
IT	Information Technology
LIMS	Laboratory Information Management System
MET	Metabolic Equivalents
mg/dl	Milligrams per Deciliter
mmHg	Millimeter of Mercury
MOHME	Ministry of Health and Medical Education
NCDRC	Non-Communicable Diseases Research Center
NCDs	Non-Communicable Diseases
NIMAD	National Institute for Medical Research Development
OHA	Oral Hypoglycemic Agents
POTABA	Potassium Amino Benzoic Acid
RAM	Random-Access Memory
TUMS	Tehran University of Medical Sciences
U/L	Units per Liter
WHO	World Health Organization

CHAPTER 1

The Protocol and Report on Conducting the Study

Section 1:

An Overview of the Study

1-1 introduction

Today, regarding the changes in the lifestyle and because of the epidemiological transition, risk factors of the non-communicable diseases have become one of the most significant priorities in health. Therefore, despite access to some information regarding the burden of some diseases, there is still need for information about their status and the distribution of their risk factors in order to devise prevention and control schemes. This information, which predicts the future of the burden of diseases, must be produced and published based on the latest and most accurate scientific evidences so that it facilitates policy-making at different levels.

Therefore, the step-by-step approach of controlling the risk factors of the non-communicable diseases is an answer to the need for an overview of the risk factors and the non-communicable diseases themselves. This innovation focuses on a continuous collection of high quality data, the three steps of which include questioning through questionnaires (step 1), conducting physical evaluations (step 2) and lab measurements (step 3).

The following collection includes general information and is an introduction of the scientific and executive protocols of the seventh round of the National Survey of the Risk Factors for Non-Communicable Diseases, which was conducted in 1395, along with its primary and practical results. These results have been published in the form of a national book and 30 books for each province (province of Qom does not have any information as it did not participate in the study).

The second chapter presents the results in eight different categories: general information about conducting the study, ecological information, lifestyle, metabolic risk factors, the risk factors related to accidents and injuries, the system of service providing in controlling non-communicable diseases, physical evaluations and biological assessments.

It must be noted that due to the special design and conducting of this round of the survey, the scientific and implementation protocols of each section, which include the guide to the structure formation, determining and providing the study's infra-structure, achieving conscious consent, step 1 (questionnaires), step 2 (physical evaluations), step 3 (laboratory), IT protocol, sampling protocol, supervision protocol and the protocol for preparation and data analysis are all designed and presented separately.

1-2 features of the seventh round of the National Survey of the Risk Factors of Non-Communicable Diseases in 2016

After two years of study and testing, creating capacities and obtaining total support, the first scheme to control the risk factors of non-communicable diseases in Iran was implemented in the year 1383 with the help of medical universities of the country and ever since, six other surveys have been conducted in the years 1383, 1384, 1385, 1386, 1388 and 1390. In this scheme, as well as the WHO's step-by-step approach to the control of risk factors of non-communicable diseases, national and local requirements, knowledge and conditions have also been taken into account.

As regards the significance of the issue and the need for reliable and valid information, the accurate and systematic execution of the national survey of the risk factors for non-communicable diseases requires clear accurate scientific, executive and supervising protocols at different policy-making and executive levels, as well as the documentation of methods to exploit the results. However, a comprehensive analysis of this study in the past years reveals the fact that factors such as variations in the sampling protocol in some years, variations in questionnaires, inconsistencies in some categories and their related questions, some suspicions about the accuracy of some lab measurements and also the quality of data entry in some universities have made a revision of the executive documentation of the study mandatory.

Therefore, a revision and designing of scientific, executive, supervising and educational protocols along with standard instructions related to the questioning procedure, clinical and lab measurements based on the latest software and IT findings which take various interested parties into consideration and provide different executive and supervising levels of the study with clear instructions were all of top priority in the execution of the study in the year 1395. As a result, a study named "Designing the Scientific and Executive Protocols of the National Survey of the Risk Factors for Non-Communicable Diseases" was introduced by the National Institute of Health Studies, which was followed by a call for eligible applicants; finally and after an inspection of the applicants, the Non-Communicable Diseases Research Center, Endocrinology and Metabolism Research Institute, Tehran University of Medical Sciences was selected as the party to run the study. during the study, designing the national and infra-national protocols corresponding the objectives of the survey in various executive, supervising and educational areas were put on top

of the agenda, so that standard instructions regarding the questioning procedure and the collection of data based on clinical and lab measurements according to the latest findings in the software and IT area could be designed appropriately. Besides, the objective was to take various interested parties into consideration as well as providing the study's different policy-making and executive levels with clear instructions.

Using the designed documents in this round of the study, and following the design of comprehensive executive and scientific protocols, IT mechanisms and a concentrated management system was applied for the first time and the sampling was carried out in a way so that it would provide a maximum town coverage (389 towns had samples). Also, both personal and online training/testing was provided for all the participants of the study.

These are some of the distinctive features of this study in the year 1395:

The cascading empowerment of the groups conducting the study at universities, web-based monitoring and supervision along with personal visits, the role of the GPS system in the supervision process and further recording of the geographical features as valuable information components, quality control during and after the study, planning and leading the processes according to up-to-date project management standards, designing a systematic random sampling proportionate to the size, using the individuals' national ID code along with their other accurate details in the cluster, calibrating the anthropometric and lab equipment, using the highest quality equipment with similar features, concentrated procurement of all equipment used in the study and coding them in the headquarters, measuring the ALT, HbA1c and the sodium of the urine for all the individuals, measuring the sodium and potassium of the urine 24 hours a day for a selected number of the samples, a cold chain transportation, standard up-to-date mechanisms to transport and analyze biological samples in the headquarters of the project and a step-by-step evaluation of a subset of the samples.

1-3 an introduction to the Non-Communicable Diseases Research Center, Endocrinology and Metabolism Research Institute, Tehran University of Medical Sciences

After obtaining the permit from the Health Ministry, Deputy in Research and IT affairs and the National Development Council of Medical Universities, Non-Communicable Diseases Research Center, Endocrinology and Metabolism Research Institute, Tehran University of Medical Sciences started its operation in the year 1392 and officially started health assessments, evaluation of the health system and maximizing the effects of interferences as its first-priority objectives. In this regard, the center's efforts have been focused on achieving the objectives through employing skilled staff and providing the necessary infra-structures.

Currently, the Non-Communicable Diseases Research Center has started to collect all the useable data at a large scale in the country through review studies and national and infra-national studies so that through studying the burden of diseases, the risk factors of accidents and injuries and by using the current available data and the technical quantitative knowledge as well as suitable modelling, it can estimate the status of diseases, risk factors and the accidents and injuries in the country.

In the area of maximizing the effect of interferences, the Non-Communicable Diseases Research Center intends to provide answers to the policy-makers' questions through implementing observation and interference studies. Meanwhile, apart from the above-mentioned studies, the Study of Social Workers' Health is currently one of the center's preeminent efforts in order to respond to such questions.

Besides providing practical data for the policy makers in the health sector, conducting such valuable studies will be remarkably effective in creating scientific and technical capacities in the national community of researchers. We hope that major policy-making organizations in the country such as Budget and Planning Organization, the Policy-Making Assembly of the Ministry of Health and Medical Education, Ministry of Welfare, the Research Center of Iran's Parliament, the Parliament's Commission of Health and Medical Education, the Office of the President's Deputy in Scientific and Technological Affairs and eminent researchers of the country in medical and science universities will support the conducting of this study and other national valuable studies in the health sector in the future.

1-4 exploiting previous experiences

As the Non-Communicable Diseases Research center had previously engaged in other similar studies, these experiences were incorporated in the National Survey of the Risk Factors for Non-Communicable Diseases in order to enhance its quality. One of the most significant studies modeled in the current study was the Study of the Social Workers' Health, whose lab research processes, blood sampling and applying lab protocols were implemented in the study.

In fact, an evaluation of the challenges faced in previous studies led to creating distinctive scientific and executive

capacities in the center that solved challenges in the design and implementation of the study (specifically faced in the third step of the study), IT procedures and coordination with other teams to transfer the biological samples in a precise manner and in the right time. As regards the correct manner of the transfer of the biological samples, through consecutive stages of simulation based on envisaging probable challenges that could happen during the sample transferring, the best protocol was implemented in the form of project management.



Picture 1-1 simulation in the Study of the Social Workers' Health

1-5 notices and coordination relating to implementation

In order to distribute information on a vast scale, besides notifying deputies of health affairs in medical universities of the country and requesting the necessary grounds for the survey, the required permits were obtained from the Police Department. Also, the Health Week was selected as a suitable time to introduce the study and notify related beneficiaries in order to attract their cooperative acts.

1-6 the Purpose of the Study

Determining the prevalence of the non-communicable diseases' risk factors that can be interfered such as smoking, unhealthy diets, physical inactivity, high blood pressure, excess weight and obesity, high blood sugar and high blood fat, and their distribution by age and gender

1-7 statistical samples

The target community includes all the Iranian population aged 18 and over.

1-8 statistical units

The main statistical unit is an individual whose age at the time of the study was 18 or over.

1-9 the starting date of the study

The study practically started on April 3rd, 2016 (Farvardin 15th, 1395) along with the start of training plans and the design of the executive management processes at the university/faculty level. The questioning phase started on April 26th, 2016 (Ordibehesht 7th, 1395) and the schedule was designed in a way so that the 3 steps would finish on June 7th, 2016 (Khordad 3rd, 1395), before the beginning of Ramadhan. Due to certain delays in coordination, the implementation phases in Shahid Beheshti University of Medical Sciences and Iran University of Medical Sciences started after Ramadhan and following the de-staining phase and completion of the data in cooperation with other universities, the three steps of the study were finally completed on November 20th, 2016 (Aban 30th, 1395).

1-10 data collection method

Data collection was conducted in the following three steps:

- Completing questionnaires through personal interviews

- Clinical examinations including measuring height, weight, waist and hip circumference, blood pressure, pulse and step counting.
- Biochemical tests including measurement of biological factors of blood and urine (details of this step are recorded in the relating section)

Section 2:

Structure of the Study

2-1 the structure of the study

To increase efficiency and to have clear job descriptions, definitions and the committees' job descriptions were incorporated in a protocol with the same name. Overall, three levels were defined in the structure of the study: the headquarters level, the university (faculty) level and the town's headquarters level;

1. The central headquarters in the Non-Communicable Diseases Research Center, Endocrinology and Metabolism Research Institute, Tehran University of Medical Sciences
2. The university headquarters with the purpose of leading and supervising the conducting process in the town's headquarters.
3. The town's headquarters with the purpose of conducting the study in the area.

2-2 the leadership committee

Regarding the significance of the study, the leadership committee consisting of the Health Minister, the Ministry Deputies, policy-makers, managers and planners in the health sector and the National Institute of Health Studies, as the financial sponsor of the study, was formed as a priority of the study. The responsibilities of this team included an inspection of and final approval of the scientific and executive protocols of the study, supervising the study's quality and its development as well as studying the probable administrative and executive challenges envisaged during and after the study.

2-3 the scientific committee

This committee was formed consisting of faculty members, researchers, experts in this field, designers and executives of previous studies in order to study and approve the scientific protocols and the implementation instructions of the study as well as to find solutions to probable questions and challenges faced during and after the study. One of the most important responsibilities of this committee was designing a draft of the instructions, forms and the documentation of the survey in order to present them to the leadership committee, as well as following up the process of editing, finalizing and ratification.

2-4 the study's central headquarters

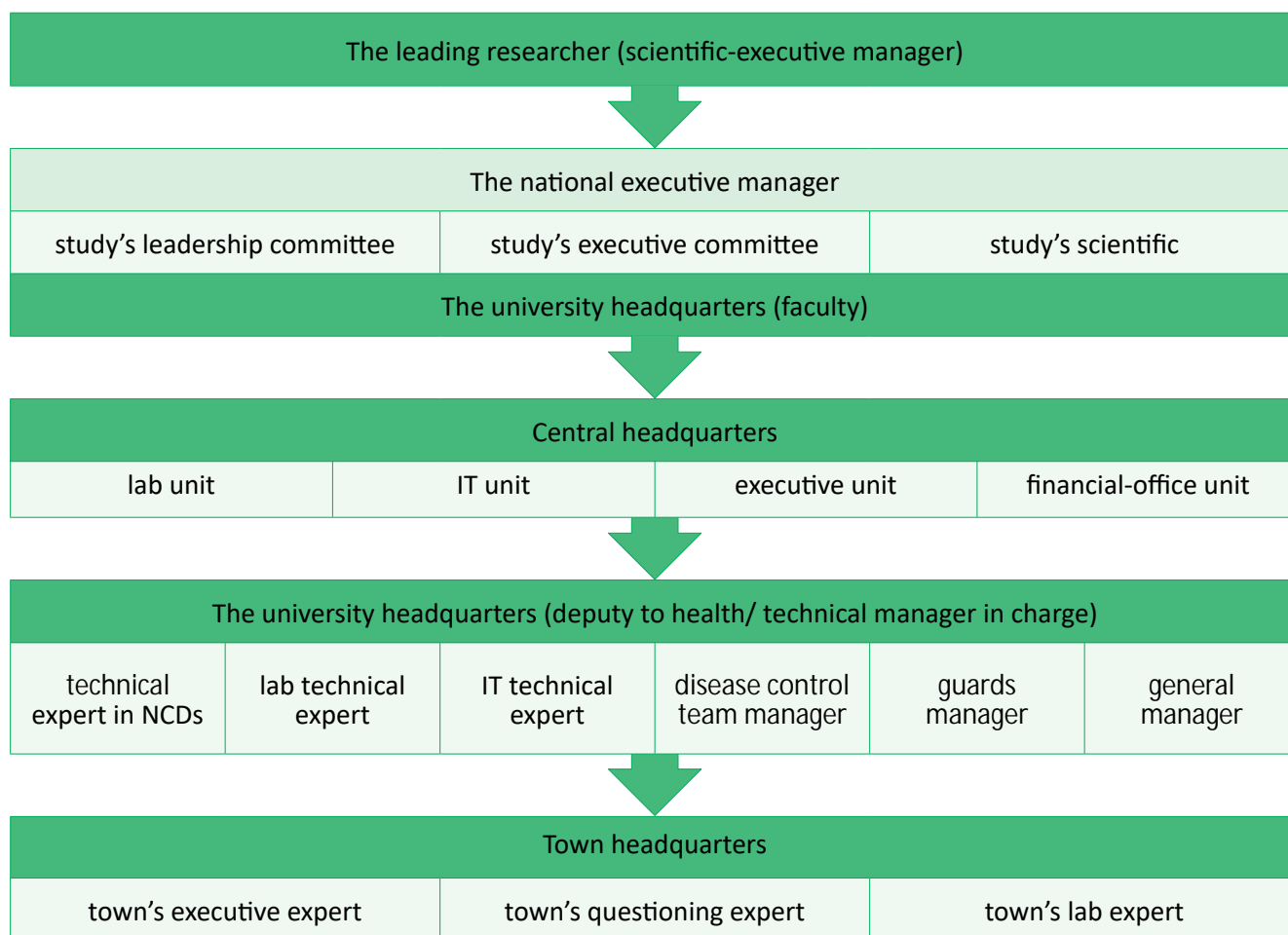
This committee was specifically in charge of executive coordination, the provision of necessary requirements of the study and supervision of the implementation process at university and town levels. Besides, based on the relating protocol defining individual job descriptions, specialist staff in required areas such as the headquarters' lab technician, the executive expert in the headquarters, IT experts, the supervising expert and team supervisors cooperated with the study as executive directors. Furthermore, in order for better coordination with universities to be achieved, two committees were organized in the form of a secretariat in the Research Center and another in the Health Ministry, Deputy in Health Affairs, so that their members would carefully follow the progress of the study in the interests of efficiency. Using cellphones provided by the Non-Communicable Research Center, these individuals worked full time to deal with posed challenges and enquiries. Moreover, besides the exclusive website of the study, the portal of the Non-Communicable Diseases Management Office had the responsibility of informing the addressees about the study.

2-5 the university (faculty) headquarters

For a better and more accurate conducting of the study, similar to previous studies in the past years, and as two of the most important constituents of the study, the university and town headquarters were formed. In this regard, through letters sent by the Health Ministry, Deputy in Health Affairs, stating the member combination of the executive board at the university, all health deputies in universities and faculties were asked to introduce a fully authorized representative in order to sign a contract with the administrator of the study. This individual was then assigned to supervise the process and ensure that the study be conducted according to the specified protocols.

2-6 the town headquarters

As the data-collection arm of the study, this headquarters consisted of the executive expert of the town as the quality control supervisor of the study, the questioning expert of the town with the duty of completing the questionnaires in step 1 and 2 of the study and the lab technician of the town.



Flow Chart 2-1 the scientific and executive structure of the National Survey of Risk Factors of Non-Communicable Diseases in 2016

Section 3:

Providing the Study's Infra-structures

In order to conduct the national survey of the risk factors for non-communicable diseases, there was need for infra-structures which were provided through a prediction of the study's development path. In this regard, the goal was to apply up-to-date scientific endeavors for these infra-structures. The reason why a specific protocol was devised in this area was to create a document for predicting the required facilities for the study and the way to achieve them.

3-1 human resources

Once the requirements were identified, in order to provide the needed human resources for the study, regarding the matrix structure of the center, both methods of using the available staff in different sections and employing new staff were applied.

3-2 equipment management: purchase, preparation, dispatch and retrieval

In this section, based on the determined schedule for universities, a calendar was designed for the equipment so that, due to shortage of equipment and the simultaneous conducting in all universities, resources could be dedicated to each university. Therefore, a breakdown structure was prepared for the survey and the process of delivery, dispatch and return was defined.

In this part, to dedicate constant resources to each university during the period, the Resource Leveling technique was used (1); although the starting and ending time of conducting the study was different in each university, the equipment delivered to each university was considered a fixed amount.

Overall, 572 tablets (Lenovo A3000), 261 scales (Inofit), 261 sphygmomanometers (Beurer), 261 tape measures, 220 Pedometers and rulers (Xiaomi) for the first and second steps, 25000 boxes containing test tubes, 99774 sampler tips, 792 holders, 31170 needles and 556 urine containers for the third step were delivered to the medical universities of the country 24 hours a day. At the time of planning, the return of the equipment was scheduled as well.

3-3 time management

The most important task of the study's headquarters was scheduling the conducting of the study. The method used for scheduling was Backward Scheduling, that is, scheduling all the stages was done considering the ending time of the sampling (before the beginning of Ramadhan). As the technical meetings revealed the fact that blood factors under study would show changes with fasting, and since this would pose a major limitation, the headquarters decided to finish blood sampling before Ramadhan and carry on with it after this month. Furthermore, the delay of starting the study in two universities, Shahid Beheshti and Iran universities of medical sciences, caused some changes in the headquarters' scheduling process.

3-4 communications in the National Survey of the Risk Factors of Non-Communicable Diseases

During such studies, communication is of vital importance. Consequently, communication requirements and various data that had to be transferred such as the language, the report's format, the publishing data, the person in charge to publish the data and the reports were agreed upon in the contract between the non-Communicable Diseases Research Center and the National Institute of Health Studies. As for the communication requirements for other levels of the study, different levels of access to information were defined.

3-5 crisis management and crisis headquarters

Despite efforts to prevent major problems, there is no getting away from unexpected problems in any big project being conducted in different venues. Due to the first days' numerous calls from the staff in universities' headquarters, and in order to solve the encountered problems, answer enquiries and to save time, the crisis headquarters was set up in the Non-Communicable Diseases Research Center. In this regard, all the experts engaged in the study were assigned to respond to the enquiries and solve the encountered problems. Furthermore, in

order to ensure an interactive communication, to observe ethical rules and ensure confidentiality of personal information, communicative tools such as email, management panel and in some cases Telegram was used for the interaction between managers in the Health Ministry, staff in the Non-Communicable Research Center (the central headquarters) and the universities' headquarter.

3-6 risk management: detection, prevention, in-time action

Before the start of the study and in order to collect information about likely risks in the survey, the brainstorming technique and lessons from past experiences were used. The risk management program determined the planning, implementation, supervision and control plans. After preparing a list of the detected risks in the survey, the risk matrix, which determines the risks' effects, was prepared and then a prevention program was provided in case the specified risk was encountered. An example was the way of blood sample transportation, which was considered a high risk; therefore, air transportation was suggested for remote towns and land transportation with another standby car, if possible, for other towns. In this regard, the cold chain transportation was used as extra help.

Section 4:

Determining the Sample Size and Statistical Sampling

The sampling part, which includes determining the sample size and the cluster head, belongs to the pre-study phase and was planned in the form of a specific protocol for sample size and statistical sampling. All experts in the quality control team supervised the finding of samples and cluster heads.

In order to estimate the prevalence rate of the risk factors for non-communicable diseases in the country in 1395, a sampling method proportionate to the population was used, which is a common approach in survey studies. Therefore, the selected sample size was proportionated to the population of that province. On the other hand, for estimating the prevalence of the risk factors in the province, in order to be on the safe side, the smallest sample size for achieving the predicted rates was calculated at 95%. This rate was equal to 384 samples, which was selected as the smallest sample size in the least populated province, Ilam. The required sample size for other provinces was therefore calculated according to the population of that province proportionate to the population of the reference province, Ilam. Besides, to control the non-response error, 10% was added to the calculated sample size in each province.

In order to decrease costs and increase efficiency, for provinces with 800 samples or more, weights were given to their samples. Weight-giving is an effective method used in surveys in order to decrease the sample size. This was achieved in the selected provinces by considering the calculated sample size as half and the sampling weight as double. The total sample size was calculated to be 30150 and to achieve this sample size, sampling from 3015 clusters was required.

In the National Survey of the Risk Factors for Non-Communicable Diseases in 1395, the 10-digit post code of the individuals' place of living was selected as the sampling framework. Sorting urban and rural areas was done with the help of the post office and was then communicated to the universities; then, the households were divided to executive clusters each containing 10 households according to the geographical location and their closeness to each other. The important point is the accomplishment of clusters and achieving the required number of samples, which is indicated in Table 4-1;

As it can be seen in the table, except Qom Province, which did not cooperate and therefore does not have any samples, the expected achievement percentage of the samples is quite remarkable, which is due to the accurate conducting of the study, constant supervision and cooperation of the universities, that is, only 10% of the provinces did not achieve a complete sum number of samples, only one of which had a percentage lower than 99%.

Province	Number of urban clusters	Number of rural clusters	Total number of clusters	Percentage of cluster accomplishment	Number of samples	Percentage of sample accomplishment
Alborz	89	9	98	100	980	100
Ardebil	31	17	48	100	480	100
Bushehr	28	13	41	100	410	100
Chaharmahal and Bakhtiari	39	28	67	100	670	99.85
East Azerbaijan	98	43	141	100	1410	97.52
Fars	120	57	177	100	1770	100
Gilan	62	38	100	100	1000	100
Golestan	34	33	67	100	670	100
Hamedan	40	28	68	100	680	99.56
Hormozgan	29	28	57	100	570	100
Ilam	28	16	44	100	440	100
Isfahan	163	28	191	100	1910	100
Kerman	62	47	109	100	1090	99.91
Kermanshah	53	23	76	100	760	99.74
Khuzestan	118	47	165	100	1650	99.58
Kohgiluyeh and Boyer-Ahmad	26	23	49	100	490	100
Kordestan	39	19	58	100	580	100
Lorestan	41	25	66	100	660	99.85
Markazi	42	14	56	100	560	100
Mazandaran	67	55	122	100	1220	99.75
North Khorasan	33	31	64	100	640	100
Qazvin	34	13	47	100	470	100
Qom	41	3	44	0	440	0
Razavi Khorasan	159	61	220	100	2200	99.73
Semnan	39	11	50	100	500	100
Sistan and Baluchestan	38	41	79	100	790	99.87
South Khorasan	31	24	55	100	550	100
Tehran	444	35	479	100	4790	100
West Azerbaijan	73	42	115	100	1150	100
Yazd	63	11	74	100	740	100
Zanjan	49	29	78	100	780	100
Total	2213	892	3105	-	31050	-

Table 4-1 the sample size and the number of clusters in each province and the percentage of their accomplishment

Section 5:

Ethical Considerations

As ethical principles are of vital importance in medical studies and due to their significance, this issue was dealt with separately by the executive team and therefore along with designing forms of conscious consent, a separate protocol and instructions were also devised.

5-1 obtaining the approval of the National Committee of Ethics in Studies, the National Institute for Medical Research Development

In order to obtain the ethical approval for the survey, following an official request by the leading researcher of the study asking for an inspection of the study and its ethical aspects, all the protocols and the forms of conscious consent were presented to the Committee of Ethics in Studies, the National Institute for Medical Research Development.

In the next stage, following a meeting with the chief and the staff of the Committee of Ethics in Studies on Feb. 27th, 2016 (1394/12/8), all issues were inspected and discussed and the administrator of the study elaborated the objectives of the study and further explained the ethical considerations and the arrangements made for them. Eventually, an act indexed as IR.NIMAD.REC.1394.032 was issued.

2-5 following the protocol

During the study, all the staff followed the ethical principles decided upon by the Committee of Ethics in Bio-Medical Studies. Moreover, the whole potential of the renowned experts in different towns and universities was used and participating in the study was completely optional for all samples in that after a full introduction of the study, and in case they were willing to take part, they were given the forms of consent and entered the study.

The consent forms were filled and signed in two copies, one of which was given to the interviewee and the other was collected to be sent to the headquarters. As for the samples willing to hand in 24-hour urine samples, following the items mentioned in the ethics protocol of the survey, and if the individual was willing, the second consent form was filled for them.

Furthermore, for questions regarding smoking and drinking etc. the individual was free to choose the “not willing to respond” option. Also, in case an individual wanted to resign or chose not to enter the second or third step of the study, his opinion was respected and the process was discontinued, noting “not willing to respond” for this very individual.

Section 6:

Step One (Questionnaires/ Questioning)

At the beginning, in order to enhance the procedures, the data and the method of conducting this national survey in its six rounds were comprehensively analyzed and inspected to determine their strong and weak points, challenges and suggested solutions for them. In this regard, after considering the results of the inspections done by the committee for metabolic risk factors in the Non-Communicable Diseases Research Center, WHO's documents and the survey's previous years' questionnaires were all reviewed, the available data were studied, changes were made in questions and finally the survey's trends as well as the challenges in exploiting the results were all studied carefully.

As for the way of questioning, in this round of conducting the study, after finalizing the questions and the proper response options, and following obtaining the scientific and leadership committees' approval, a software application was designed to be used on tablets. Therefore, apart from content training, which regarded the questionnaires, there was a section added to the training programs which included software know-how, how to complete the questionnaire, forthcoming challenges as well as how to store and send information.

Although most questionnaires include questions whose purpose is to evaluate a hidden quality achieved by a list of questions, the questionnaire used in this study had questions each corresponding to one response only, for

which case, the Face Validity and Content Validity must be calculated. The only exception to this was questions relating to Social-Economical indexes, which had previously been used and evaluated by this center in a study of burden of diseases.

In order to estimate the content validity of the questionnaire and its questions, the opinions of the elite, professors and the experts were used. Therefore, it was ensured that the questions be conforming to the subject they deal with, be practical and that they be clear enough for a response. To calculate reliability, the questions were then given to two groups of experts. The response to each question was given different numerical values. To calculate Cronbach's coefficient, first the variance of each sub-set of questions and then the total variance was calculated. Then, Cronbach's alpha was calculated, which equaled 0.80.

This questionnaire was compared to previous years' questionnaires and also with the last edition of WHO's questionnaire in terms of Content Validity and Face Validity. The new parts of WHO's questionnaire, used for the 2016 survey were translated by two translators from English to Persian and then from Persian to English (Backward-Forward translation) so that the translation be accurate and according to the objectives. Subsequently, the translation was studied by a committee consisting of experts and executives of the survey in the past years and was finally approved.

In order to determine the Face Validity, the questionnaire was handed to four experts to determine its Relevancy, Clarity and Simplicity. Following the approval by the experts, the questionnaire was then handed to four members of the target community to be studied and they subsequently gave their opinions on the above-mentioned indexes.

Also, instructions were incorporated in the software regarding the interviewee's ecological information, behavioral evaluations (smoking, nutrition, salt consumption, physical activity), disease history (high blood pressure, diabetes, high cholesterol, cardiovascular diseases), lifestyle, cervical cancer screening, accidents and alcohol consumption along with details regarding how to fill out the response spaces for each question.

When there was a skipping in the questions, the application was designed so as to omit irrelevant questions and therefore the time was saved for the participants and the questioning team. Furthermore, there was the option "not willing to respond" predicted for special sensitive questions such as the one regarding alcohol consumption.

Section 7:

Step 2 of the Study (Anthropometric Measurements)

The second step of the National Survey of the Risk Factors for Non-Communicable Diseases was one of the important sections of this survey, which was applied to all the individuals over 18.

Having access to such information along with comprehensive analyses of other data can without doubt provide valuable information to the beneficiaries in this area; therefore, the significance of the matter necessitated an independent protocol for physical evaluations using WHO's instructions in this regard and related scientific resources. Following the completion of consent forms, the participants entered the study and after responding to questions in step 1, they took the specific evaluations of the physical indexes mentioned in the relating protocol. The physical evaluations included measurements of height, weight, waist size, hip size, blood pressure, pulse and step counting, which was conducted by female questioners for women and male questioners for men after the participants' physical readiness and by using similar tools available in step 2 packages previously provided for the questioning team.

Compatibility with the listed items in the relating protocol was carefully ensured by the supervising teams from the national and central headquarters as well as supervisors from the universities headquarters, who attended the venues.

It is remarkable to mention that each time before weighing the individuals, the accuracy of the scales used was controlled by the proof one-kilogram weight available. Also, the questioning teams were obliged to use tools included in the package for step 2 provided for them by the central headquarters. Furthermore, the accuracy of the pressure gauges was checked according to step 2's protocol. In case of any failure in the equipment, supplementary equipment was used and the faulty ones were sent to the central headquarters to be exchanged.

Section 8:

Step 3 of the Study (Laboratory)

The third step of the National Survey of Risk Factors for Non-Communicable Diseases in 1395 started on Apr. 29th, 2016 (1395/2/10). Blood samples were taken from all the individuals over 25 in each cluster.

8-1 designing and executing the third step of the study

In order to optimize the conducting of the study, apart from the relating scientific resources, experiences learned from the simulation and implementation of the Study of the Social Workers' Health (the lab standards of this study are to a large extent similar to the study of the social workers' health) were used to design and complete the protocol.

In this regard, the objectives of the third step of the study were defined in the following three categories:

1. Formulating instructions for the collecting, separating, temporary stacking of, packaging and transporting the samples of the National Study of the risk Factors for Non-Communicable Diseases.
2. Collecting the blood and urine samples from all over the country in the laboratory of the Non-Communicable Diseases Research Center.
3. Doing biochemical blood and urine tests on the samples using an auto-analyzer device.

Firstly, the standards and protocols regarding the sampling procedures, separation and processing, temporary stacking, transportation and the biochemical tests were prepared based on credible scientific resources.



Picture 8-1 preparing the boxes and the sample packages

The basic design of the survey was totally based on sampling in urban and rural areas and therefore, based on the defined protocols in this survey, samples had to be obtained from individuals living in rural and urban areas; therefore, as separation equipment was not available in rural areas, a type of sampling vacuum tube for the glucose biochemical test was selected so that it wouldn't lose any amount of blood sugar during transportation to the chosen lab in the town. The tube used for this purpose was the sodium fluoride tube.

Three tubes, the sodium fluoride tube, the lithium Heparin tube and EDTA tube were used in this study. The sodium fluoride tube 6cc was used for the glucose biochemical test, the lithium Heparin tube 9cc for the Total-Cholesterol, HDL-C, ALT and Triglyceride tests, and the EDTA 6cc was used for the HbA1c test. As the sodium fluoride tubes were not available in the country, the importing company was asked to obtain and provide them. To start with step 3 of the survey, there had to be a procedure to transport the samples to universities which involved purchasing equipment such as vacuum tubes, connecting tubes, urine containers, needles, Parafilm, sampler tips and holders. For the tubes to be sent to the universities and returned safely to the Non-Communicable Diseases Research Center, a special box was designed that could hold all the tubes used in this study. The design of the box caused a suitable and accurate transportation of the tubes (sending and returning them) along with the possibility of sending the individual samples separately. Furthermore, to decrease probable errors, a process was designed in which each individual's sample was given a package with a pre-defined specific barcode (the cluster's code). All the contents of this package had a unique label containing the individual's code, the university's name, town's name, and the type of sample on them. Then, labels were prepared to give each individual a cluster and a box code. To prepare over 31050 labels, PVC rolls (to prevent the labels from coming off the tubes during transportation) and suitable resins (to prevent the writings on the tubes from being deleted) were used. After preparing labels and purchasing the tubes, the boxes for each individual were prepared and labeled and eventually the boxes prepared for each cluster were sent to the relating university. It must be noted that all procedures including labeling, putting caps on tubes and preparing the boxes were done in sterile conditions. Other equipment such as sampler tips, needles and holders were packaged and sent to the relating university in the number required. Based on the conducted need analysis and the project management protocol, the required number was considered 2% higher than the defined number in case of probable problems.

In this study, in order to measure the excretion amount of certain substances (e.g. sodium, creatinine etc.) in the urine, urine samples were taken from random 550 individuals 24 hours a day. To ensure the correctness of the urine samples and whether the whole urine amount of the individual during 24 hours has been collected in the specific container, potassium amino-benzoate (POTABA) was used.

In order to do biochemical tests on the collected samples, it was necessary to purchase special kits for the auto-analyzer device and therefore lengthy negotiations were done with the dealer company which eventually caused the kits to be delivered to the Non-Communicable Diseases Research Center in two parts.

For a suitable transfer of the samples from rural areas to the town and from the town to the Non-Communicable Diseases Research Center (the study's central headquarters), the transferring conditions underwent various tests (picture 8-2). For a suitable transportation, the two parameters, the allowable time for transfer and the transfer



Picture 8-2 a sample of the received from one of the universities

temperature, were studied. After studying past studies conducted in the central headquarters, reviewing articles and conducting numerous analyses, the optimum temperature came as to be 0 to 4 degrees Celsius and the maximum transfer time from sampling to delivery to the Non-Communicable Diseases Research Center (central headquarters) was decided to be 18 hours (from the moment sampling started until delivery to the central headquarters). All samples were sent either by vaccine-transportation vehicles or airplane (depending on the distance and the samples' conditions) and were delivered to the central headquarters in less than 18 hours.

Eventually, 20560 biological samples were received by the study's central headquarters and all biochemical tests were done on the samples having good quality and quantity.

8-2 biochemical tests on blood and urine

Following receiving the samples and forms, the cluster codes on forms were checked by Lims software and in case of any error, the cluster codes were corrected. After inspecting the samples, biochemical tests were done by Cobas C311 auto-analyzer and using Roche kits.

In order to ensure the correctness of the results achieved through the auto-analyzer device, the control of each test was checked and recorded daily (Picture 8-3) and in case the device was out of the intended range, a sample calibrator was placed and the control sample was checked again. After ensuring the correct reading of the device, the sample reception routine started on that day. On average, the urine sodium calibration was done three times a day and the calibration for other tests were done once in two weeks.



Picture 8-3 a sample daily control of the auto-analyzer device

The glucose biochemical test was done on the sample plasma taken from the sodium fluoride vacuum tube, the Chol, Trig, HbA1c and ALT biochemical tests on the sample plasma taken from the lithium Heparin vacuum tube, the HbA1c on the full blood sample (EDTA) and eventually, the sodium and creatinine tests were done on the urine sample separately for each individual. At the end of each working day, the test results were transferred from the auto-analyzer to the server using LABIT software and for a higher assurance, a paper sample of all the test results were archived and backed up on a flash disk and an external hard disk at the end of that very day.

Biochemical sodium and creatinine tests were done on individuals who had 24-hour urine samples. To ensure the correctness of the 24-hour sampling, the absorption rate of the 24-hour urine was measured at 290 and 295 wavelengths using the spectrophotometer device. In this study, 550 packages of equipment for 24-hour urine sampling were prepared and randomly sent to universities. Out of this number, 350 samples were received in the central headquarters, some of which were disqualified since the volume of the 24-hour urine was not clear (forms were not sent or were incomplete) and some were not acceptable since the tests clarified their not being 24-hour urine sample. Eventually, 160 were decided to be 24-hour urine samples, whose results were studied and analyzed.

8-3 supervising the towns' labs

Supervision and control are two important parts of any study. Supervising the National Survey of the Risk Factors of Non-Communicable Diseases was conducted to optimize activities, follow standards and increase the achieved data. Therefore, during a one-day training workshop, the members of the supervising team were familiarized with the objectives and the supervising procedure. Due to time limitations, the central headquarters' supervisors were randomly sent to universities according to a fixed time table to oversee the execution process.

This supervision included a careful evaluation of the equipment along with checking if the sampling, separating and packaging procedures were done correctly.

In case the supervisors or universities themselves reported a lack of consistency of the equipment with the headquarters' standards, suggestions were made to get the equipment closer to standards. For instance, in the absence of a refrigerated centrifuge, ice tubes were used to decrease temperature, or in the absence of a biological hood, the lab staffs were supposed to disinfect and clean the available hood using alcohol.

Section 9:

Information Technology

In conducting the National Survey of the Risk Factors for NCDs in the year 1395, in order to speed up and facilitate the processes and with the purpose of enhancing the correctness and accuracy of recording and transferring data, IT standards and instructions were defined for the survey, which included IT role in the study, IT's major responsibilities in different stages, the IT's study protocol and executive programs. Furthermore, measures were taken to enhance the quality control and optimum management of the related processes in the form of web-based software.

9-1 planning and goal setting

Based on the predicted prospects and standards, by exploiting national and international consultation, the IT team focused its activities on designing software on three platforms: Android, Web and Windows. This was a proper response to previous challenges faced in previous stages of the study and caused a more accurate recording of the data, simultaneous supervision and management of the web, avoiding manual input of data, a decrease in the questioning time, the possibility of following up the individuals in consecutive steps, synchronizing and connecting the data, finding ambiguous spots or spots lacking data for an optimum management of them and a timely de-staining.

One of the greatest challenges in this area is the integration of the software in the long run. In this regard, preparation of a standard framework to launch the software is mandatory and this practice was delegated to the software programming team. This part consisted of four phases; the survey's need analysis, the first draft, launching the software based on the proposed design and the testing and execution phase in order to remove deficiencies and probable challenges.

As the infra-structure of implementing this survey was based on information technology, there was an urgent need for an effective training on the correct execution of processes and therefore in-person and remote training were both applied.

9-2 technical analysis of the technologies used

9-2-1 infra-structures

Before a description of the IT's executive protocol, the infra-structures required for the study must be introduced. There are two infra-structures which will be in turn introduced in what follows. With a high computing power and resources such as over 1.2 terabytes of RAM, a 500-core virtual CPU and 30 terabytes of storage space with Raid 10, The data center in the Non-Communicable Diseases Research Center, Endocrinology and Metabolism Research Institute, Tehran University of Medical Sciences is one of the most efficient data centers among all research institutes in the country. Also, the computing power and the accessibility of various services offered in this center have been increased by using a virtualization technology.

9-2-1-1 physical infra-structures

For the correct conducting of the survey, infra-structures in the IT area were needed to be prepared; these were as follow:

- Servers connected to broad-band internet
- A suitable and enduring network structure
- Data SIM cards
- Tablets with Android operating system supporting 3G networks

To provide the equipment for this study, two separate servers, HP ProLiant and DL servers, were used to host the virtual machines. The reason for separating the physical backup server was to increase accessibility and controlling failover in the study. In total, there were 3 servers needed for this study and these servers provided daily backups at the server level until the end of the study. Users' enquiries were also controlled using the web service clustering technology.

Also, 800 tablets (Lenovo A3000) were obtained and after fully charging them, defining APNs on them, installing applications on them and testing them, they were given to the users of the study all over the country.

The bandwidth for this study was received from Respina, a private company, and had the speed of 8 Mb/s and increased to 16 Mb/s on days with a peak information load. An internet line was also defined at the university to prevent disconnection with the system in case of a problem.

In order to connect the Android software to the study's server, RighTel's data SIM cards were used, which were charged monthly according to a schedule and through buying internet packages. It must be noted that as users were likely to use the internet for reasons other than the survey, a higher amount of data than what was predicted had to be bought.

9-2-1-2 information infra-structures

For a correct implementation of the study's technology, apart from the physical infra-structures, there had to be a specialist team with the following specialties:

- The system's designing and architecture expert
- The network expert
- JAVA programmer
- Android programmer
- Data base expert

9-2-2 designing

To design all the software for this survey, the SCRAM method was used and the designing process finished in two four-week periods. All the processes of analysis, implementation, testing and installing the applications on the various Web, Windows and mobile platforms were done in this very period.

All the designing stages of this collection of software including launching the server (installing Windows Server 2012 R2, installing the Roles and Features required for the study, installing and optimizing the data base, Microsoft SQL Server 2014, and installing and optimizing the web service tool, Apache Tomcat RC5), data modelling (using the OLTP structure and its standards), the software architecture building (based on Model-View Controller) and the web service architecture building (using the SOAP protocol and JAVA) were accurately conducted according to the formulated protocol for this purpose.

9-3 introducing the software applications

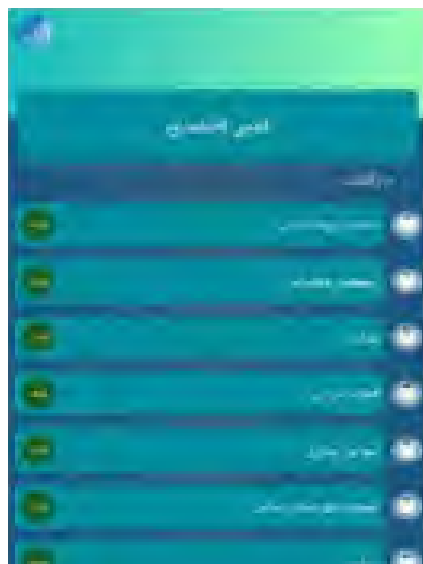
9-3-1 the questioning application

As for the questioning application used on the tablet, after finalizing the qualitative content of the questions and the data collection areas, and considering the necessary conditions of sampling, which were described in the relevant section above, this application was designed, tested and finalized in several stages. The final version was installed on all tablets and through constant training of the questioning teams and by getting help from IT experts in universities, the possibility of being updated during operation was added to it.

The application designed for collecting information worked on Android and had different features depending on the user's role. The information collected through this application were divided into four categories: information regarding the questioning, information regarding the town's lab, information regarding the supervision at different levels and information regarding the quality control. This information was stored on tablets and was sent to the server as soon as there was connection to the internet (which was inspected in the form of a Back-End service).

Some of the practical facilities of this application were: receiving new questions from the server, sending location information to the server, sending the responses as soon as there was a connection to the internet, sending responses instantly, keeping information offline (limited), holding the previous status of the questionnaire in case of an error, displaying incomplete questionnaires, allowing to edit the questionnaires, checking the truthfulness of the responses to some fields in the questionnaire, allowing the user to access the information (if they were

wiling), sending the information on the internet through a secure channel, a synchronized sending of information to the server, presenting the software to the supervisor, providing a navigation map for the questioners, providing the possibility of responding to the questions according to the User Interface Standards (wizard-based), designing the sampling stages automatically, categorizing the individuals in clusters automatically, inspecting the correctness of running the application during sampling stages, calculating the number of visits in a smart way to increase the correctness of the received information in the statistical community, suggesting a procedure for visiting households based on postcodes and the household features (if data was available), categorizing individuals in age and gender groups automatically, controlling the chosen clusters based on the number of people in the cluster and randomly suggesting individuals with similar statuses for questioning in the household.



Picture 9-1 the questioning application on the tablet

9-3-2 the execution supervision panel

Because of the enormous proportions of the National Survey of the Risk Factors for NCDs and its simultaneity all over the country, a specialist system was defined to supervise various processes of the survey and to prepare reports. Among the applications of this system before execution were allocation of clusters to the questioners



Picture 9-2 the execution supervision panel

in the supervision area, online tests, online training, controlling the establishment, executive, lab and medical parts, completing of the supervision checklists at the national, university and town levels, supervising and controlling the sampling process, controlling the questioner's deviation, allowing access to the questioner's error percentage, allowing access to the error rate according to the questions and supervising and controlling the data quality of the sampling.

The most significant tools of this system were user management, cluster management, supervising the study, evaluative online tests, controlling the data quality of the sent data, reports on the questioning status, reports on the study's progress and the equipment management.

9-3-3 the lab application

Due to the need for an integrated database in the survey, applications for the lab processes had to be designed. These applications were designed in two categories: the lab samples management application and the test results response management.

The major responsibilities of the lab samples management were recognizing the samples from universities, locating, managing and generating reports on them in a way that the sample's and its status could be identified from the time it was received from the university to the time it was placed in the auto-analyzer device. Due to the high error rates during sample and aliquot receiving stages, the application's processes were designed to minimize error rates. This application was designed on Windows platform and is connected to the main database.

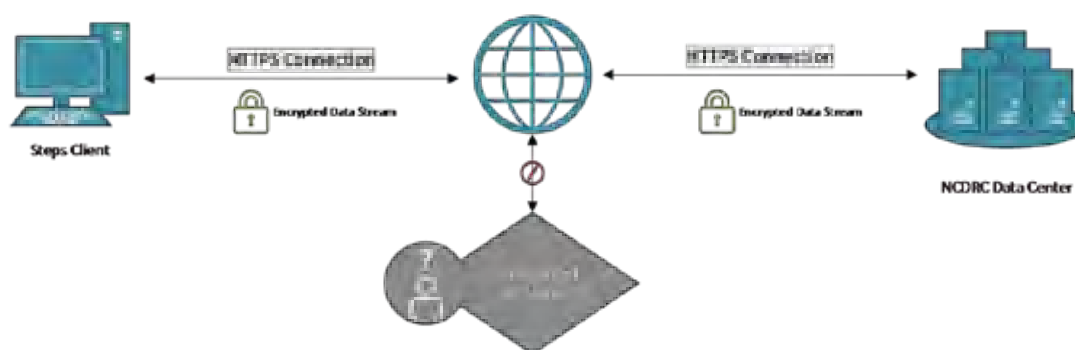
There was another application designed to connect the server with the Cobas C311 auto analyzer device. To implement such application, the technical protocol of the device was obtained from Roche Company and once the message sending structure of the device was recognized, an algorithm was written that could interact with the device. According to this algorithm, the information regarding the structure of the received results is all fetched in the form in mind. Storing the information of the results all over the country in a systematic and optimum structure led to a capability in the system to generate various reports on the results.

9-4 information security in the study

Because of the vast and personal nature of the information, confidentiality was a significant issue in the National Survey of the Risk Factors for NCDs. Security is a key concept in the virtual world and it is increasingly becoming even more significant with growth in online services and their penetration factor in the community. Due to its technical nature and its load on production costs, little attention is paid to security by technical teams. In this regard, two major issues, information transfer security and the servers' architecture according to the related technical protocol, were considered

9-4-1 information transfer security

Encrypting information in the source, decrypting it in the destination and transferring information over HTTPS is done to prevent Session Hijack. The Asymmetric Encryption Method (RSA) is used to secure data transfer from users to the server. This method is one of the most secure methods for the encryption of data. Also, HTTPS is used so that by using the SSL protocol the theft of information is prevented. Picture 9-3 illustrates an overview of the structure in secure data transfer.

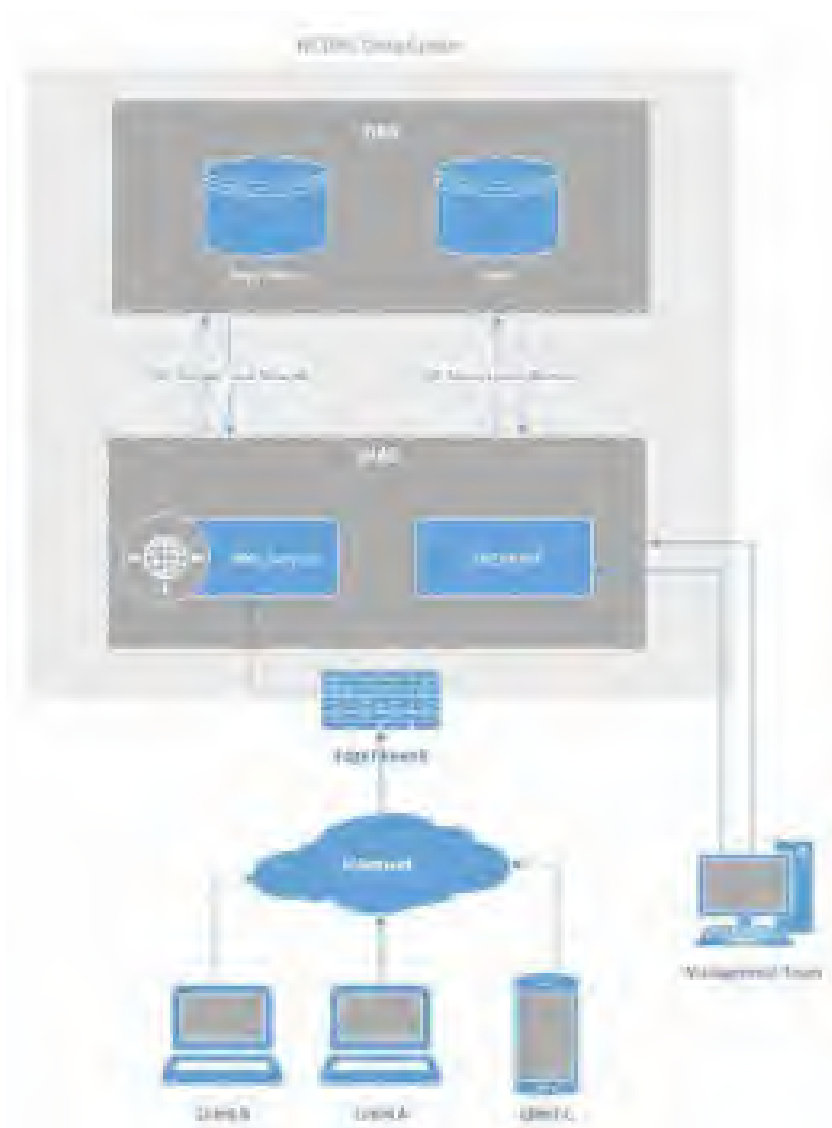


Picture 9-3 secure data transfer channel

As the picture demonstrates, there is not an information leakage using the HTTPS protocol and even in the case of the least probable probability of any theft, the stolen data is of no use due to the data encryption.

9-4-2 the architecture of the study's servers

The database server was placed on the local network (DMZ) to help create an efficient system with high accessibility and therefore the servers for this survey were designed in two separate layers, WAS and DBS. The web service and the study's code are placed on the WAS layer and it is connected to the internet through the firewall. The DBS layer contains the database server and its backup and is placed in the internal layer of the network, not having access to the internet at all. This architecture increases security of the information once it is stored on the server (Picture 9-4).



Picture 9-4 the servers' architecture in the center

9-5 information backup

Information backup was scheduled at the server and the database layer.

9-6 access to information

A Bastion Host is a computer with a specific purpose in the network that is designed and configured to defy attacks. This computer hosts only one application program; for instance, proxy and all other services are limited or completely eliminated so that threats to the system are minimized. Being placed out of the firewall, attacking

and threatening the bastion host becomes extremely difficult and it is not possible to access it through unreliable computers and networks.

The tool used in the Non-Communicable Diseases Research Center is Wallix or Wallix Admin Bastion, which is an advanced and smart tool to manage access by the administrators and users with high access. Using this tool, access by users who analyze data can be controlled and defined. Also, by using this tool, it is possible to record all access and work scenarios done by the analysis group, and if necessary, search through system logs and observe the applied changes and all activity done on servers. Moreover, it can be made sure that no one will be able to access the center's main servers without permission. WAB will connect users who are to do some activity on the server to a valid user, guaranteeing ability to manage all connections and activities on the network. Also, responding in case of a problem is really instant in this system, causing an immediate reaction to errors.

Section 10:

Training

In order to enhance the quality of the study, prior to implementing the National Survey of the Risk Factors for NCDs, the cooperators and staff's sufficient knowledge of the area under study was decided to be a priority. The plan to achieve this included the two categories of elevating awareness and transferring skills.

Therefore, a workshop was designed to familiarize the staff in the healthcare system in all provinces with concepts, methods and data necessary in implementing a nation-wide survey to study the risk factors of non-communicable diseases as well as to teach them the necessary skills to apply these methods.

Regarding the significance of devising training programs for the training workshops, which was mandated by the scientific committee of the survey, the discussion meetings of this committee categorized the training programs in the following areas:

- Training program for step 1 (questionnaire)
- Training program for step 2 (physical evaluations)
- Training program for step 3 (lab)
- Training program for sampling and facing the probable challenges
- Training program for information technology
- Training program for supervision

It must be noted that besides the workshops, other methods such as educational content and educational videos were also considered. This training continued throughout the study via constant connection with the target groups.

10-1 implementing the training programs

Following arrangements, three comprehensive training workshop courses were held on April 3rd, April 5th and April 6th, 2016 (Farv. 15, 17,18, 1395) by the Non-Communicable Diseases Research Center, Endocrinology and Metabolism Research Institute, Tehran University of Medical Sciences for the target groups in all medical universities of the country (Picture 10-1). These individuals were invited to cooperate and participate in the study's preliminary training programs and were notified of their responsibilities through letters sent by the Health Ministry, Deputy in Health Affairs to the health deputies in universities.

In above-mentioned workshops, the administrators, executives, training, leadership and supervision executives of the first and second step, training, leadership and supervision executives of the third step as well as the IT staff each participated in their own specific workshop and received theoretical and practical as well as software training.

The following are some of the most significant educational areas of these workshops:

Introducing the study and explaining the significance of national data in the intended estimates for preventing and controlling the risk factors of non-communicable disease, Iran's national and international commitments in preventing and controlling these risk factors, specifications of implementing the survey in the year 1395 and the probable challenges in its execution, management and supervising the execution, technical areas in sampling and

questioning of step 1, useful hints and the standards of step 2, specialist training on obtaining biological samples, preparing and transferring the samples done in step 3. A total of 240 individuals participated in these workshops. At the end of each day of these three workshops, there were discussion meetings with the leading researcher of the study and the staff in the Non-Communicable Diseases Management Office, to clarify the discussed ideas and hear the viewpoints of the staff in universities.

Besides these three workshops for the target groups in medical universities and faculties, another workshop was held to coordinate the supervisors of the study at the Non-Communicable Diseases Research Center on April 12th, 2016. In this workshop, the intended objectives, the predicted standards for this survey, the significance of supervision and the included details in the related protocol were described. Also, the job description of each of the supervision teams in the Non-Communicable Diseases Research Center and the Ministry of Health Headquarters, consisting of the staff in the Health Ministry, Deputy in Health Affairs, was discussed in detail in this workshop.

In the next stage, with the study's administrator present in the session, the staffs in supervision teams were instructed upon the software know-how by the IT team in the center and finally had their enquiries answered. As for the online tests, it must be noted that in order for the individuals to be eligible to start cooperation in any section of the study, questioning, physical evaluations or the lab, they had to take online tests regarding their specified area. To take part in these online tests, the individuals introduced by the universities/faculties were given a personalized access first and then took the tests. They passed if they could get 80% of the answers correct in their specific area. There was a bank of multiple choice questions and each test taker received a random selection of questions in the test.



Picture 10-1 training workshops for the study's staff in universities

It must be stated that as previously arranged, Shahid Beheshti and Iran universities of medical sciences stopped the survey and carried on with it after Ramadhan; therefore, other workshops were held for them in the Non-Communicable Diseases Research Center upon their request. Also, upon request by universities, the central headquarters' staff attended the universities and helped with educational programs.

Due to the significance of the educational contents and their details, face-to-face training was not considered as the only type of training in the study and educational packages were consequently prepared as a necessary part of the education. Users could visit Iransteps.com and download videos and related documents categorized in the specific areas using the Download Educational Videos tab. Furthermore, all the educational contents were compiled in a DVD and were given to universities so that the staff in the university headquarters could copy them for all their colleagues.

Section 11:

Supervision

The supervising section of the study was one of its strong points in this round of the survey and was executed through a devised and ratified protocol, using specific checklists in each area and with the cooperation of the various groups described in this statement.

11-1 the objectives of the supervision programs

The objectives of supervising the survey were categorized in three areas:

1. Supervising the pre-survey stages including provision of infra-structures (informatics, lab), designing the protocols and checklists.
2. Supervising the stages during the survey including determining teams of supervising specialists, supervising cluster-heads' accordance with the input addresses, supervising the distribution and delivery of the consumed substances, supervising training, supervising the execution of steps 1 and 2, supervising the taking and receiving samples and doing tests (step 3) as well as statistical control of data quality.
3. Supervising post-survey stages including supervising the retrieval of equipment in terms of quality and quantity, supervising lab reports and supervising the cleaning and analysis of the data.

As a significant part of the survey, supervising the samples and clusters required an organized planning. Supervising the clusters was defined at the headquarters level and was conducted on a random base and according to the schedule decided upon by the expert in charge of the supervising process in the central headquarters. Mandated by the related instructions, supervising at the university level required supervising each of the clusters. This supervision included supervising the allocation method, information input and the related details before, during and after the study.

As for the lab supervision, in the first stage, supervising all the processes of obtaining, packaging and sending the samples as well as inspecting and supervising the physical environment and the required equipment in the labs was conducted by the university supervisor through checklists and in case the problem persisted despite in-person training, lab technicians at the Non-Communicable Diseases Research Center were consulted. In case a second in-person training and supervision was necessary, which was the case in some labs, a supervisor was sent to the venue by the Non-Communicable Diseases research Center.

It must also be mentioned that according to the protocol for supervising information technology, all stages of software designing including analysis, designing, implementation, testing and installation were constantly supervised and the results were all documented. Also, before the final launch, the implemented functions were evaluated in terms of correctness of output and the response capability of the web server.

11-2 formation of specialist teams and the supervising secretariat

After designing the related protocol and the supervising checklists, a supervising secretariat and three supervising specialist teams were formed:

- A) The ministry's supervising team: During the study, the ministry's supervising team was in charge of supervising steps one and two of the study and conducting quality control in towns other than the

province center according to the randomly prepared checklist handed to them in digital form. Due to its significance, the result of the supervision of establishment was communicated to the national supervisor through a telephone call and the probable problems and deficiencies regarding the equipment and consumer material were therefore resolved immediately. In case the university required more equipment, considering the available equipment and the share allocated to each university, more equipment was dedicated to the university upon request.

B) The quality supervision team: this team was in charge of supervising steps one and two of the study and the quality control in the province center according to the prepared list and was digitally given the necessary information.

C) The team for supervising the execution of the study's processes: in order to resolve problems such as the individuals' doubtfulness in participating in the study, specifically in step 3, deficiencies in the sent data, unsent data from the field, delay in the start of the program and low participation rate in step 3, the national supervisor and the experts in the Non-Communicable Diseases Research Center were deployed to the university and closely supervised the conducting of the study and made any modification if necessary.

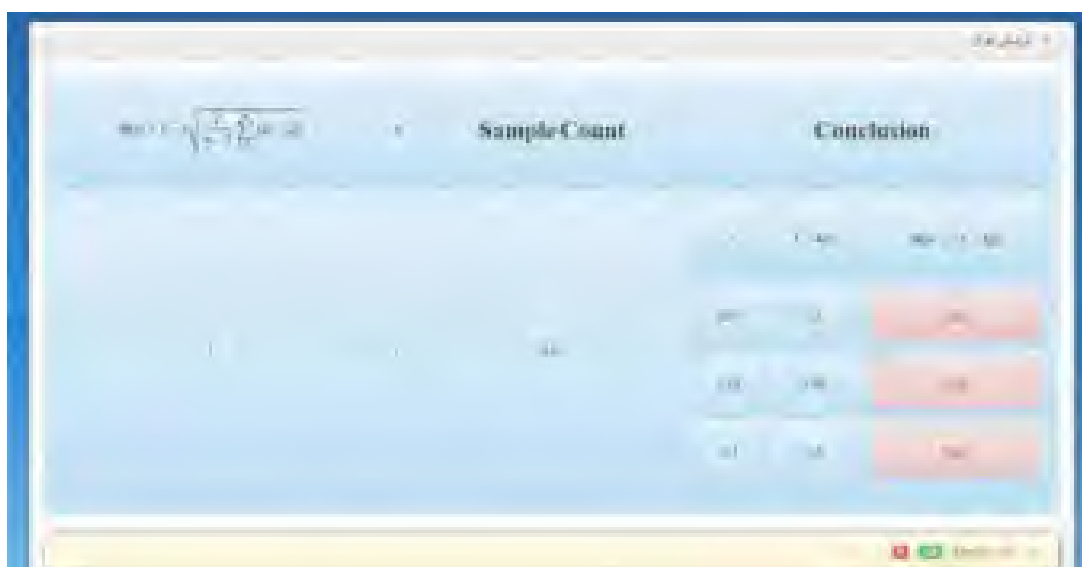
D) The supervising experts of the university headquarters: in order for a correct conducting of the study's processes, an individual was selected as the university supervisor and was directly in contact with the national supervisor to oversee the progress of the study in their university and resolve any possible problem. Due to the short time the survey was conducted in, this contact was generally through phone calls and the problems were reported and resolved instantly.

E) The supervising secretariat: the supervising secretariat consisted of experts from the Health Ministry, Deputy in Health Affairs and from the Non-Communicable Diseases Research Center, being responsible for resolving executive problems. These experts resided in both venues and the channels through which this secretariat could be contacted, the email: @ncdrc.infosteps and the study's website: www.iransteps.com, were communicated to all resident staff.

As for the statistical control of the data quality, the internet-based system demonstrated all the defined indexes instantly. This system provided the supervising teams with very useful tools assisting their supervision activities. Information collected from a subset of randomly selected samples in a secondary questioning process were also analyzed and applied properly. In the quality control of the study, apart from constant inspection of indexes relating to non-response bias, Kappa agreement coefficient, Pitman test and Bland-Altman plot were also calculated for specific variables in the relating protocol.



Picture 11-1 a shot from the system displaying the non-response index R for the question "have you consumed alcoholic drinks in the last 12 months?"



Picture 11-2 a shot from the system displaying the non-response index R for people's non-response bias



Picture 11-3 a shot from the system displaying the sample's age-gender pyramid in Abadan



Picture 11-4 a shot from the system displaying the P-chart graph representing the proportion of women aged 51 to 56 suffering from high blood pressure in Abadan

Section 12:

Data Analysis and Cleaning

Data cleaning is an important part of any study and it is considered even more important in nation-wide survey studies where there is large amount of data and errors may mount up to large quantities, most of which are of measurement type. In this study, effort was made to decrease these errors by using methods such as questioners' comprehensive training and digitalizing data collection. However, human intervention makes decreasing the number to zero impossible. Therefore, to achieve the utmost credibility, a structure was designed to help decrease the bias and get the results as close to the reality in the community as possible.

Due to the use of tablets to collect information in this round of the National Survey of the Risk Factors for NCDs, there could be more different errors than the previous rounds of the survey, where questioning was conducted through paper forms. Data were recorded on tablets after questioning and were sent to the central server at the first internet connection. Therefore, errors related to data collection such as the traditional transfer of data to the central headquarters and data input errors (previously, the questioner filled out a paper form and in the next stage, another group input data in the system) changed in nature and the challenges in this process decreased significantly.

The data cleaning and data analysis of the National Survey of the Risk Factors for NCDs in 1395 was conducted by the statistical analysis team of the Non-Communicable Diseases Research Center with utmost care and accuracy. The obligations of confidentiality necessitated data analysis to be done over a secure channel. This channel was prepared by the IT team.

The output of this stage included a ready-to-use data collection, which can be used by researchers in different fields, as well as the current report. Through the data cleaning and analysis process, to achieve these results, credible standards were intended, which were described in detail through a separate protocol.

In order to make feasibility study possible and also to correct the received data, a member of the statistical analysis team and a member of the IT team started to collect the data for 100 samples. This group also took a similar measure by reforming the data structures for a collection of twenty thousand samples. Eventually, the received data structure was finalized and this very structure was used to extract the final data.

12-1 data cleaning

All stages of data cleaning were conducted by the statistical analysis team and according to the data cleaning protocol. What follows is a description of the process:

12-1-1 re-encryption

The received data from the IT unit were re-encrypted from text to numerical values, according to the coding of the questionnaires. For instance, the re-encryption for the question "relation to the head of the household" is displayed in Picture 12-1

```
replace i4d9="7" if i4d9=="برادر/خواهر سرپرست یا همسر"
replace i4d9="3" if i4d9=="پسر/دختر"
replace i4d9="2" if i4d9=="همسر (زن/شوهر)"
replace i4d9="1" if i4d9=="سرپرست"
replace i4d9="4" if i4d9=="عروس/داماد"
replace i4d9="11" if i4d9=="دیگر وابستگان/غیر خویشاوند"
replace i4d9="8" if i4d9=="عمو/دایی/خاله/عمه"
replace i4d9="9" if i4d9=="برادرزاده/خواهرزاده"
replace i4d9="." if i4d9=="نمی داند"
replace i4d9="6" if i4d9=="والدین سرپرست یا همسر"
replace i4d9="5" if i4d9=="نوه"
replace i4d9="10" if i4d9=="فرزند خوانده/فرزند همسر/فرزند رضاعی"
destring i4d9 , replace
```

Picture 12-1 the re-encryption for the question "what is your relation to the head of the family"

12-1-2 changing the structure

Data structure change was applied in cases where it was necessary. Picture 12-2 displays part of the code regarding the variable structure of the maximum individuals in a cluster. The result of the structure change is clear in the final data.

```
gen ID_inCluster=substr( code ,14,2)
destring ID_inCluster , replace
bysort clusterID :egen max_ID = max(ID_inCluster)
```

Picture 12-2 the structure change code regarding the formation of the variable for the number of individuals in a cluster

12-1-3 labeling

All the variables of the study were labeled. In “the variable label based on the question title”, specific values were dedicated according to the values available in the questionnaire. Picture 12-3 displays codes related to the variable labeling for “fish consumption in the last week”. All the variables’ labeling is clear in the final data.

```
* Fish Per Weeks (0=No , 1=Yes)
label variable d10 "آیا در هفته گذشته مصرف ماهی داشته اید"
replace d10="1" if d10=="بله"
replace d10="0" if d10=="خیر"
destring d10 , replace
label define d10 0 "No" 1 "Yes"
label values d10 d10
```

Picture 12-3 labeling code for “fish consumption in the last week” variable and its values

12-1-4 data inspection

Once the data were turned into the usable format in statistical analyses, for an accurate evaluation of the data, inspections were conducted according to what was stated in the relating protocol.

12-1-5 the number of observations

At the end of the study, out of the 31050 expected samples, data relating to 30560 samples were collected. Therefore, 490 samples out of the expected number were not achieved, 440 of which belonged to Qom’s University of Medical Sciences, which did not cooperate in the study. The 50 other samples were the ones who were not willing to cooperate.

12-1-6 the number of clusters

Except 44 clusters belonging to Qom’s University of Medical Sciences, all other clusters defined in the study were operationalized.

12-1-7 town and provincial accordance

Following allocating clusters to the executive universities and a careful supervision of them, two clusters from Sari University of Medical Sciences were transferred to Babol University of Medical Sciences, which, due to the in-province nature of this cluster change, did not lead to any difference in analyses. Also, Hamedan University of Medical Sciences was in charge of conducting the study for two clusters in Asad Abad University of Medical Sciences; and eventually, 7 clusters from Yazd University of Medical Sciences, which all belonged to Tabas town, were transferred to Birjand university of Medical Sciences and the results were analyzed in South Khorasan subset.

12-1-8 age-gender accordance

In total, 19 individuals under 18 years of age entered the study, whose results were removed in the calculation of the sampling weight and also removed from the final data. 10 individuals out of these 18 and also 618 individuals aged 18 to 25 also participated in blood sampling, who were removed from the analyses.

12-1-9 lost data

Regarding the nature of the study and the intended delicacy, there was no lost data in the allowed framework mentioned in the protocol.

12-1-10 non-responses

In order to study non-responses in the questionnaires, 50 main variables were chosen and the non-response rates as well as valid responses were evaluated in these questions. Also in this study, graphic methods were used for a better inspection and a more accurate understanding of the non-responses percentage. A diagram used is the Radar-Diagram, which can both display the non-responses percentage and compare the non-responses percentage in different universities. The radar-diagram draws the values of a variable in classes of a multi-class variable and then compares them. Some examples are displayed below;

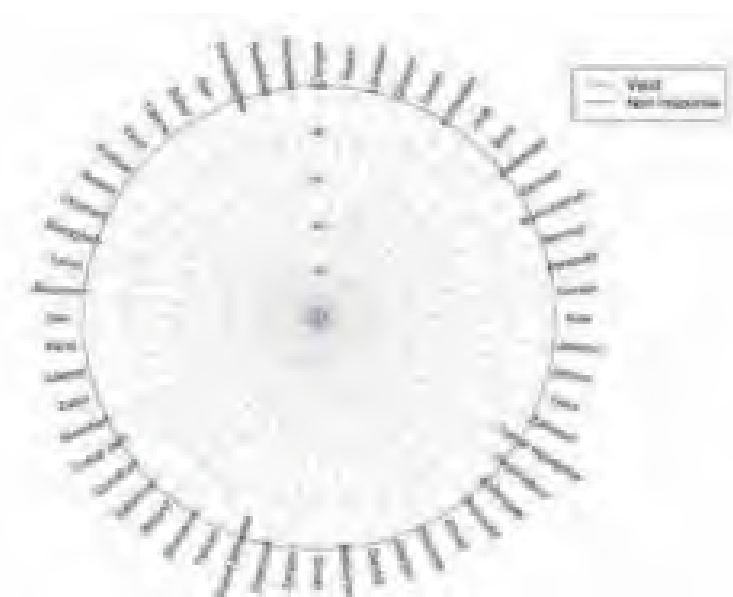


Diagram 12-1 the percentage of valid responses and non-responses for “gender”, categorized by university
the non-response percentage for gender has been zero in all universities

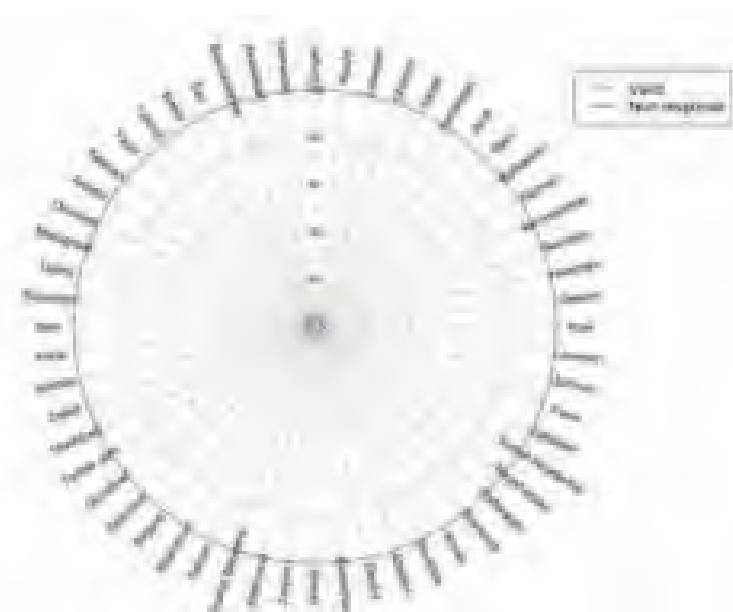


Diagram 12-2 the percentage of valid responses and non-responses for “marital status” categorized by university
The highest number of non-responses for “marital status” belongs to Shahid beheshti, Ardebil, Gorgan and Jahrom universities of medical sciences

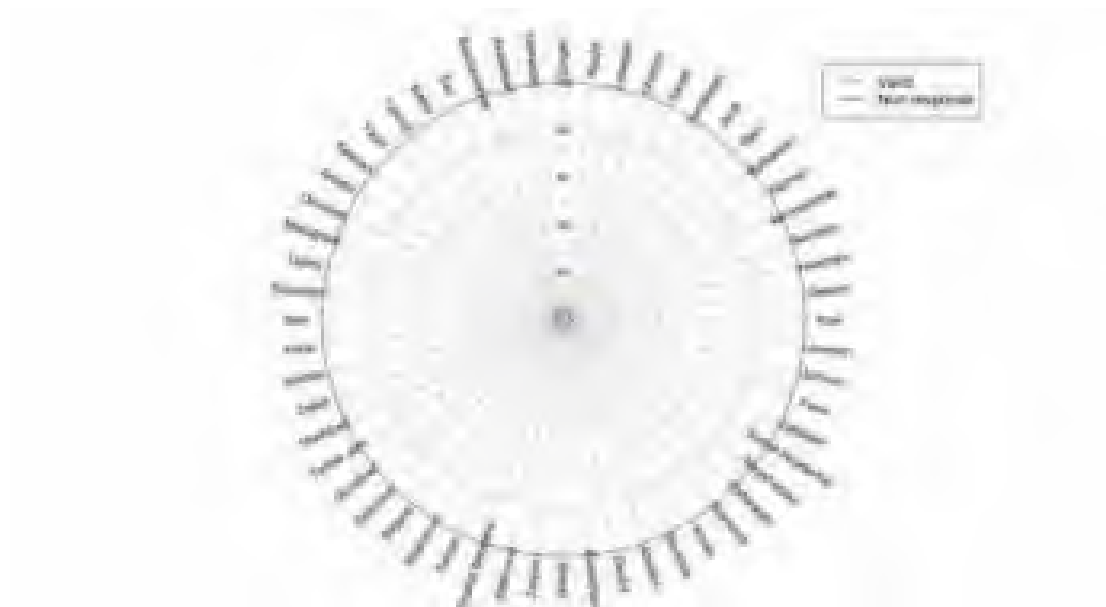


Diagram 12-3 the percentage of valid responses and non-responses for “daily consumption of cigarettes in the past” categorized by the university
The highest number of non-responses for “daily consumption of cigarettes in the past” belongs to Gorgan, Sari, Ardebil, Shahid Beheshti, Jahrom, Ahvaz and Bushehr universities of medical sciences

12-1-11 invalid values

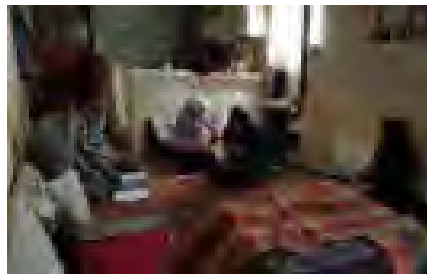
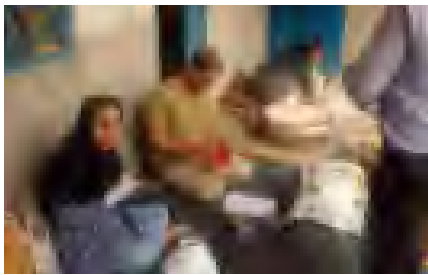
In order to determine the acceptable scope of each of the values, WHO’s guide tables were used.

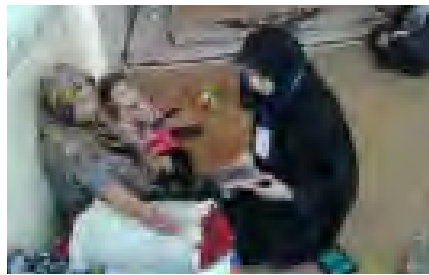
12-2 data analysis

After a complete data cleaning and the calculation of the sampling weights according to the data analysis protocol, the related stages including all the indexes were extracted and subsequently added to the final data and these indexes were the ones that were statistically analyzed. Subsequently, all the sampling weights mentioned in the data cleaning and analysis protocol were calculated and added to the final data collection. These weights were then statistically analyzed.

Variable Description	Standard Variable Code	Accepted Values
Age, in years	C3	Age range of survey
Years of education	C4	0-30
Number of people ≥18 yrs. in household	C9	1-30
Age started/stopped smoking daily	T3; T7	10-74
Time since starting/stopping smoking daily	T4a-c; T8a-c	years 1-64 months 1-12 days 1-30
Number of tobacco products smoked/used each day	T5a-e; T11a-e	0-50
Number of occasions alcohol consumed	A4	1-50
Number of drinks consumed on given occasion	A5; A6	1-50
Number of occasions alcohol consumed in large quantities	A7	0-50
Number of drinks consumed per day	A9a-g	0-50
Number of servings of fruit or vegetables consumed on a given day	D2; D4	1-20
Number of meals eaten outside the home	D6	0-30
Amount of physical activity per day	P3a-P3b; P6a-P6b; P9a-P9b; P12a-P12b; P15a-P15b	00:10-16:00
Amount of sedentary activity per day	P16a-P16b	00:00-24:00
Height	M3	cm 100-270
Weight	M4	kg 20-350
Waist circumference	M7	cm 30-200
Systolic blood pressure	M11a; M12a; M13a	mmHg 40-300
Diastolic blood pressure	M11b; M12b; M13b	mmHg 30-200
Hip circumference	M15	cm 45-300
Fasting blood glucose	B5	mmol/l 1-35 mg/dl 18.0-630.0
Total cholesterol	B8	mmol/l 1.75-20.00 mg/dl 67.0-773.0
Fasting triglycerides	B10	mmol/l 0.25-50.00 mg/dl 22.0-4428.0
HDL cholesterol	B11	mmol/l 0.1-5.0 mg/dl 3.8-190.0

Picture 12-4 a sample of the table of valid values





CHAPTER 2

Results

Section 1

General Details of the Study

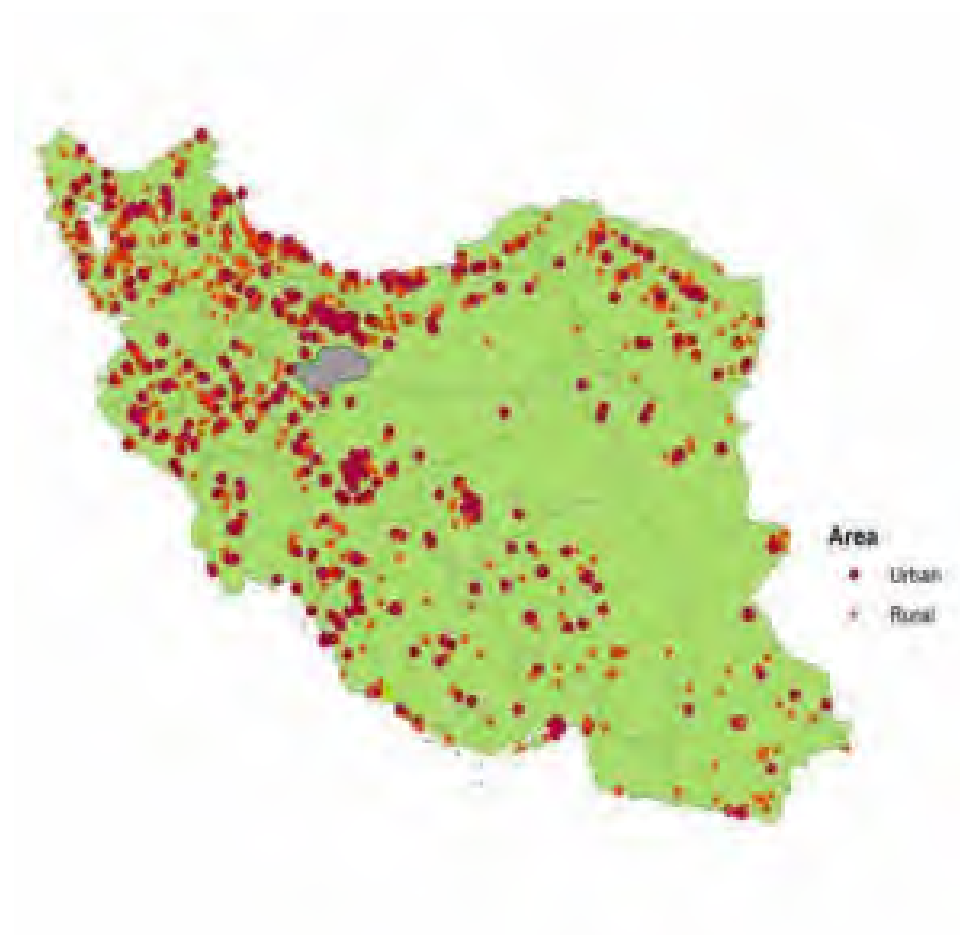


Figure 1.1. Geographical distribution of samples by area of residency

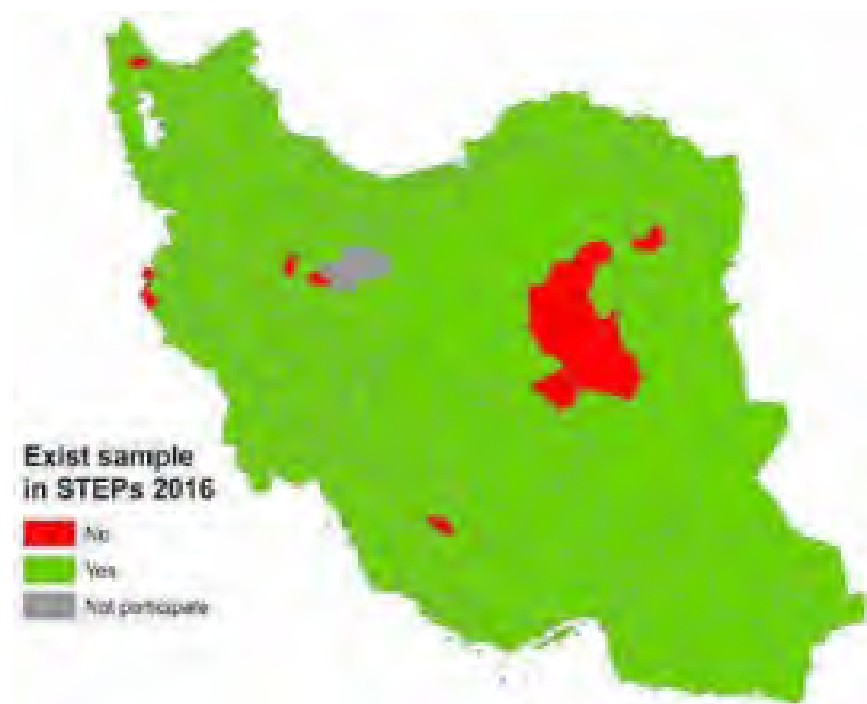


Figure 1.2. Geographical distribution of samples existence at district level

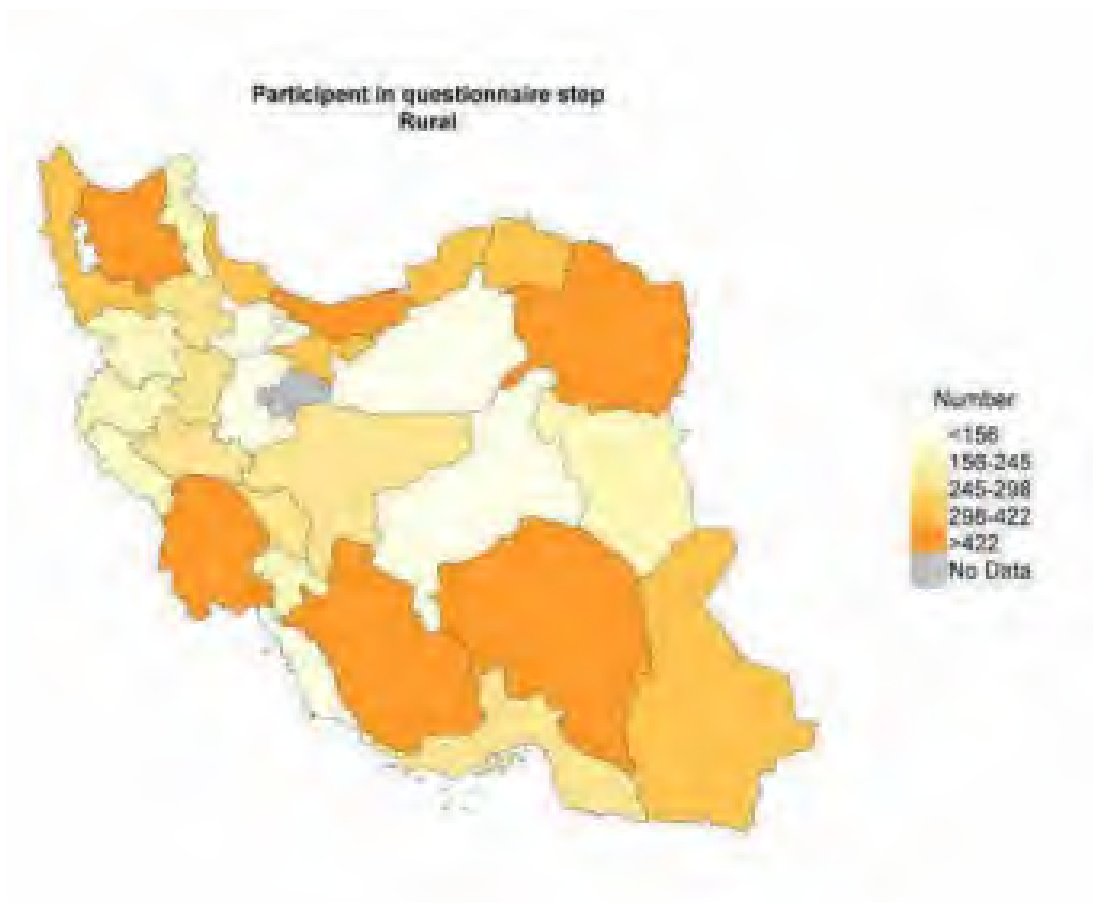


Figure 1.3. Geographical distribution of number of participants in questionnaire step in rural area of residency



Figure 1.4. Geographical distribution of number of participants in questionnaire step in urban area of residency



Figure 1.5. Geographical distribution of completeness of clusters in rural



Figure 1.6. Geographical distribution of completeness of clusters in urban area of residency



Figure 1.7. Geographical distribution of completeness of clusters

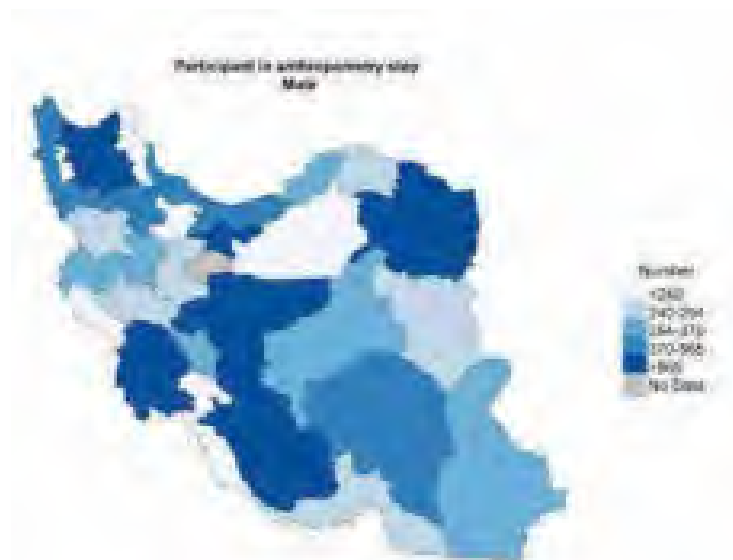


Figure 1.8. Geographical distribution of number of participants in anthropometry step in males

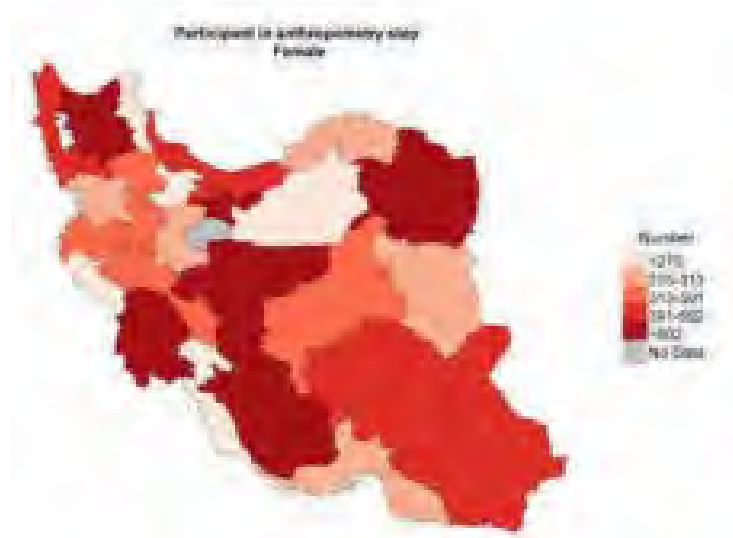


Figure 1.9. Geographical distribution of number of participants in anthropometry step in females

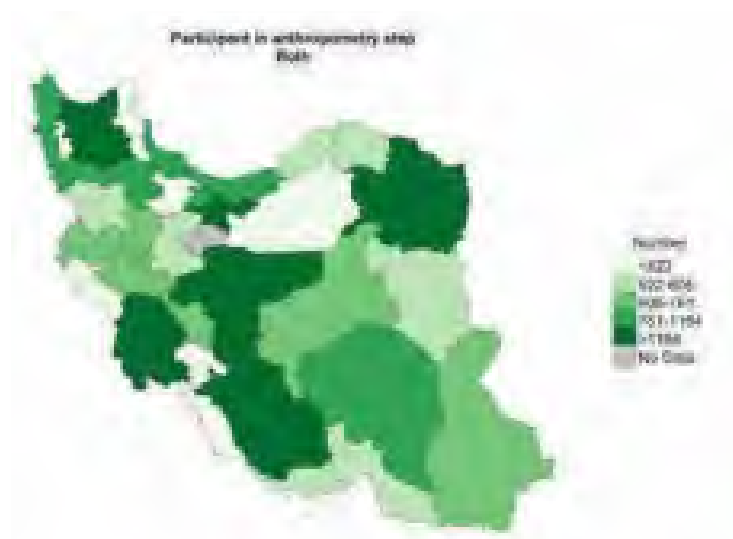


Figure 1.10. Geographical distribution of number of participants in anthropometry step in both sexes

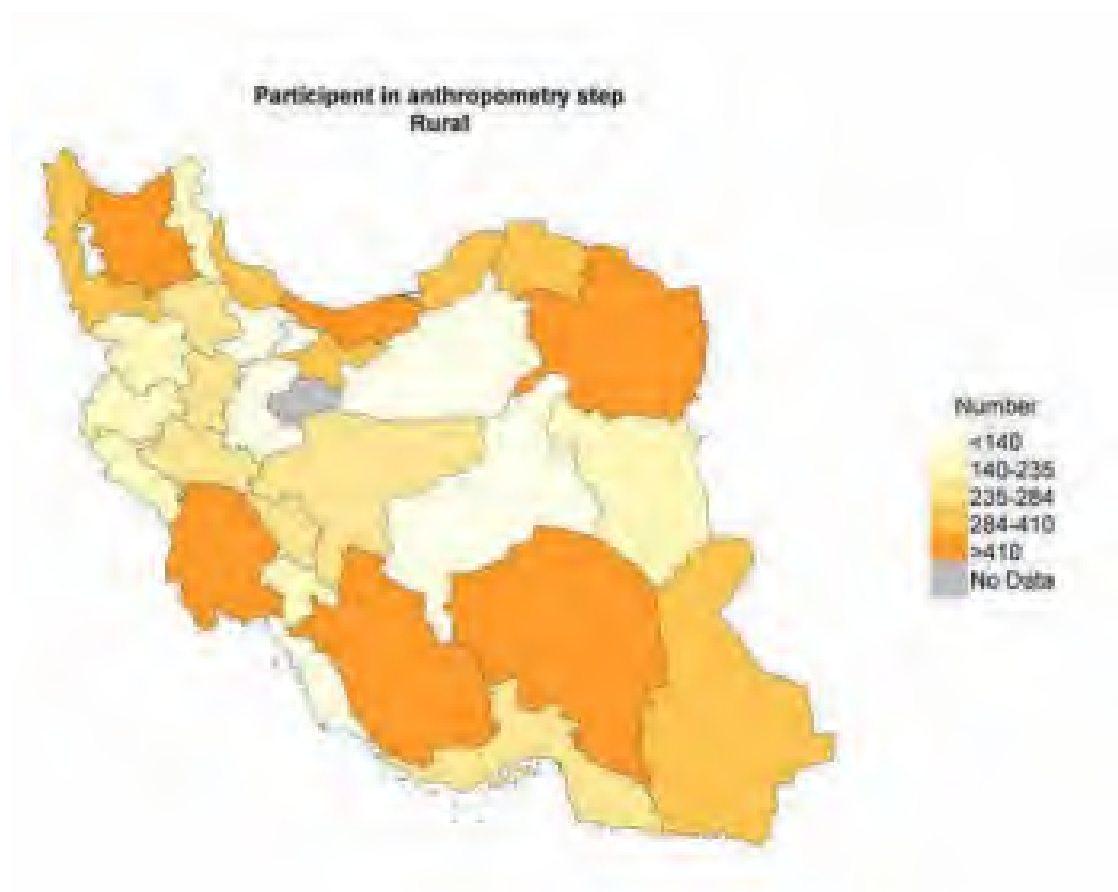


Figure 1.11. Geographical distribution of number of participants in anthropometry step in rural area of residency

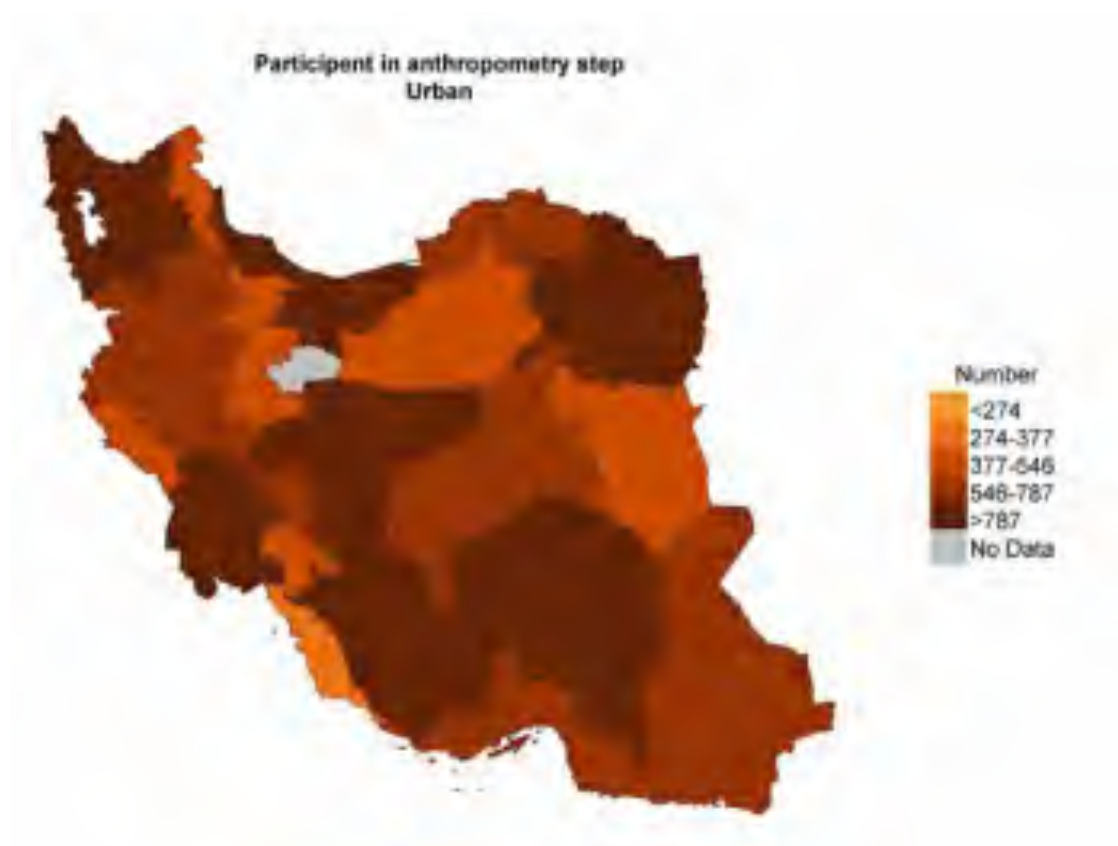


Figure 1.12. Geographical distribution of number of participants in anthropometry step in urban area of residency

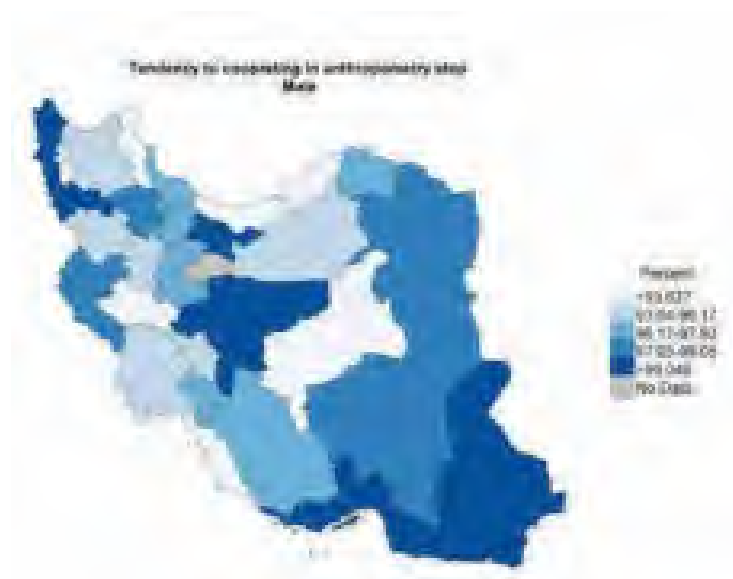


Figure 1.13. Geographical distribution of percent of individuals with tendency to cooperate in anthropometry step in males

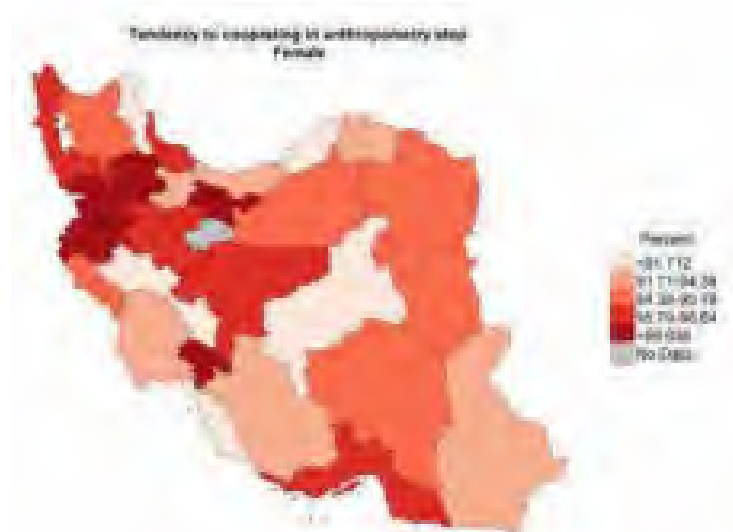


Figure 1.14. Geographical distribution of percent of individuals with tendency to cooperate in anthropometry step in females

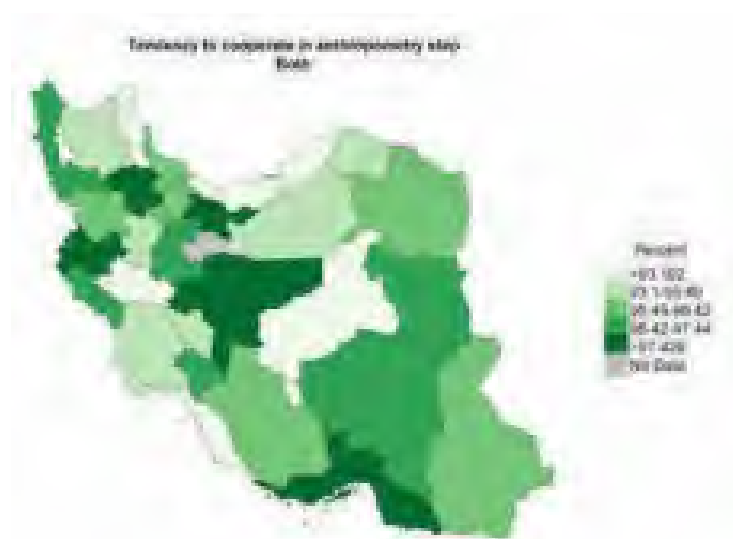


Figure 1.15. Geographical distribution of percent of individuals with tendency to cooperate in anthropometry step in both sexes

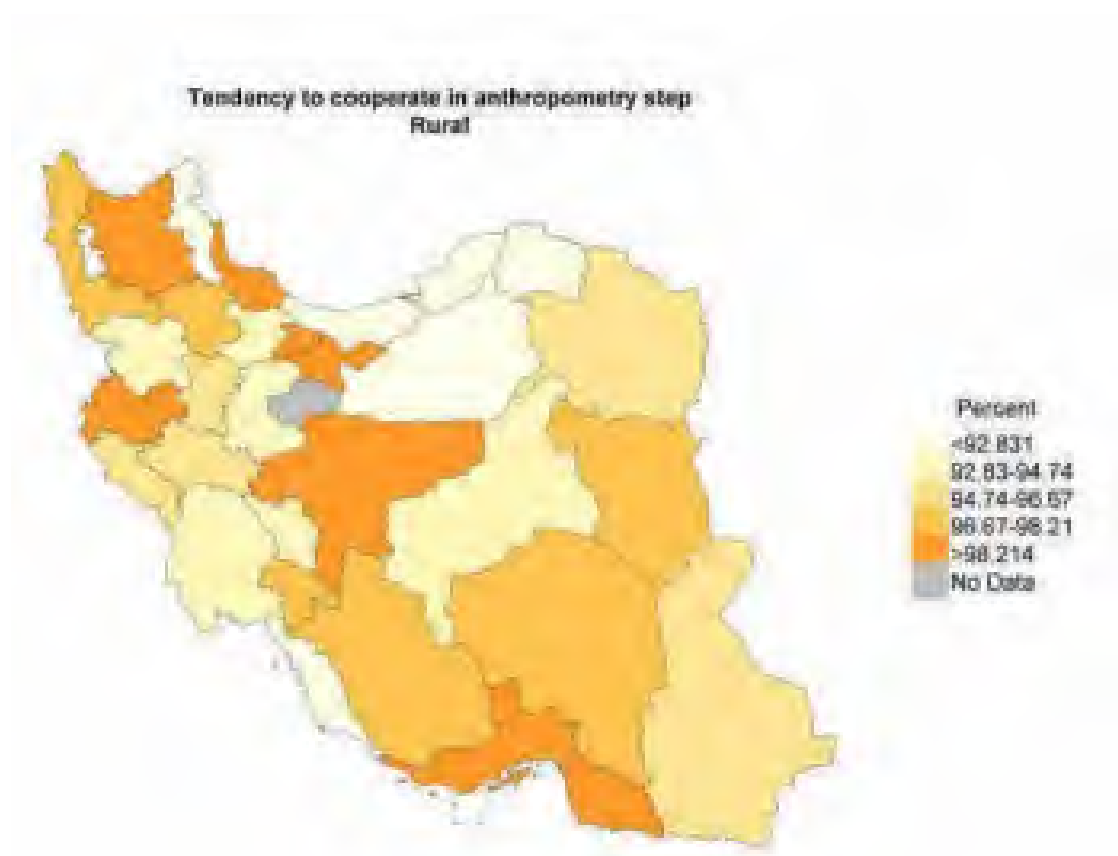


Figure 1.16. Geographical distribution of percent of individuals with tendency to cooperate in anthropometry step in rural area of residency

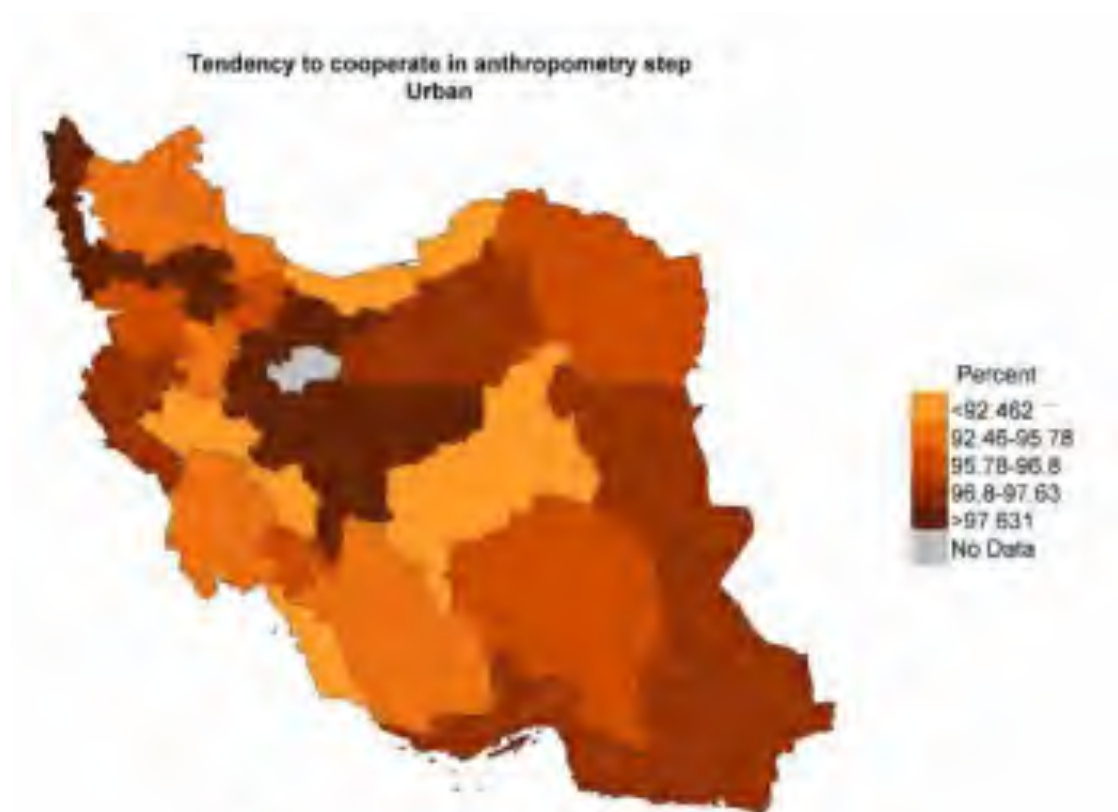


Figure 1.17. Geographical distribution of percent of individuals with tendency to cooperate in anthropometry step in urban area of residency

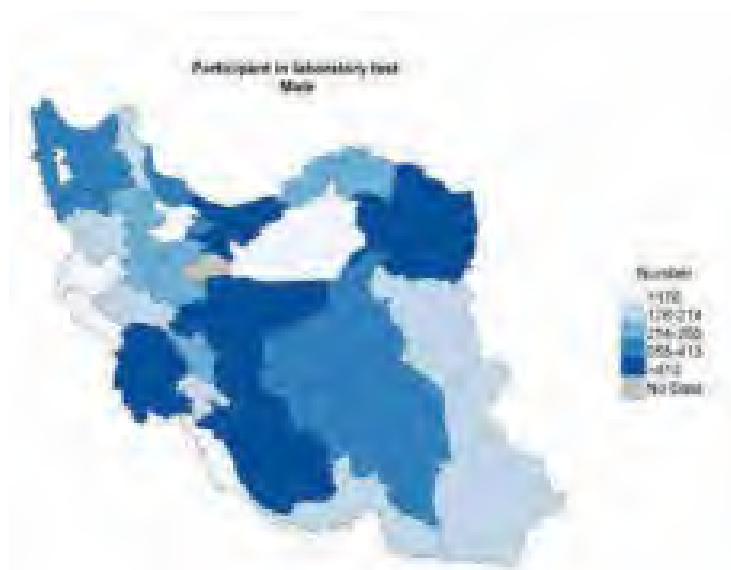


Figure 1.18. Geographical distribution of number of participants in laboratory tests in males

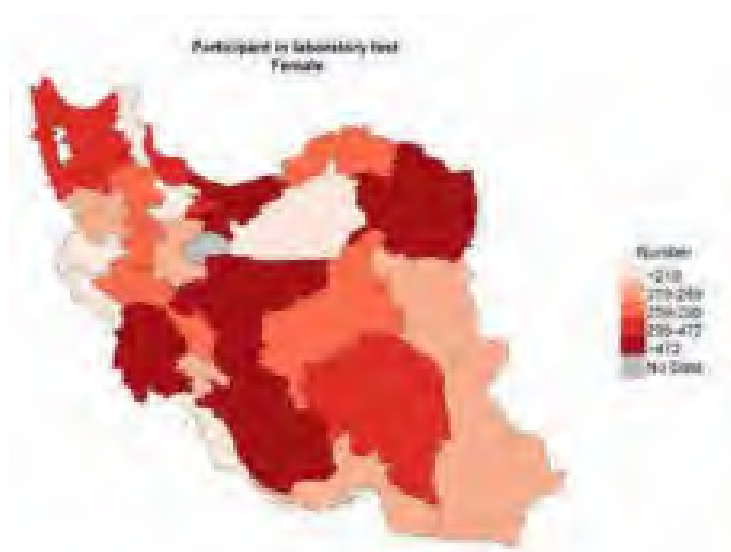


Figure 1.19. Geographical distribution of number of participants in laboratory tests in females

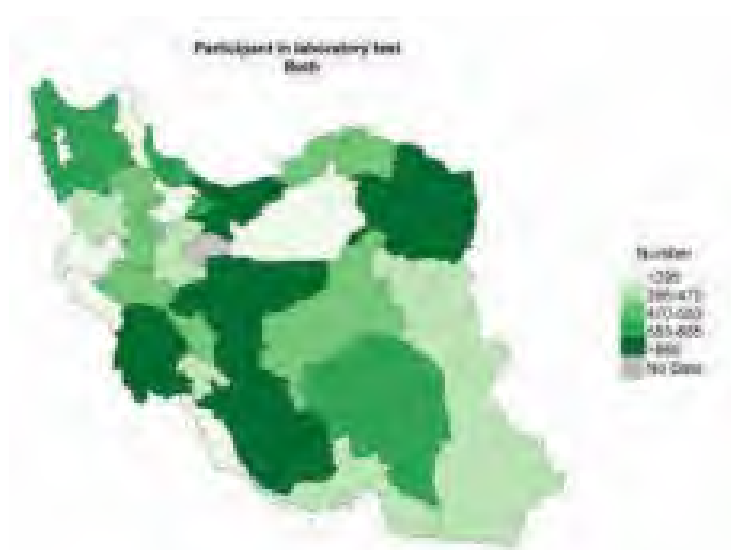


Figure 1.20. Geographical distribution of number of participants in laboratory tests in both sexes

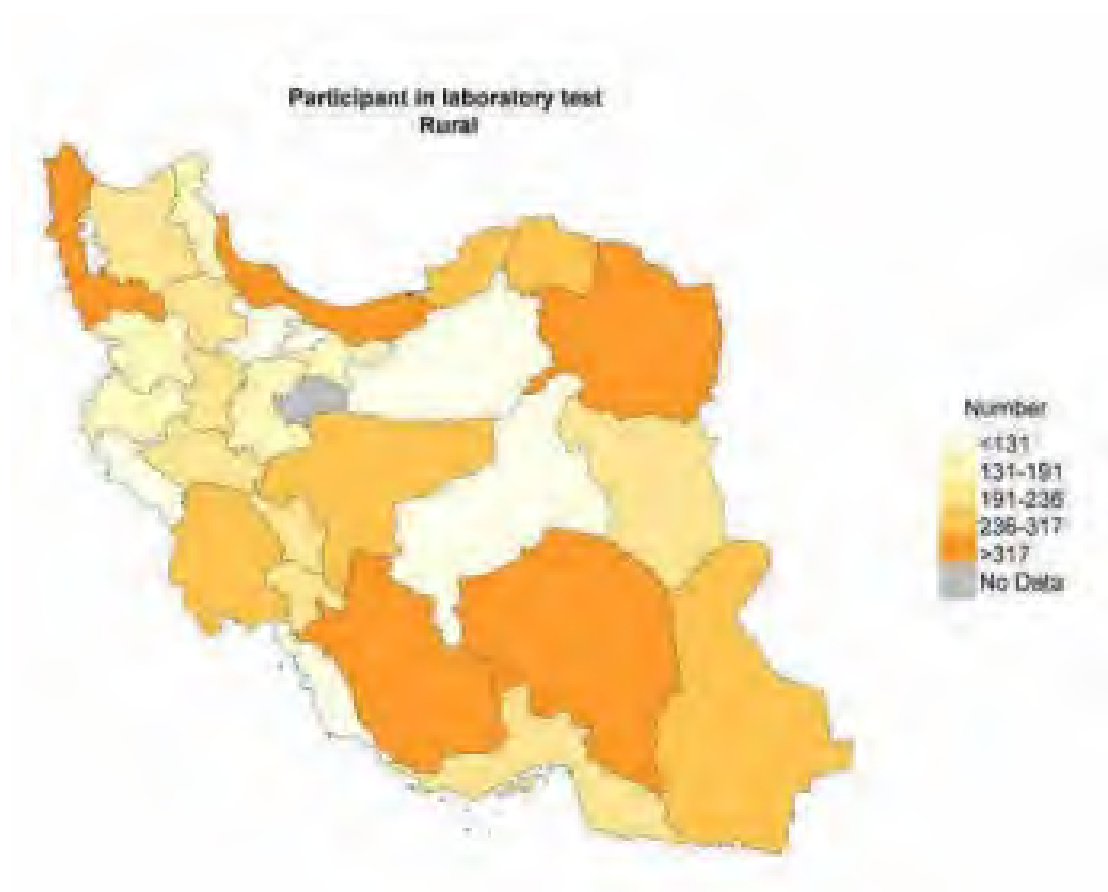


Figure 1.21. Geographical distribution of number of participants in laboratory tests in rural area of residency

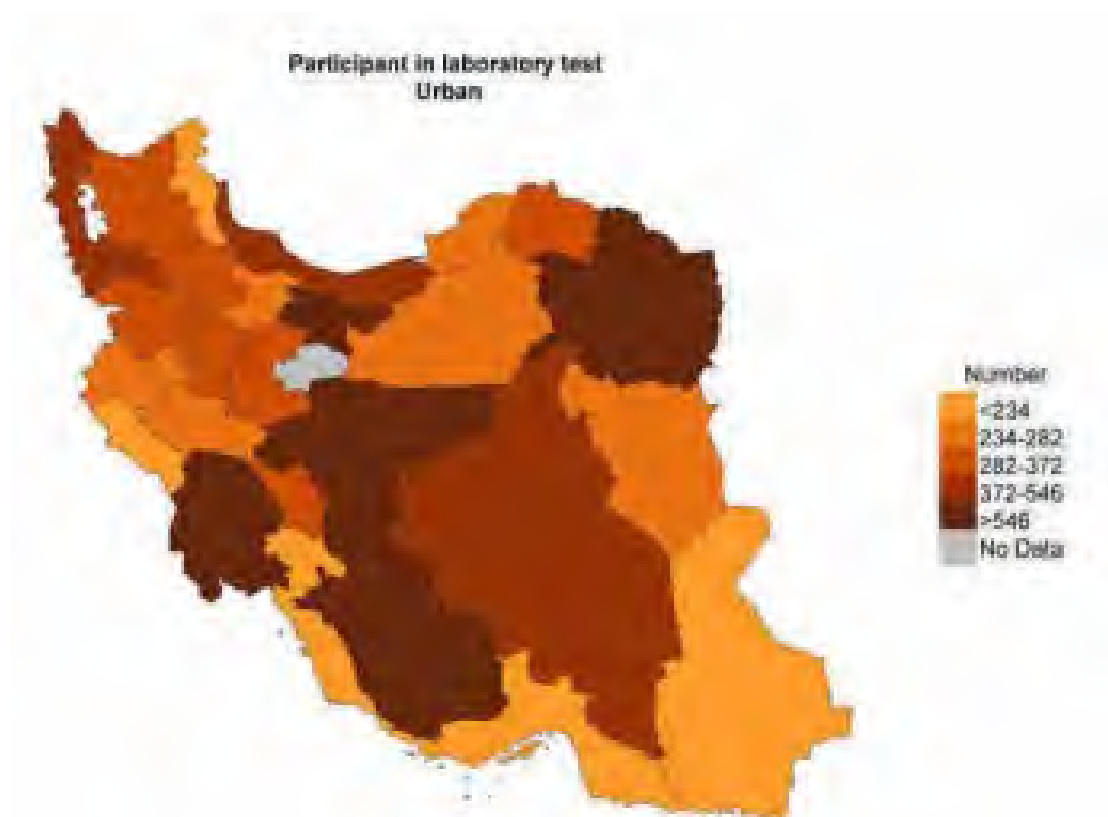


Figure 1.22. Geographical distribution of number of participants in laboratory tests in urban area of residency

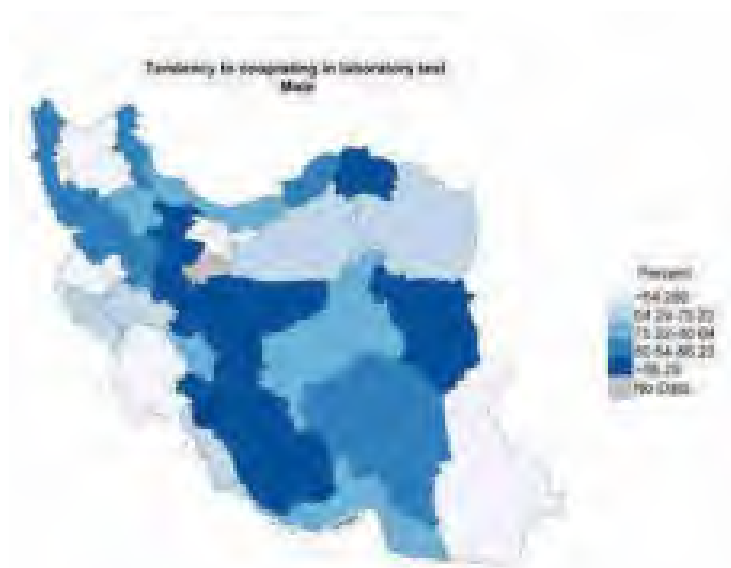


Figure 1.23. Geographical distribution of percent of individuals with tendency to cooperate in laboratory tests in males

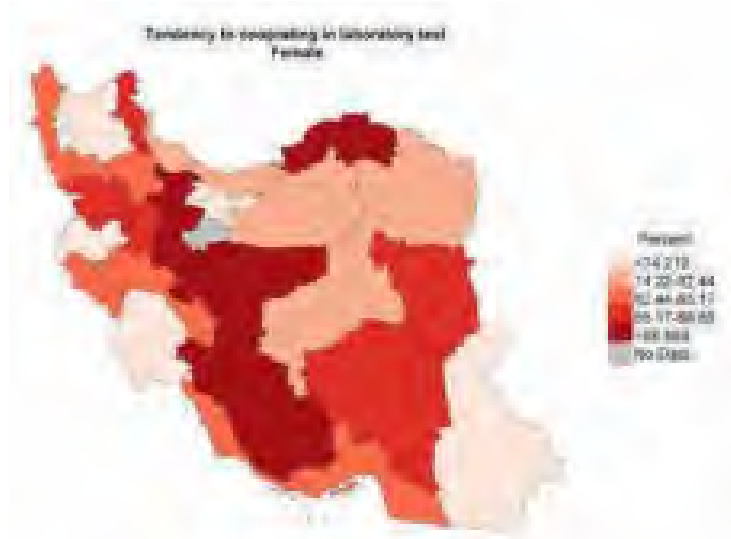


Figure 1.24. Geographical distribution of percent of individuals with tendency to cooperate in laboratory tests in females

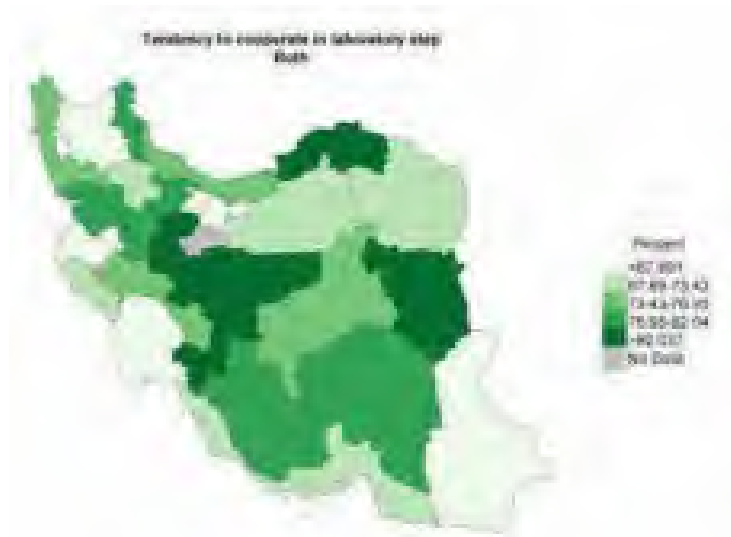


Figure 1.25. Geographical distribution of percent of individuals with tendency to cooperate in laboratory tests in both sexes

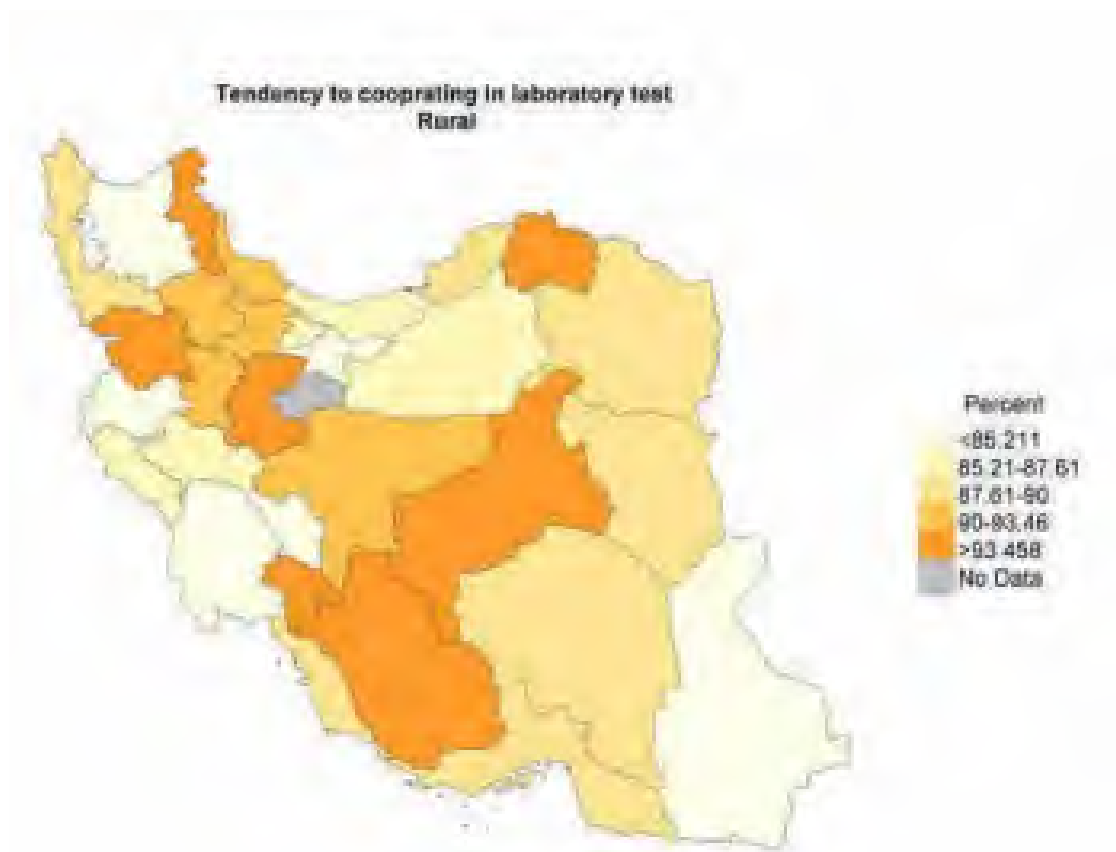


Figure 1.26. Geographical distribution of percent of individuals with tendency to cooperate in laboratory tests in rural area of residency

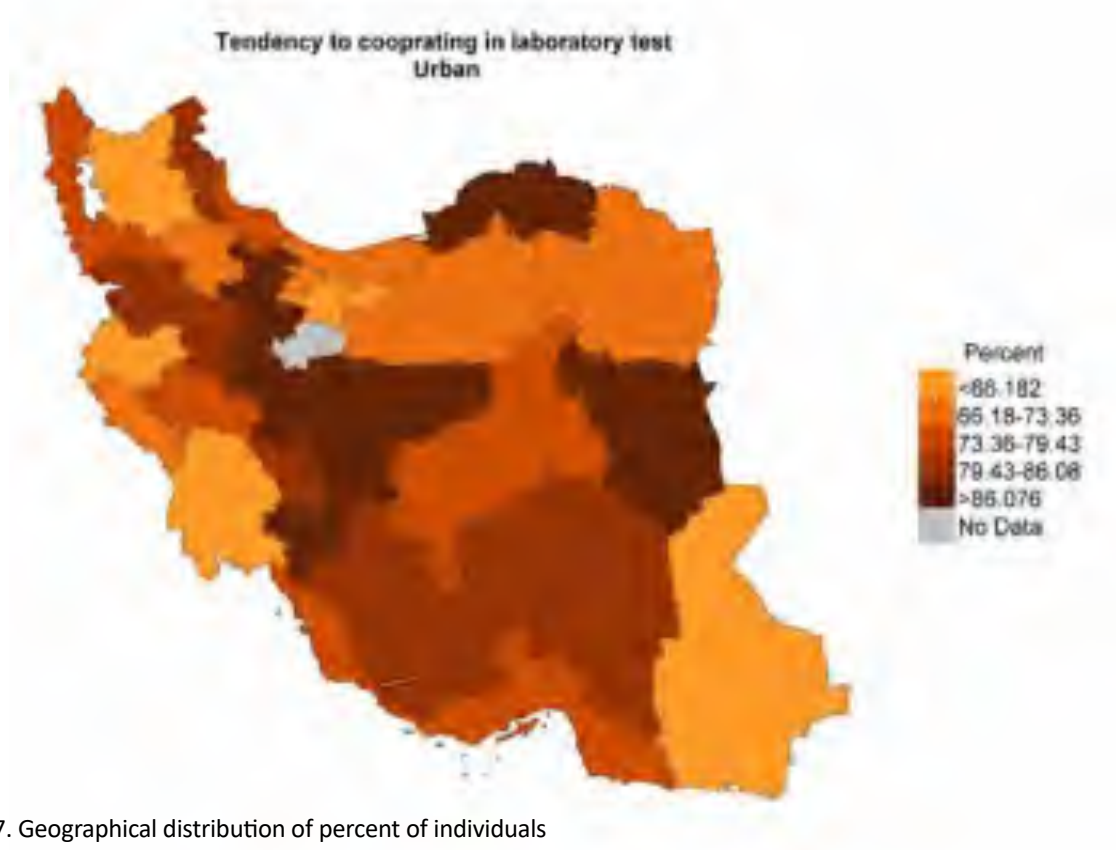


Figure 1.27. Geographical distribution of percent of individuals with tendency to cooperate in laboratory tests in urban area of residency

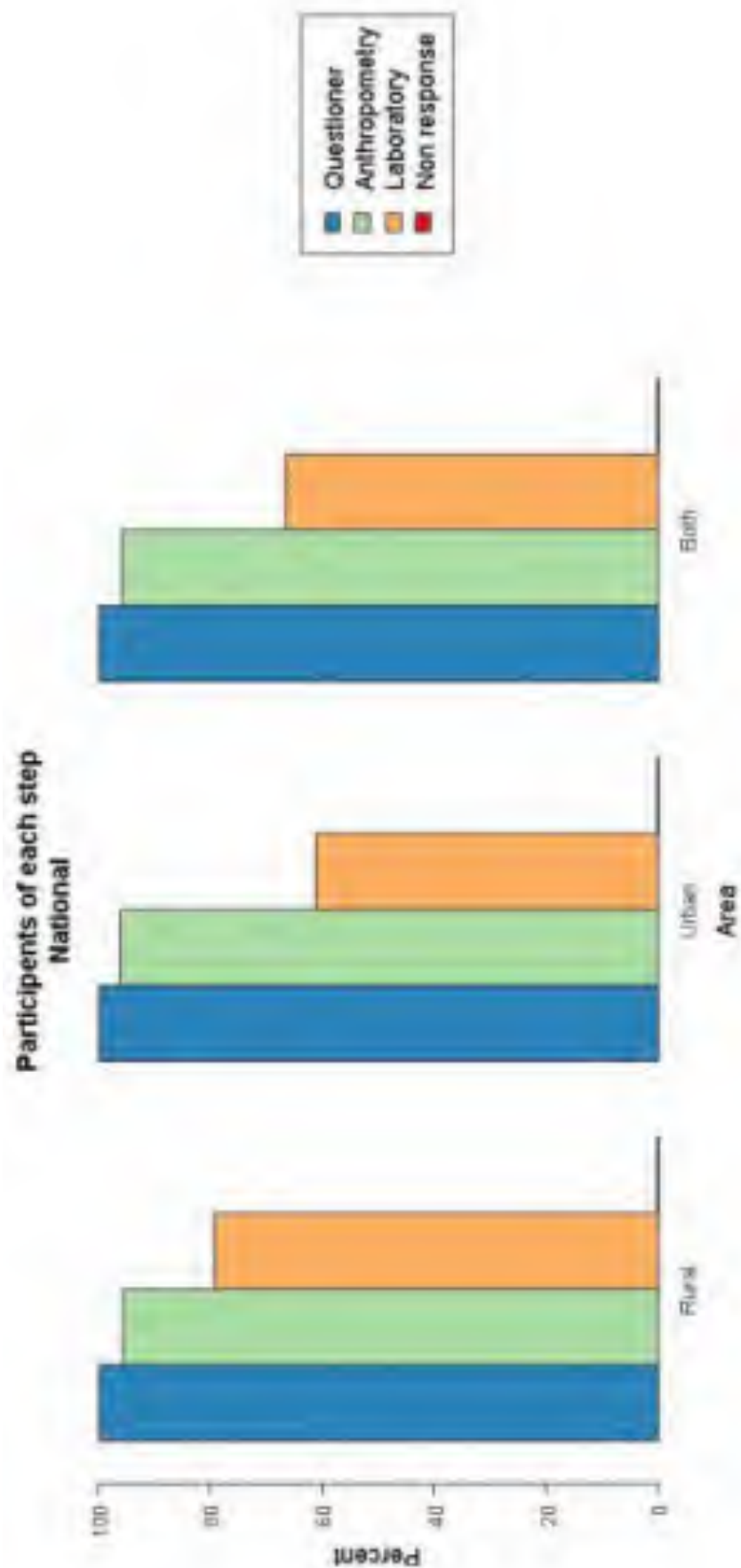


Figure 1.28. Percent of participants in each step at national level

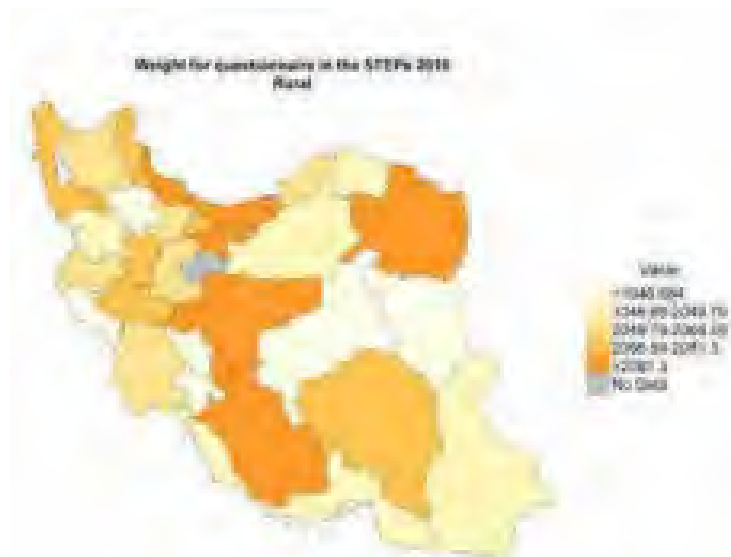


Figure 1.29. Geographical distribution of mean of weight in questionnaire step in rural area of residency

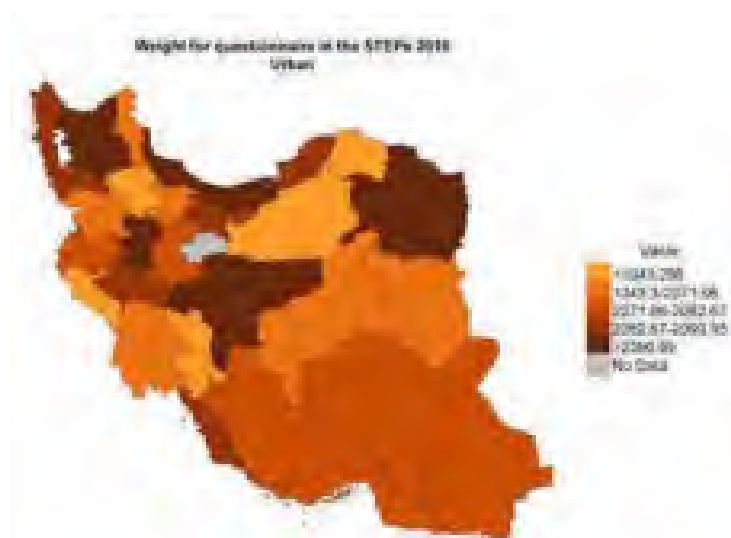


Figure 1.30. Geographical distribution of mean of weight in questionnaire step in urban area of residency

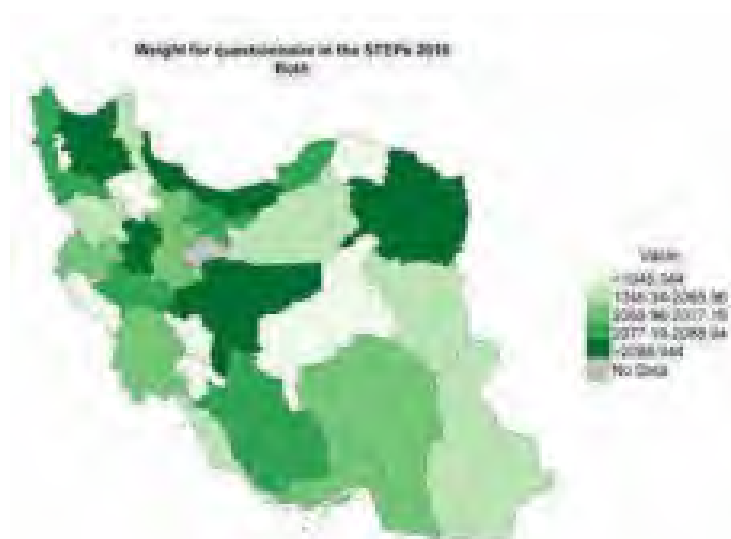


Figure 1.31. Geographical distribution of mean of weight in questionnaire step

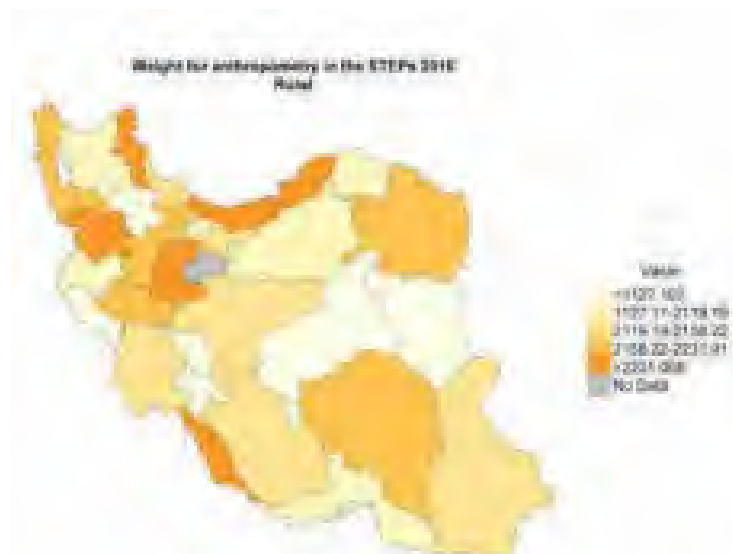


Figure 1.32. Geographical distribution of mean of weight in anthropometry step in rural area of residency

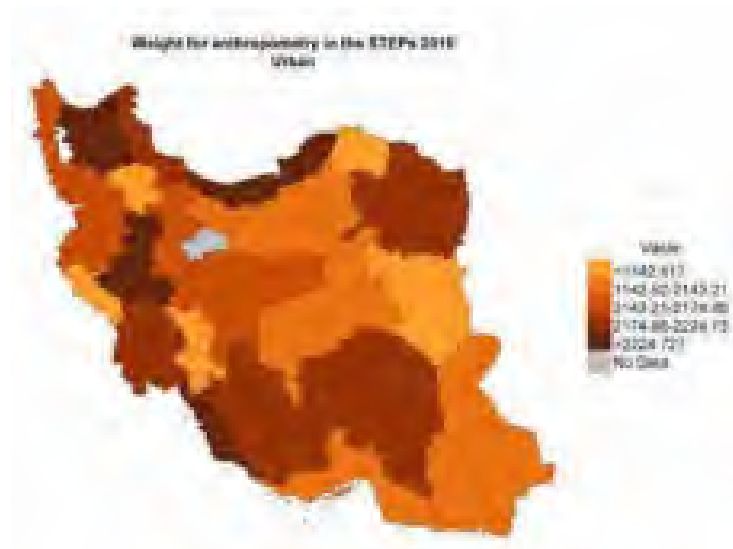


Figure 1.33. Geographical distribution of mean of weight in anthropometry step in urban area of residency

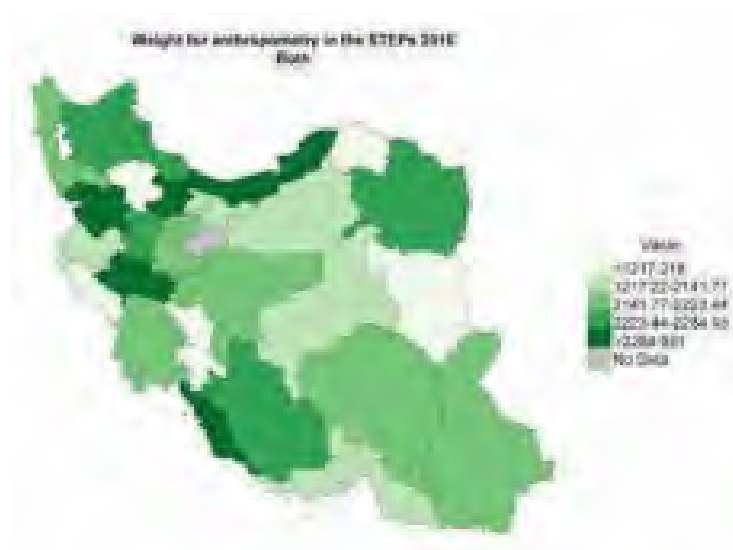


Figure 1.34. Geographical distribution of mean of weight in anthropometry step

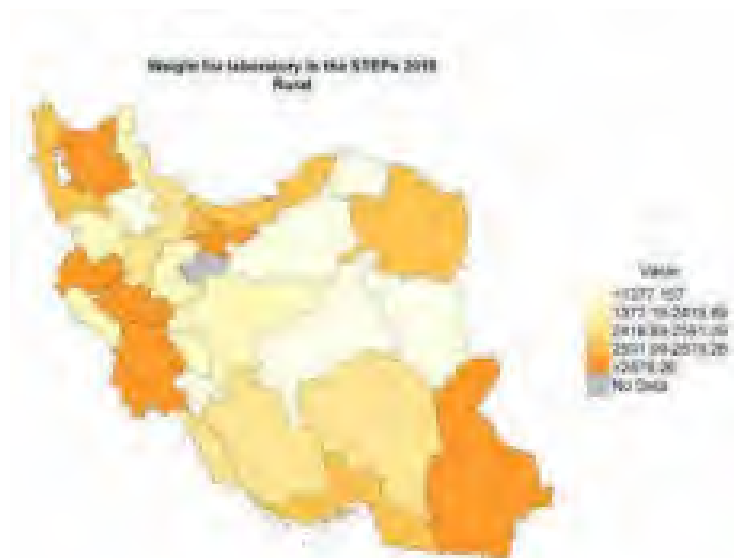


Figure 1.35. Geographical distribution of mean of weight in laboratory step in rural area of residency

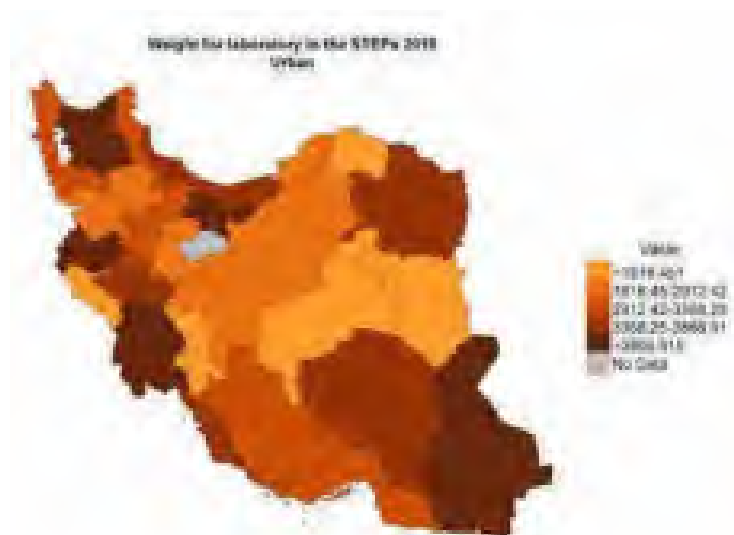


Figure 1.36. Geographical distribution of mean of weight in laboratory step in urban area of residency

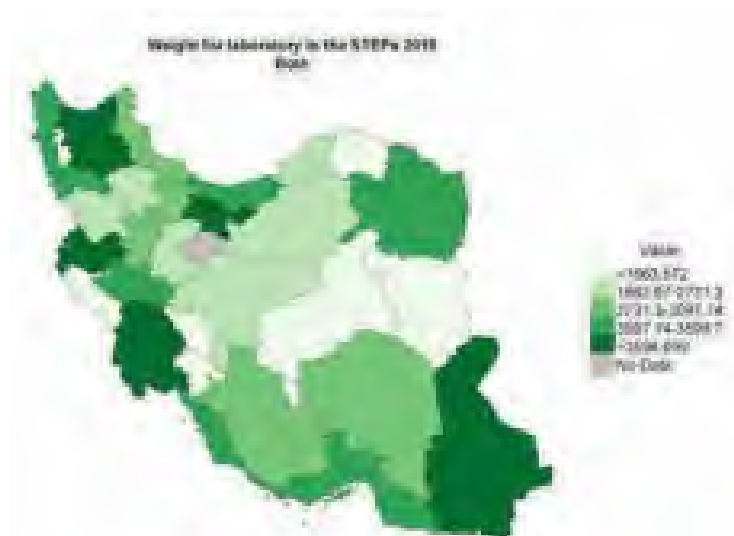


Figure 1.37. Geographical distribution of mean of weight in laboratory step

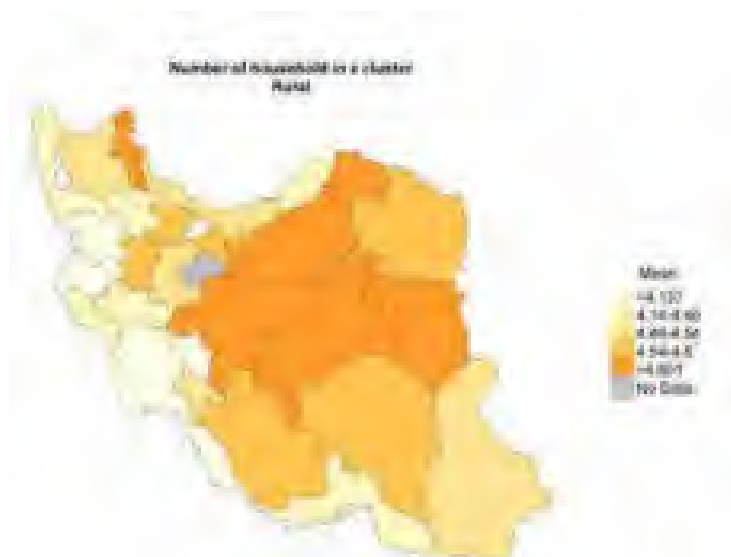


Figure 1.38. Geographical distribution of mean of number of household in a cluster in rural area of residency

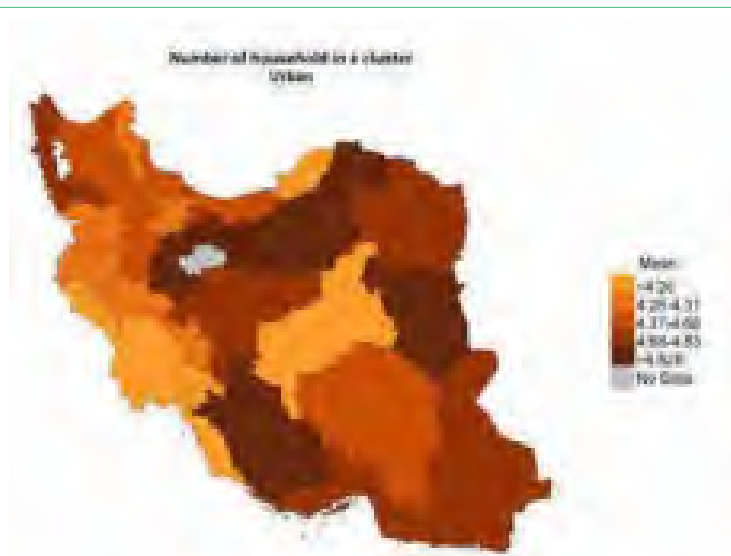


Figure 1.39. Geographical distribution of mean of number of household in a cluster in urban area of residency

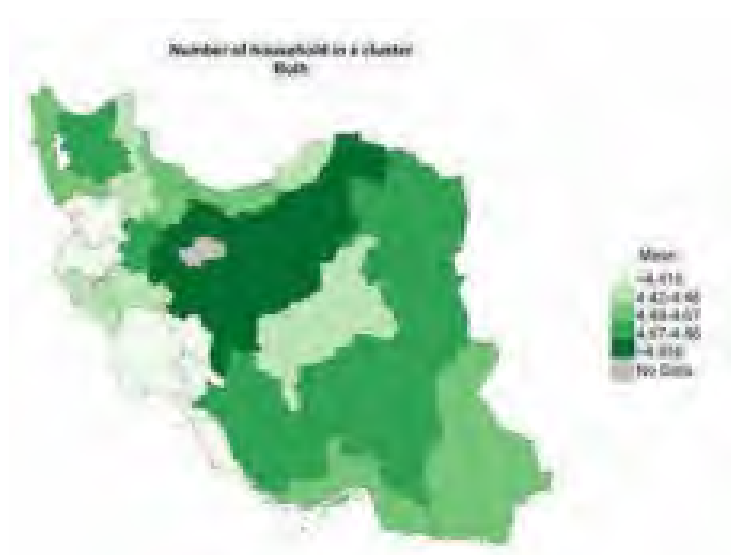


Figure 1.40. Geographical distribution of mean of number of household in a cluster

CHAPTER 2

Results

Section 2

Demographic Information



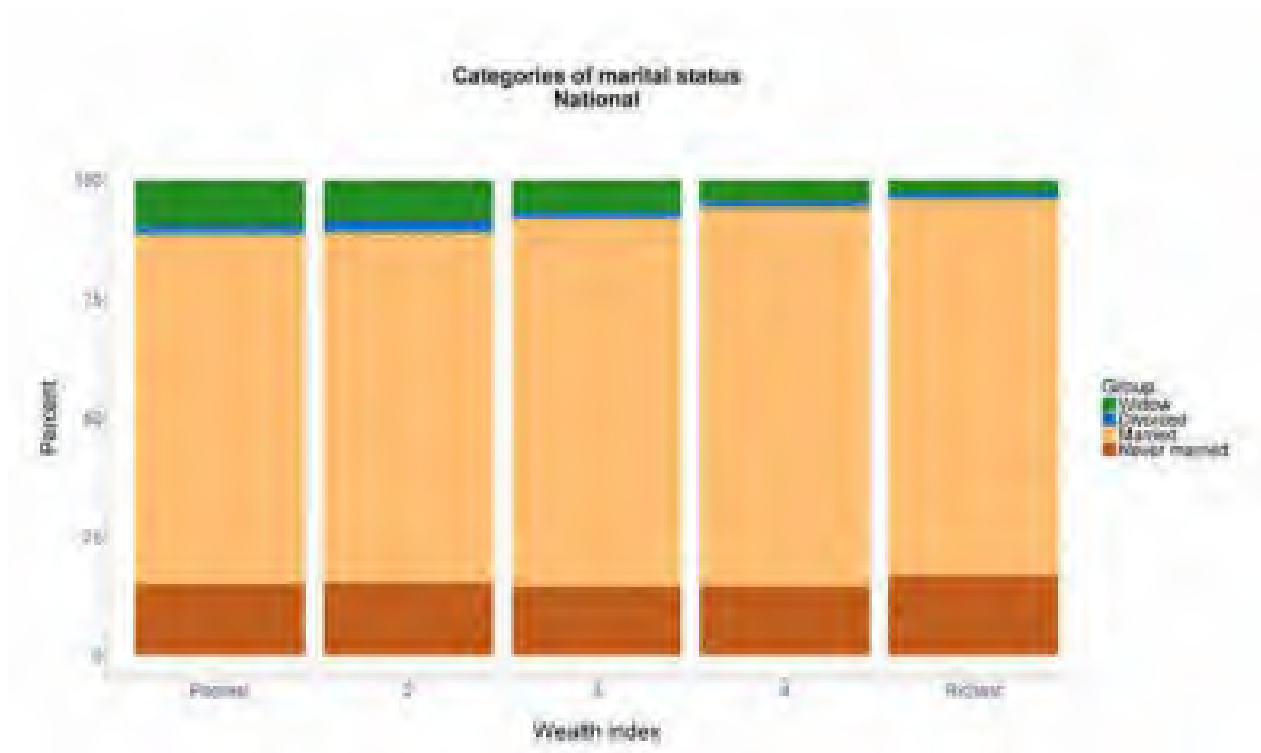


Figure 2.3. Percent of categories of marital status by wealth index quantiles at national level

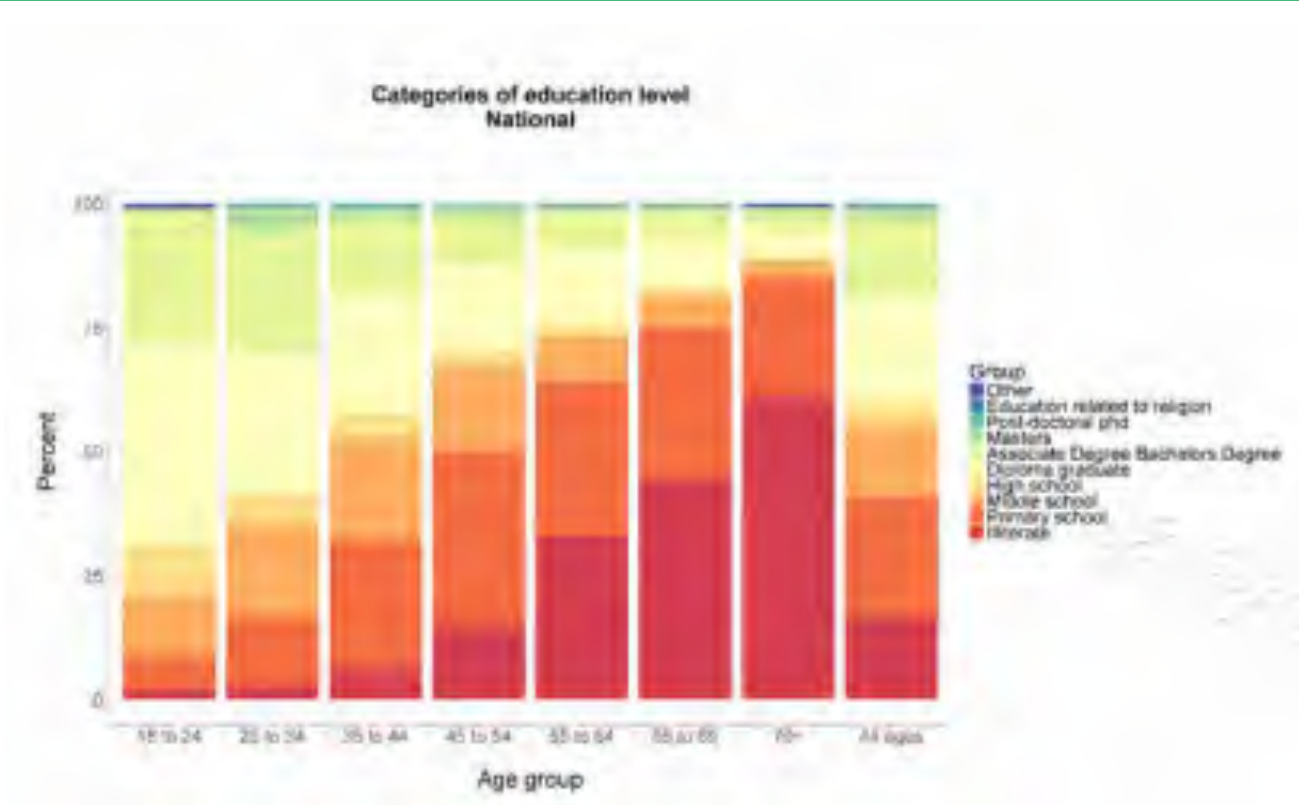


Figure 2.4. Percent of categories of education by age groups at national level

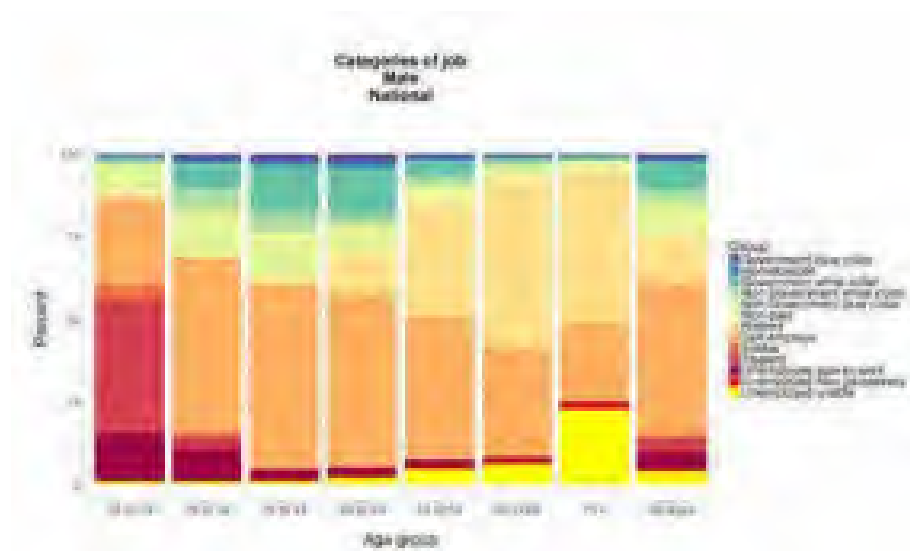


Figure 2.5. Percent of categories of job in males at national level

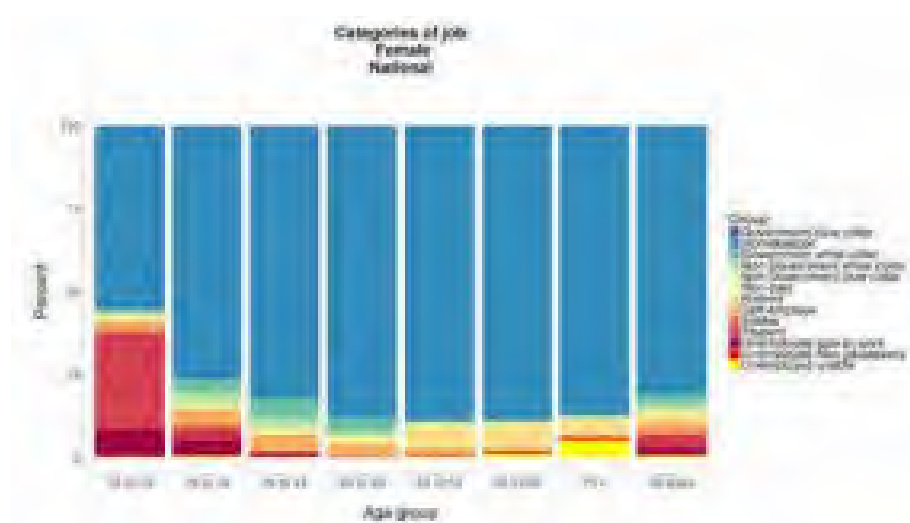


Figure 2.6. Percent of categories of job in females at national level

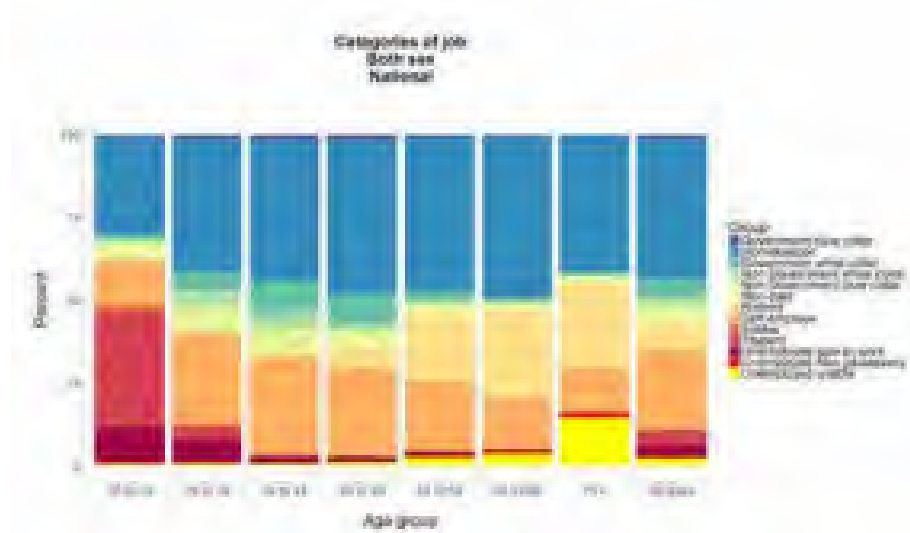


Figure 2.7. Percent of categories of job in both sexes at national level

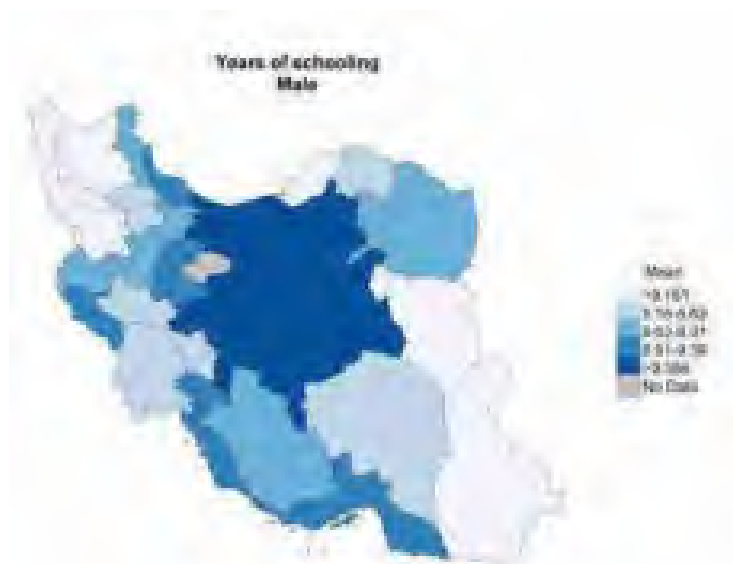


Figure 2.10. Geographical distribution of mean of years of schooling in males

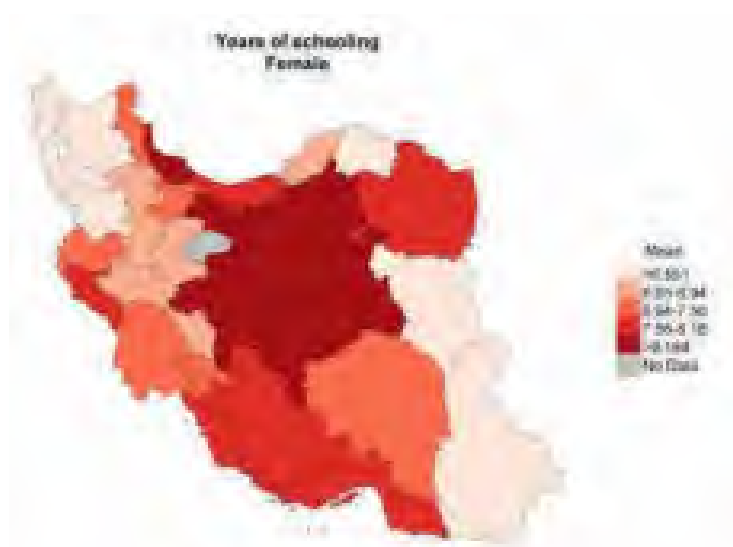


Figure 2.11. Geographical distribution of mean of years of schooling in females

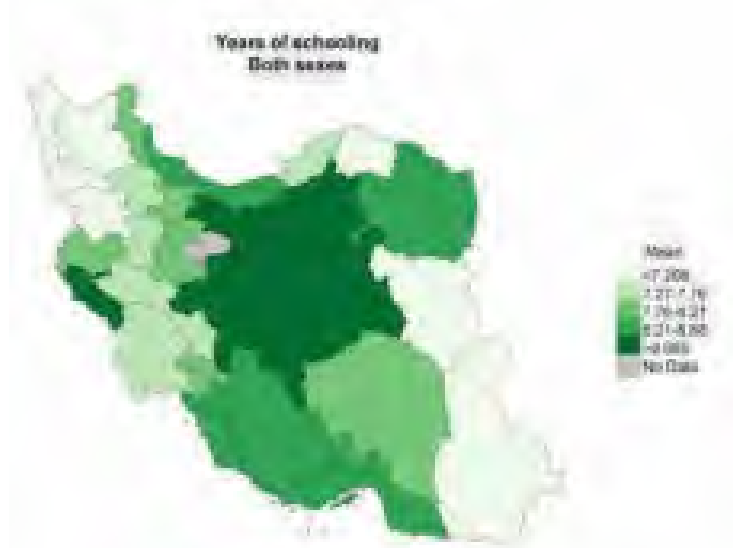


Figure 2.12. Geographical distribution of mean of years of schooling in both sexes

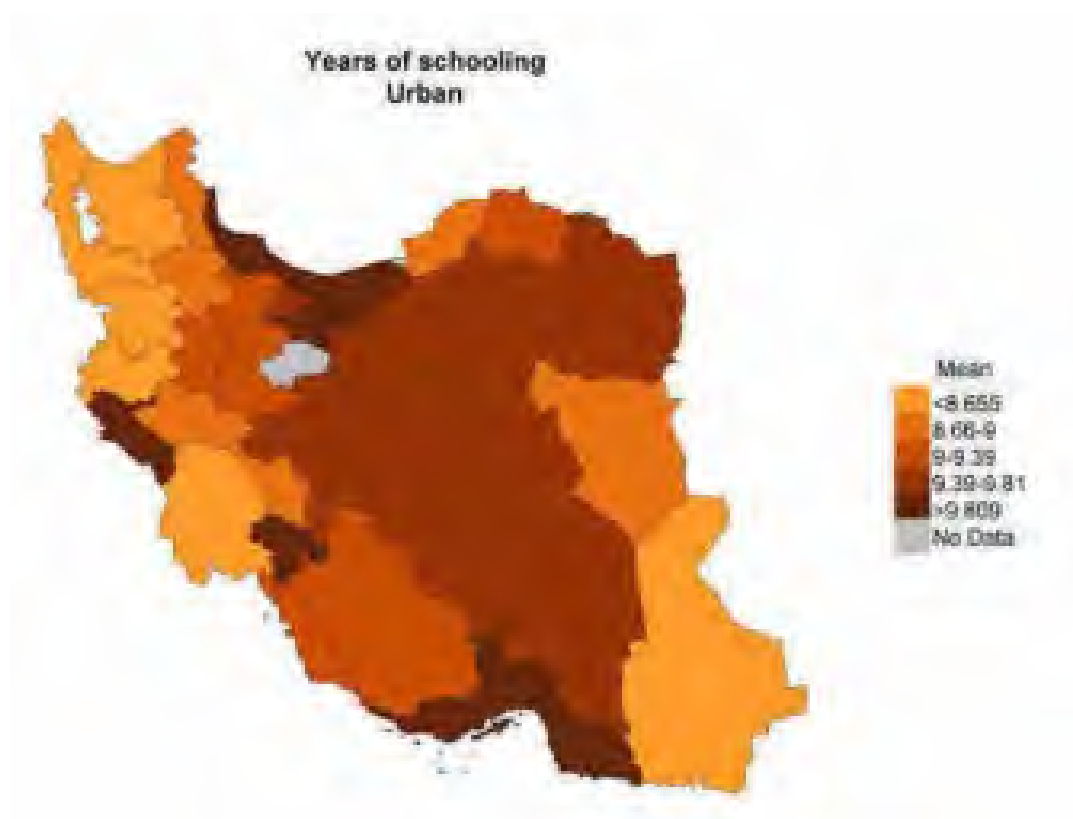


Figure 2.15. Geographical distribution of mean of years of schooling in urban area of residency

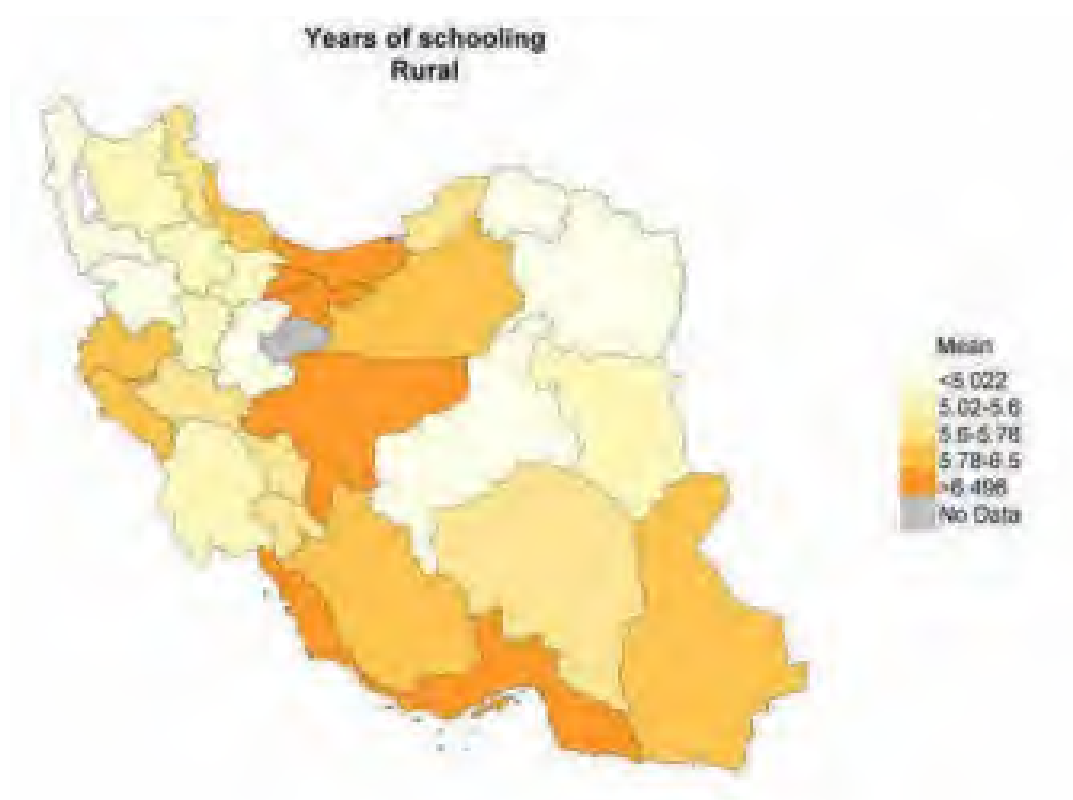


Figure 2.16. Geographical distribution of mean of years of schooling in rural area of residency

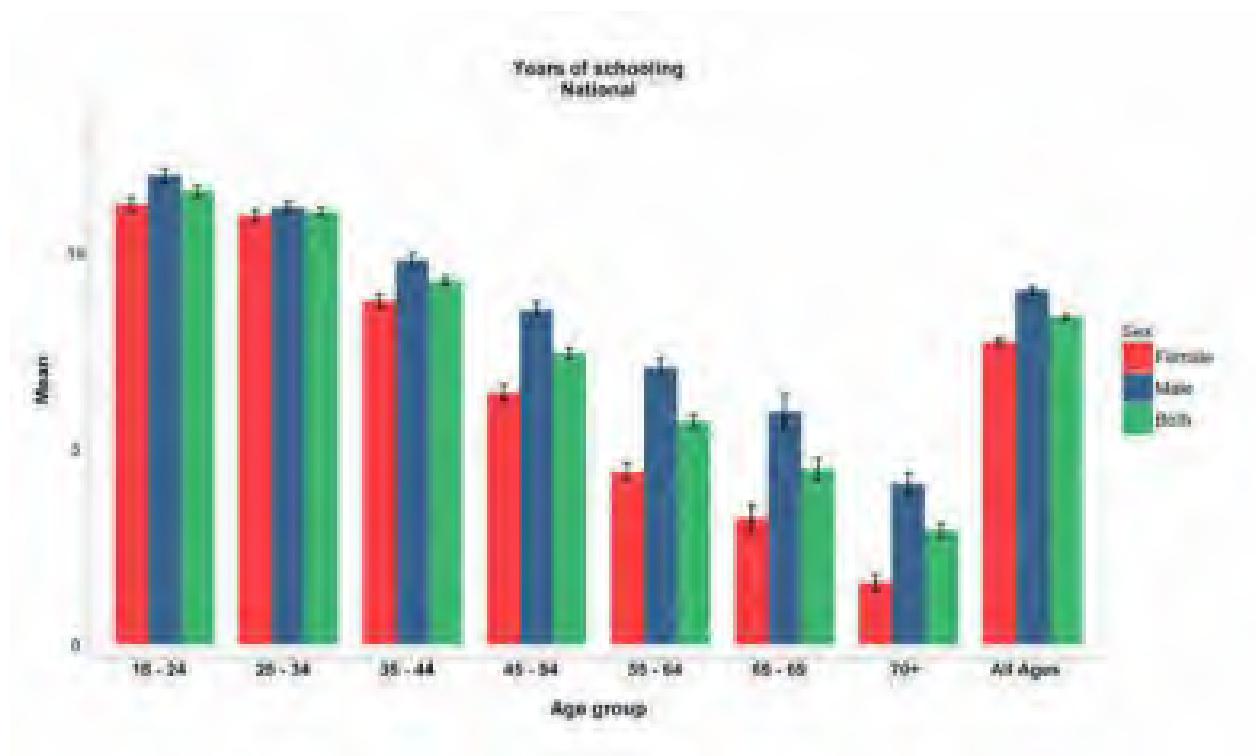


Figure 2.17. Mean of years of schooling by age and sex at national level

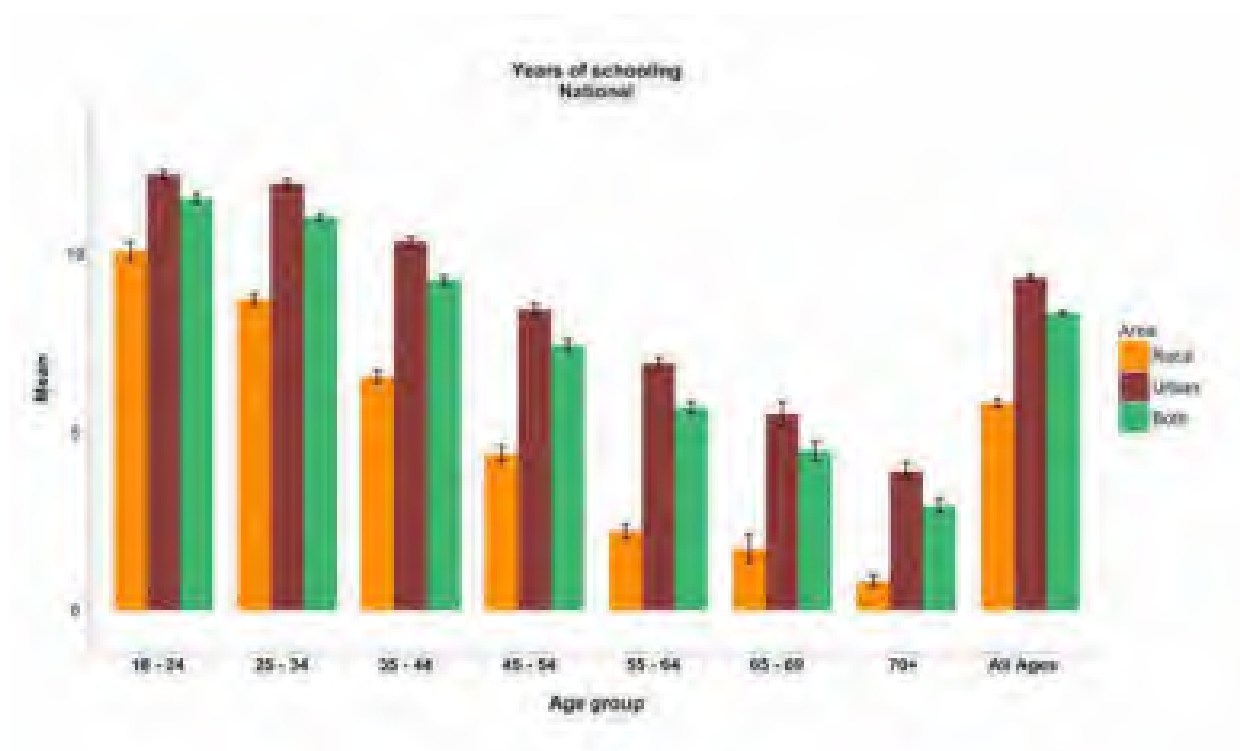


Figure 2.18. Mean of years of schooling by age and area of residency at national level

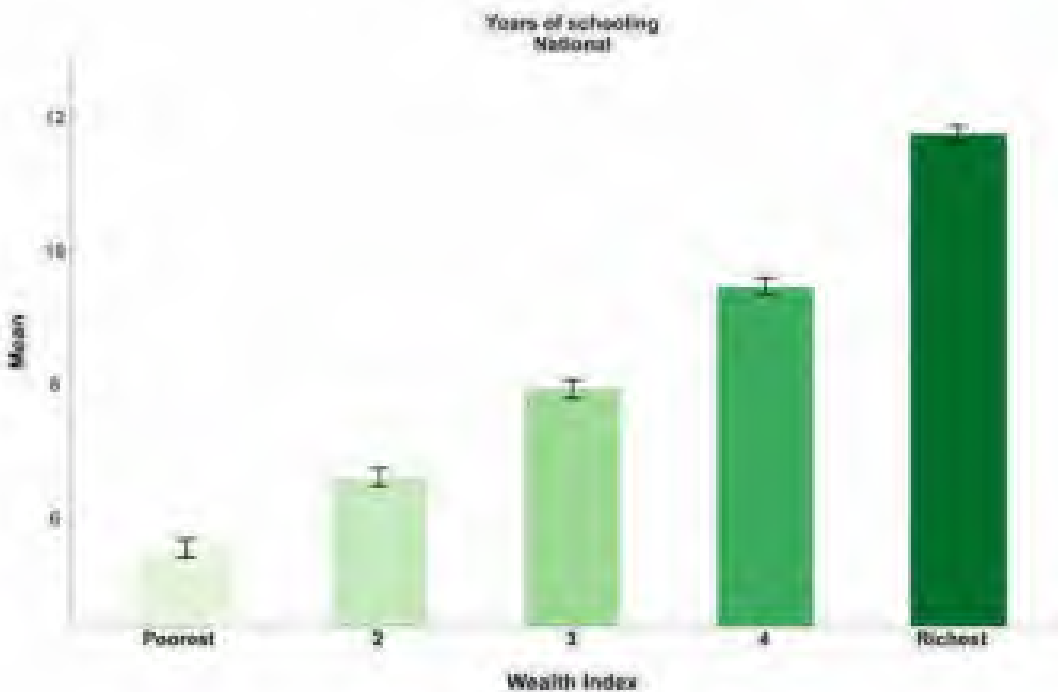


Figure 2.19. Mean of years of schooling by wealth index quantiles at national level

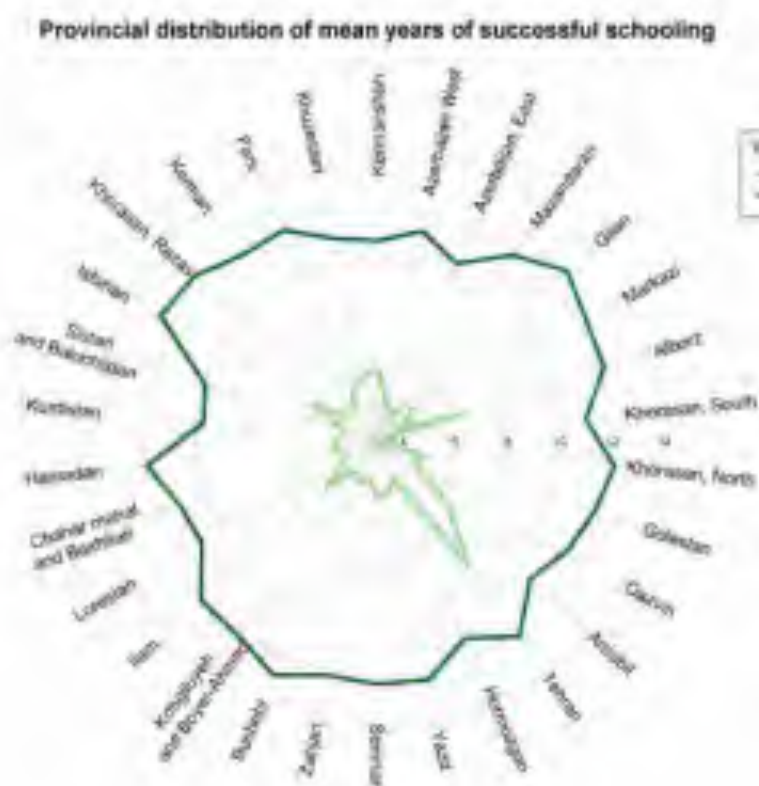


Figure 2.20. Provincial distribution of mean of years of schooling by wealth index

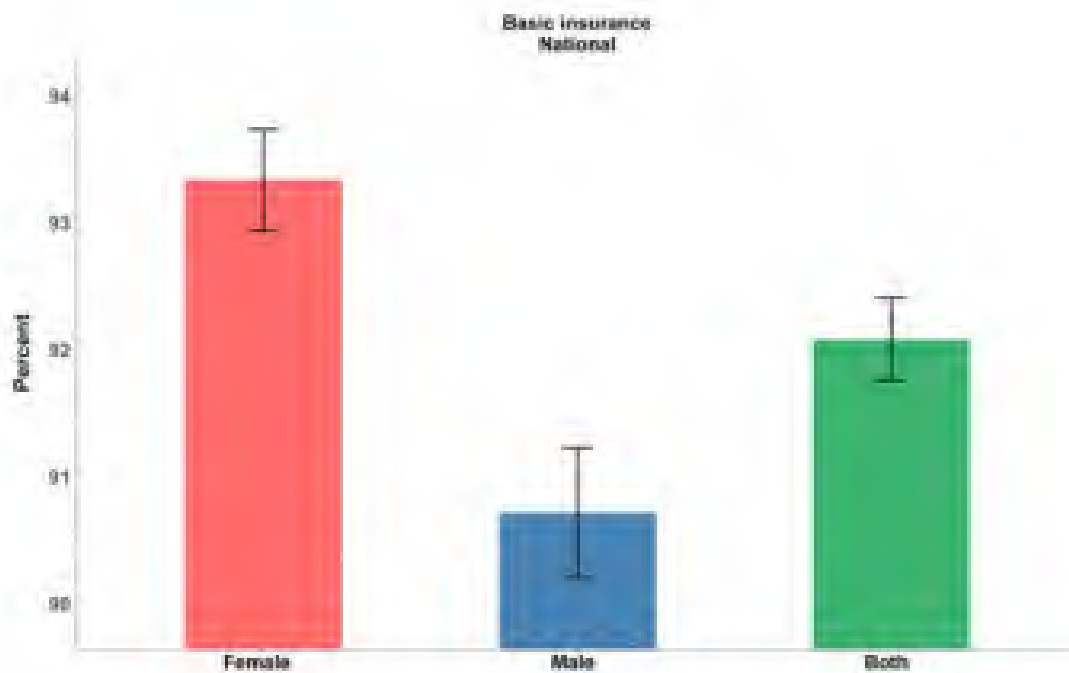


Figure 2.21. Percentage of basic insurance coverage by sex at national level

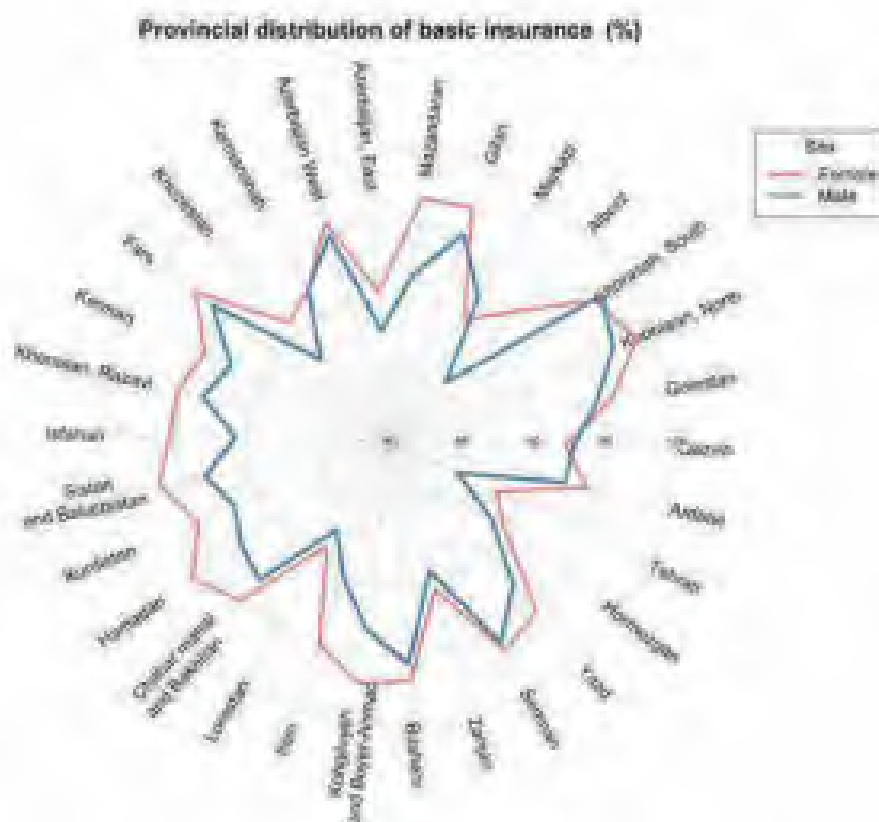


Figure 2.22. Provincial distribution of percentage of basic insurance coverage by sex

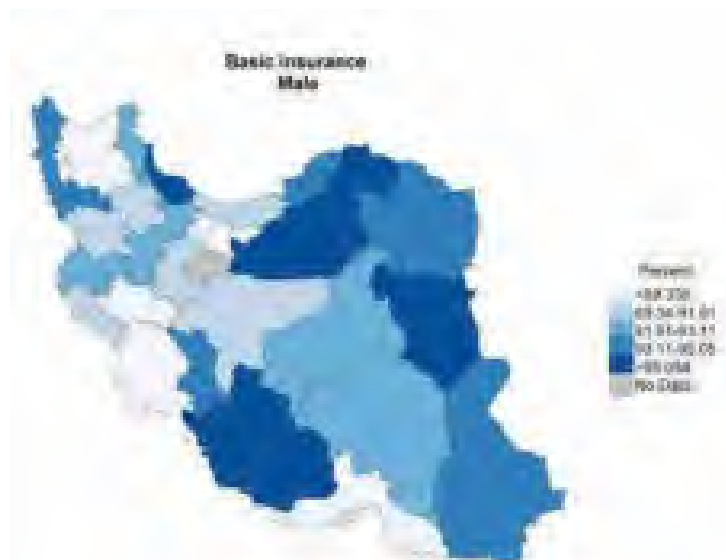


Figure 2.23. Geographical distribution of percentage of basic insurance coverage in males

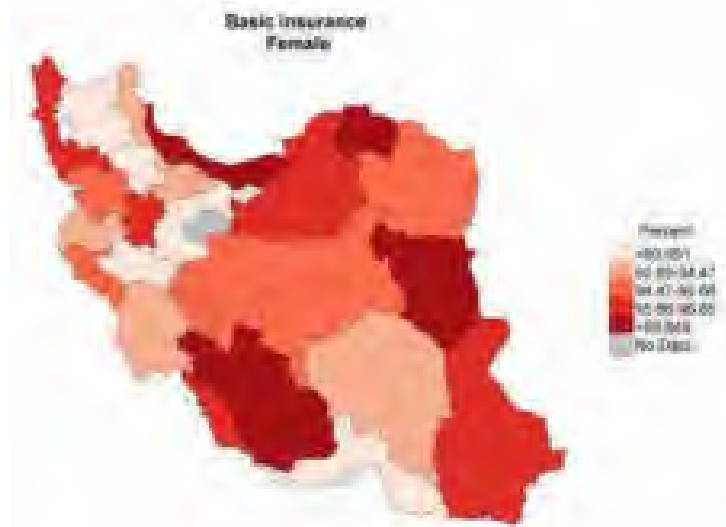


Figure 2.24. Geographical distribution of percentage of basic insurance coverage in females



Figure 2.25. Geographical distribution of percentage of basic insurance coverage in both sexes

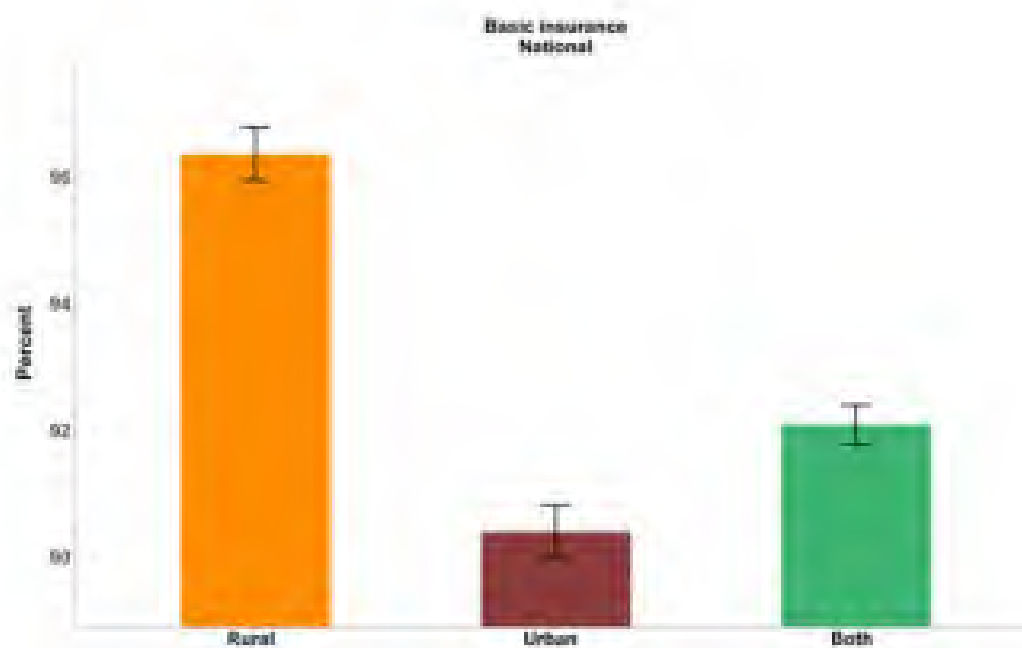


Figure 2.26. Percentage of basic insurance coverage by area of residency at national level

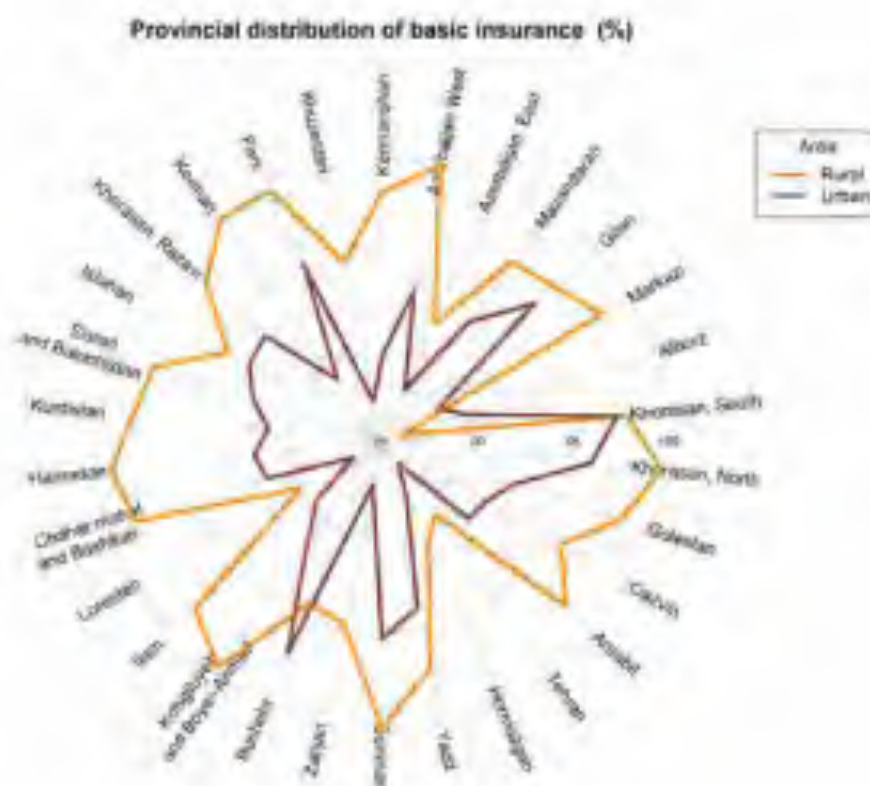


Figure 2.27. Provincial distribution of percentage of basic insurance coverage by area of residency

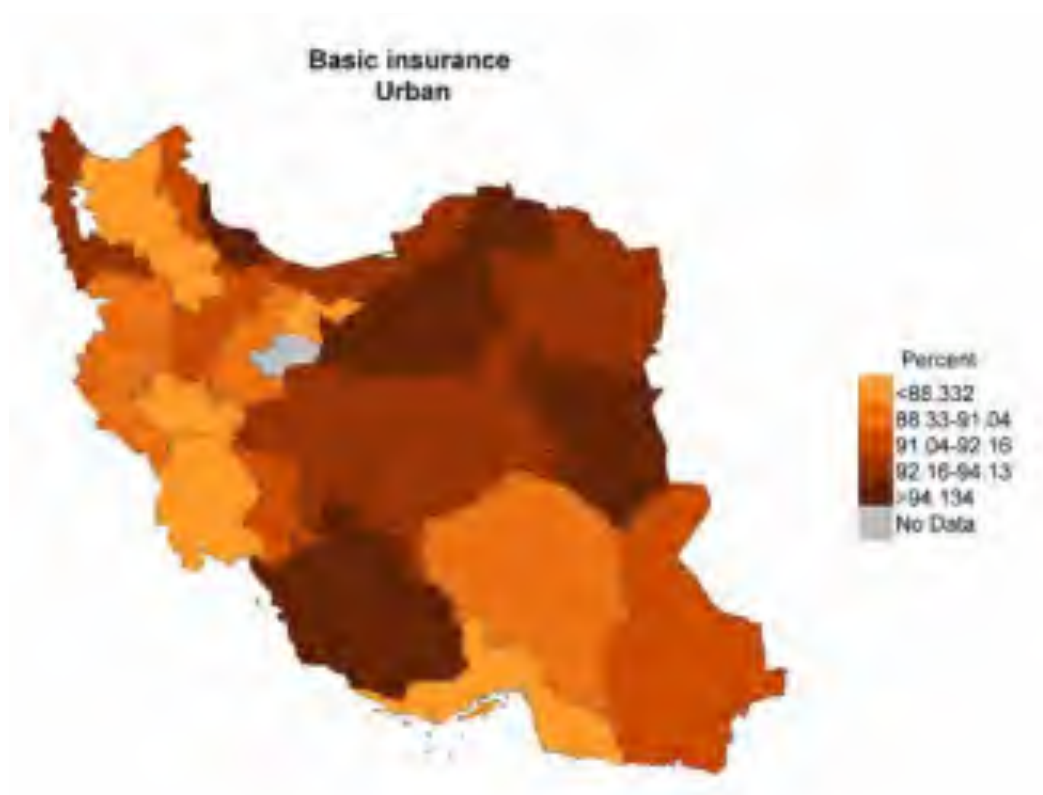


Figure 2.28. Geographical distribution of percentage of basic insurance coverage in urban area of residency

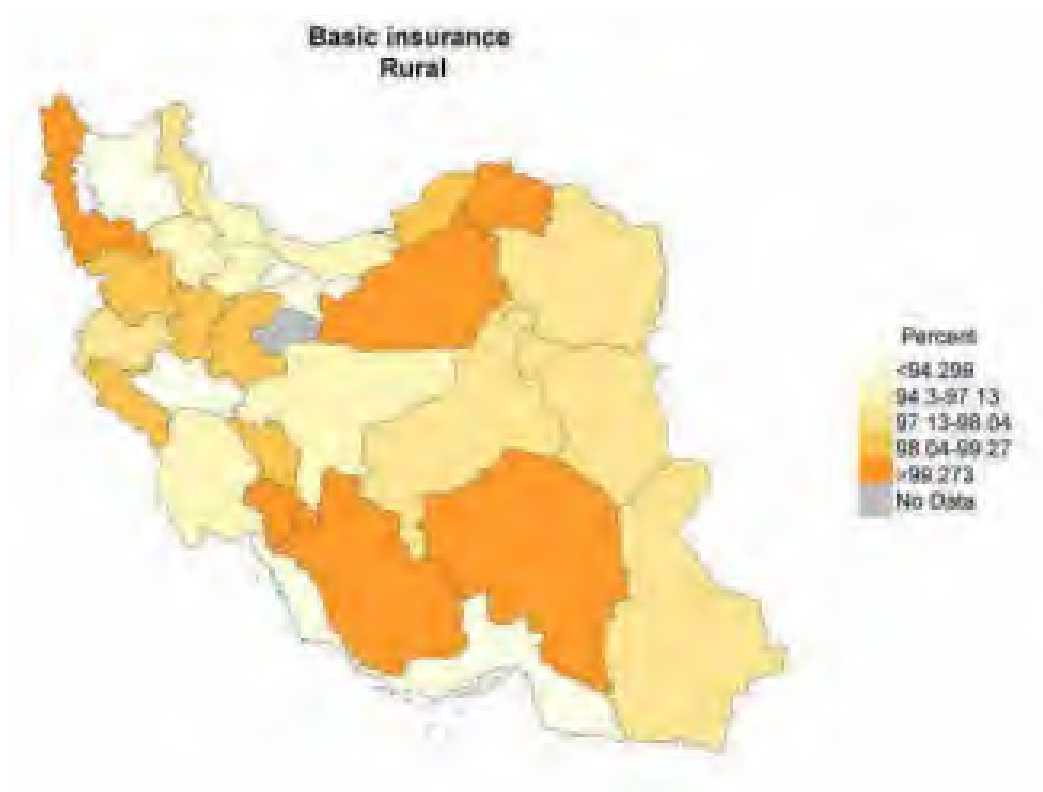


Figure 2.29. Geographical distribution of percentage of basic insurance coverage in rural area of residency

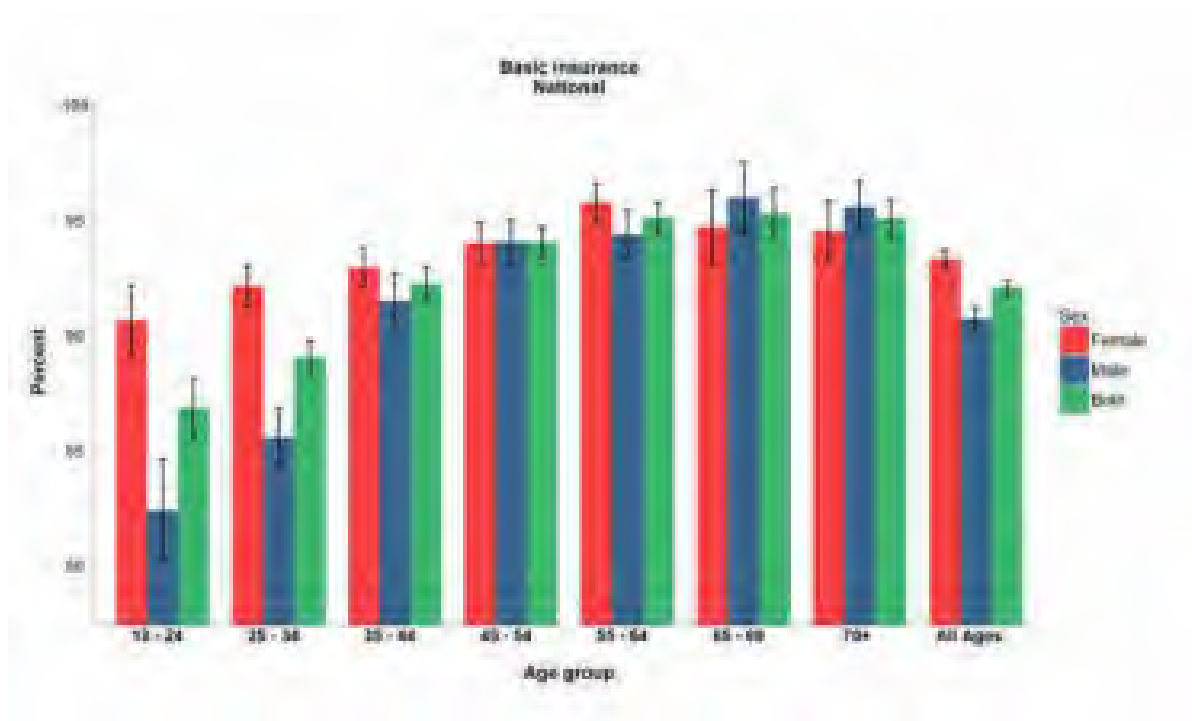


Figure 2.30. Percentage of basic insurance coverage by age and sex at national level

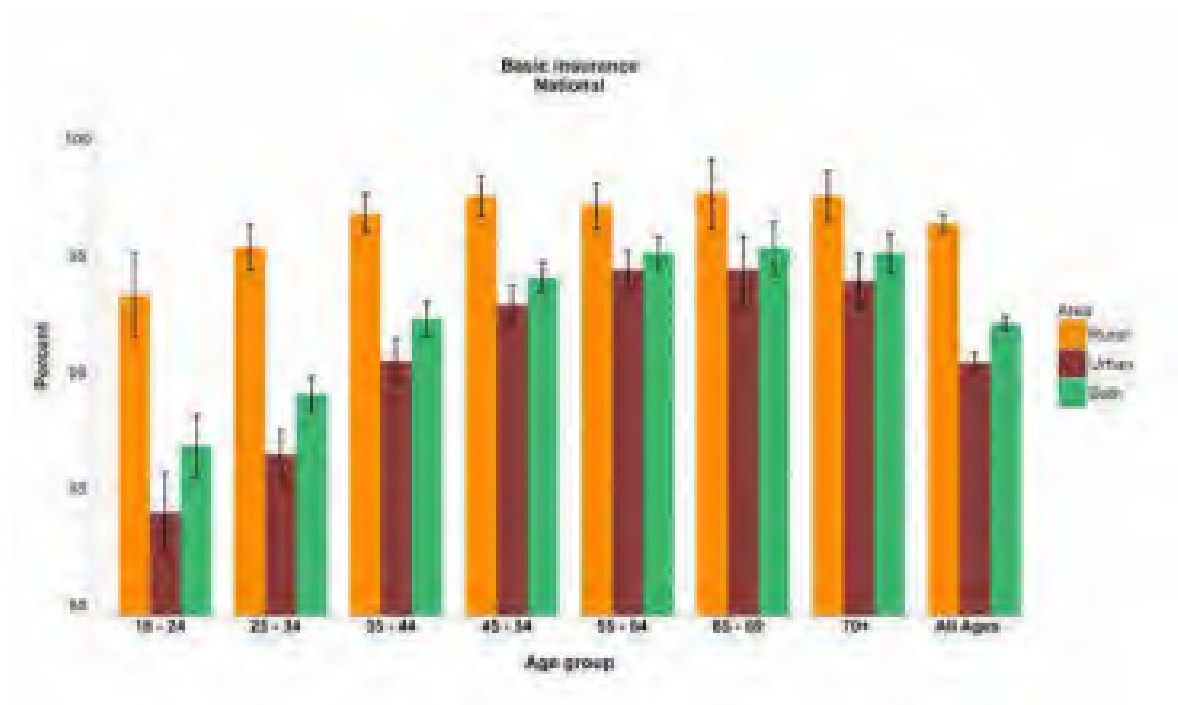


Figure 2.31. Percentage of basic insurance coverage by age and area of residency at national level

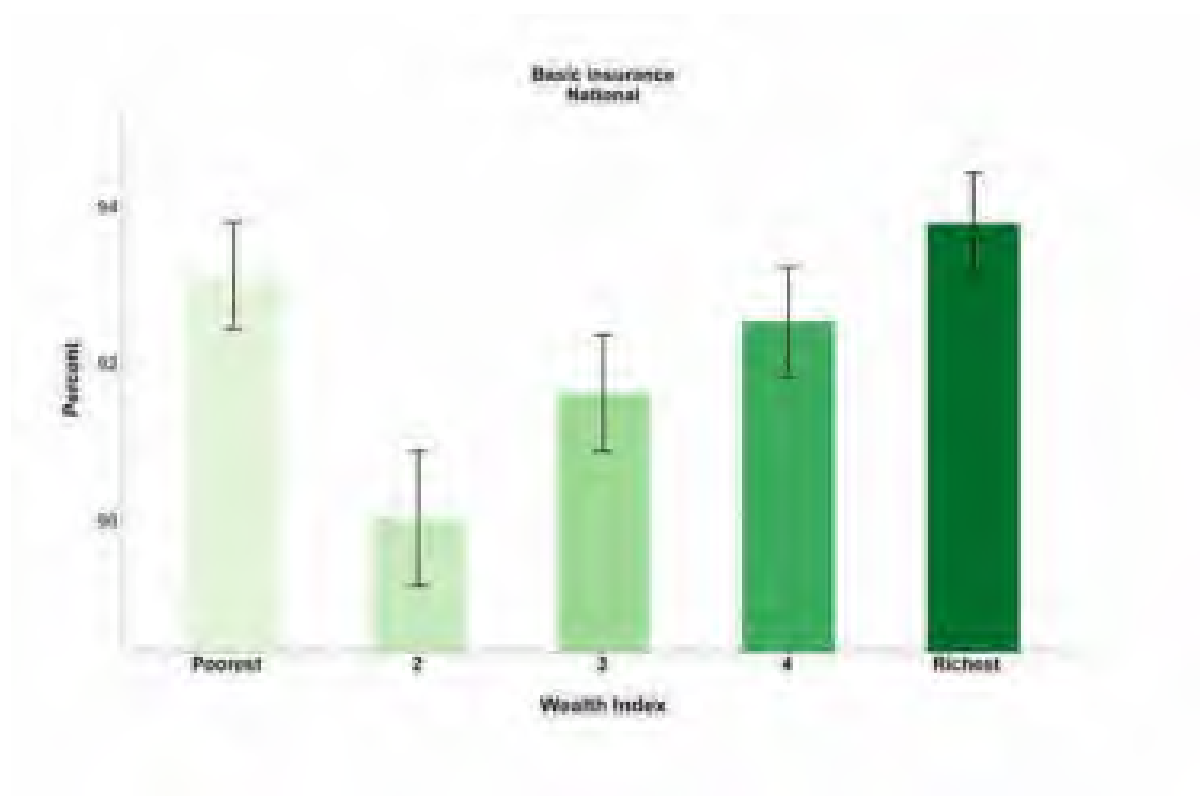


Figure 2.32. Percentage of basic insurance coverage by wealth index quantiles at national level

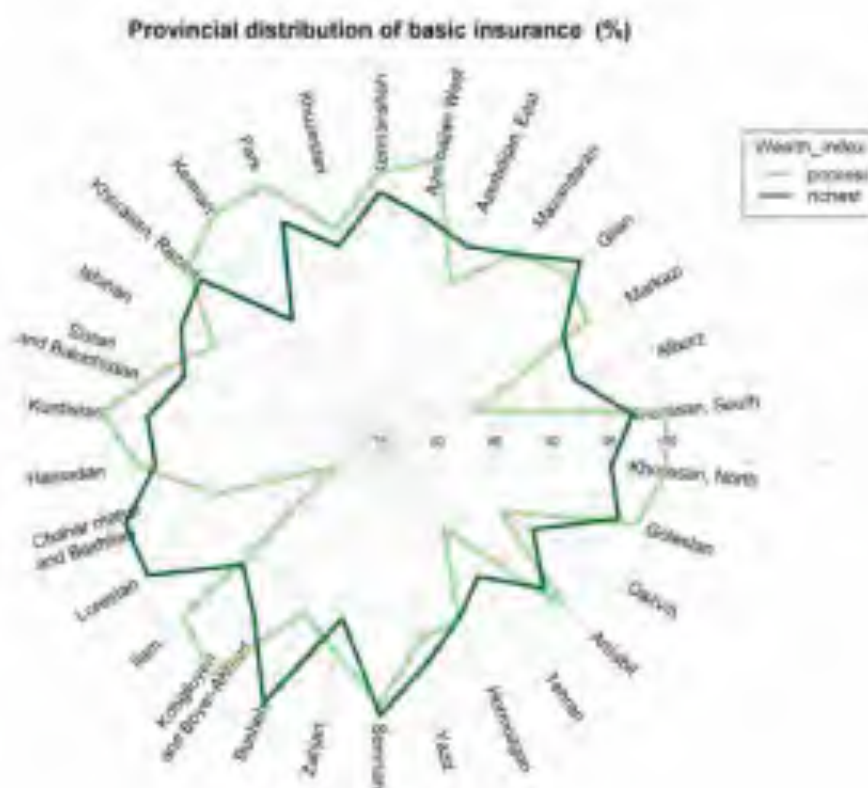


Figure 2.33. Provincial distribution of percentage of basic insurance coverage by wealth index

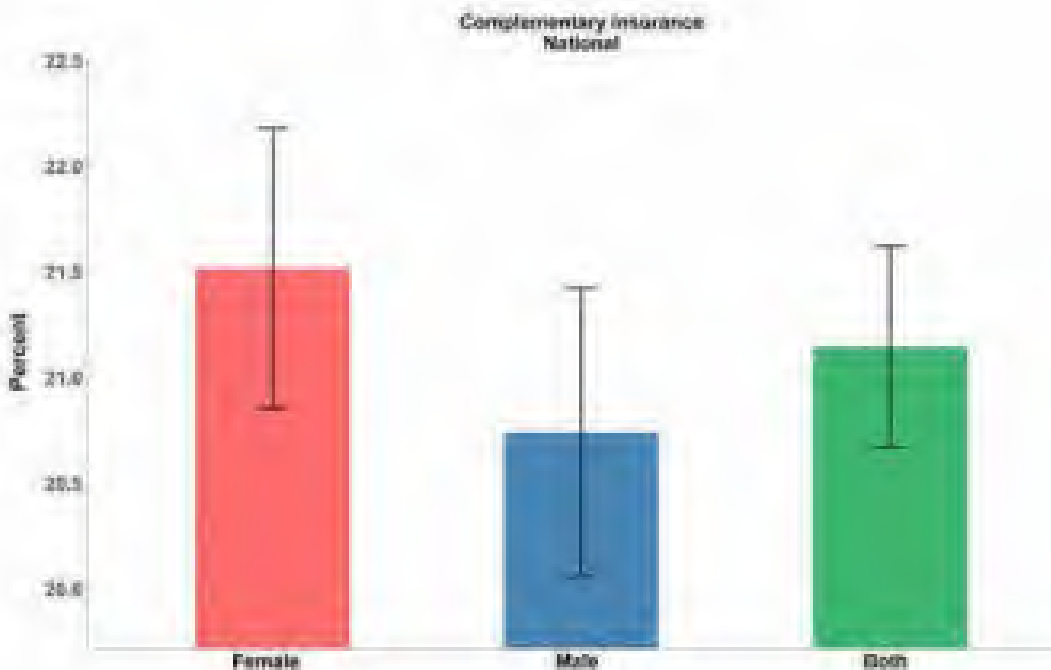


Figure 2.36. Percentage of complementary insurance coverage by sex at national level

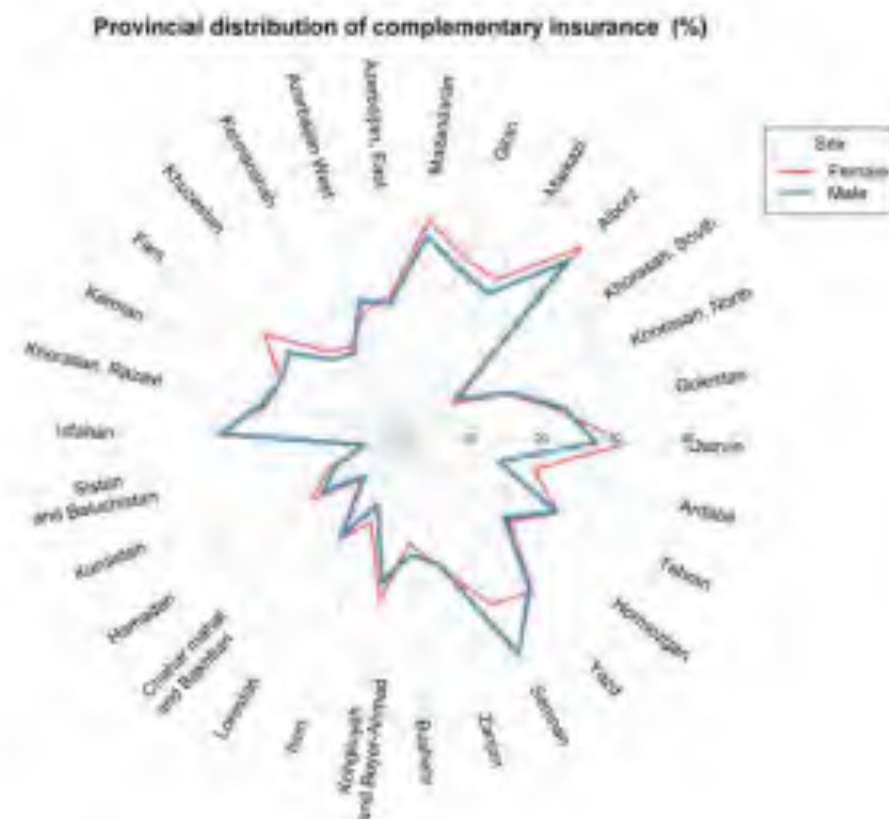


Figure 2.37. Provincial distribution of percentage of complementary insurance coverage by sex

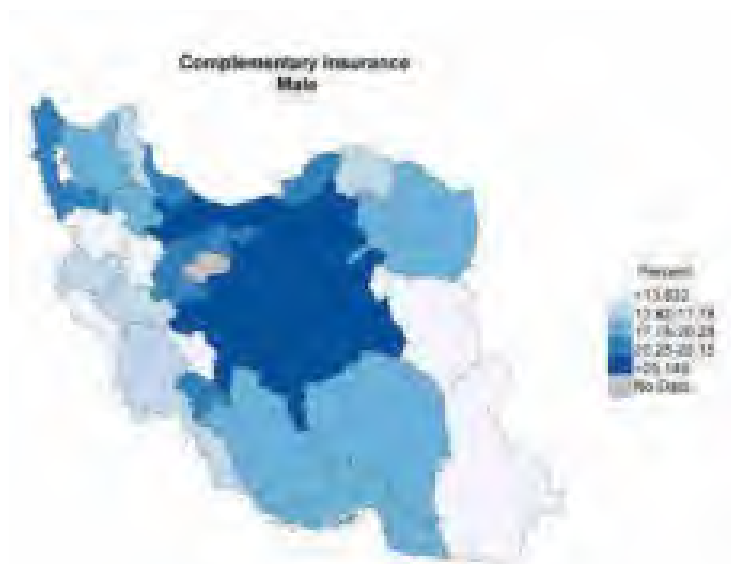


Figure 2.38. Geographical distribution of percentage of complementary insurance coverage in males

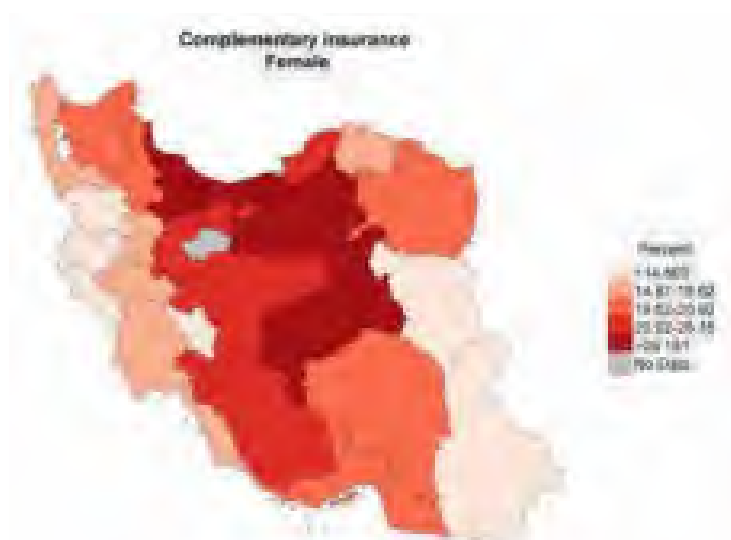


Figure 2.39. Geographical distribution of percentage of complementary insurance coverage in females

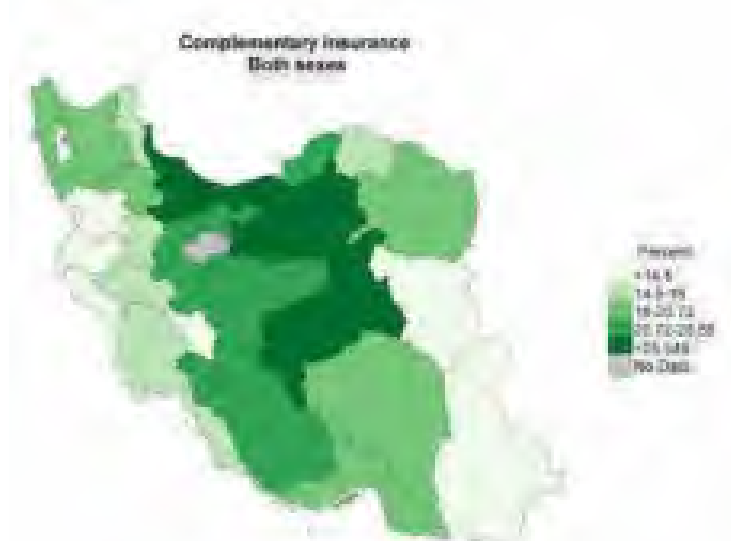


Figure 2.40. Geographical distribution of percentage of complementary insurance coverage in both sexes

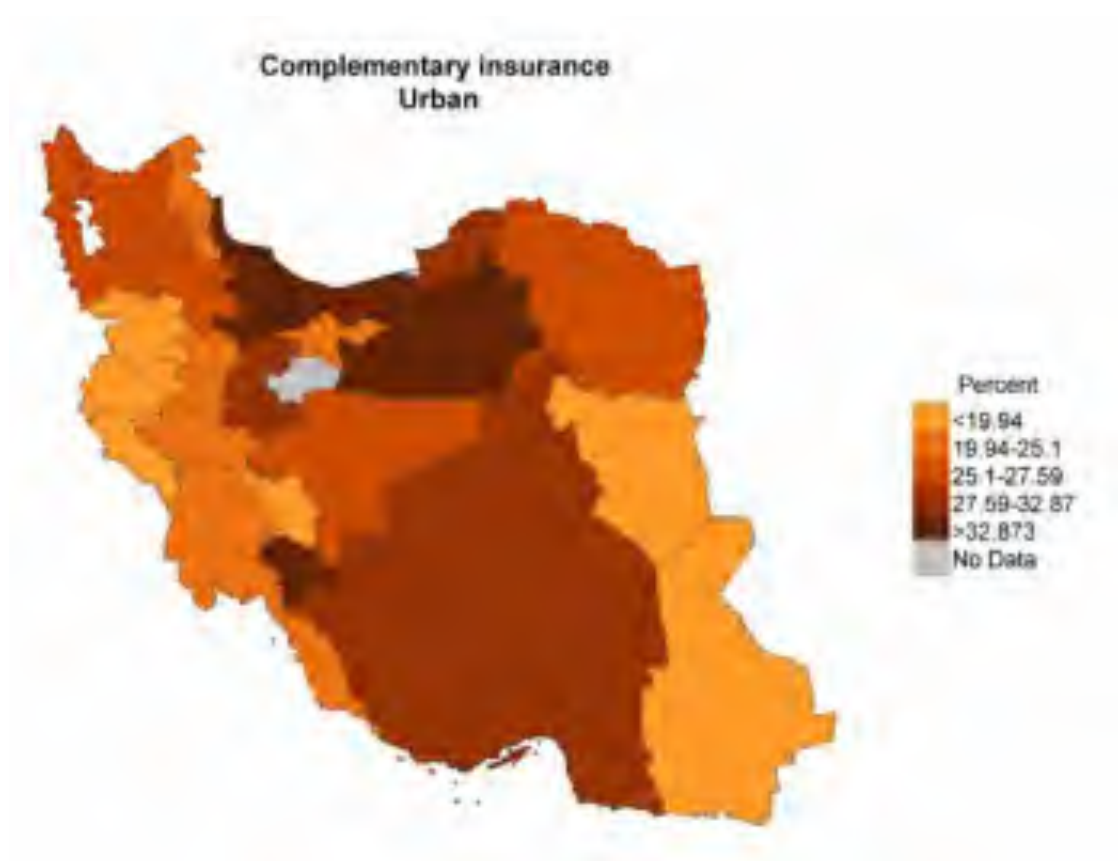


Figure 2.43. Geographical distribution of percentage of complementary insurance coverage in urban area of residency

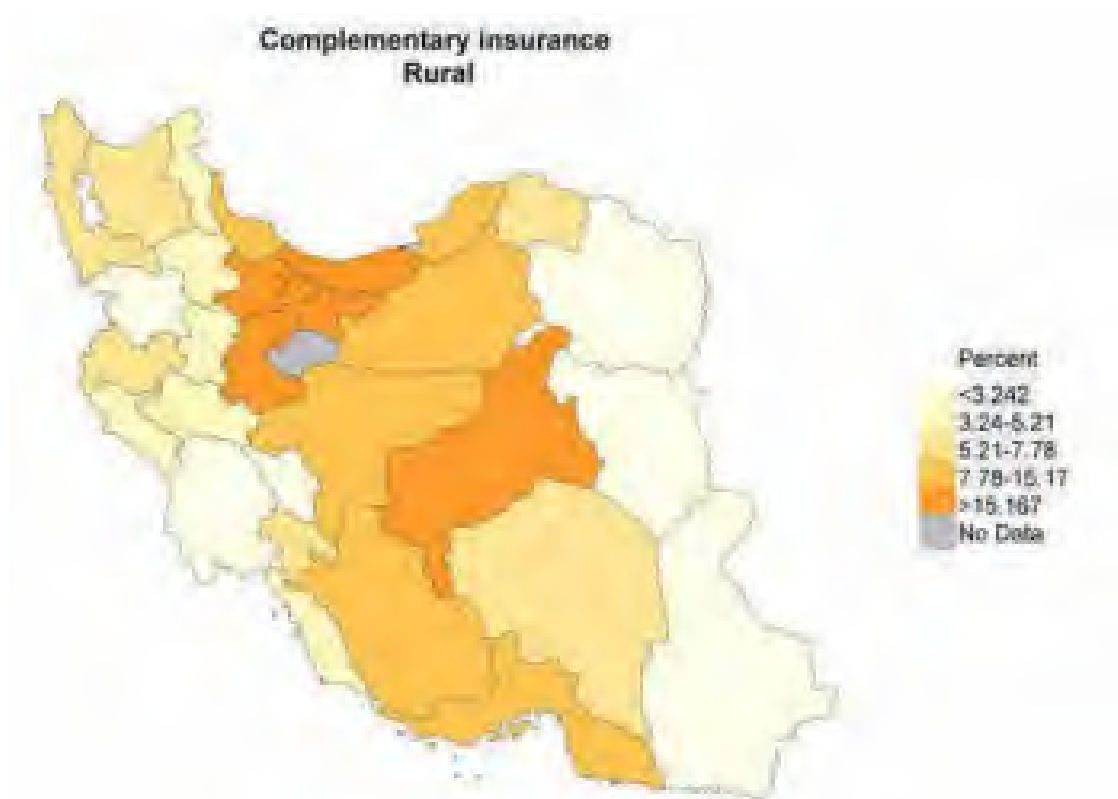


Figure 2.44. Geographical distribution of percentage of complementary insurance coverage in rural area of residency

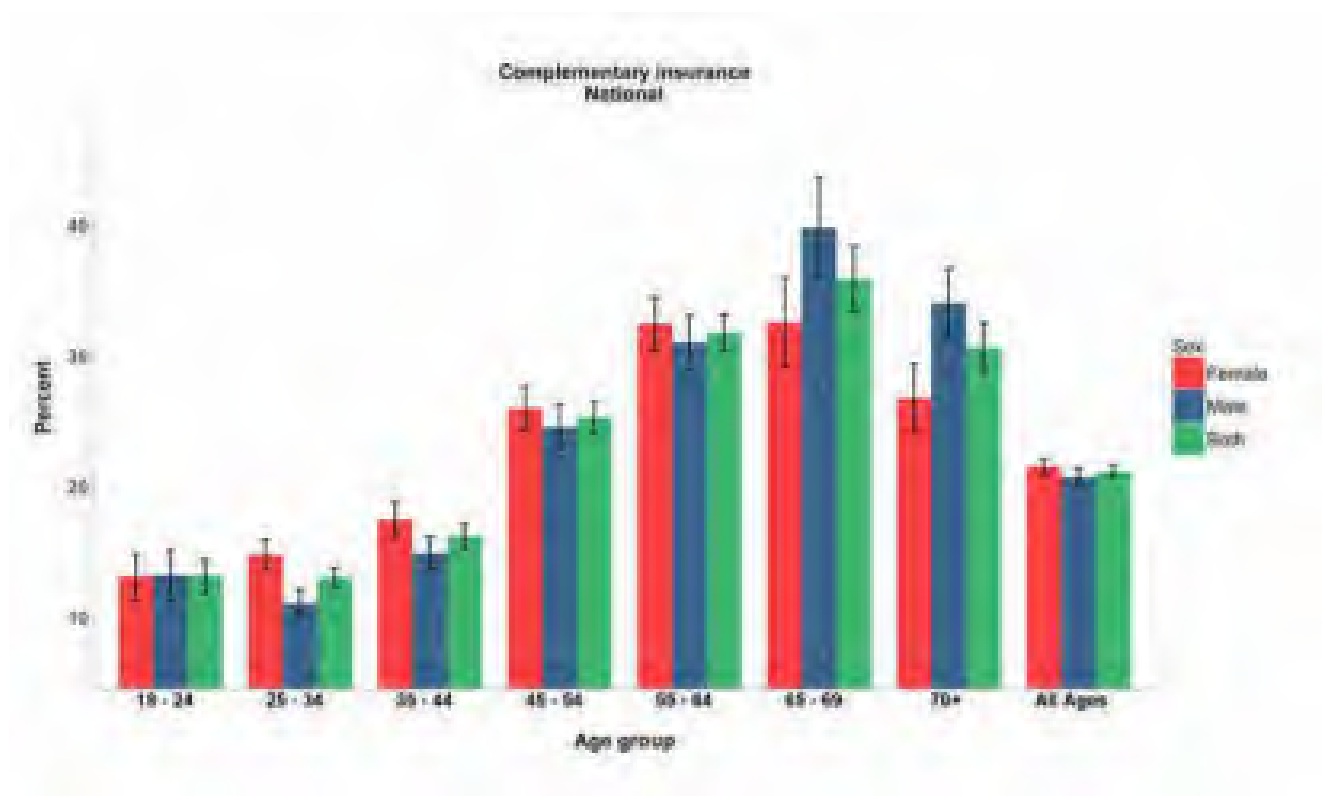


Figure 2.45. Percentage of complementary insurance coverage by age and sex at national level

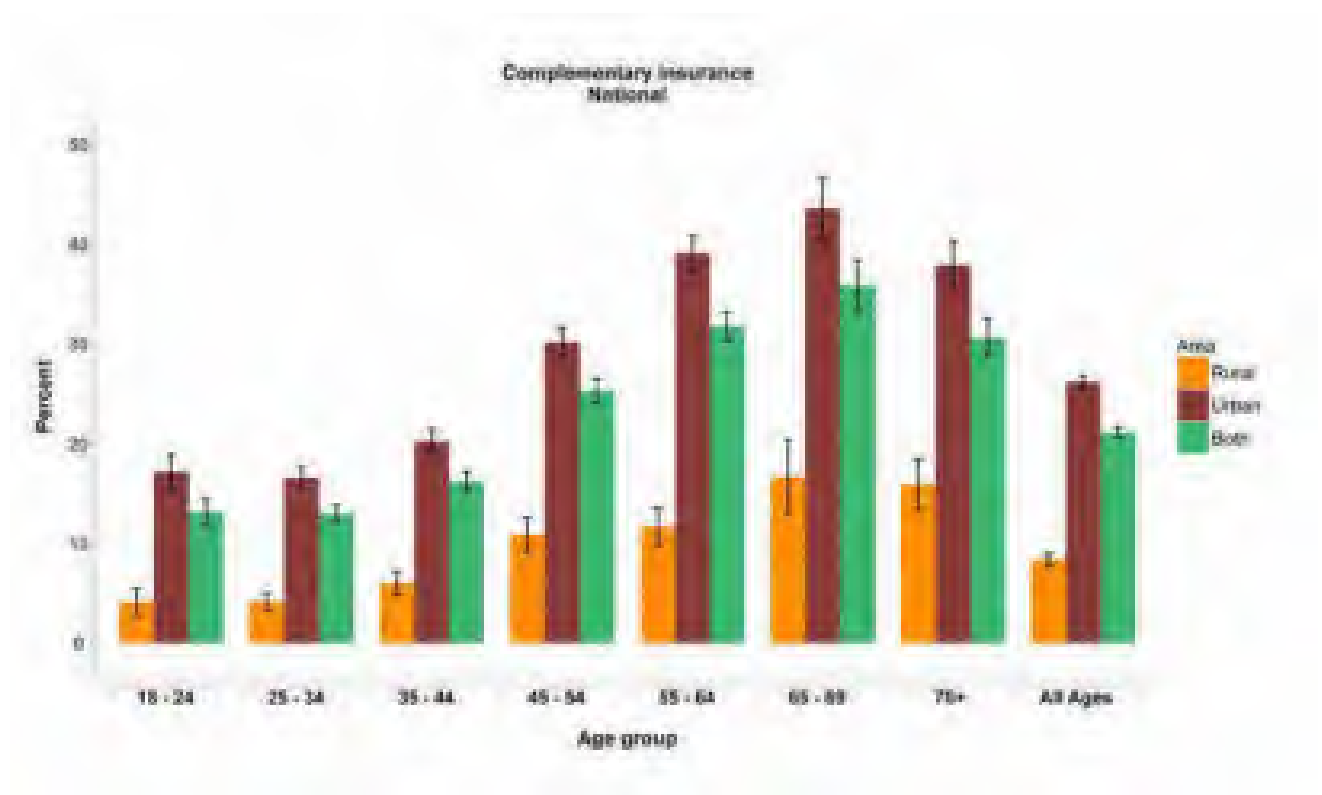


Figure 2.46. Percentage of complementary insurance coverage by age and area of residency at national level

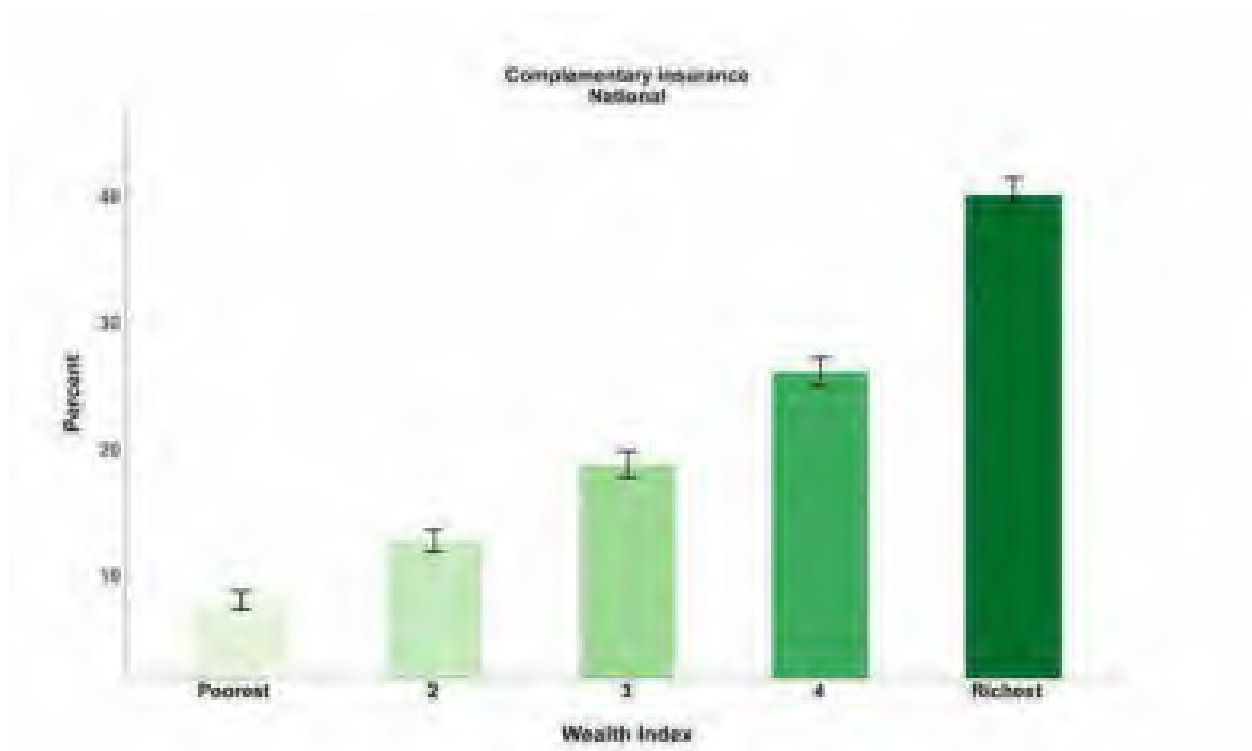


Figure 2.47. Percentage of complementary insurance coverage by wealth index quantiles at national level

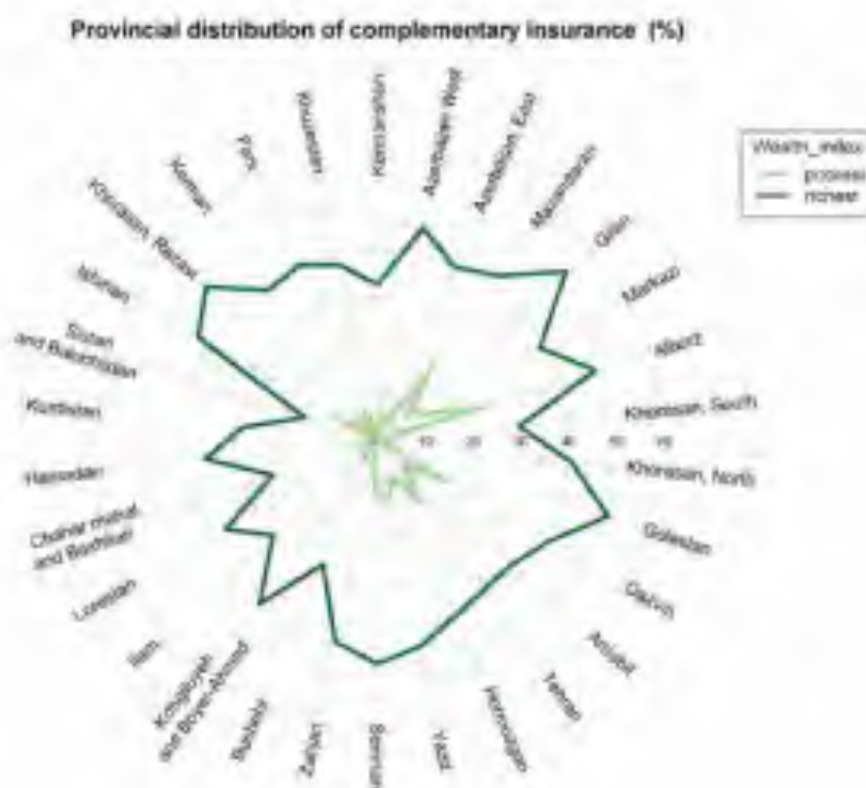
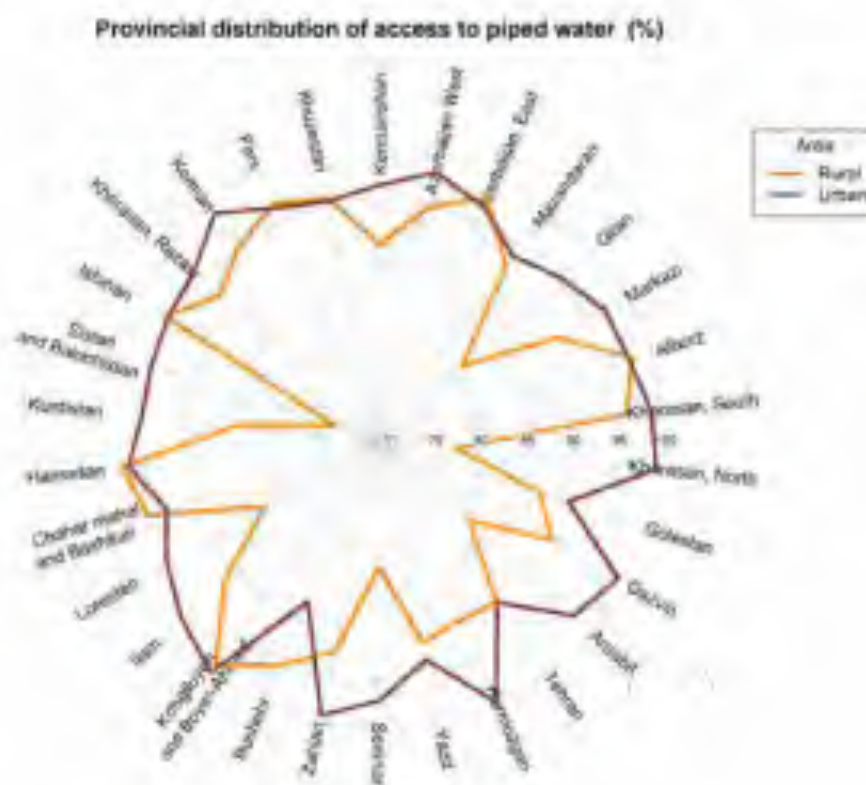
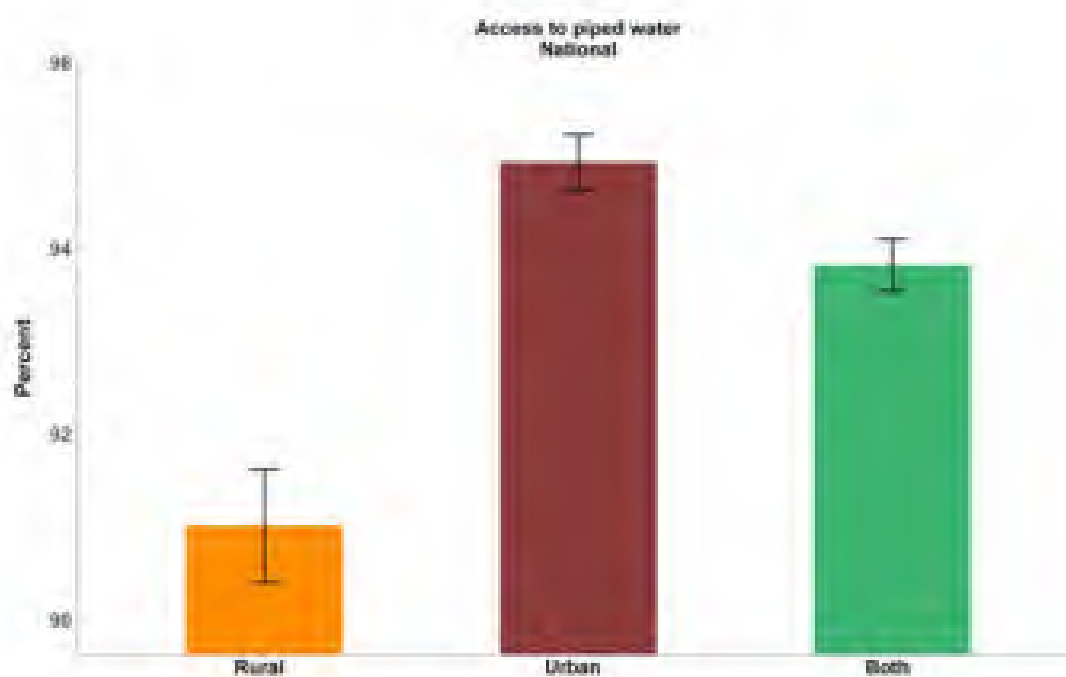


Figure 2.48. Provincial distribution of percentage of complementary insurance coverage by wealth index



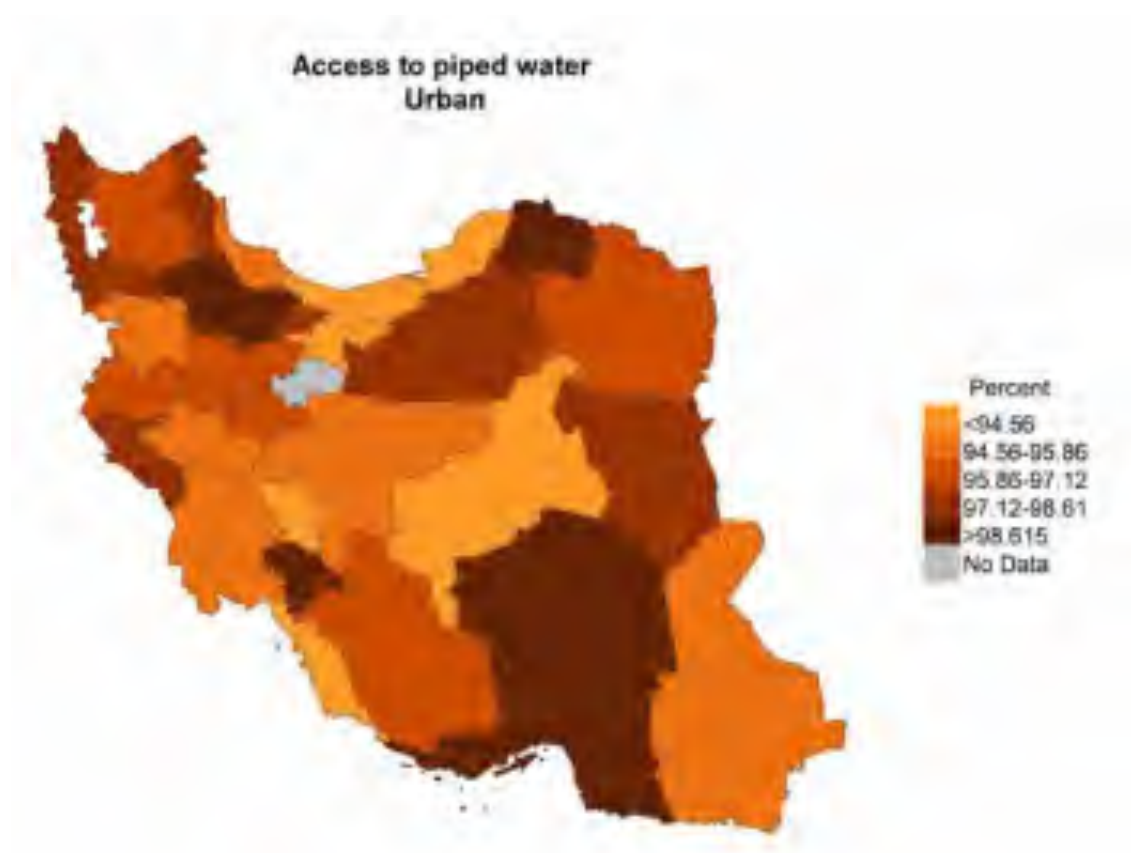


Figure 2.51. Geographical distribution of percentage of access to piped water in urban area of residency

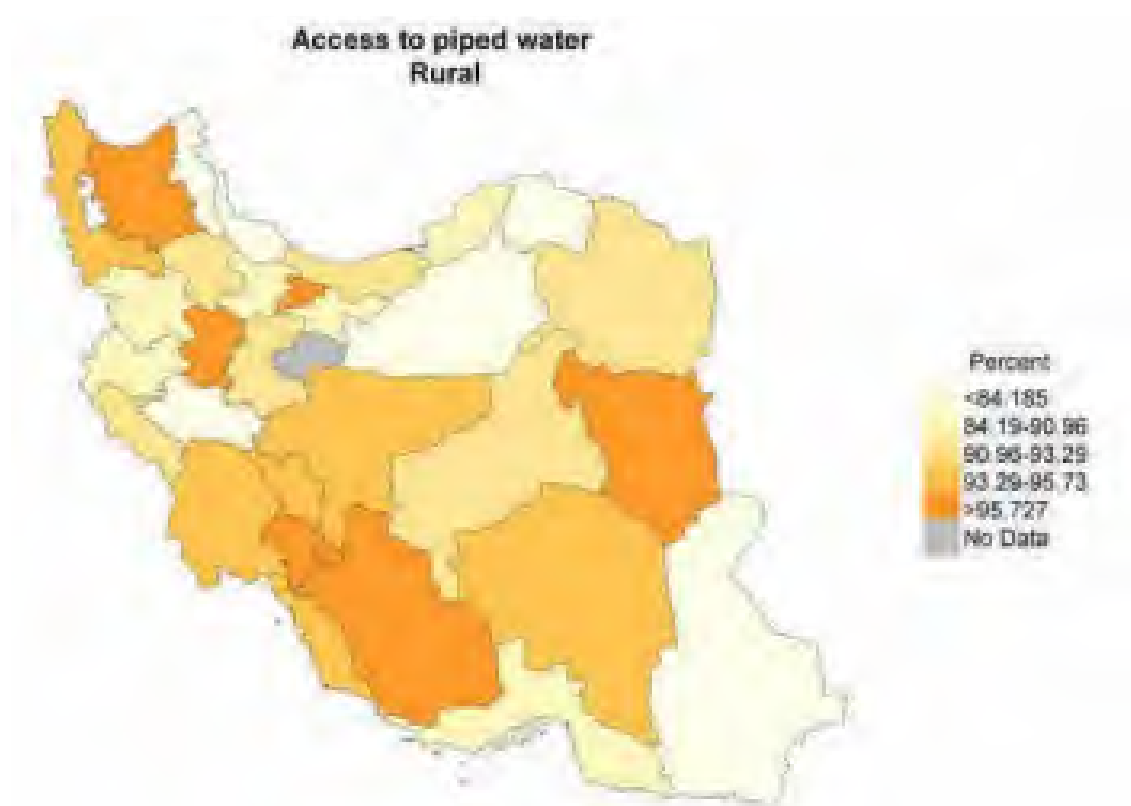


Figure 2.52. Geographical distribution of percentage of access to piped water in rural area of residency

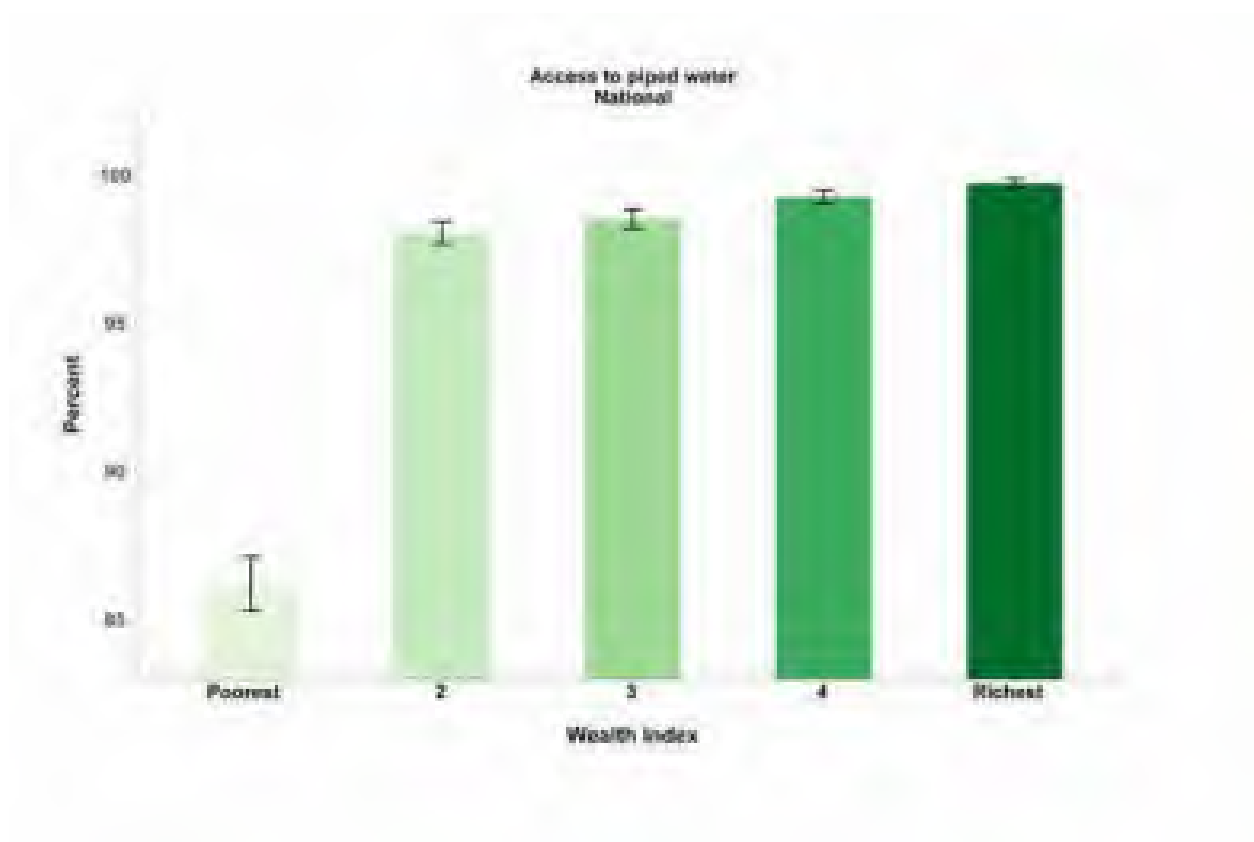


Figure 2.53. Percentage of access to piped water by wealth index quantiles at national level

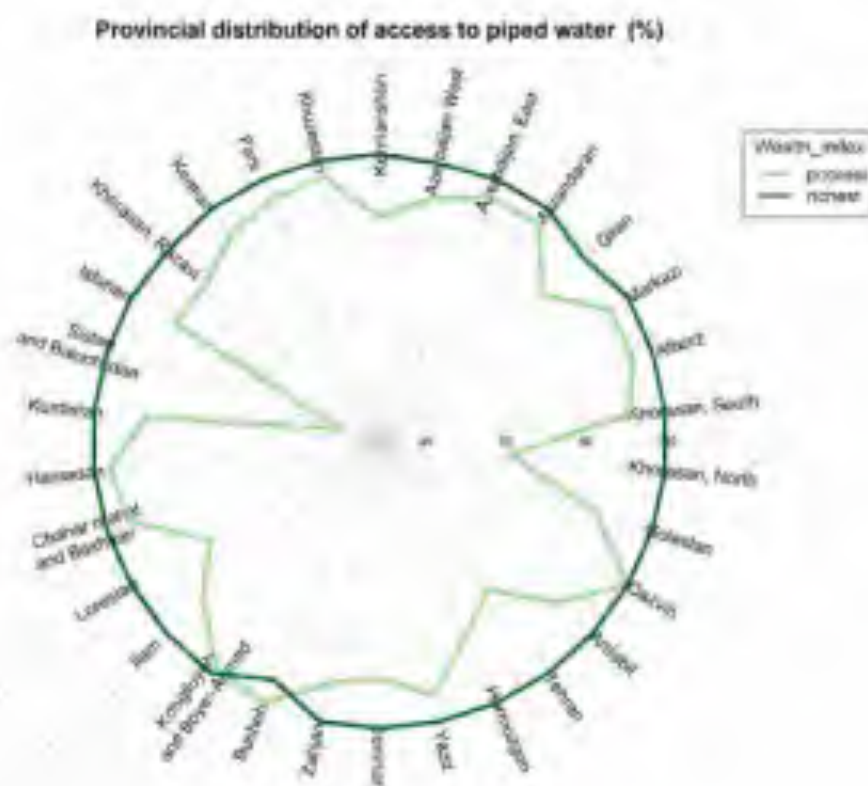


Figure 2.54. Provincial distribution of percentage of access to piped water by wealth index

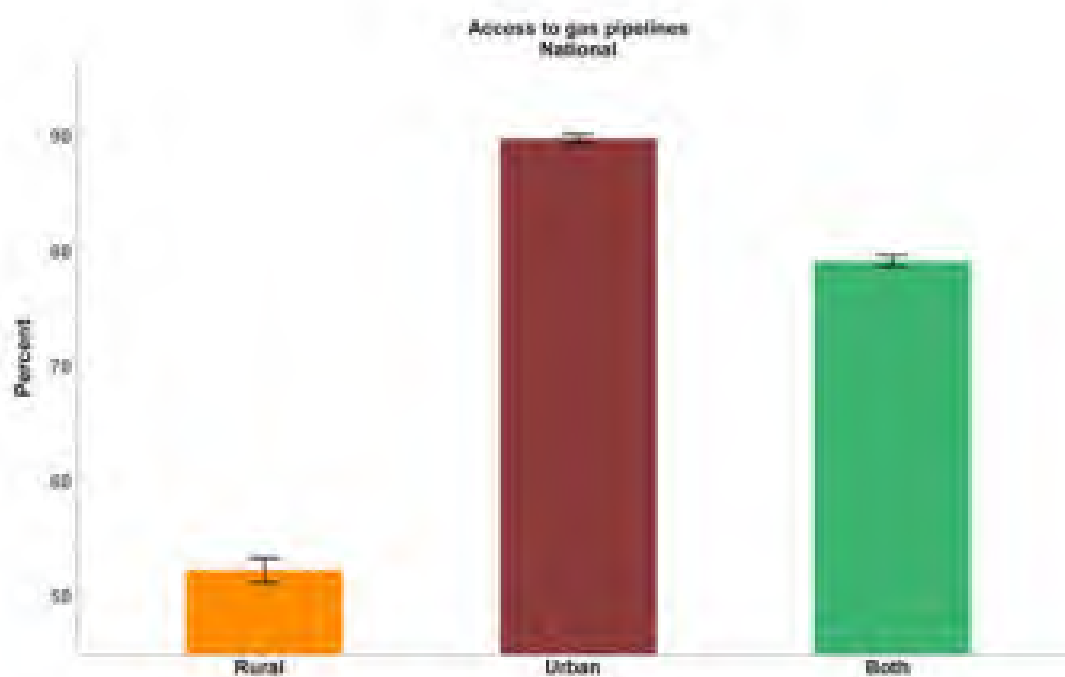


Figure 2.55. Percentage of access to gas pipelines by area of residency at national level

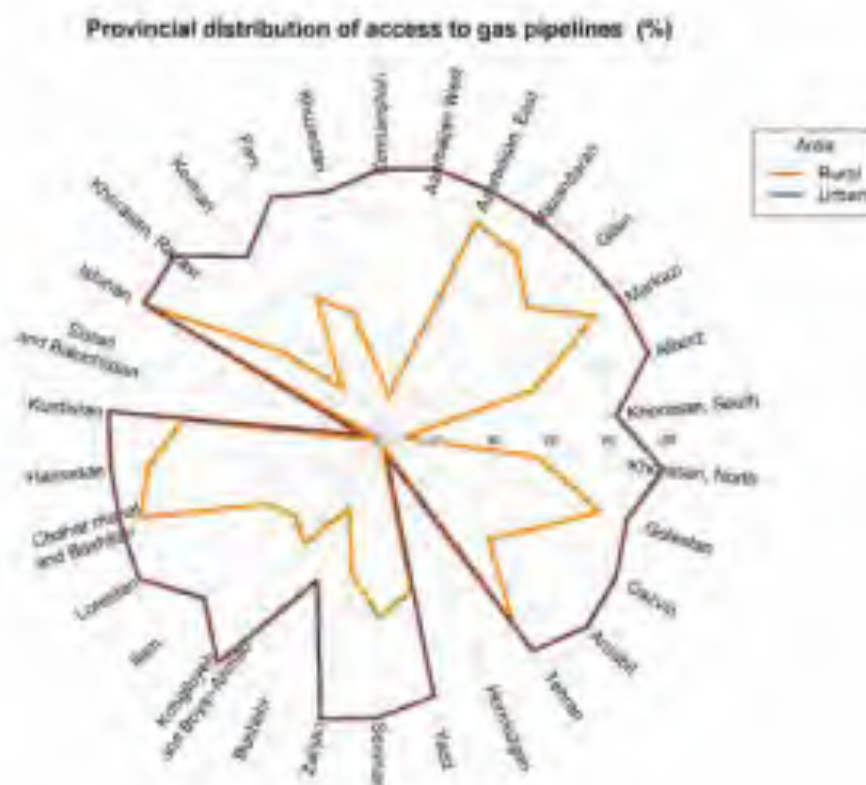


Figure 2.56. Provincial distribution of percentage of access to gas pipelines by area of residency

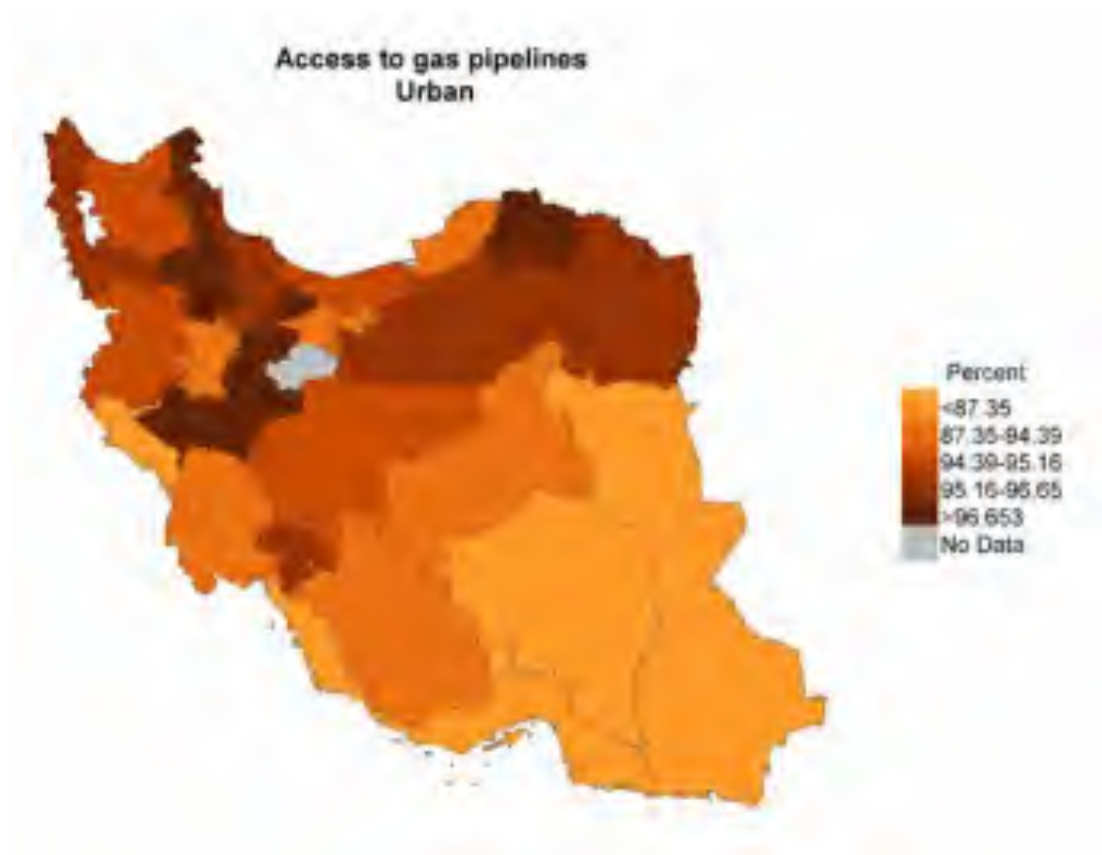


Figure 2.57. Geographical distribution of percentage of access to gas pipelines in urban area of residency

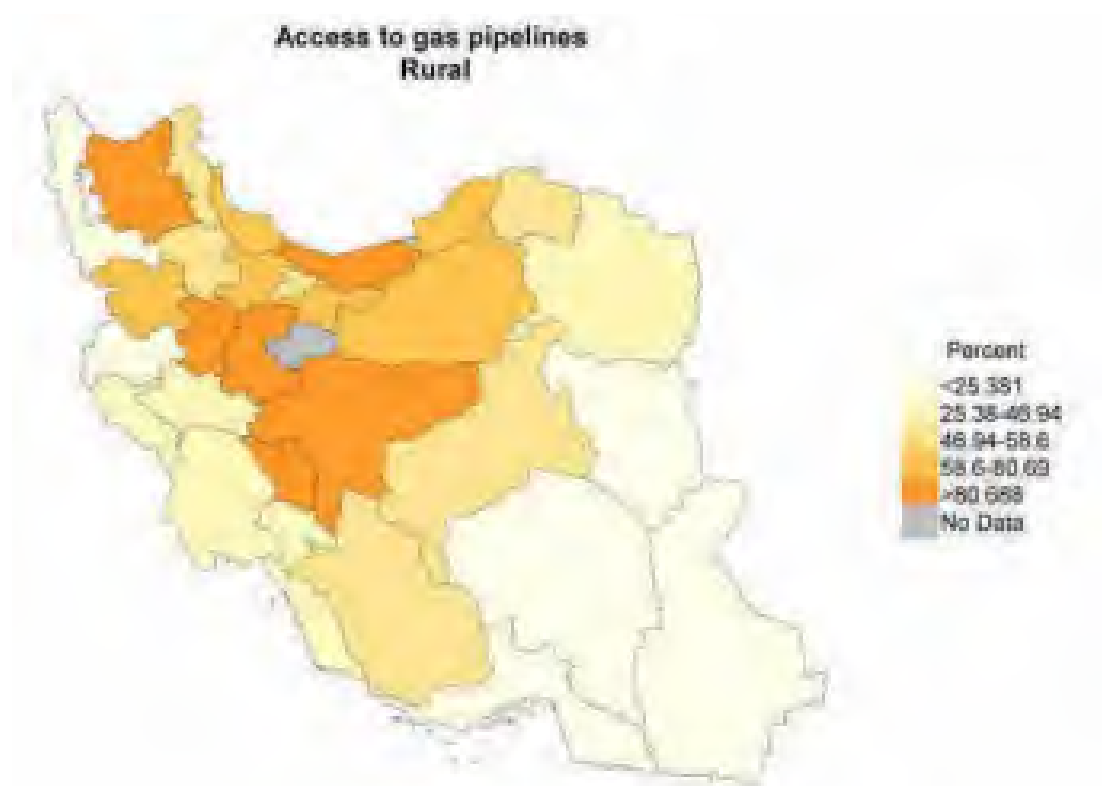


Figure 2.58. Geographical distribution of percentage of access to gas pipelines in rural area of residency

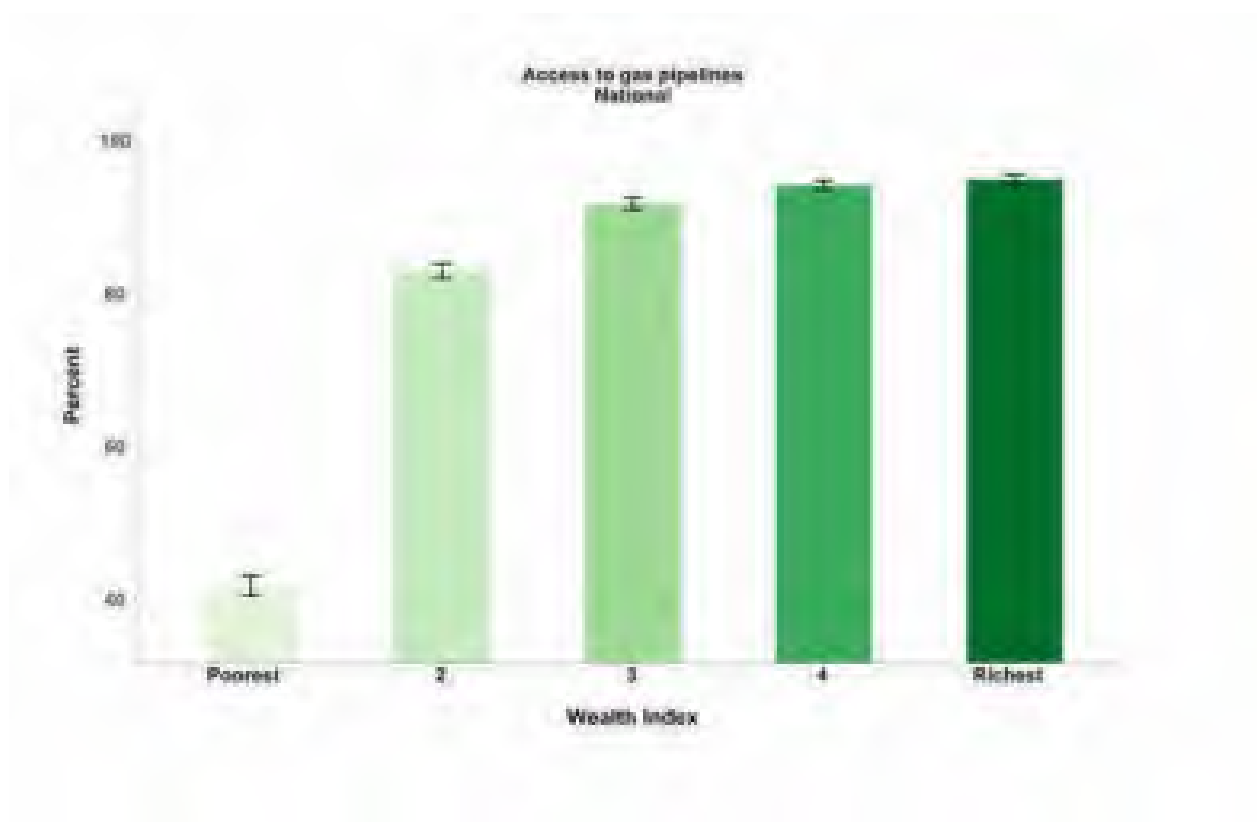


Figure 2.59. Percentage of access to gas pipelines by wealth index quantiles at national level

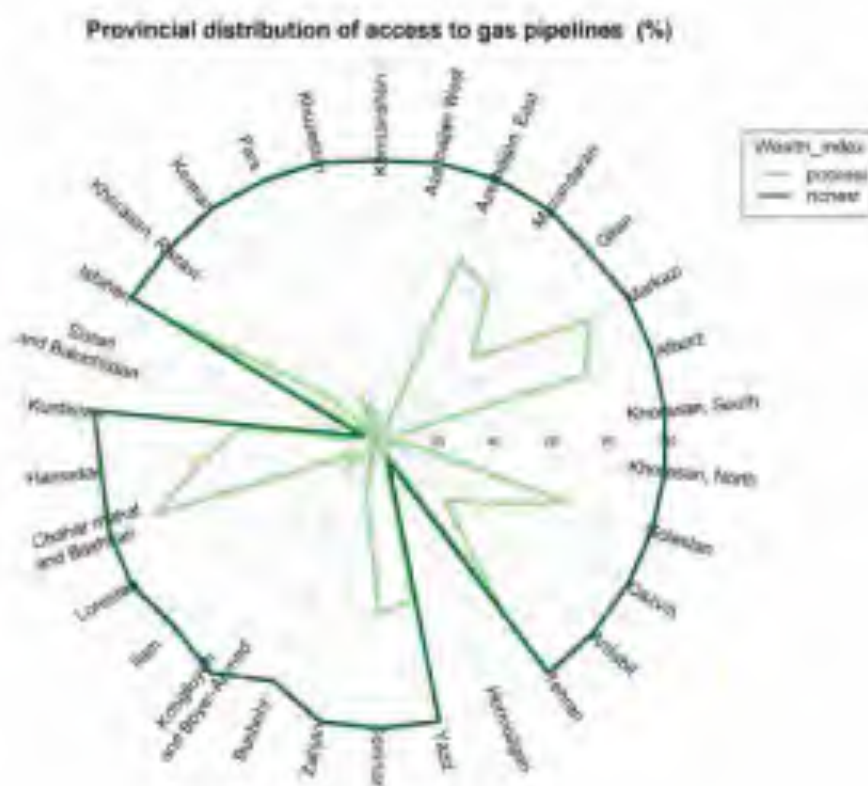


Figure 2.60. Provincial distribution of percentage of access to gas pipelines by wealth index

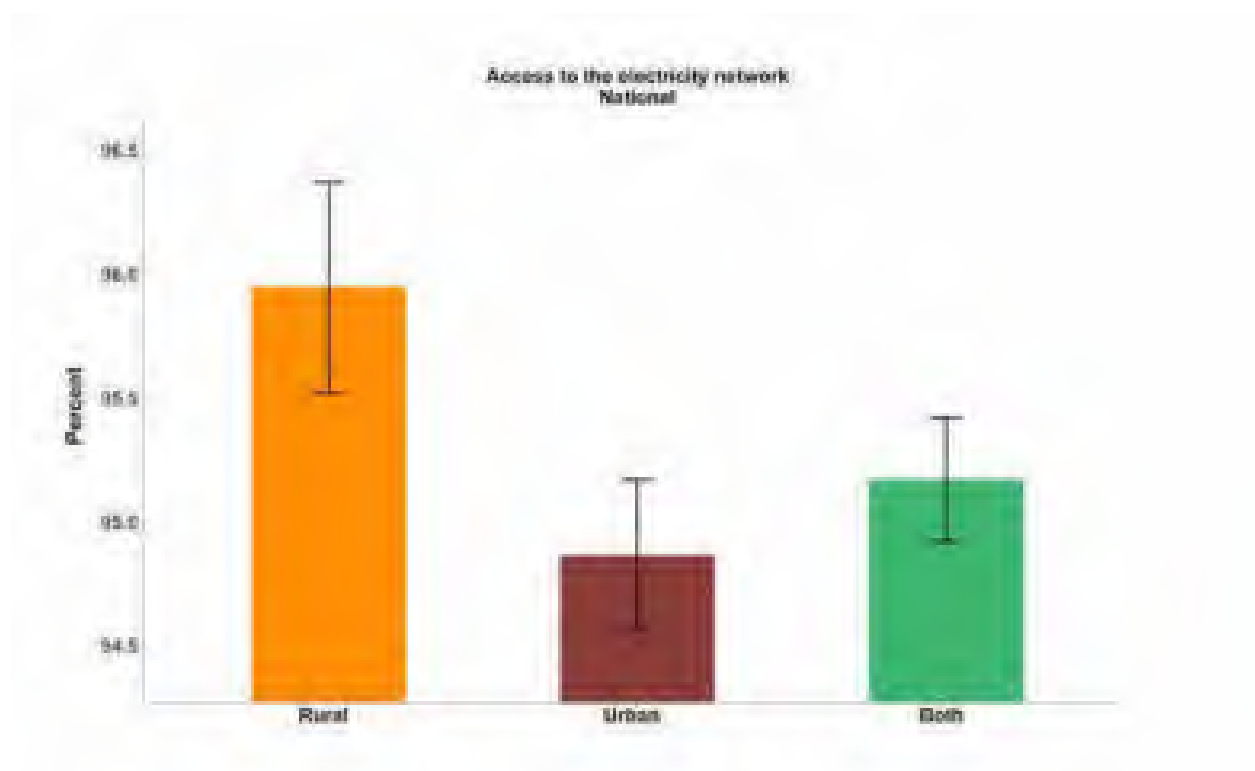


Figure 2.61. Percentage of access to the electricity network by area of residency at national level

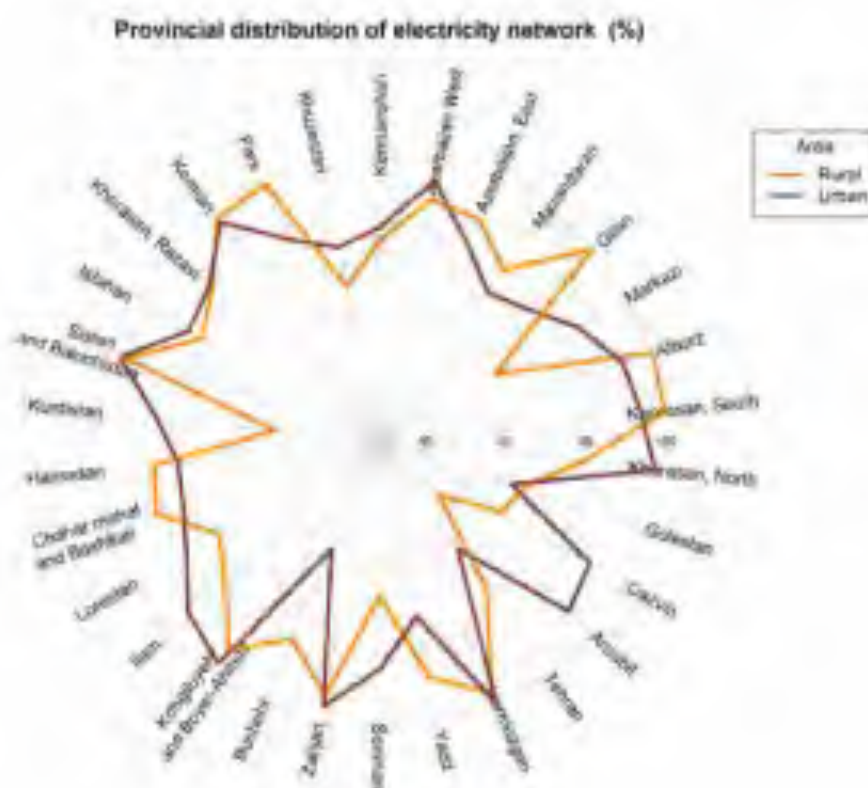


Figure 2.62. Provincial distribution of percentage of access to the electricity network by area of residency

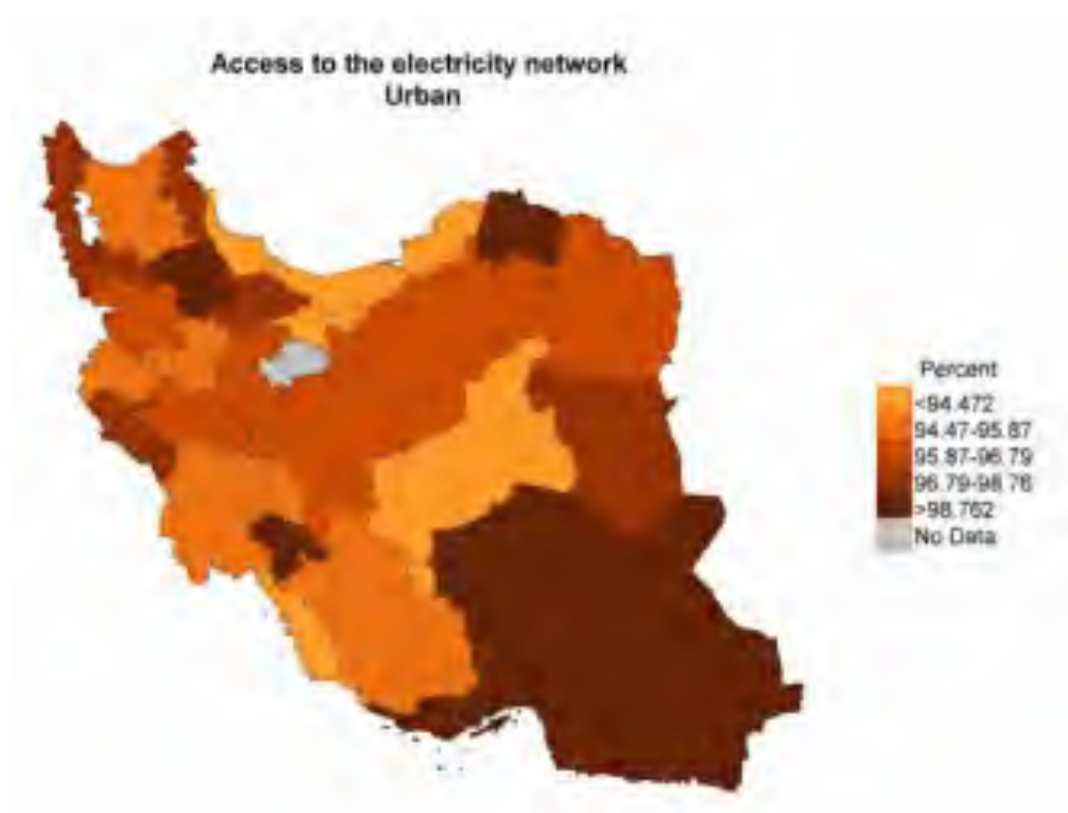


Figure 2.63. Geographical distribution of percentage of access to the electricity network in urban area of residency

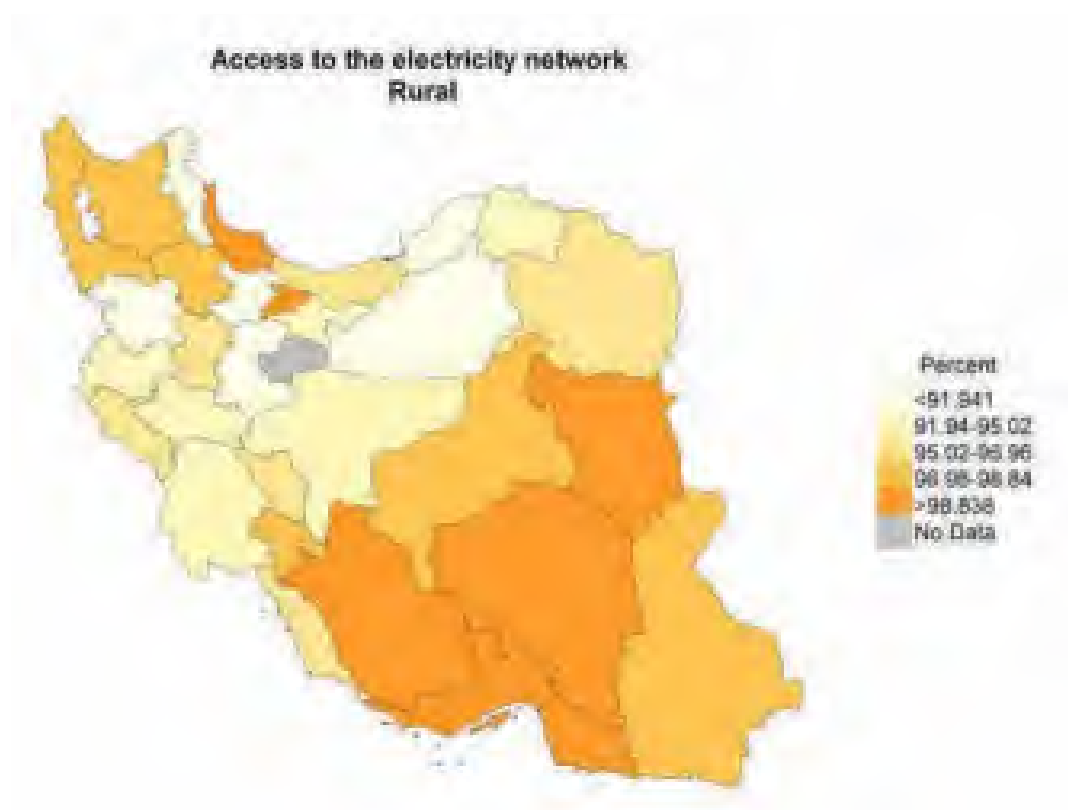


Figure 2.64. Geographical distribution of percentage of access to the electricity network in rural area of residency

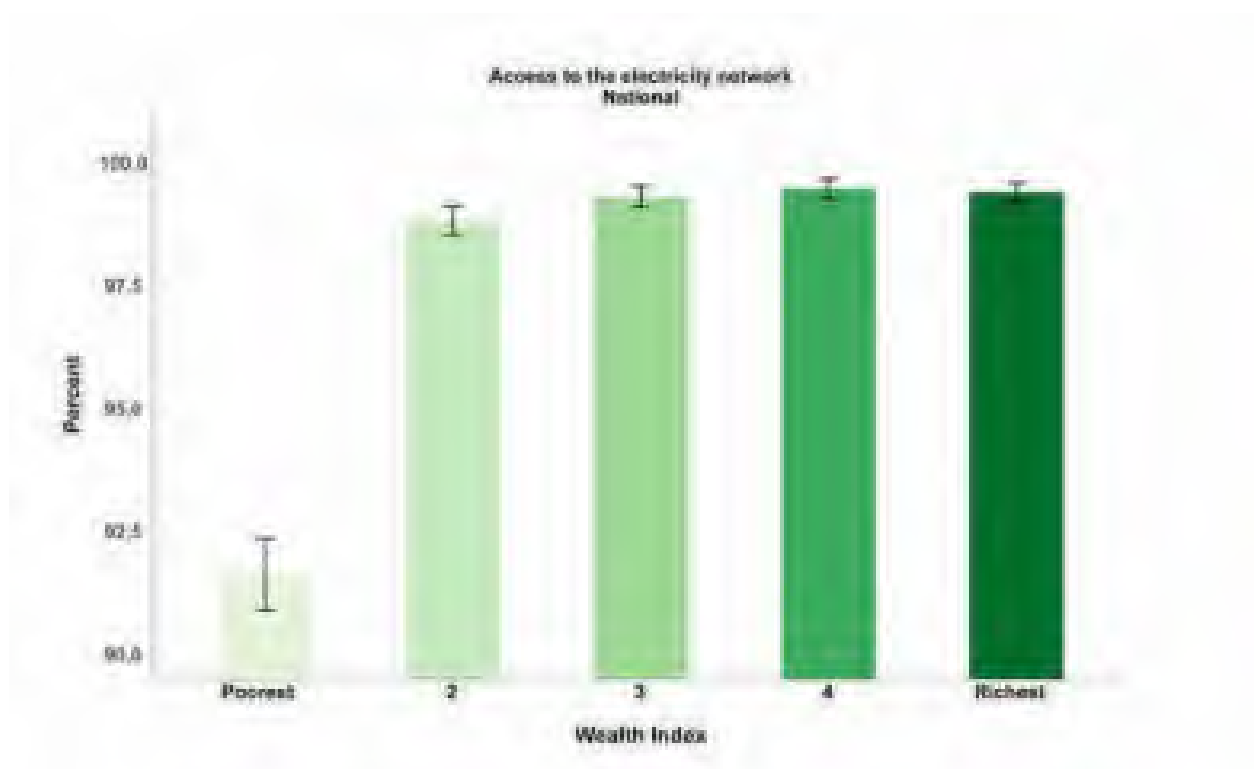


Figure 2.65. Percentage of access to the electricity network by wealth index quantiles at national level

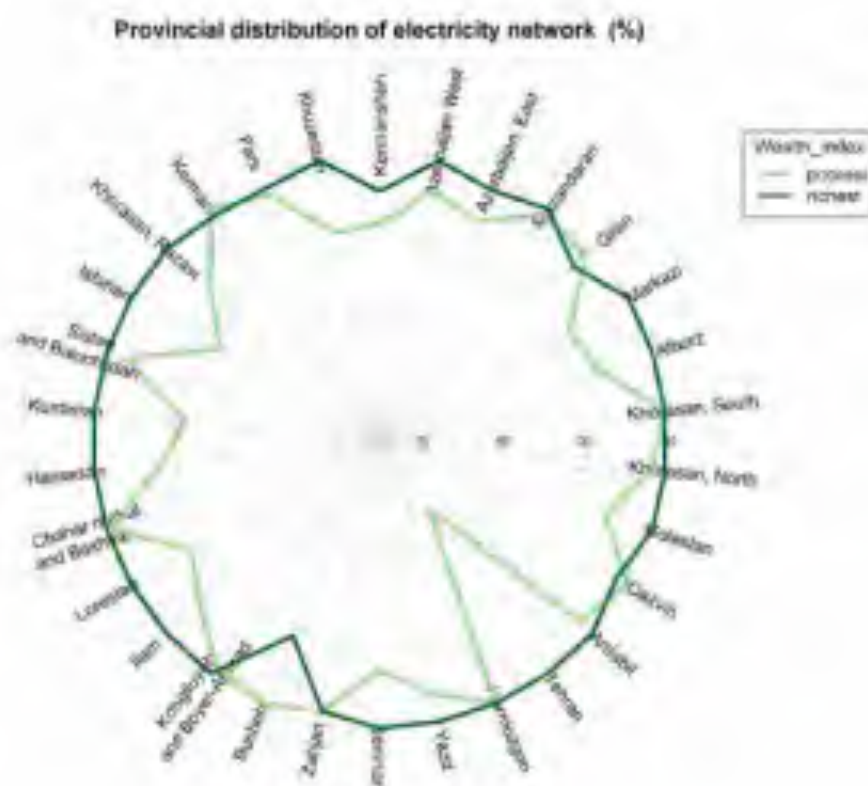


Figure 2.66. Provincial distribution of percentage of access to the electricity network by wealth index

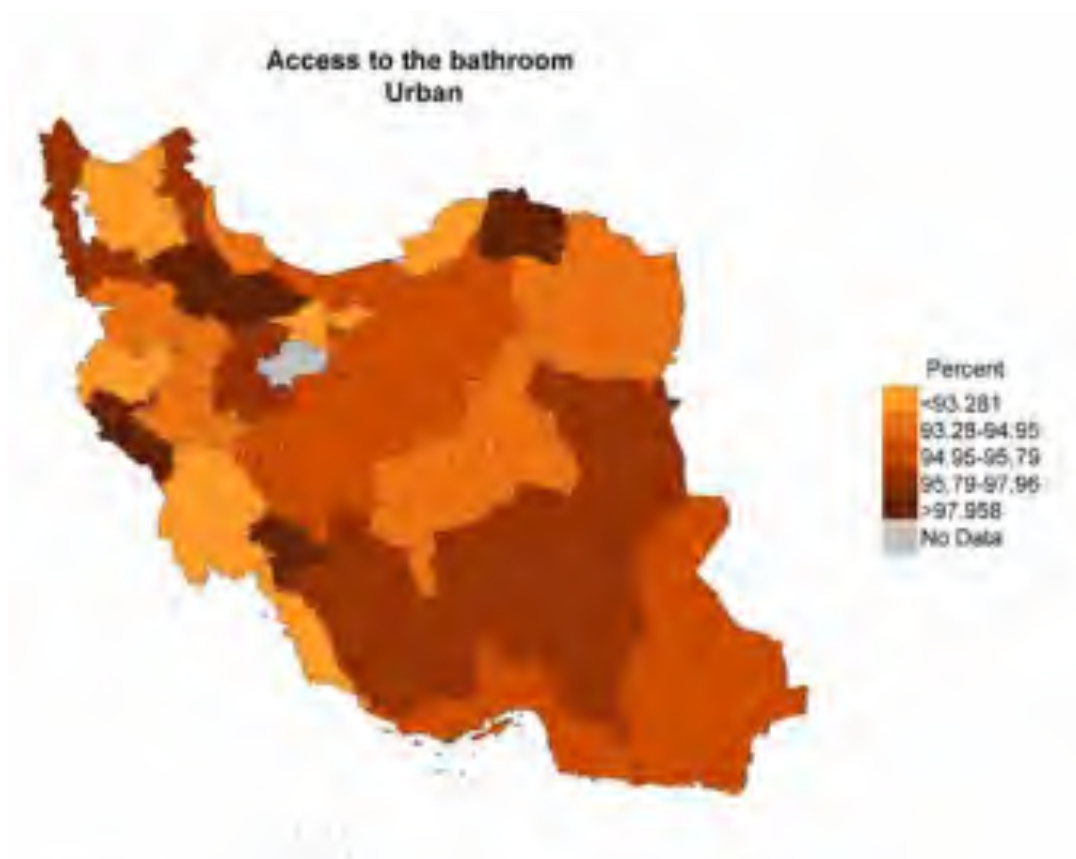


Figure 2.69. Geographical distribution of percentage of access to the bathroom in urban area of residency

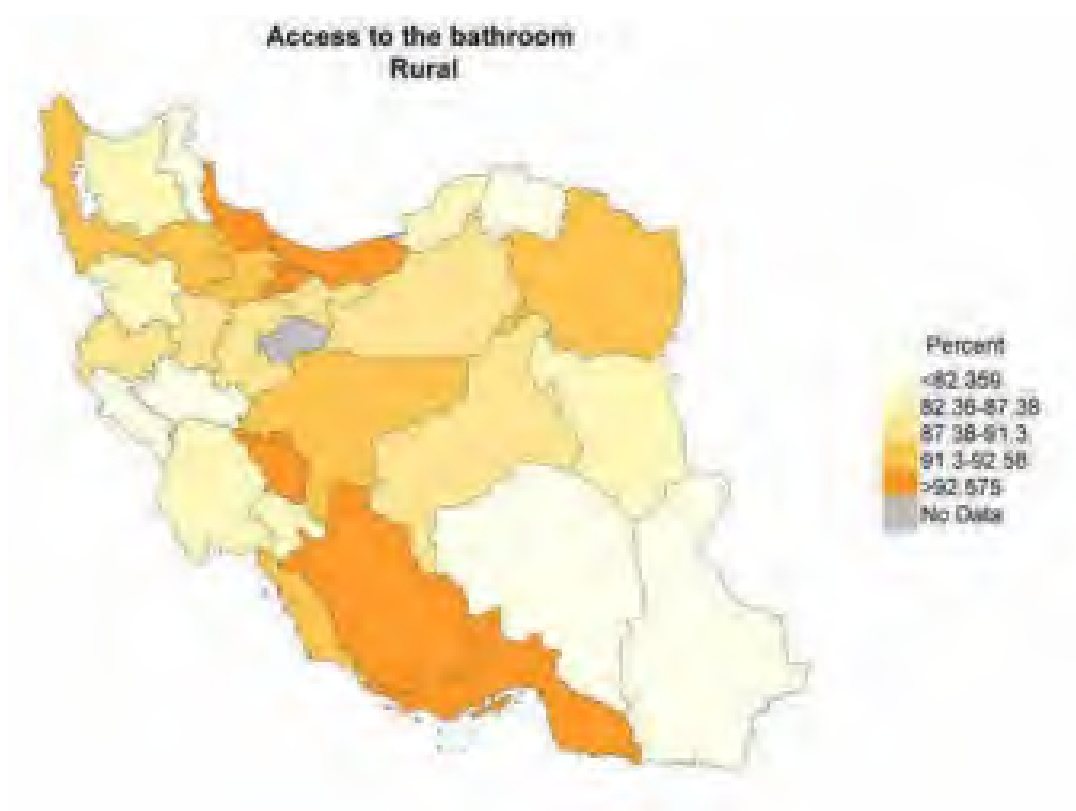


Figure 2.70. Geographical distribution of percentage of access to the bathroom in rural area of residency

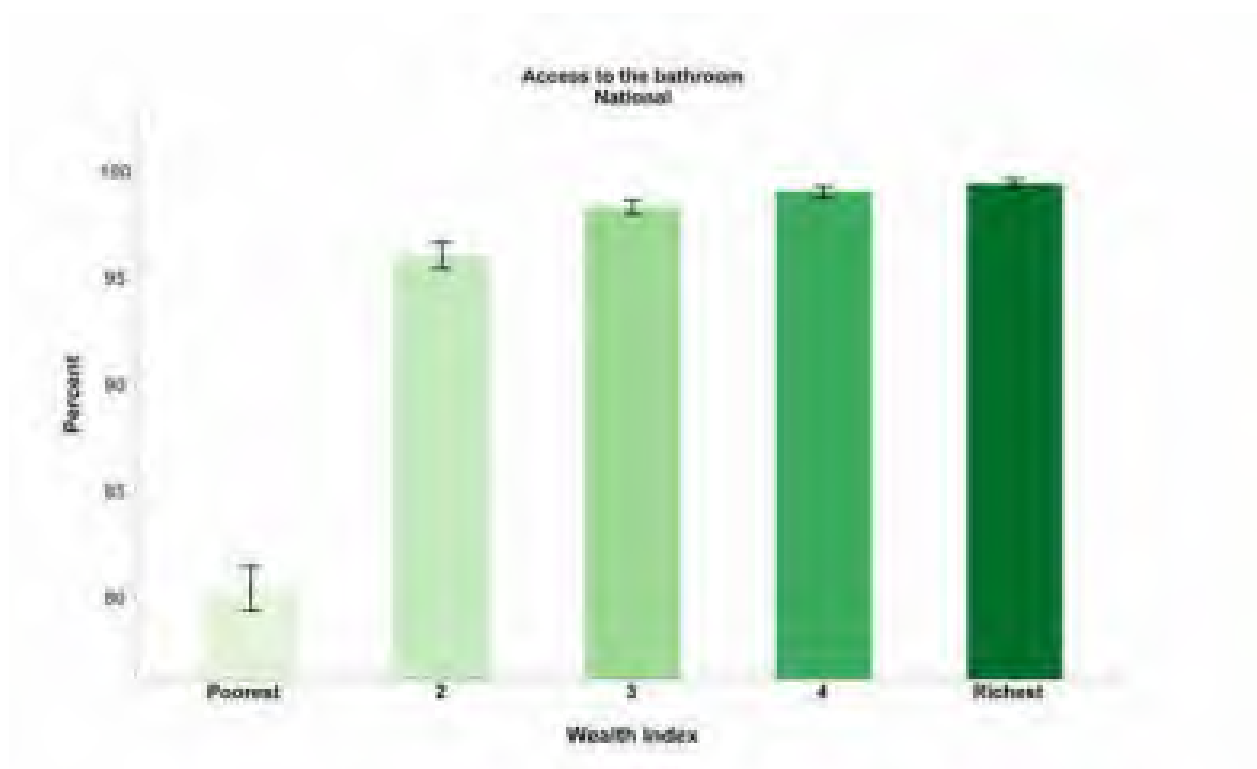


Figure 2.71. Percentage of access to the bathroom by wealth index quantiles

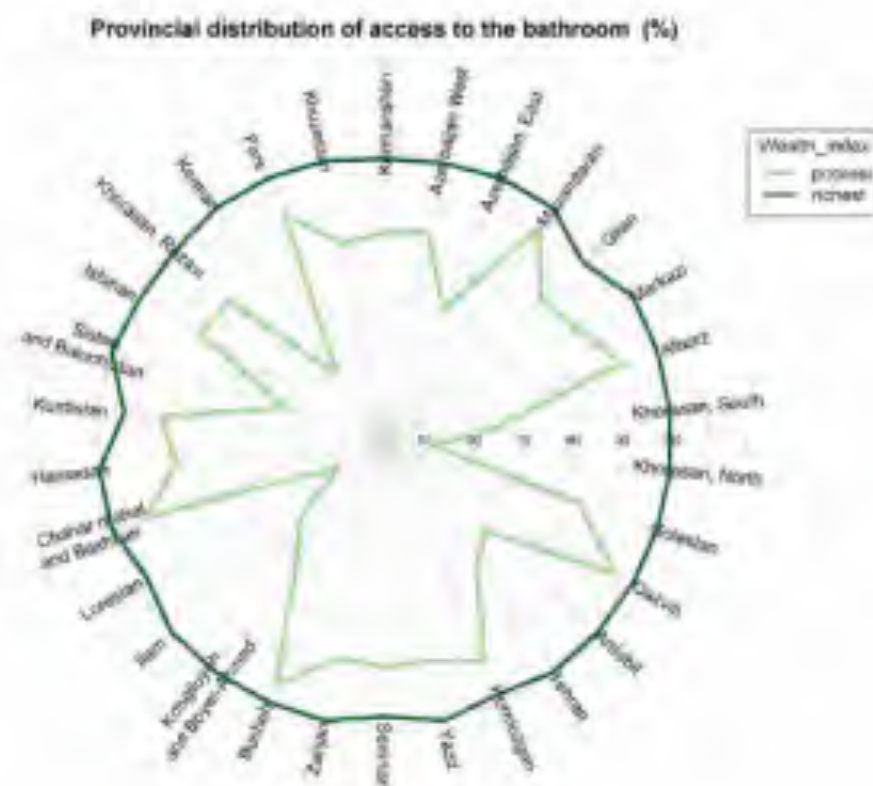


Figure 2.72. Provincial distribution of percentage of access to the bathroom by wealth index

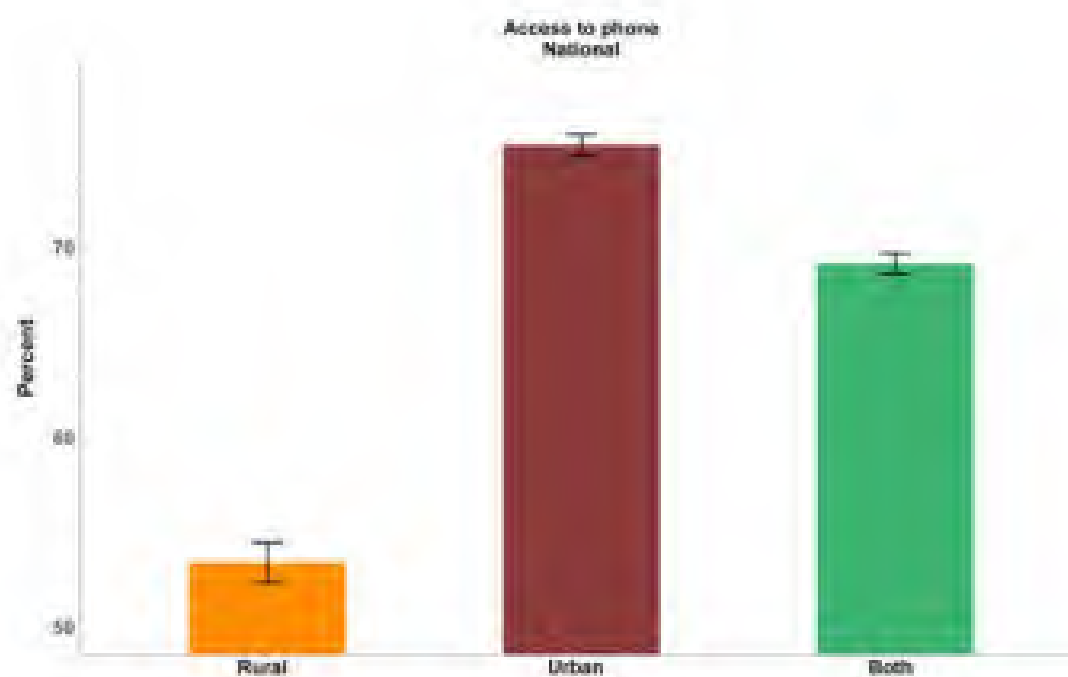


Figure 2.73. Percentage of access to the phone by area of residency at national level

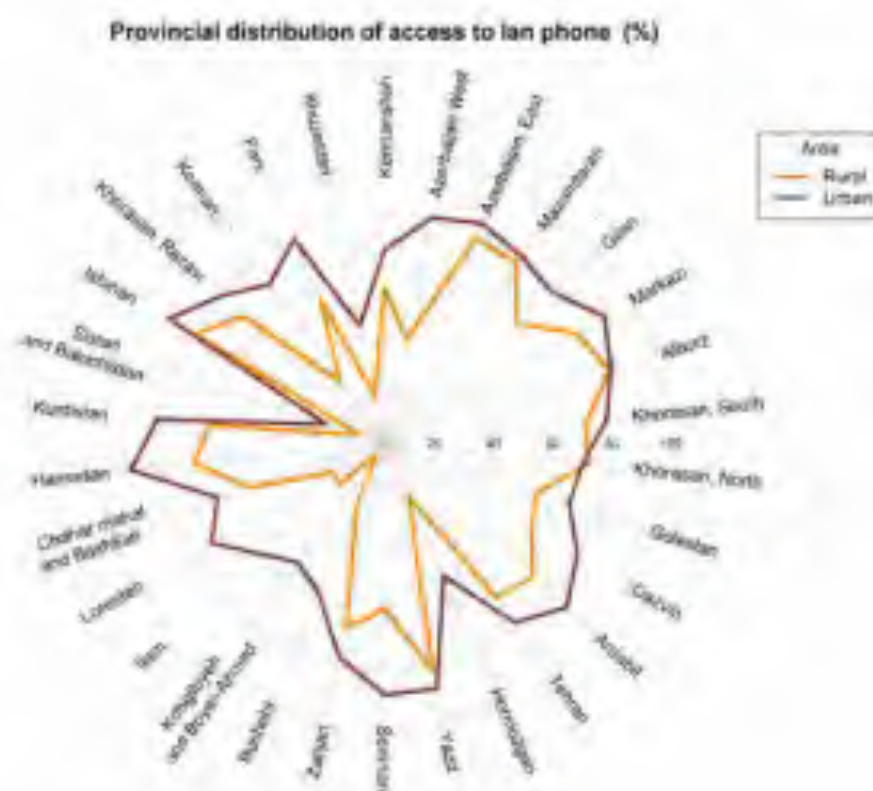


Figure 2.74. Provincial distribution of percentage of access to the phone by area of residency

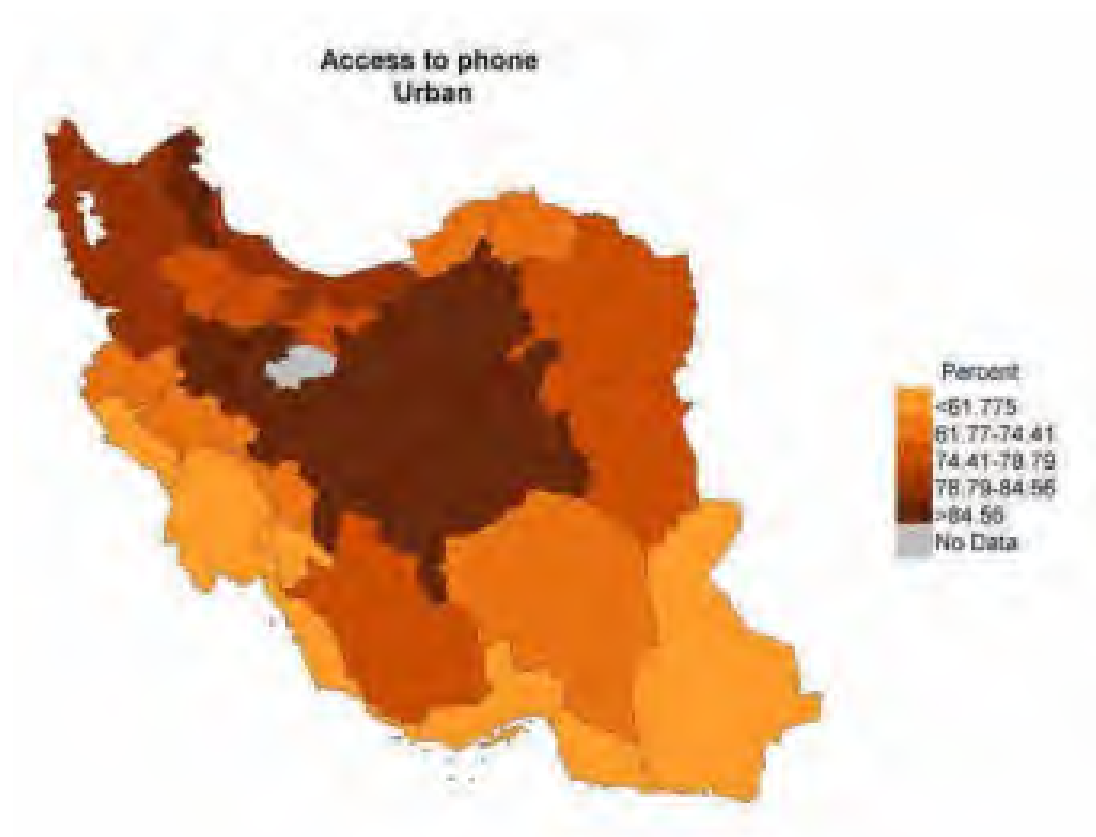


Figure 2.75. Geographical distribution of percentage of access to the phone in urban area of residency

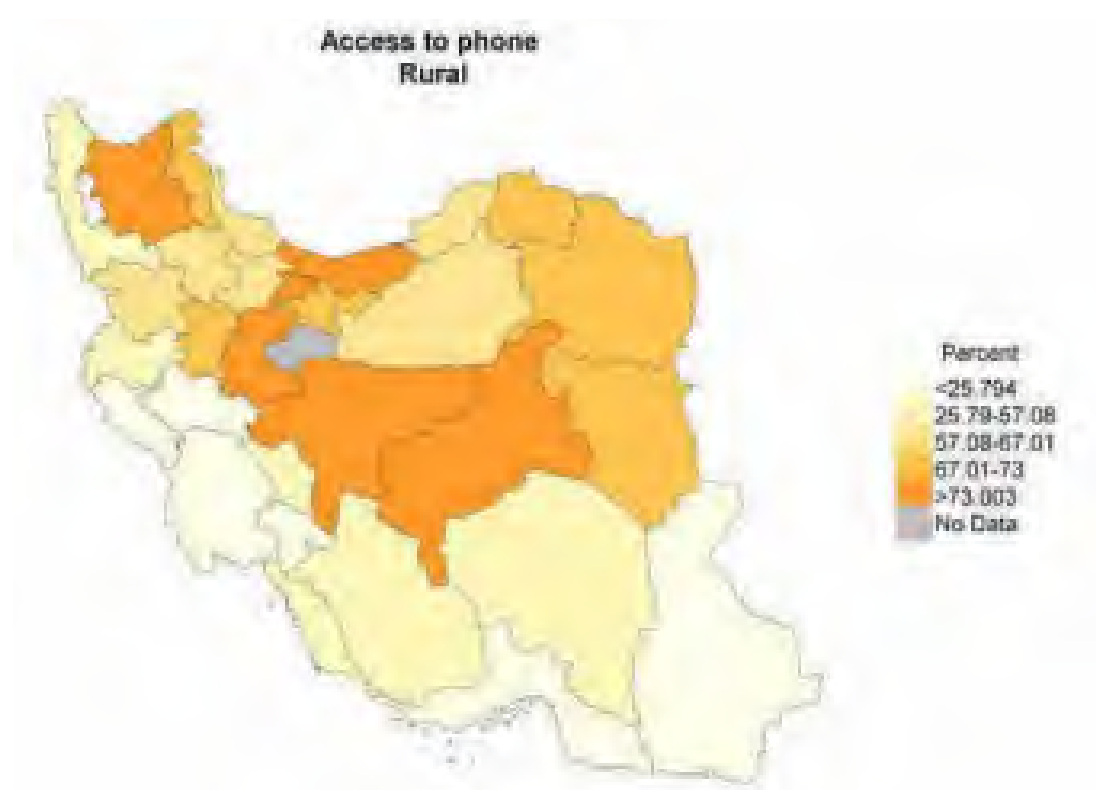


Figure 2.76. Geographical distribution of percentage of access to the phone in rural area of residency

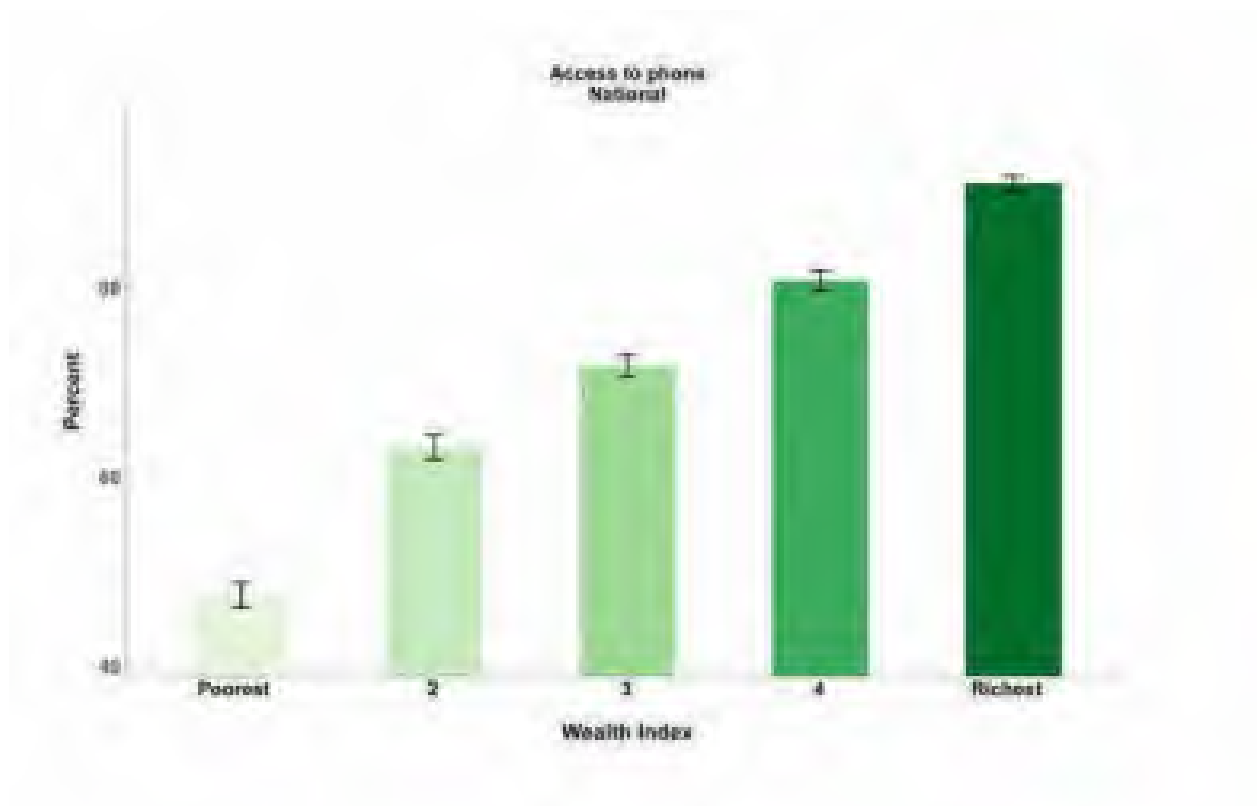


Figure 2.77. Percentage of access to the phone by wealth index quantiles

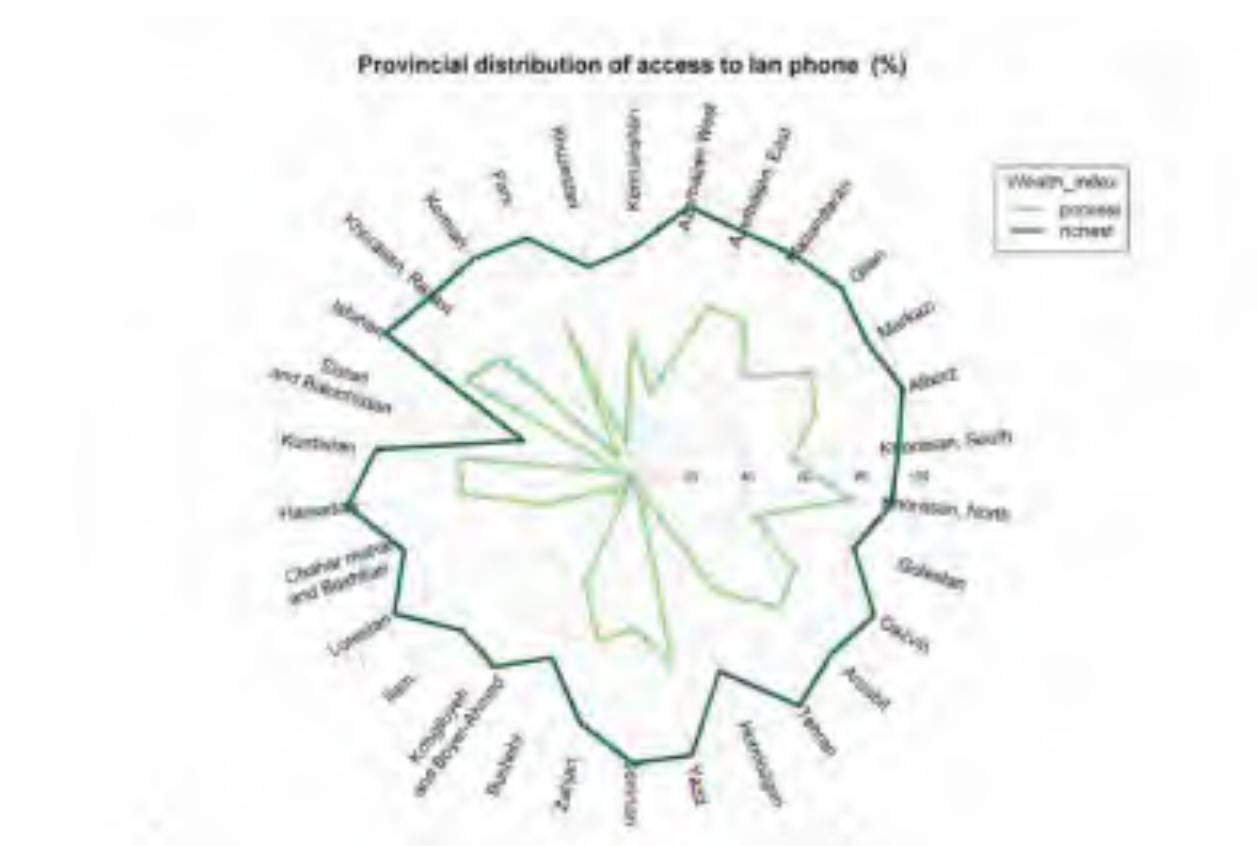
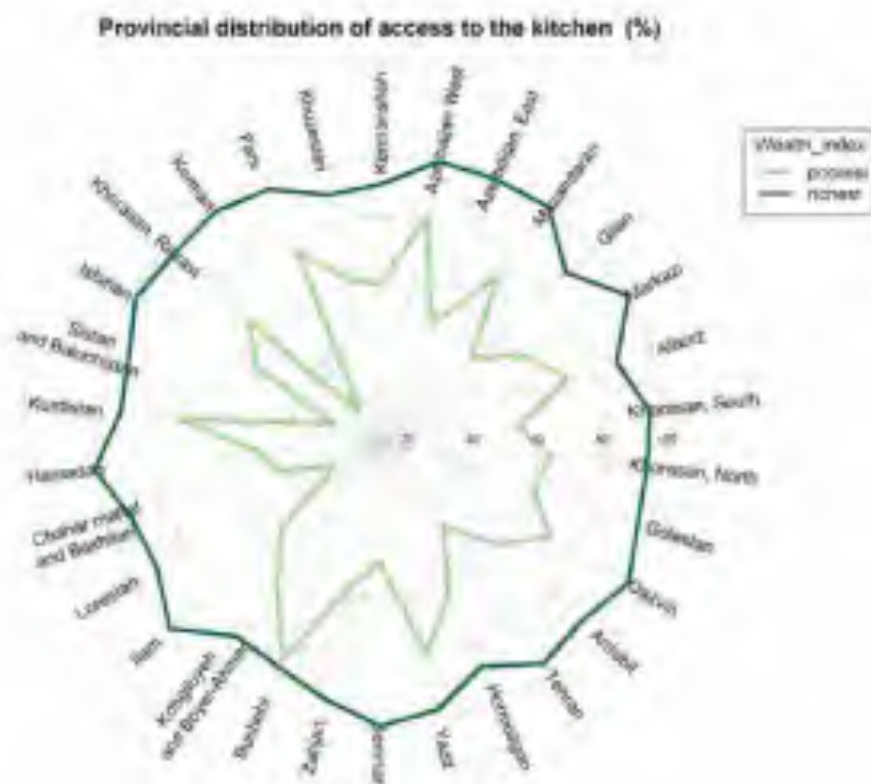
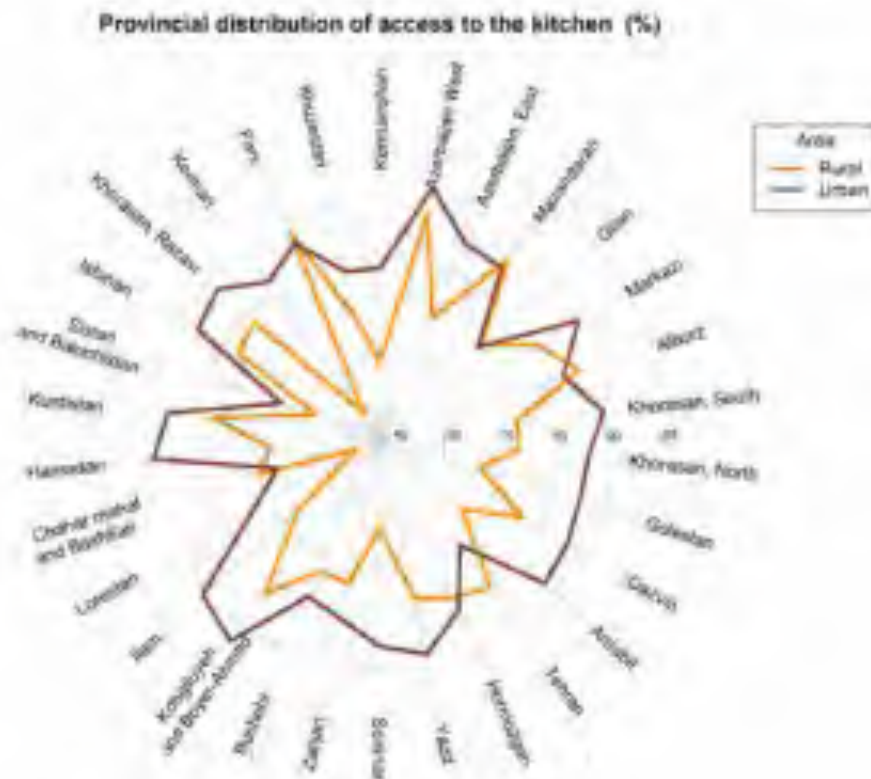


Figure 2.78. Provincial distribution of percentage of access to the phone by wealth index



Provincial distribution of access to radiators or central heating system (%)

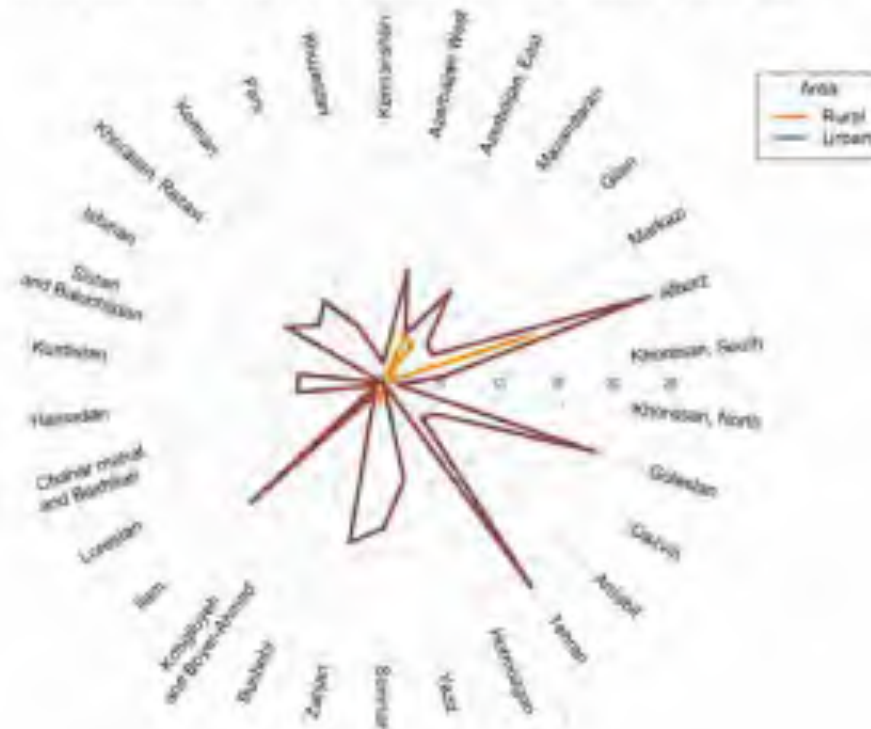


Figure 2.81. Provincial distribution of percentage of access to the radiators or central heating system by area of residency

Provincial distribution of access to radiators or central heating system (%)

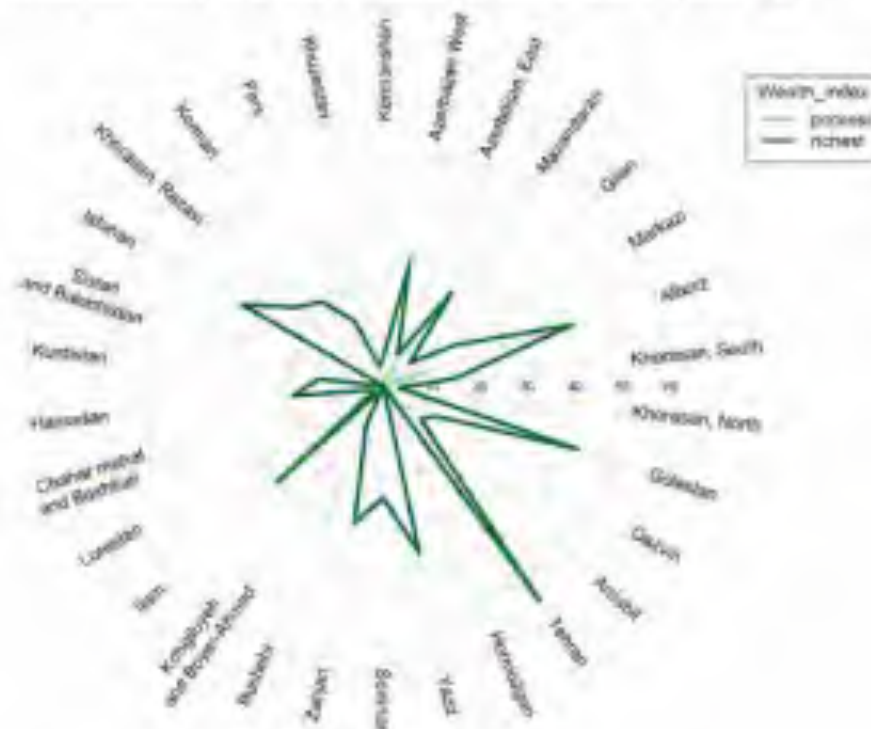


Figure 2.82. Provincial distribution of percentage of access to the radiators or central heating system by wealth index

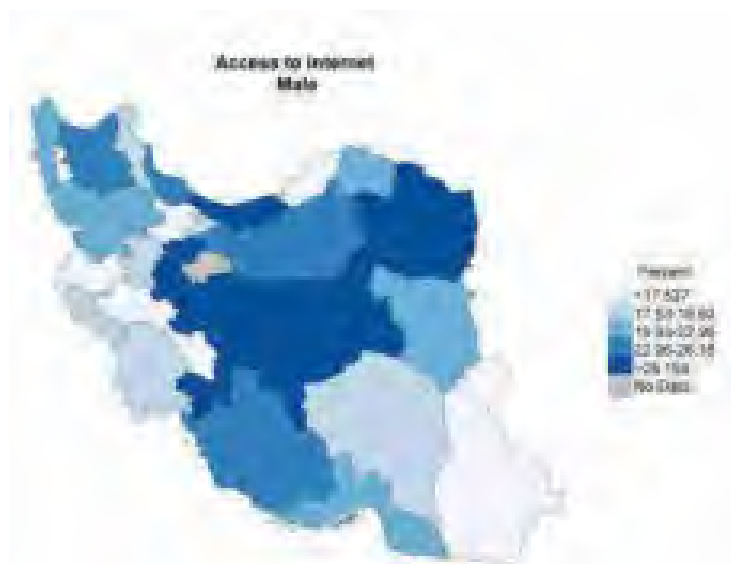


Figure 2.83. Geographical distribution of percentage of access to the internet in males

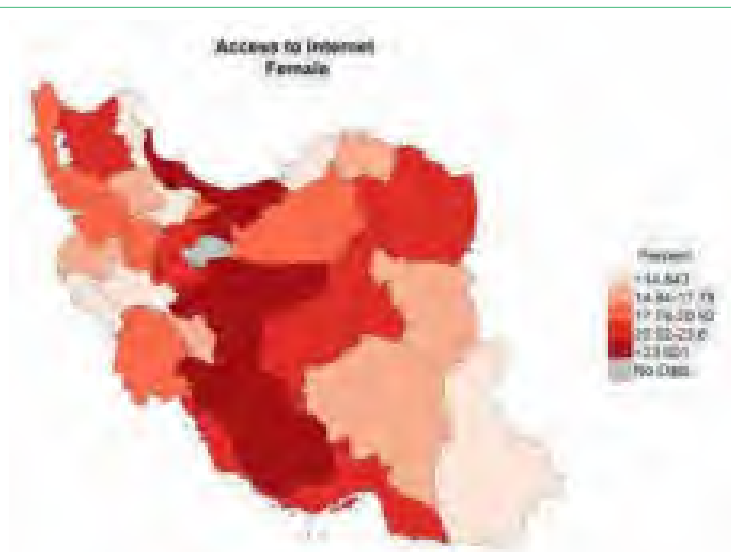


Figure 2.84. Geographical distribution of percentage of access to the internet in females

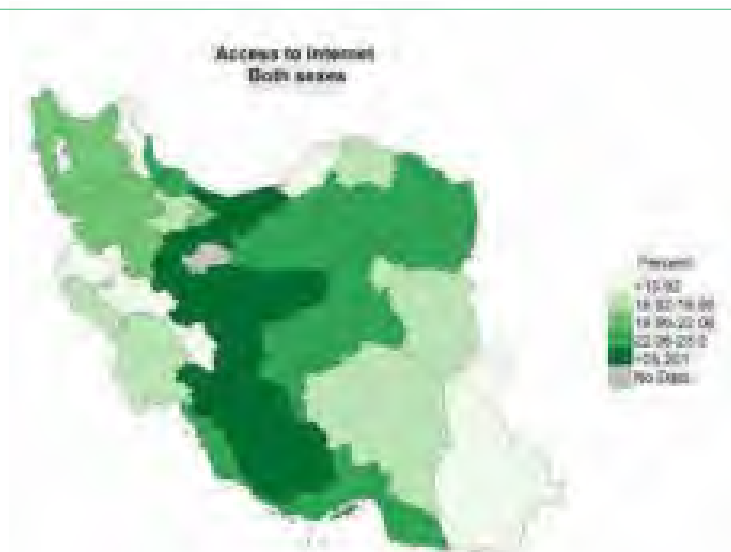


Figure 2.85. Geographical distribution of percentage of access to the internet in both sexes

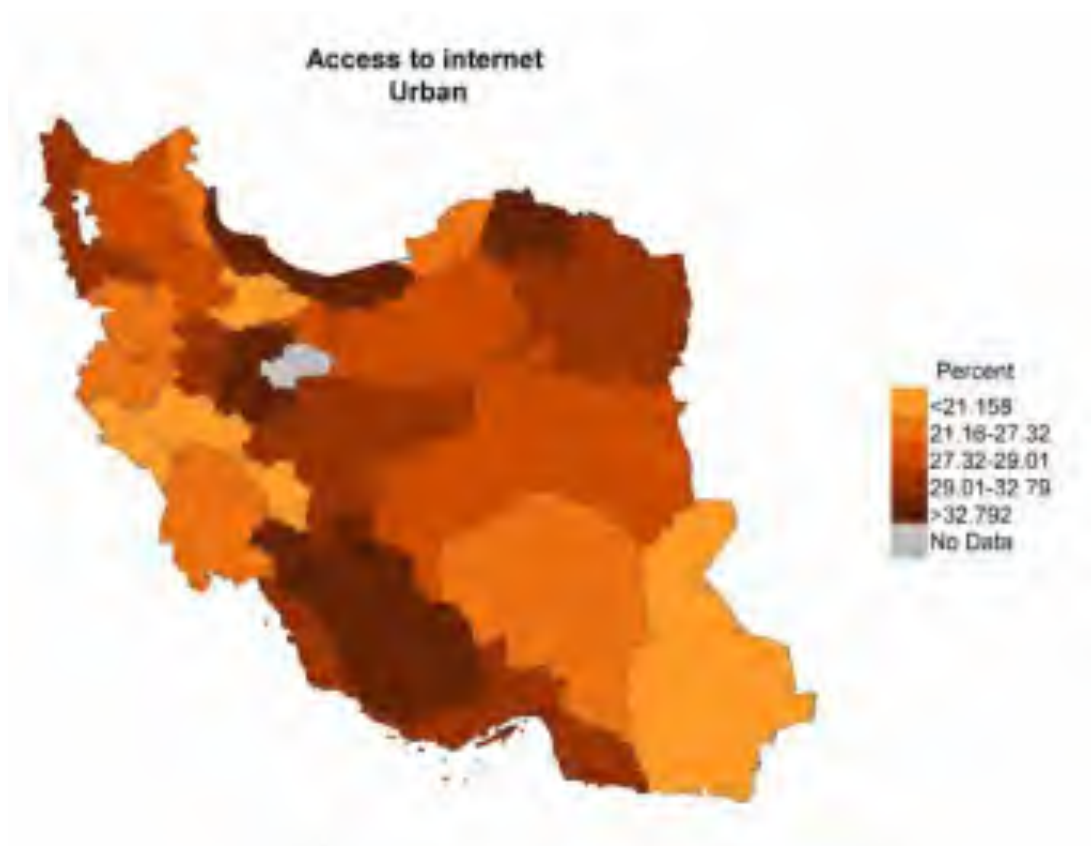


Figure 2.88. Geographical distribution of percentage of access to the internet in urban area of residency

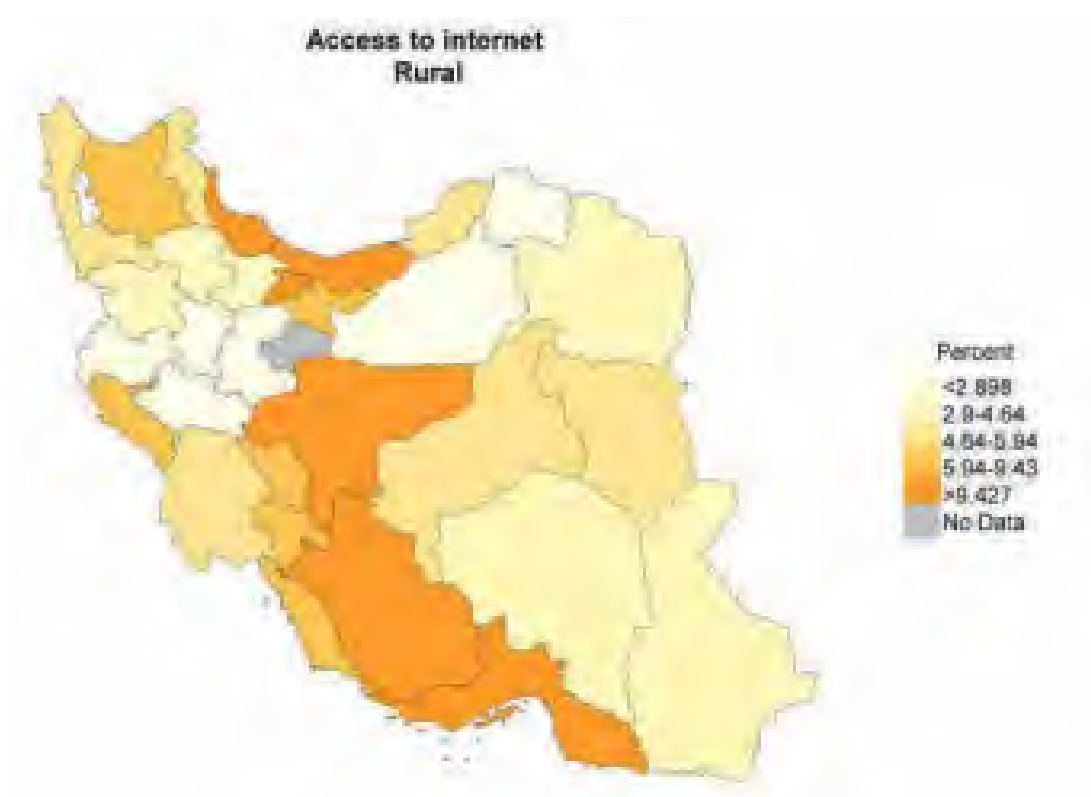


Figure 2.89. Geographical distribution of percentage of access to the internet in rural area of residency

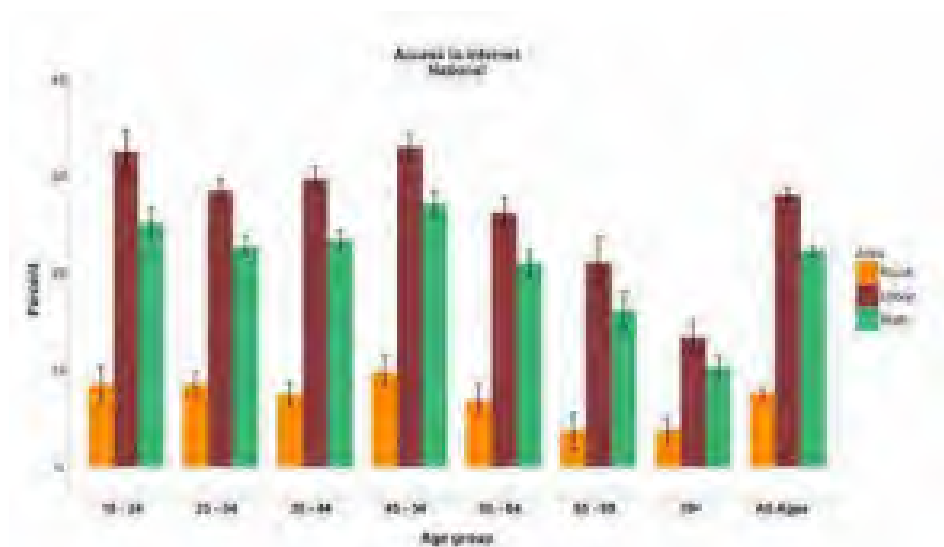


Figure 2.90. Percentage of access to the internet by age and area of residency at national level

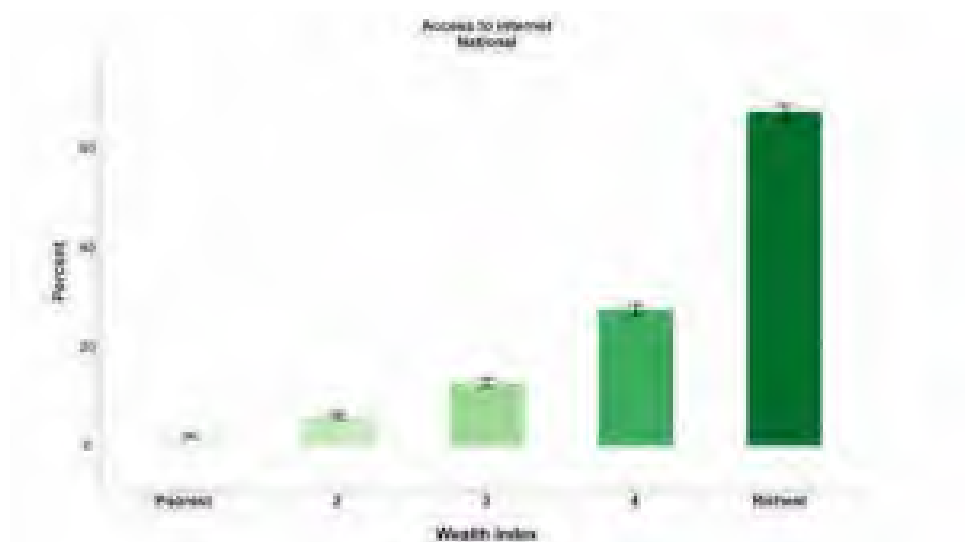


Figure 2.91. Percentage of access to the internet by wealth index quantiles at national level

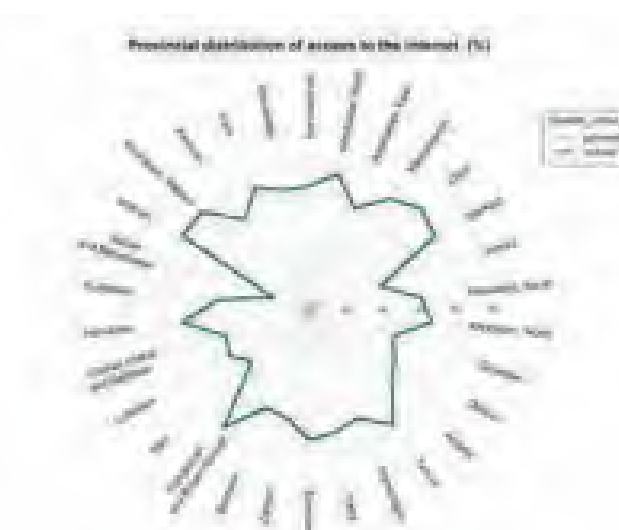


Figure 2.92. Provincial distribution of percentage of access to the internet by wealth index

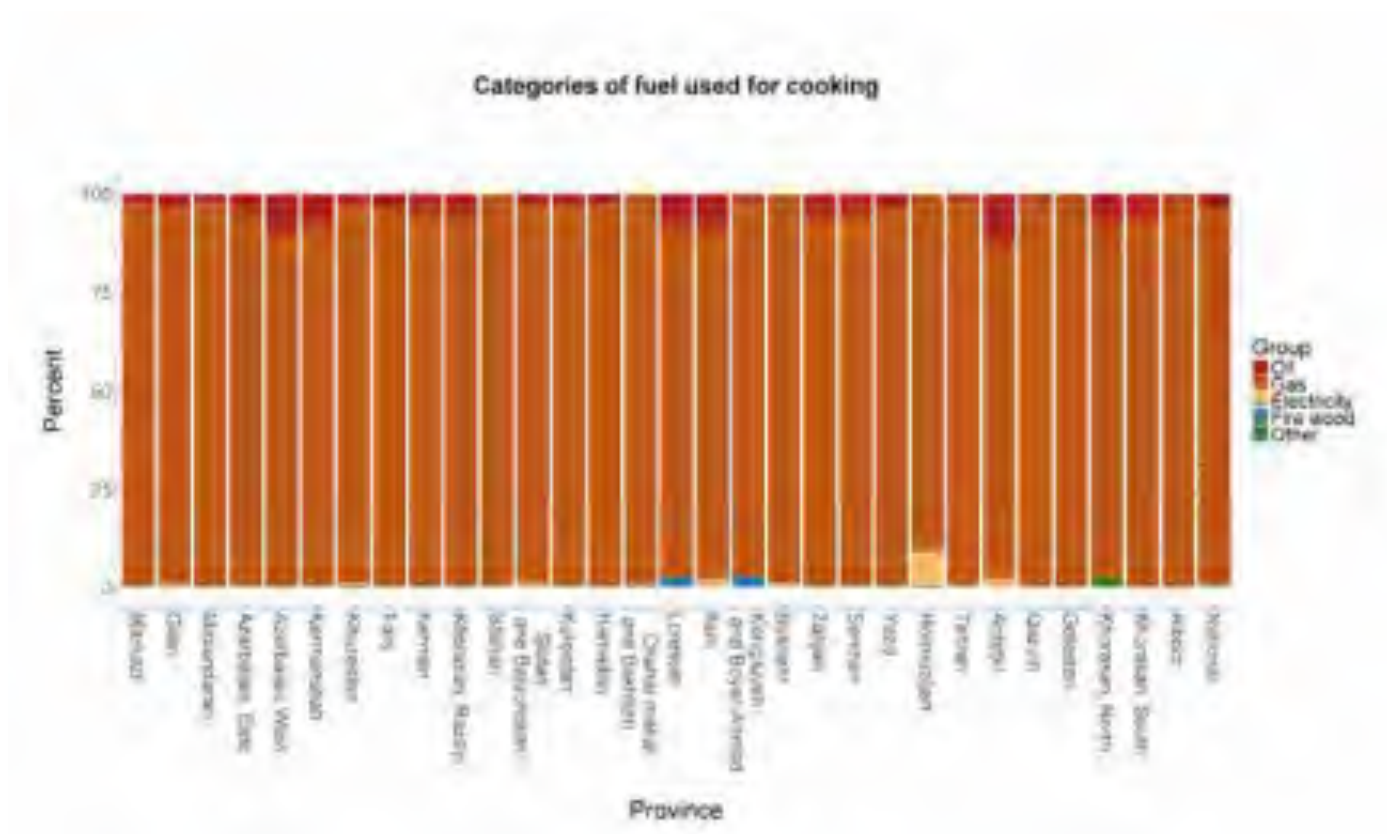


Figure 2.93. Percent of categories of fuel used for cooking by province

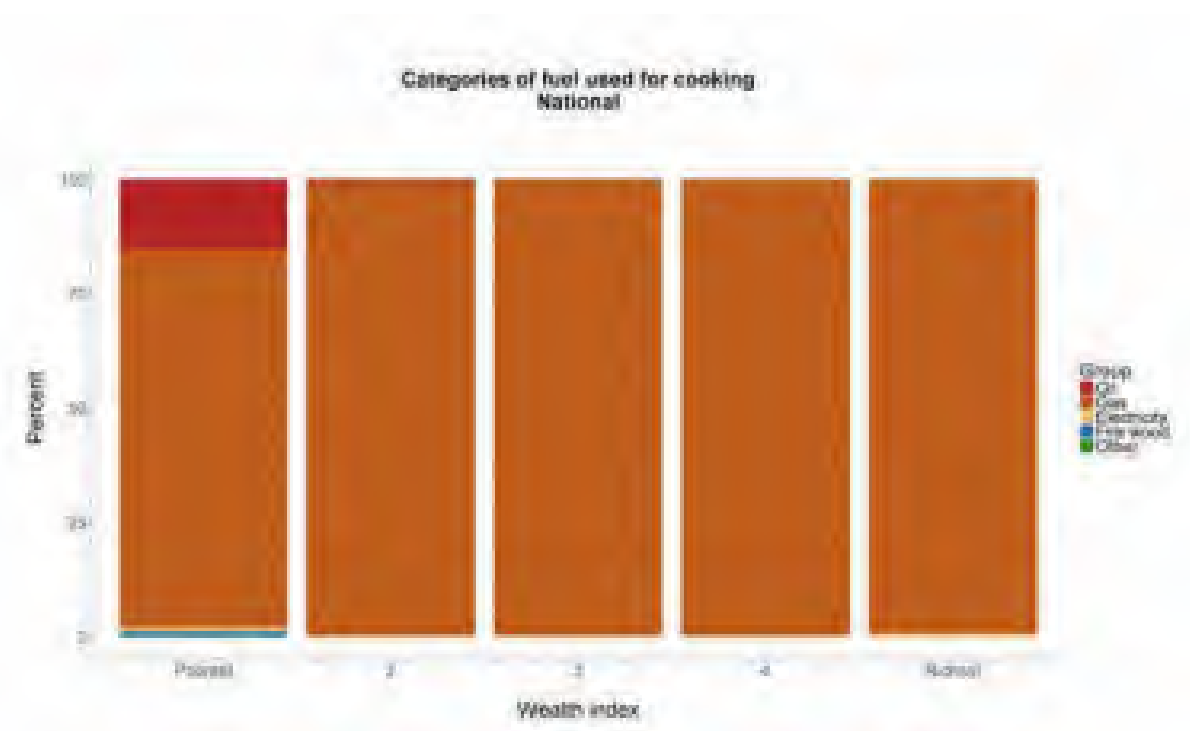
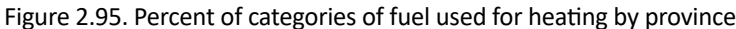


Figure 2.94. Percent of categories of fuel used for cooking by wealth index quantiles



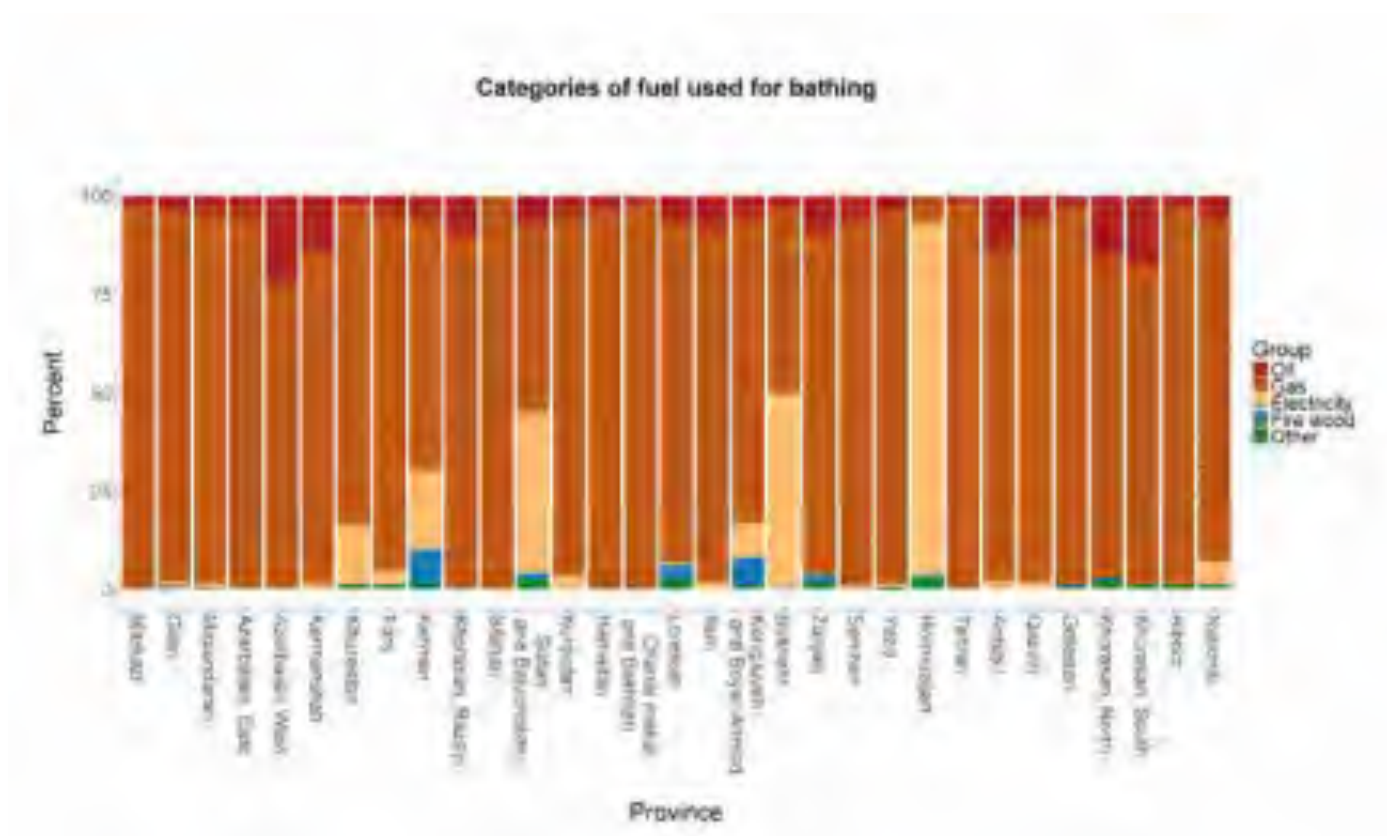


Figure 2.97. Percent of categories of fuel used for bathing by province

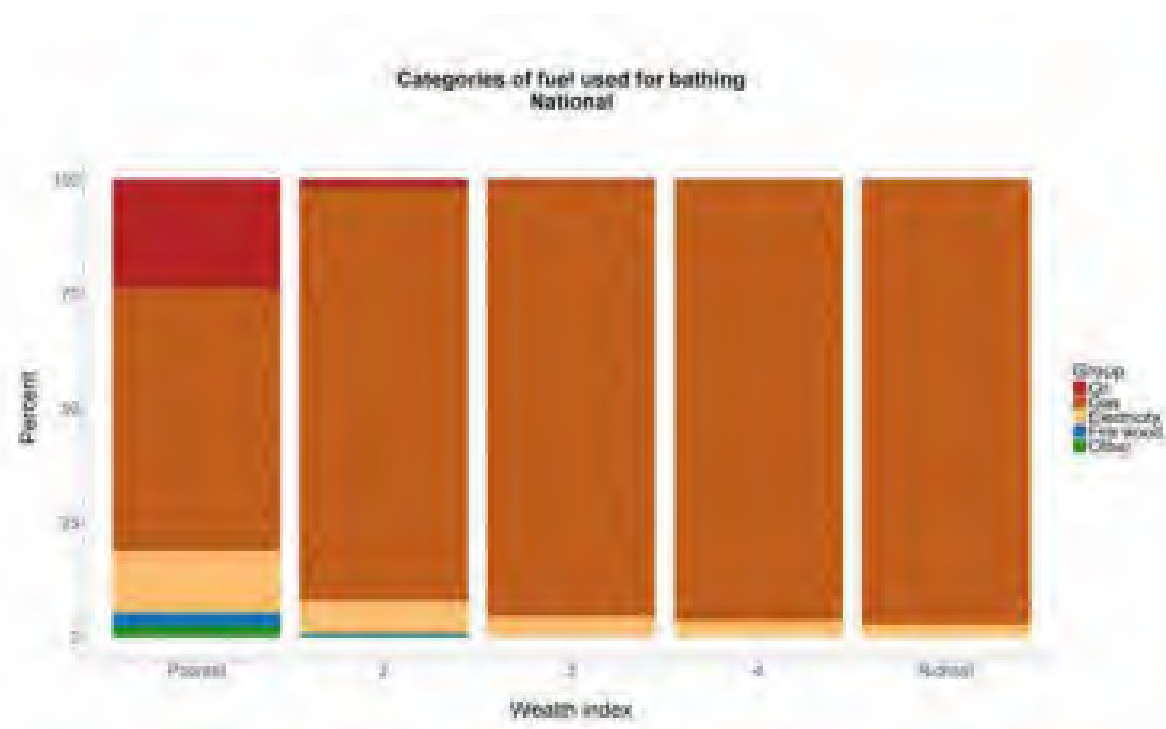


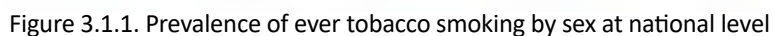
Figure 2.98. Percent of categories of fuel used for bathing by wealth index quantiles

CHAPTER 2

Results

Section 3.1

Lifestyle Risk Factors: Smoking



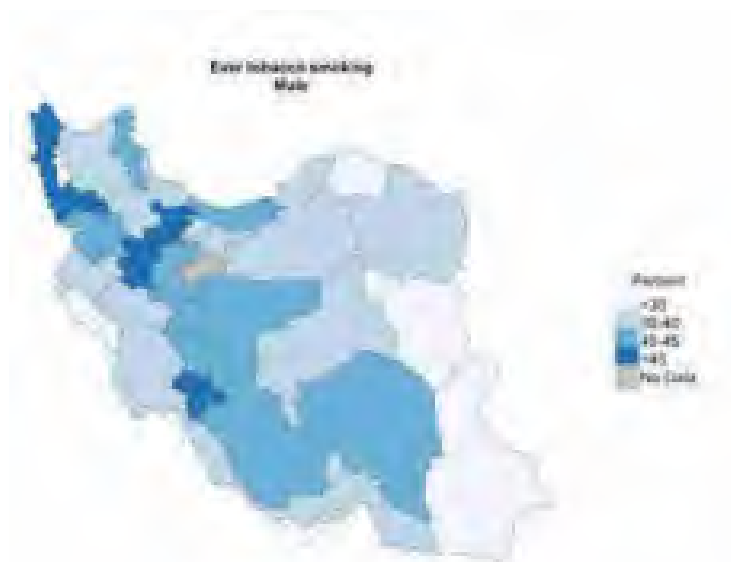


Figure 3.1.3. Geographical distribution of prevalence of ever tobacco smoking in males

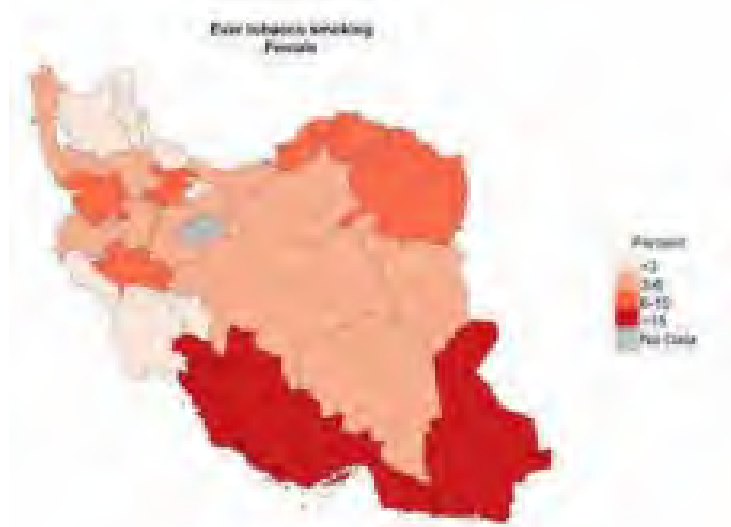


Figure 3.1.4. Geographical distribution of prevalence of ever tobacco smoking in females

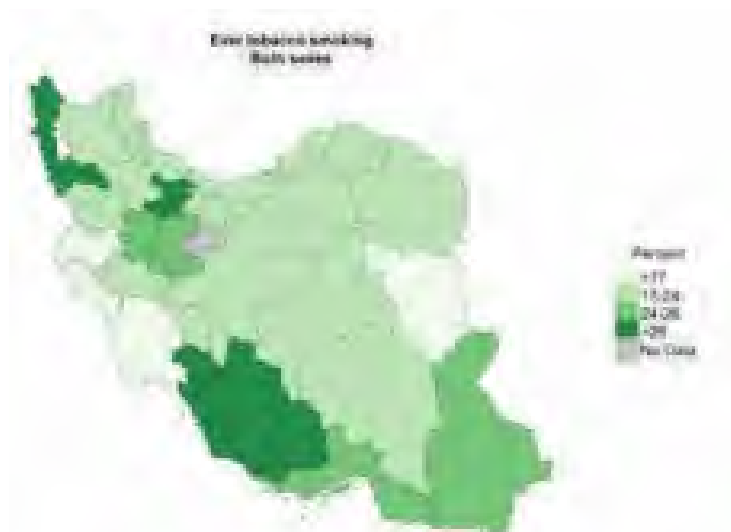


Figure 3.1.5. Geographical distribution of prevalence of ever tobacco smoking in both sexes

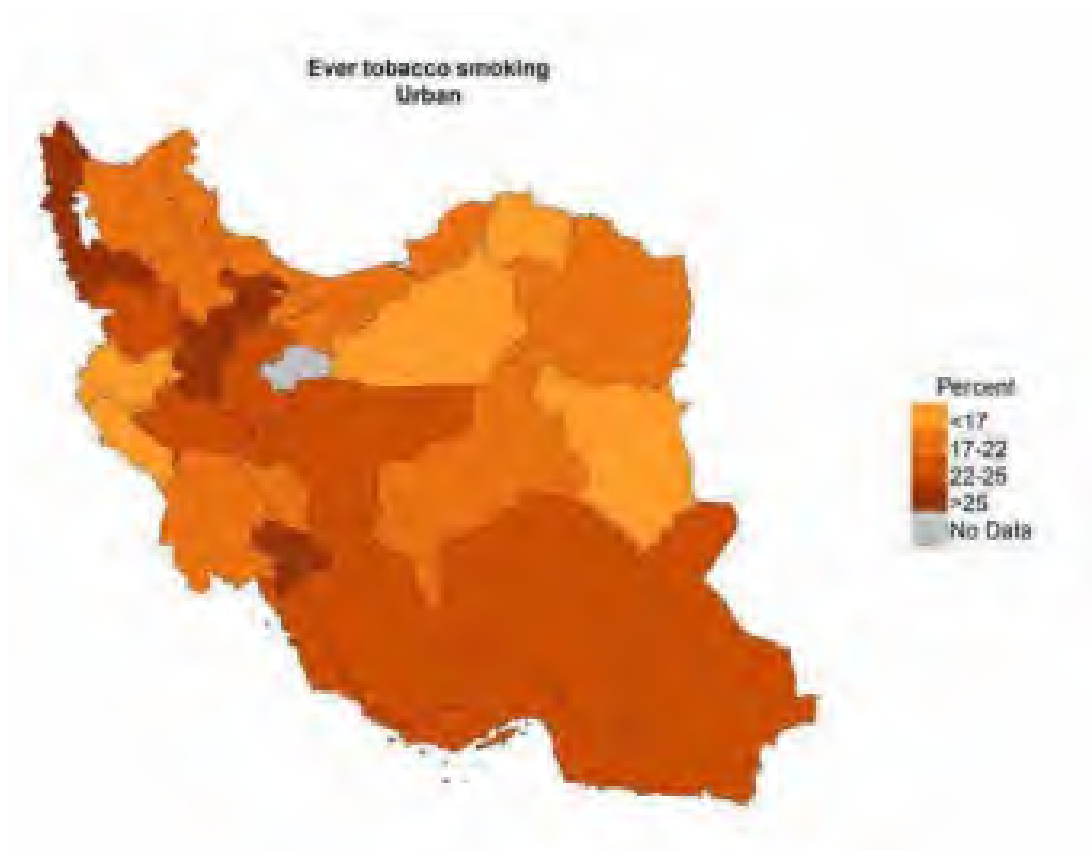


Figure 3.1.8. Geographical distribution of prevalence of ever tobacco smoking in urban area of residency

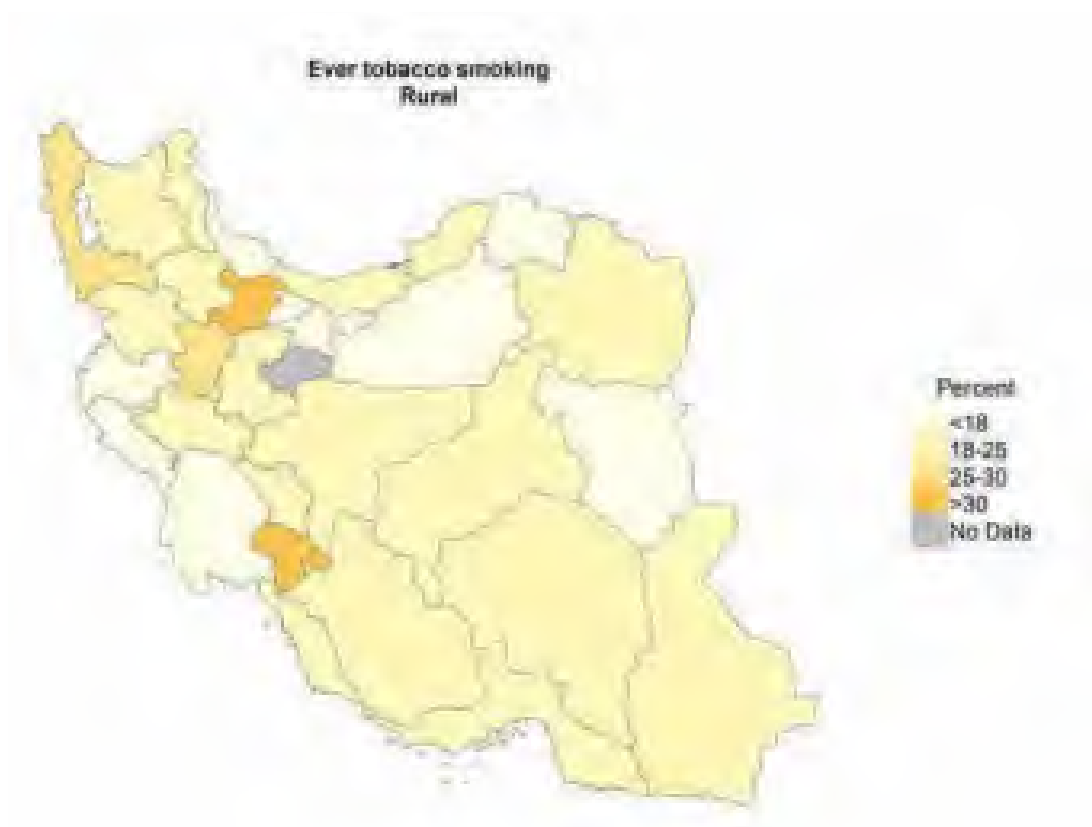


Figure 3.1.9. Geographical distribution of prevalence of ever tobacco smoking in rural area of residency

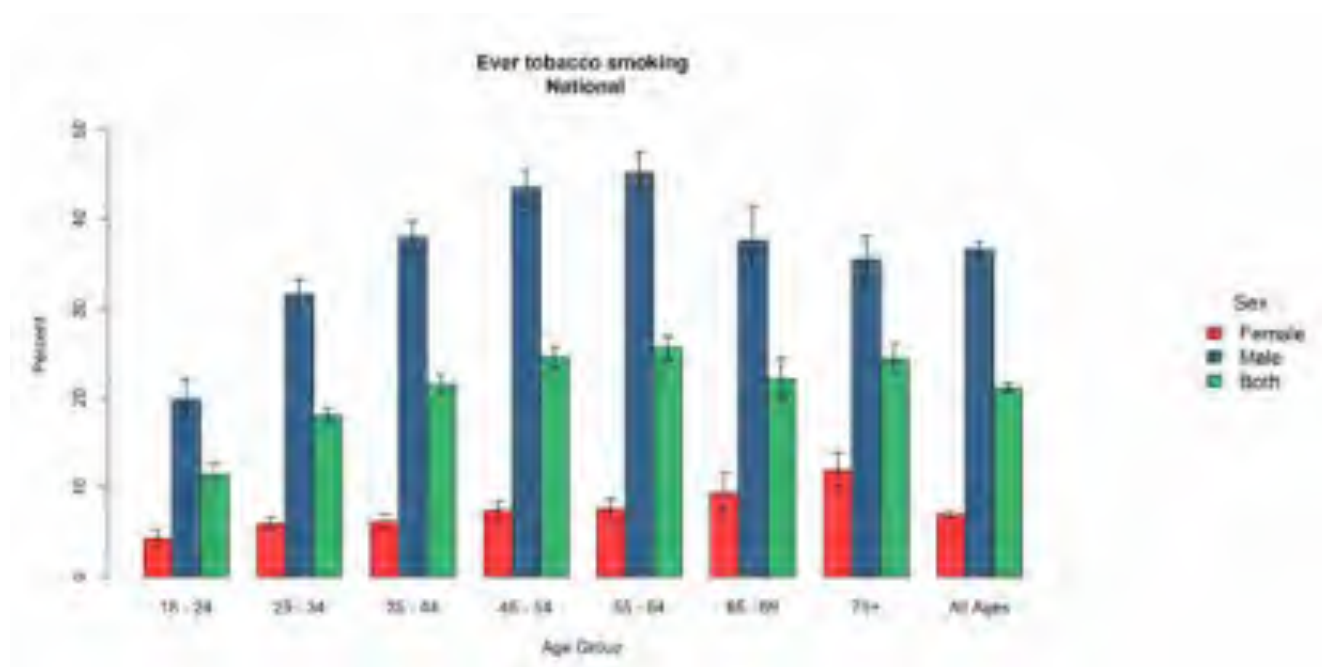


Figure 3.1.10. Prevalence of ever tobacco smoking by age and sex at national level

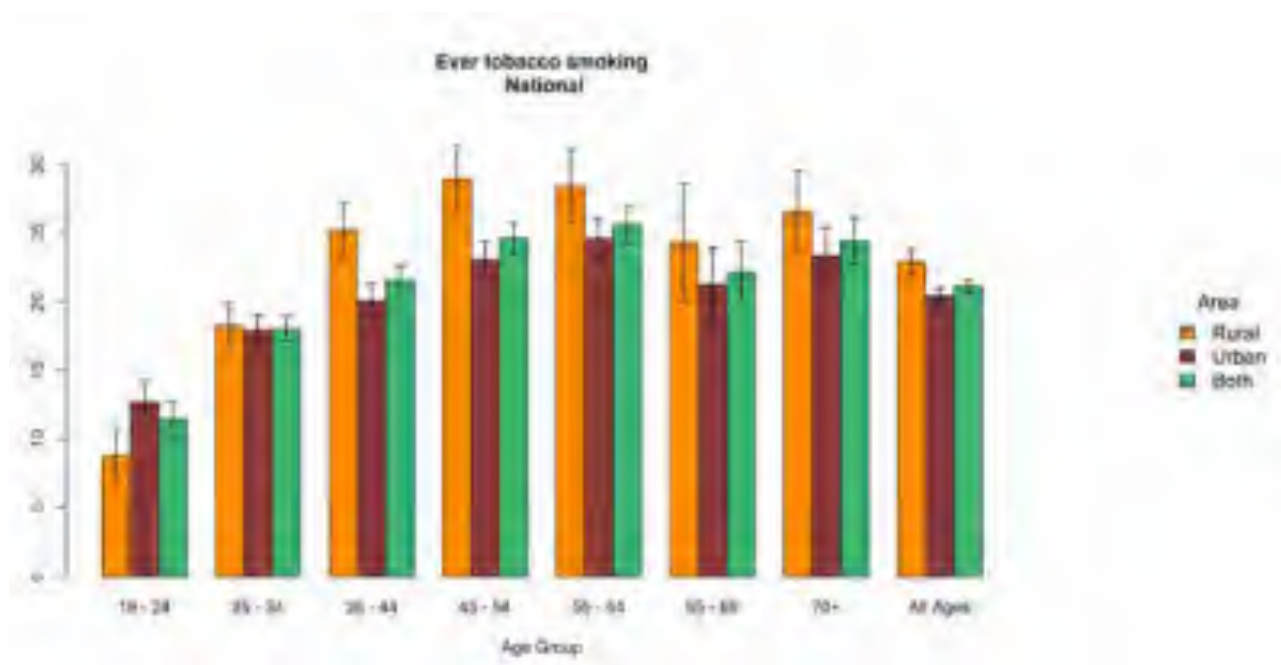


Figure 3.1.11. Prevalence of ever tobacco smoking by age and area of residency at national level

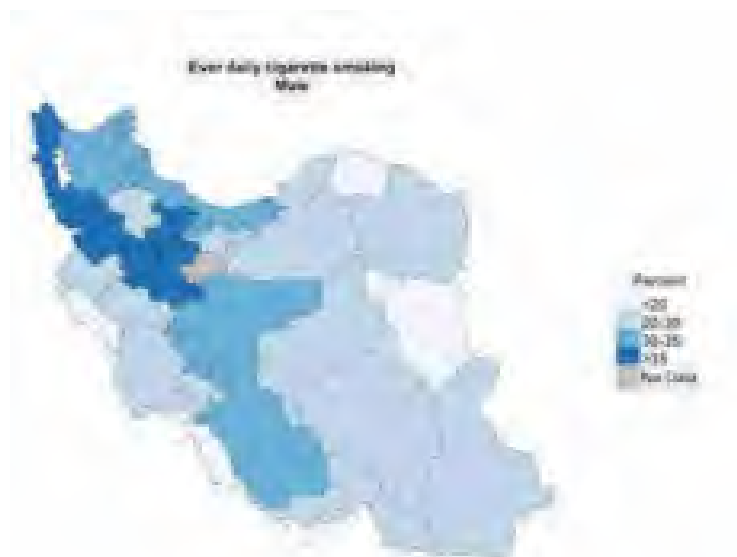


Figure 3.1.16. Geographical distribution of prevalence of ever daily cigarette smoking in males

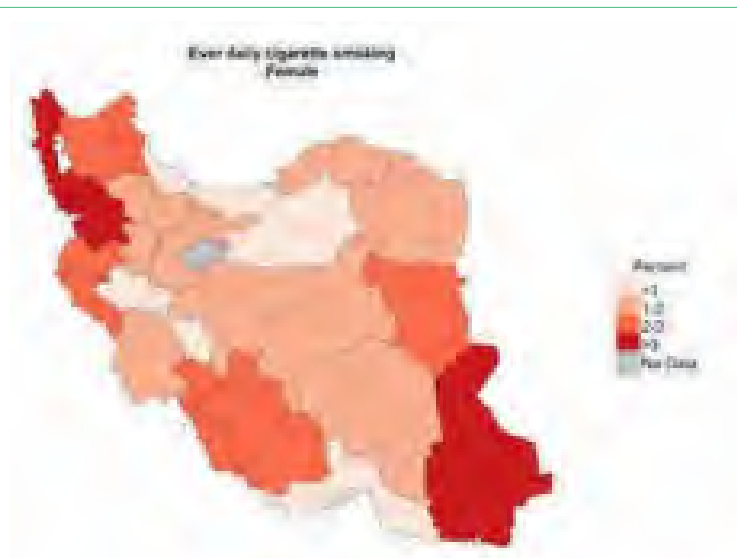


Figure 3.1.17. Geographical distribution of prevalence of ever daily cigarette smoking in females

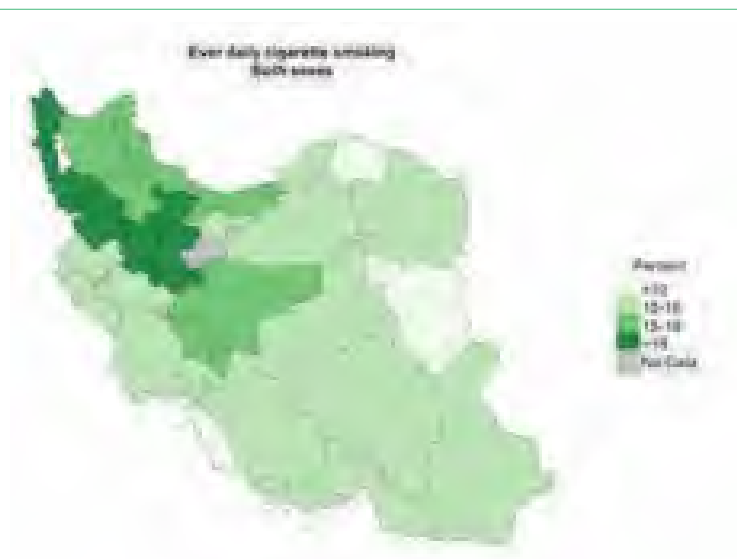


Figure 3.1.18. Geographical distribution of prevalence of ever daily cigarette smoking in both sexes

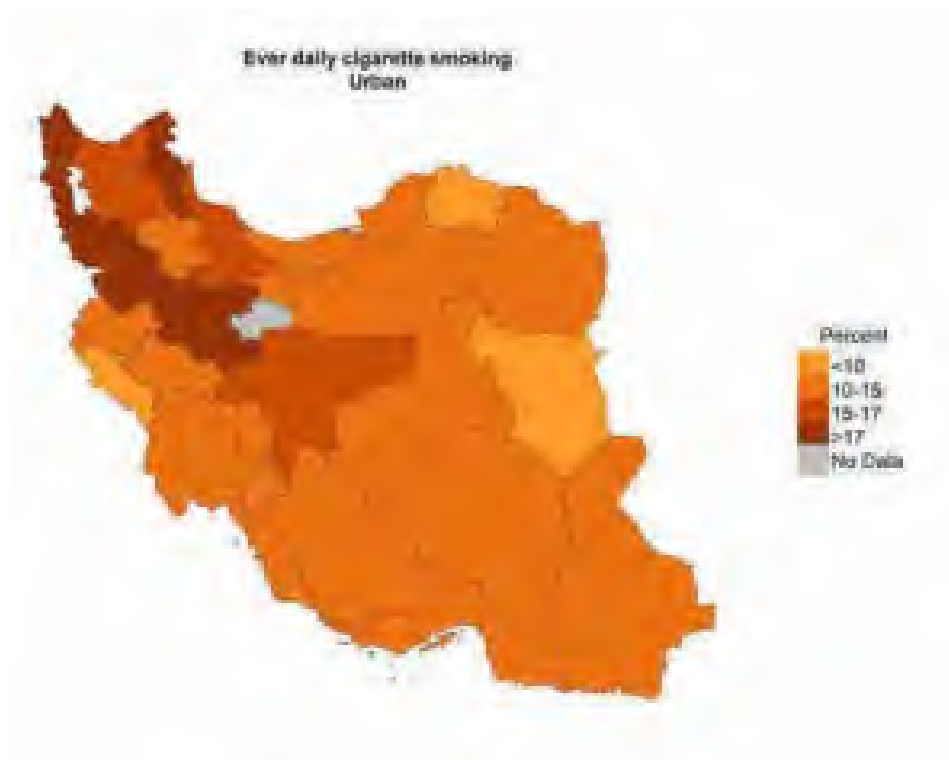


Figure 3.1.21. Geographical distribution of prevalence of ever daily cigarette smoking in urban area of residency

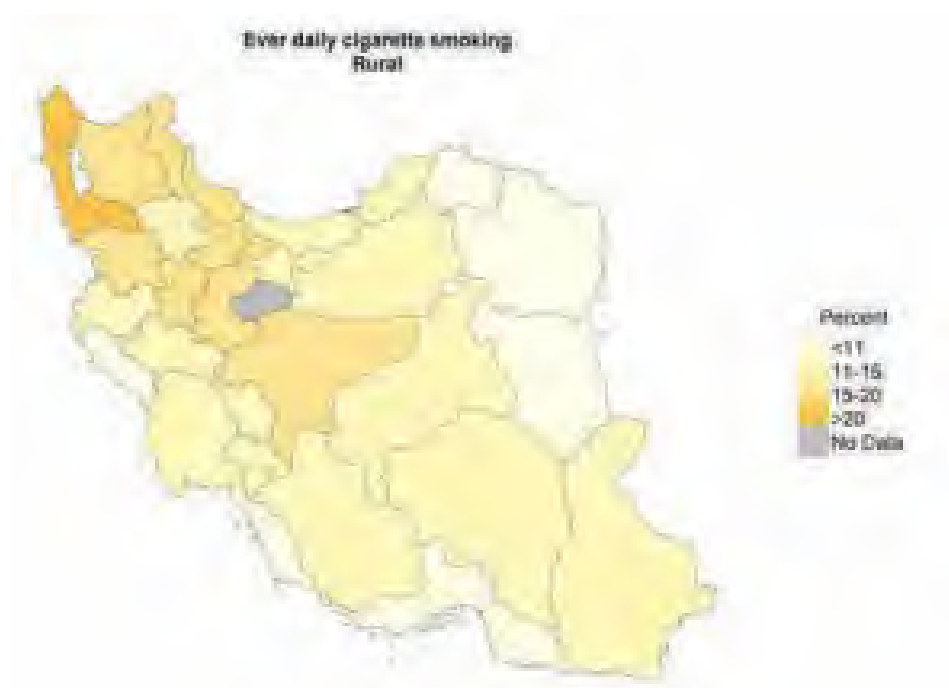


Figure 3.1.22. Geographical distribution of prevalence of ever daily cigarette smoking in rural area of residency

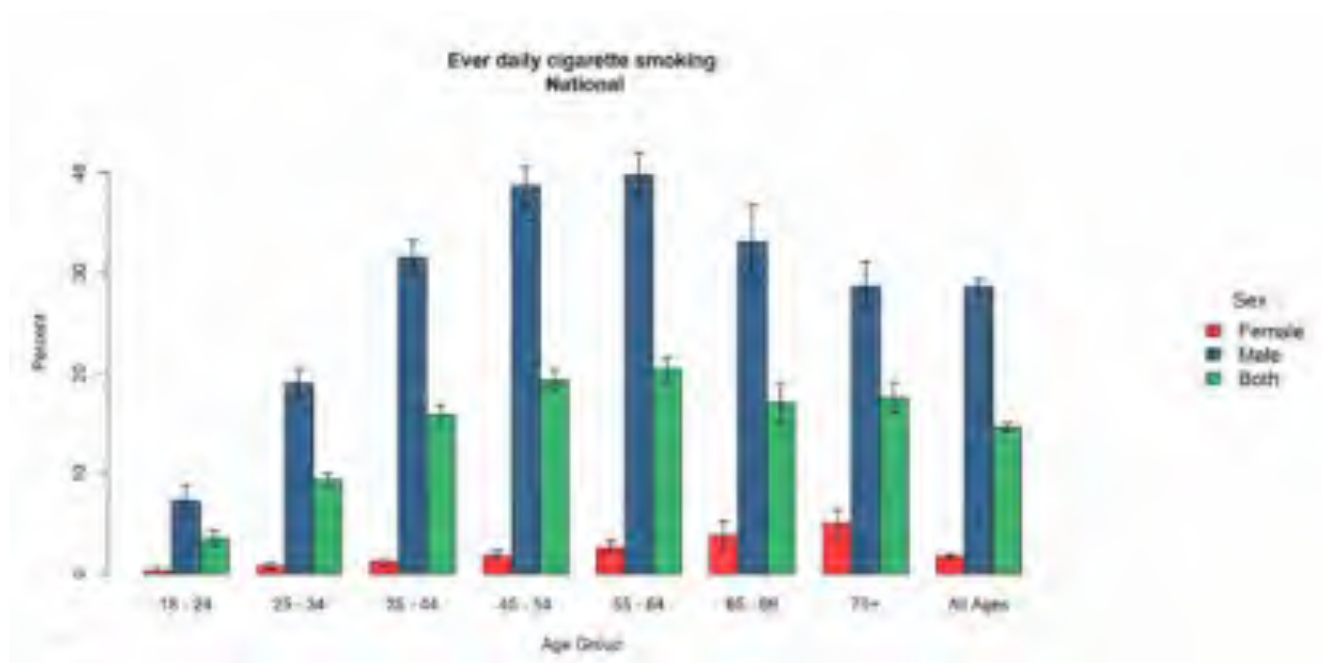


Figure 3.1.23. Prevalence of ever daily cigarette smoking by age and sex at national level

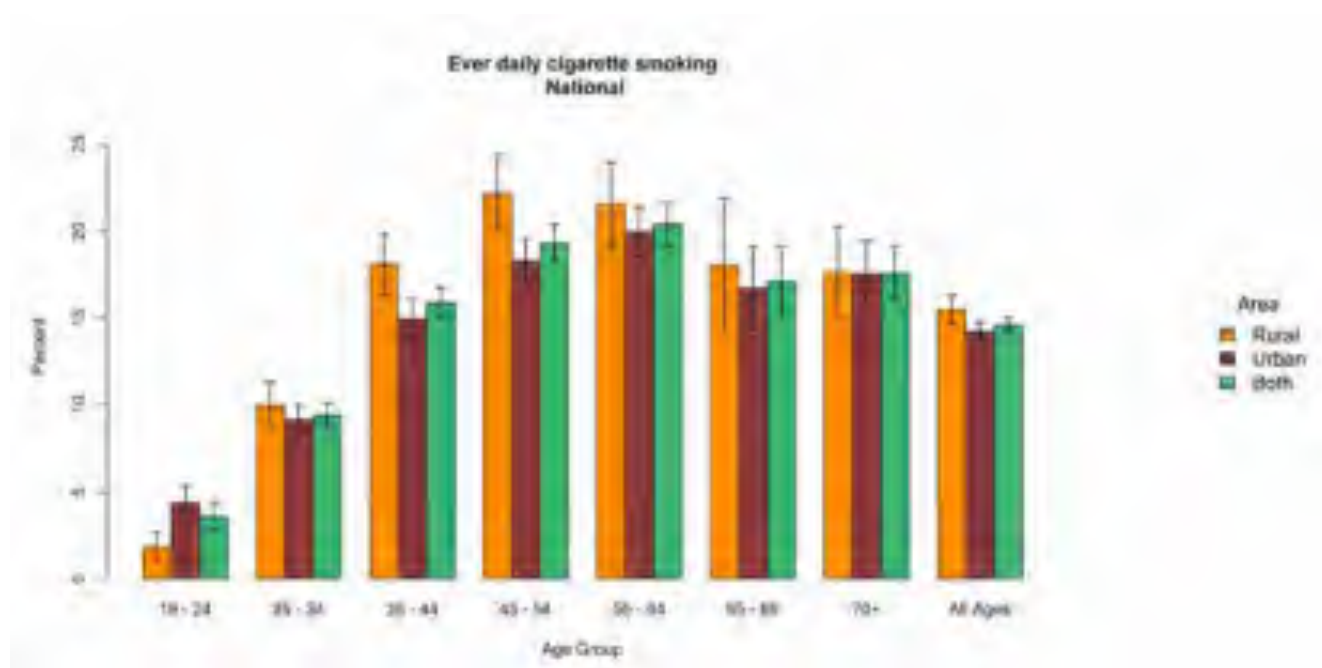


Figure 3.1.24. Prevalence of ever daily cigarette smoking by age and area of residency at national level

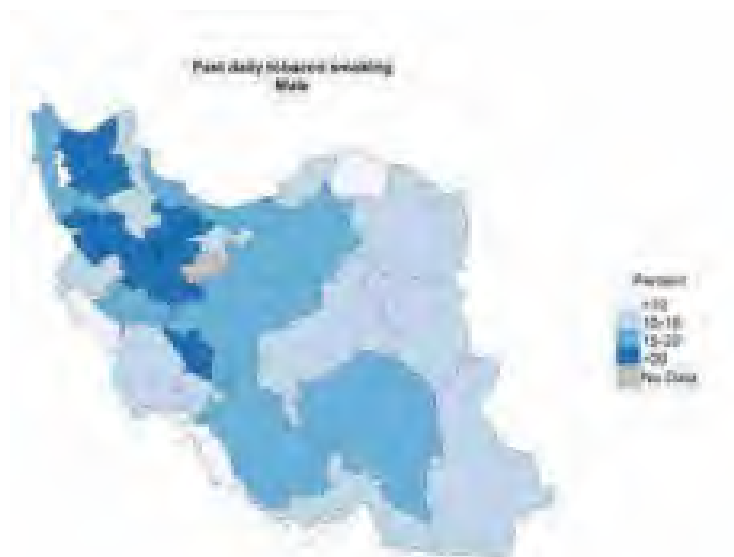


Figure 3.1.29. Geographical distribution of prevalence of past daily tobacco smoking in males

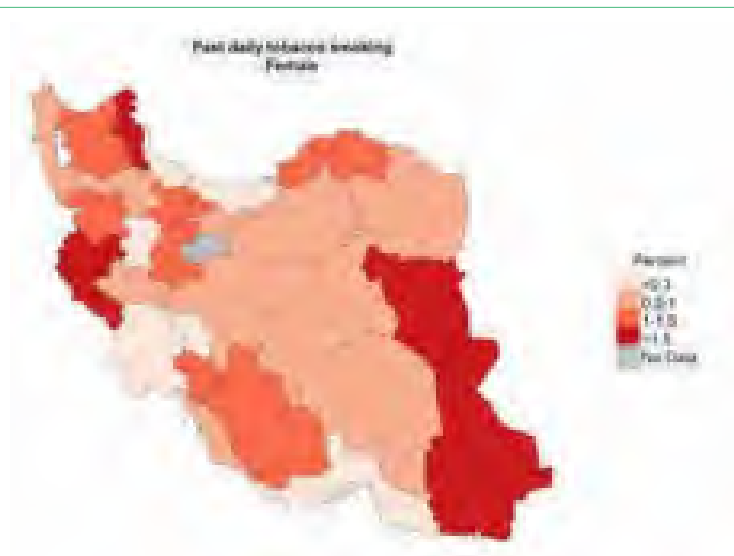


Figure 3.1.30. Geographical distribution of prevalence of past daily tobacco smoking in females

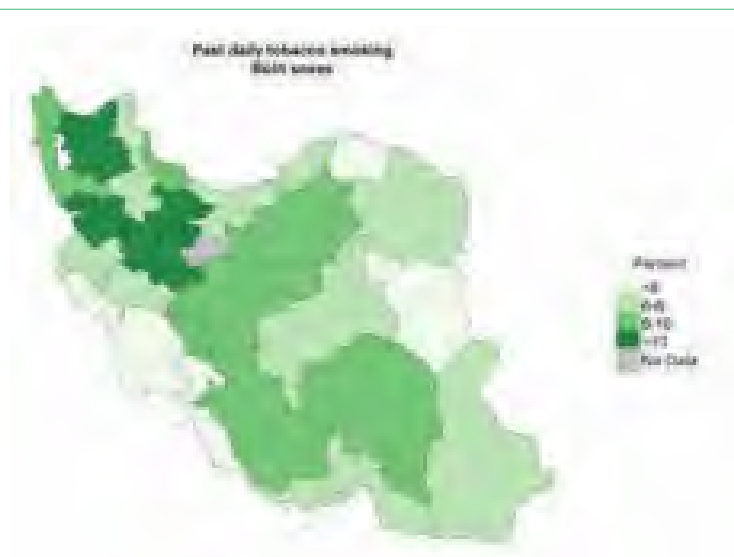


Figure 3.1.31. Geographical distribution of prevalence of past daily tobacco smoking in both sexes

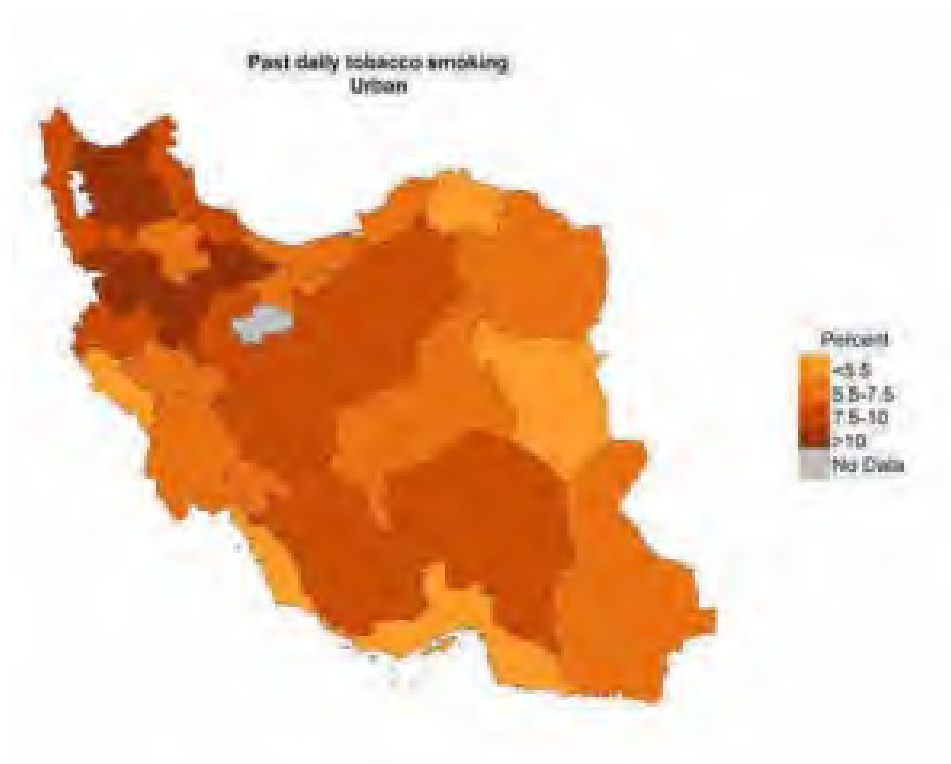


Figure 3.1.34. Geographical distribution of prevalence of past daily tobacco smoking in urban area of residency

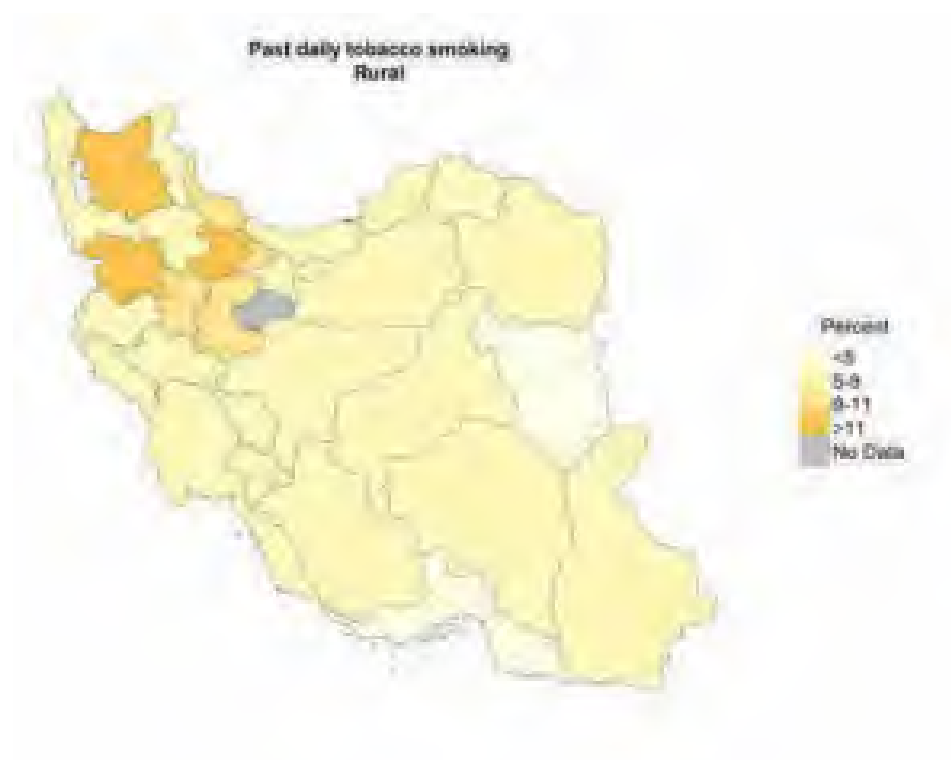


Figure 3.1.35. Geographical distribution of prevalence of past daily tobacco smoking in rural area of residency

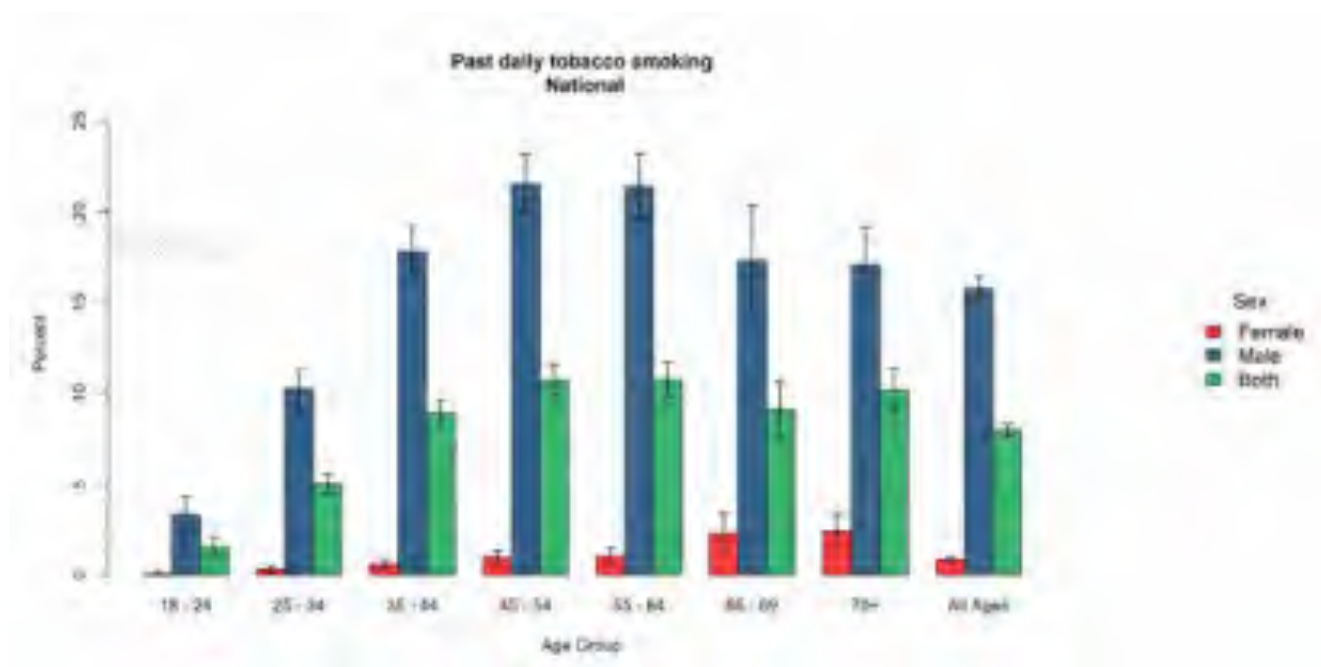


Figure 3.1.36. Prevalence of past daily tobacco smoking by age and sex at national level

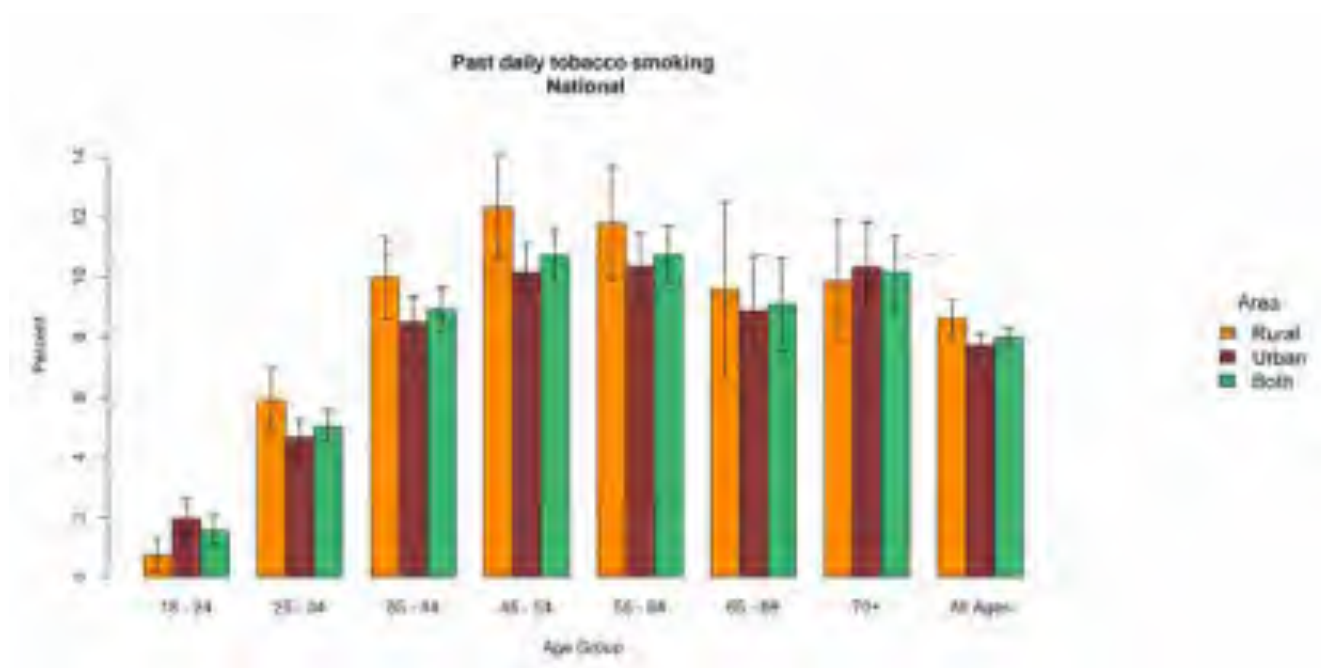


Figure 3.1.37. Prevalence of past daily tobacco smoking by age and area of residency at national level

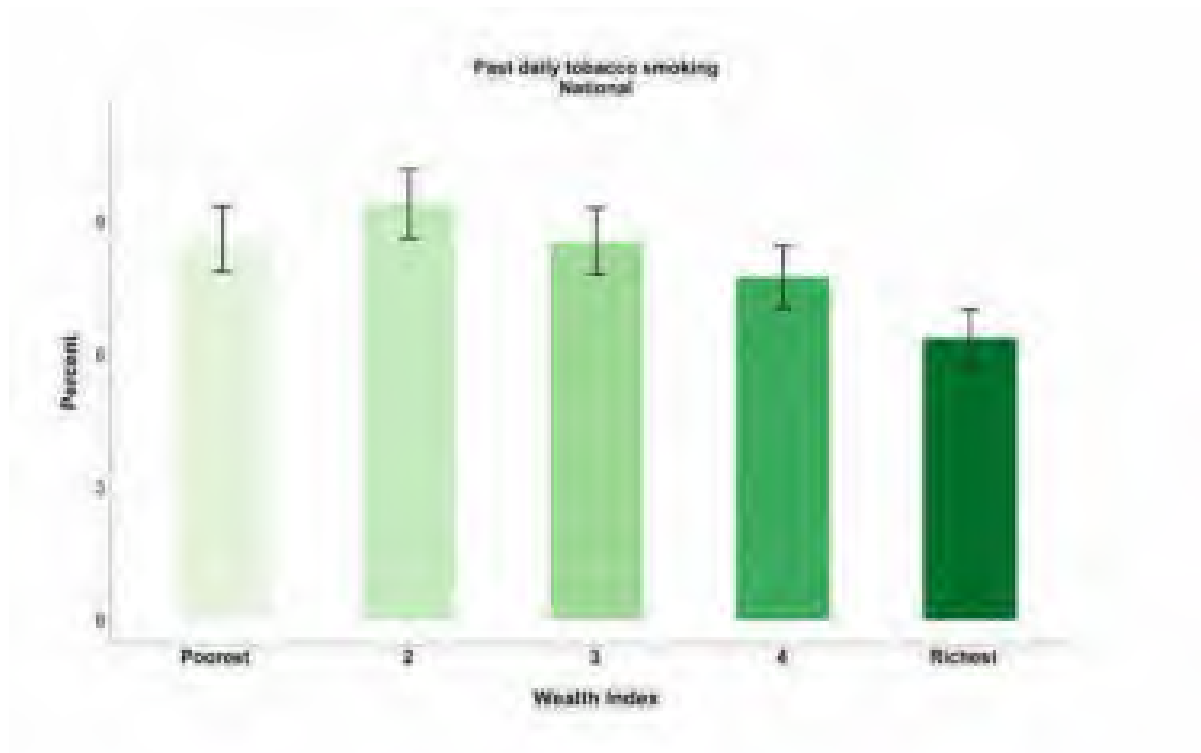


Figure 3.1.38. Prevalence of past daily tobacco smoking by wealth index quantiles at national level

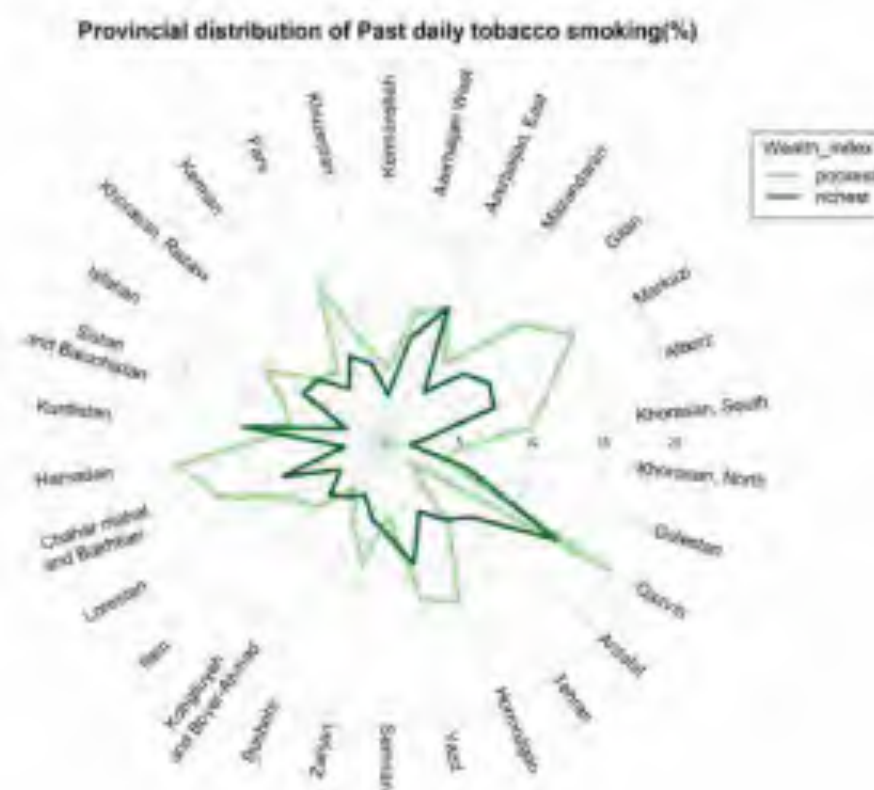


Figure 3.1.39. Provincial distribution of prevalence of past daily tobacco smoking by wealth index

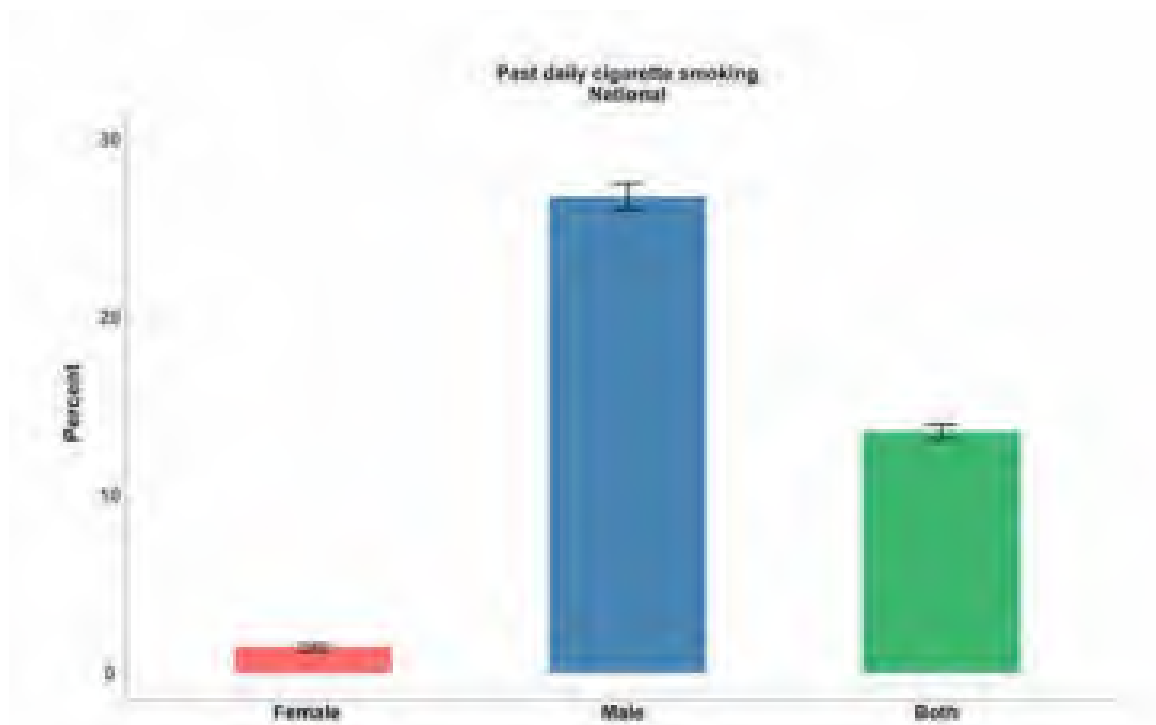


Figure 3.1.40. Prevalence of past daily cigarette smoking by sex

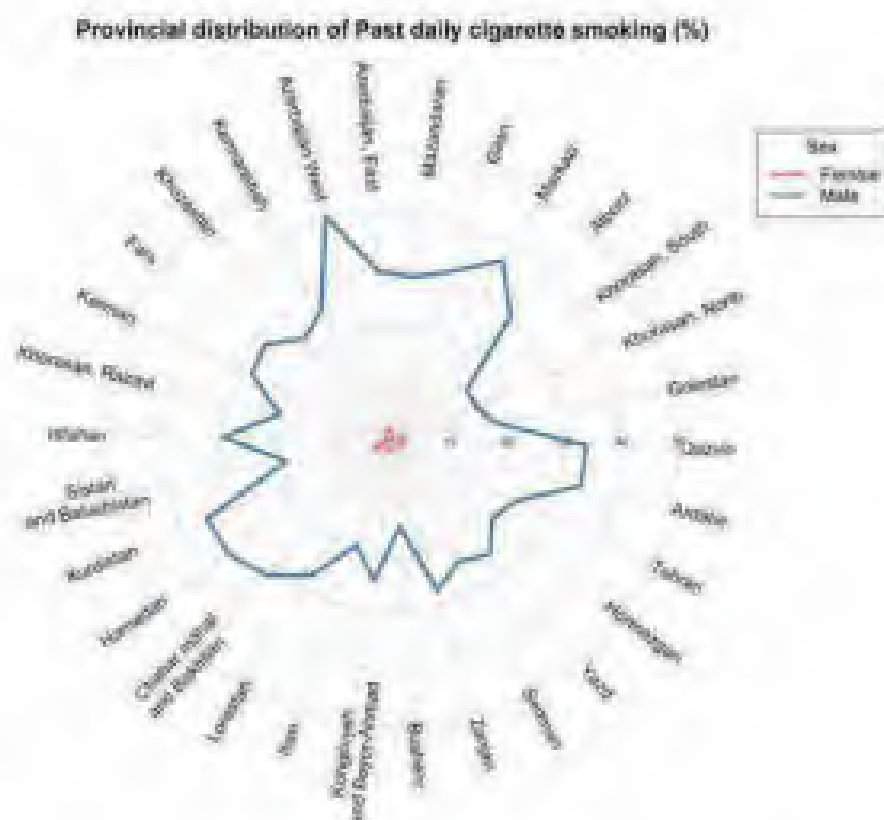


Figure 3.1.41. Provincial distribution of prevalence of past daily cigarette smoking by sex at national level

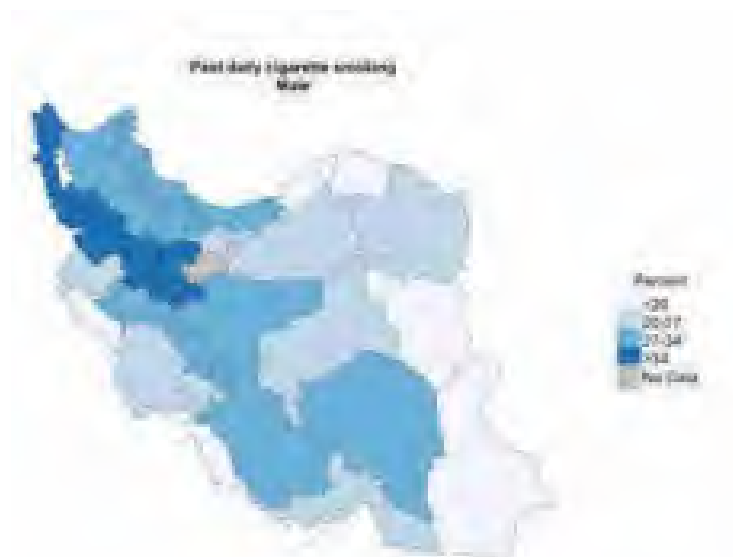


Figure 3.1.42. Geographical distribution of prevalence of past daily cigarette smoking in males

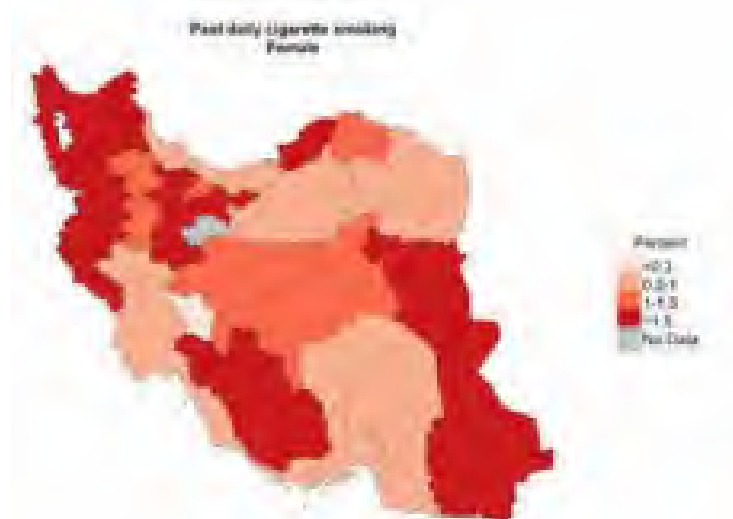


Figure 3.1.43. Geographical distribution of prevalence of past daily cigarette smoking in females

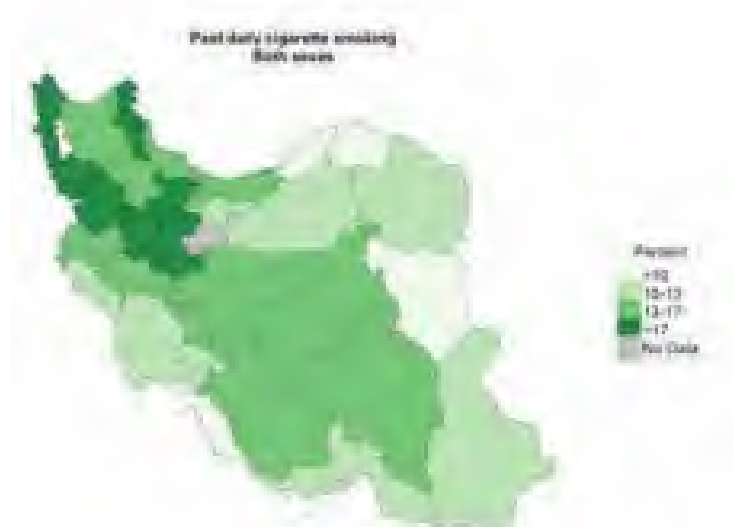


Figure 3.1.44. Geographical distribution of prevalence of past daily cigarette smoking in both sexes

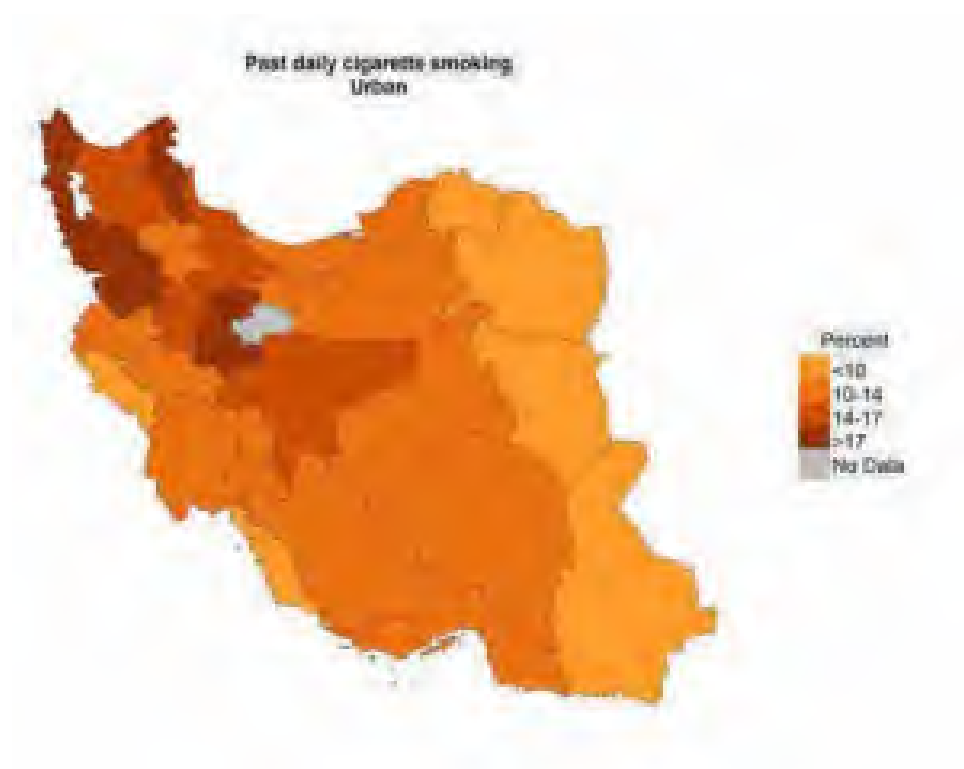


Figure 3.1.47. Geographical distribution of prevalence of past daily cigarette smoking in urban area of residency

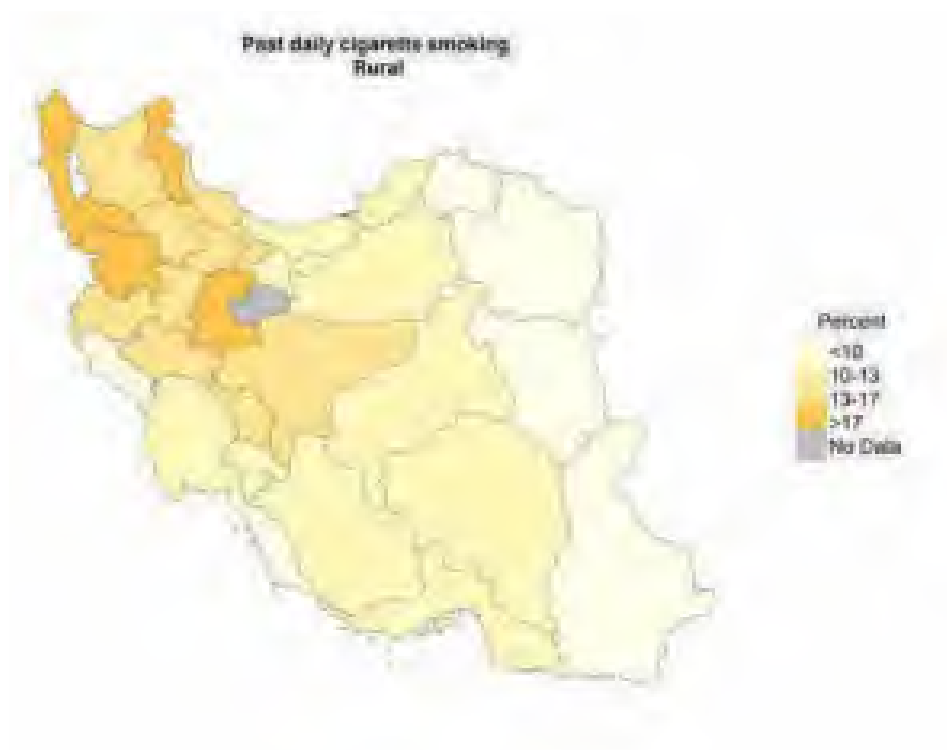


Figure 3.1.48. Geographical distribution of prevalence of past daily cigarette smoking in rural area of residency

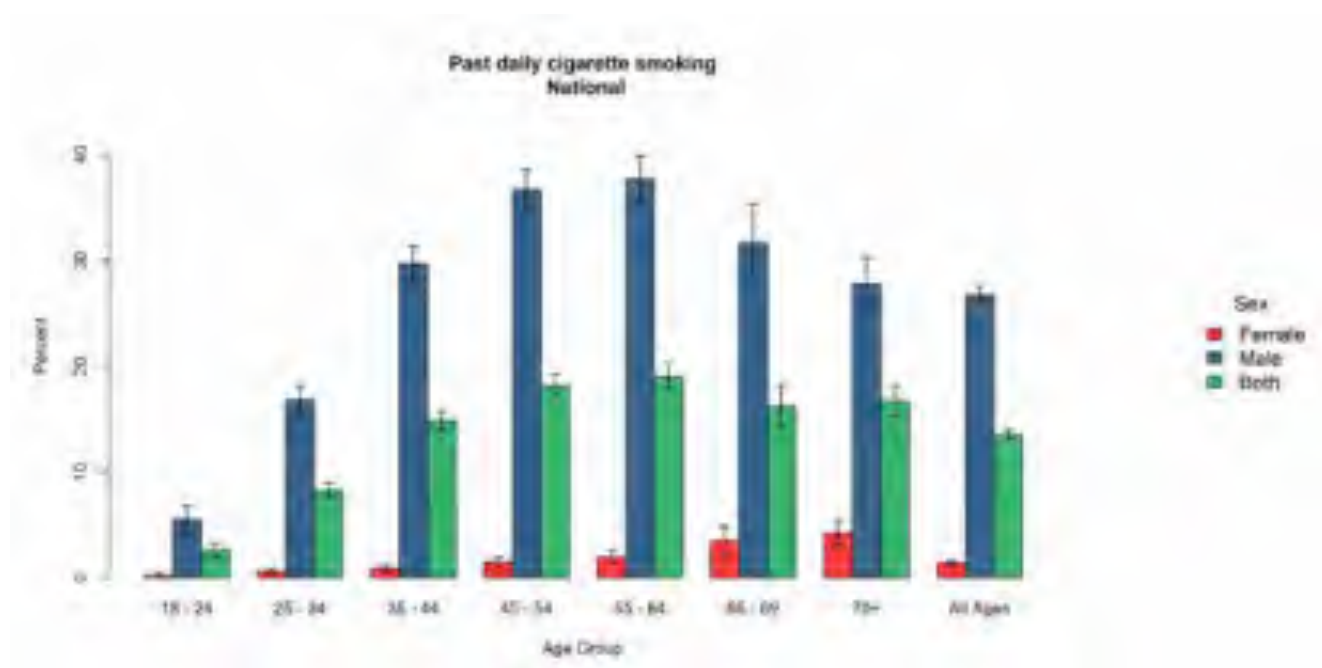


Figure 3.1.49. Prevalence of past daily cigarette smoking by age and sex at national level

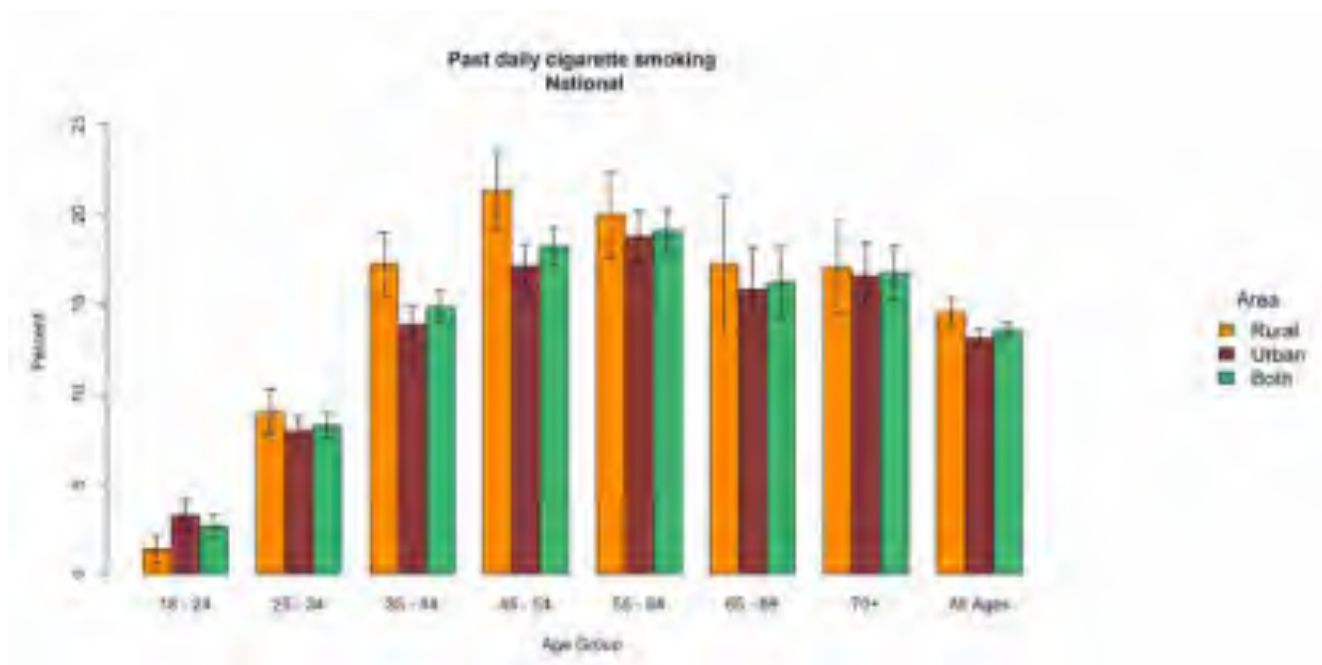


Figure 3.1.50. Prevalence of past daily cigarette smoking by age and area of residency at national level

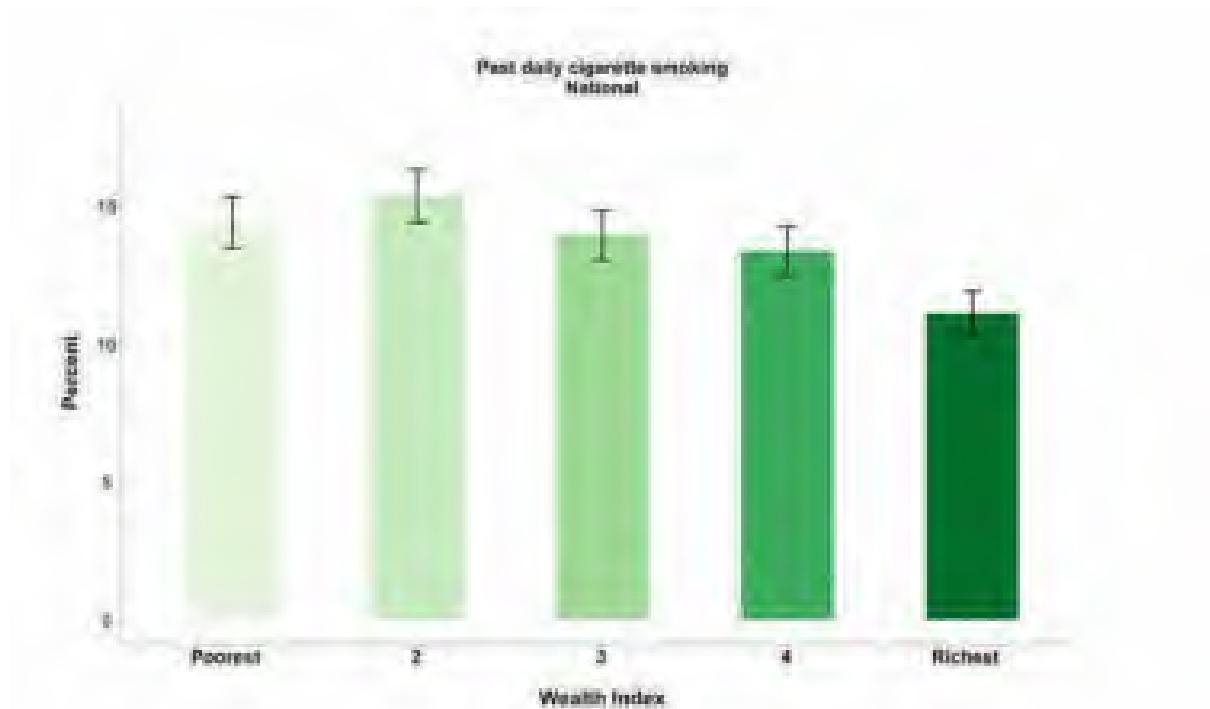


Figure 3.1.51. Prevalence of past daily cigarette smoking by wealth index quantiles at national level

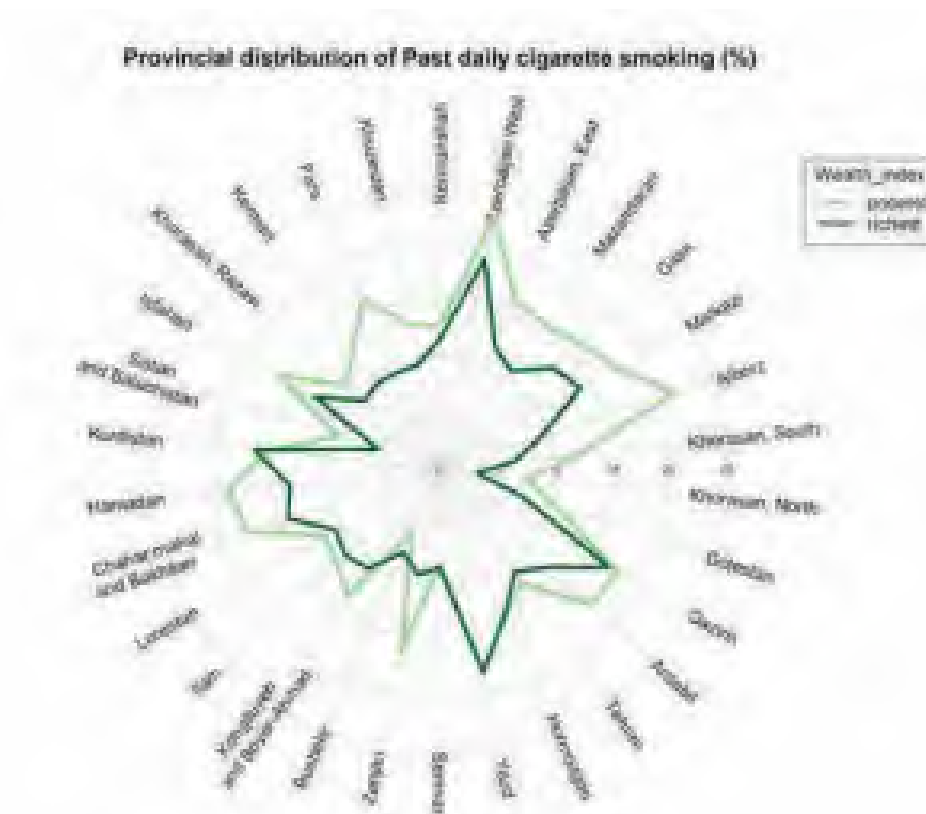


Figure 3.1.52. Provincial distribution of prevalence of past daily cigarette smoking by wealth index

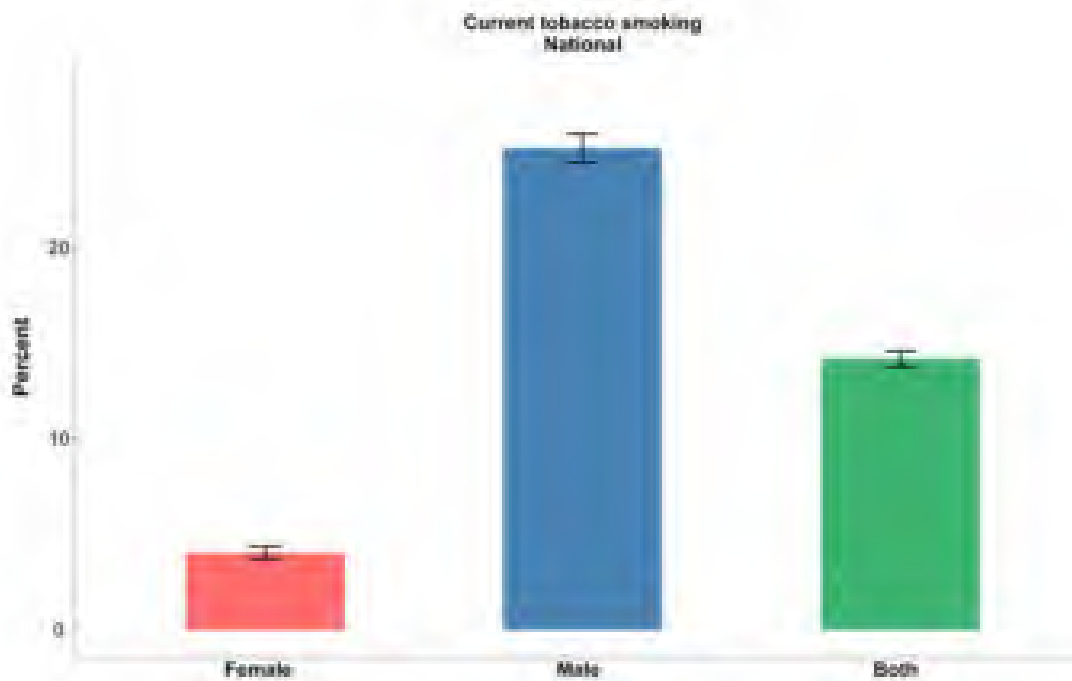


Figure 3.1.53. Prevalence of current tobacco smoking by sex at national level

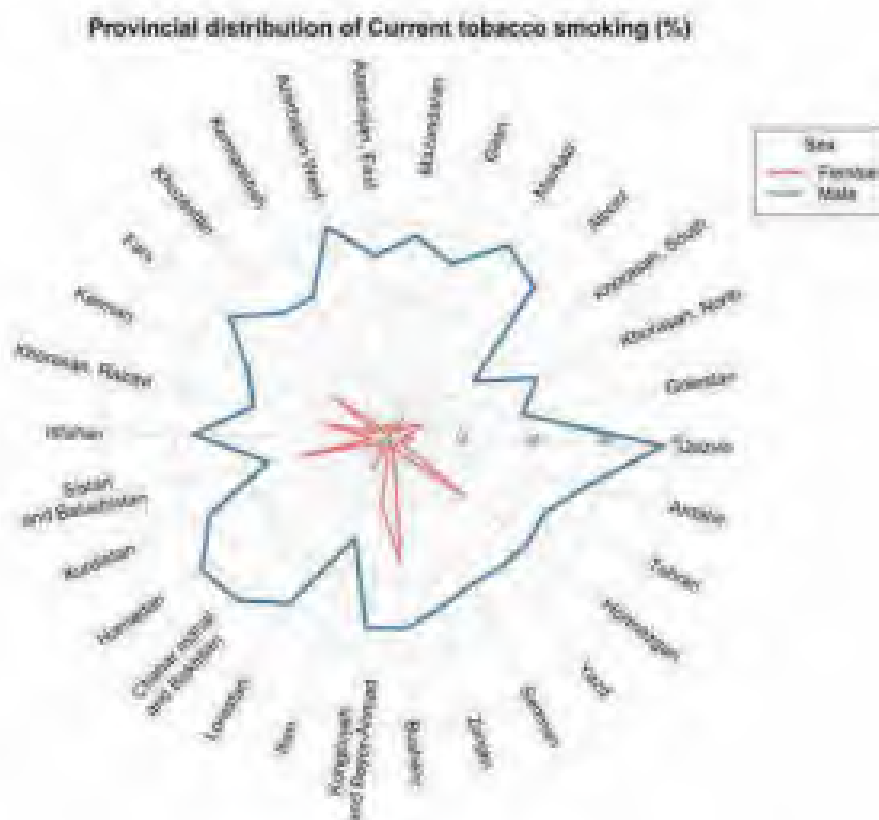


Figure 3.1.54. Provincial distribution of prevalence of current tobacco smoking by sex

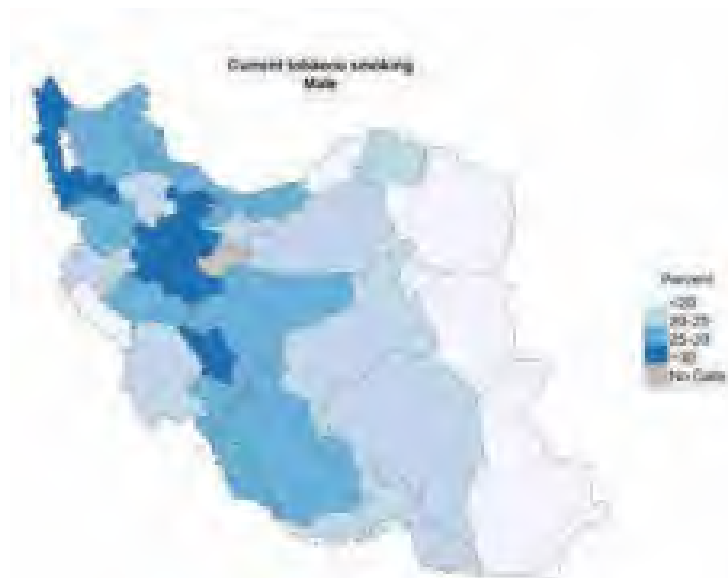


Figure 3.1.55. Geographical distribution of prevalence of current tobacco smoking in males



Figure 3.1.56. Geographical distribution of prevalence of current tobacco smoking in females

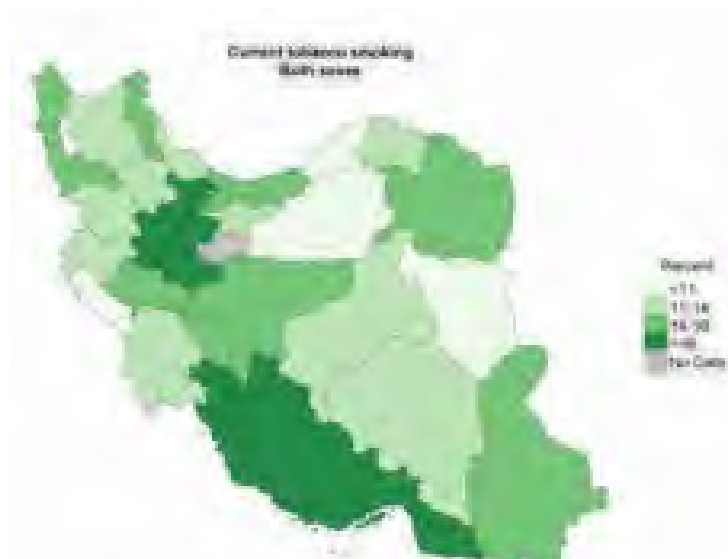


Figure 3.1.57. Geographical distribution of prevalence of current tobacco smoking in both sexes

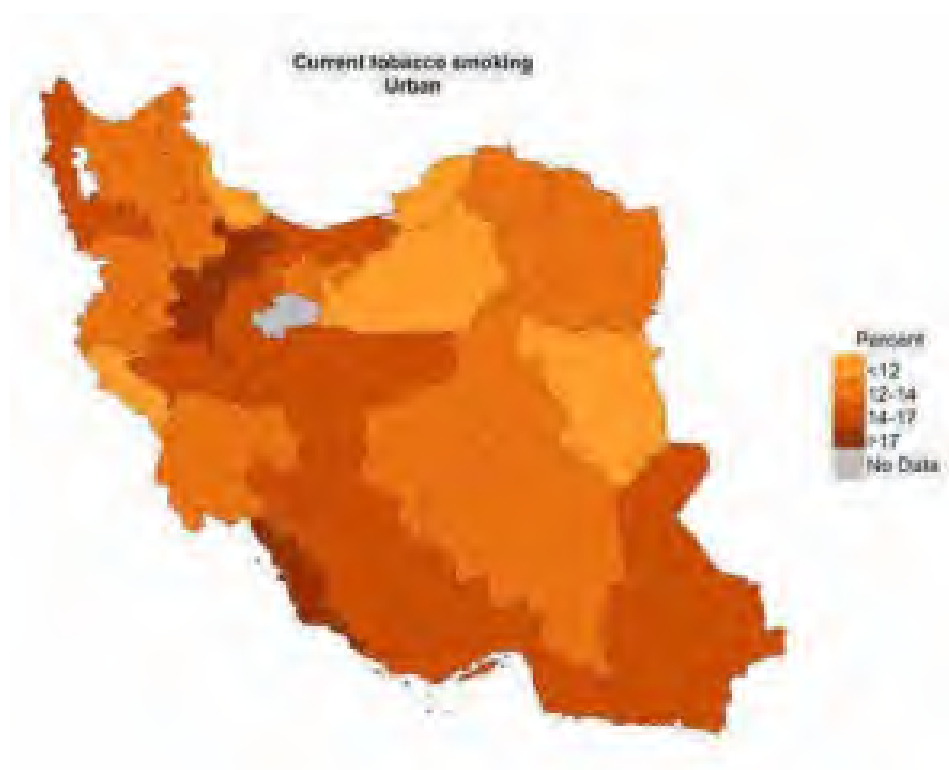


Figure 3.1.60. Geographical distribution of prevalence of current tobacco smoking in urban area of residency



Figure 3.1.61. Geographical distribution of prevalence of current tobacco smoking in rural area of residency

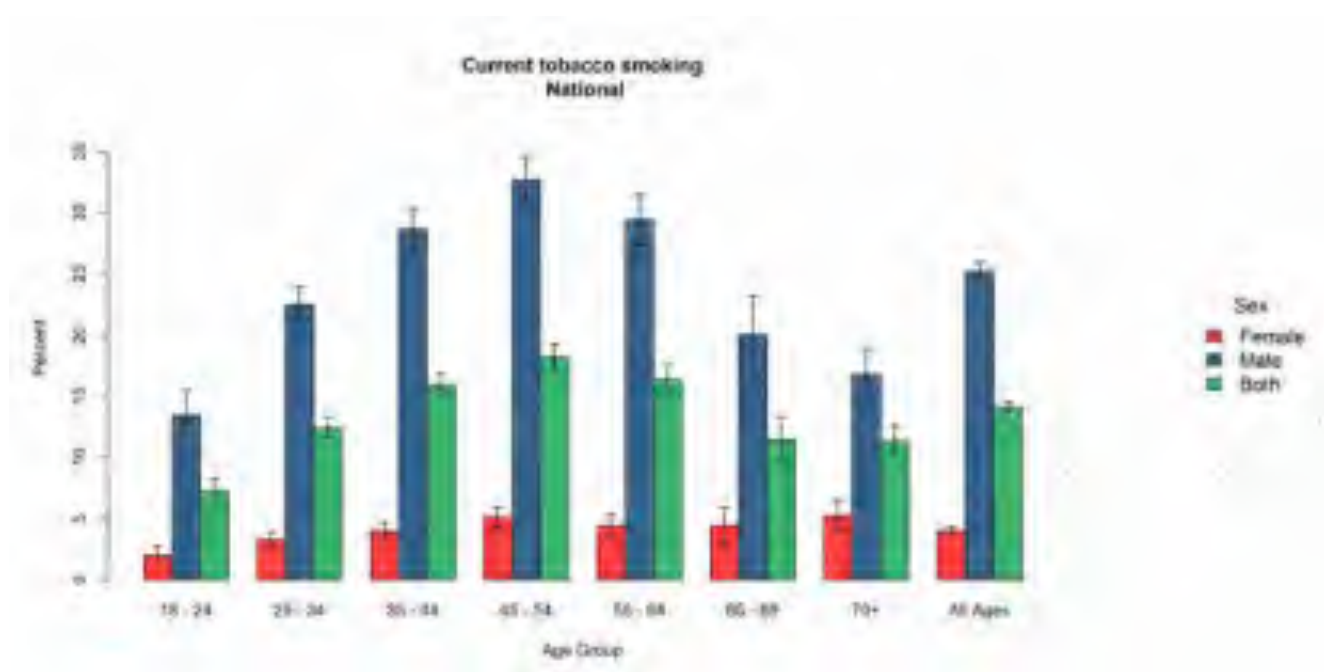


Figure 3.1.62. Prevalence of current tobacco smoking by age and sex at national level

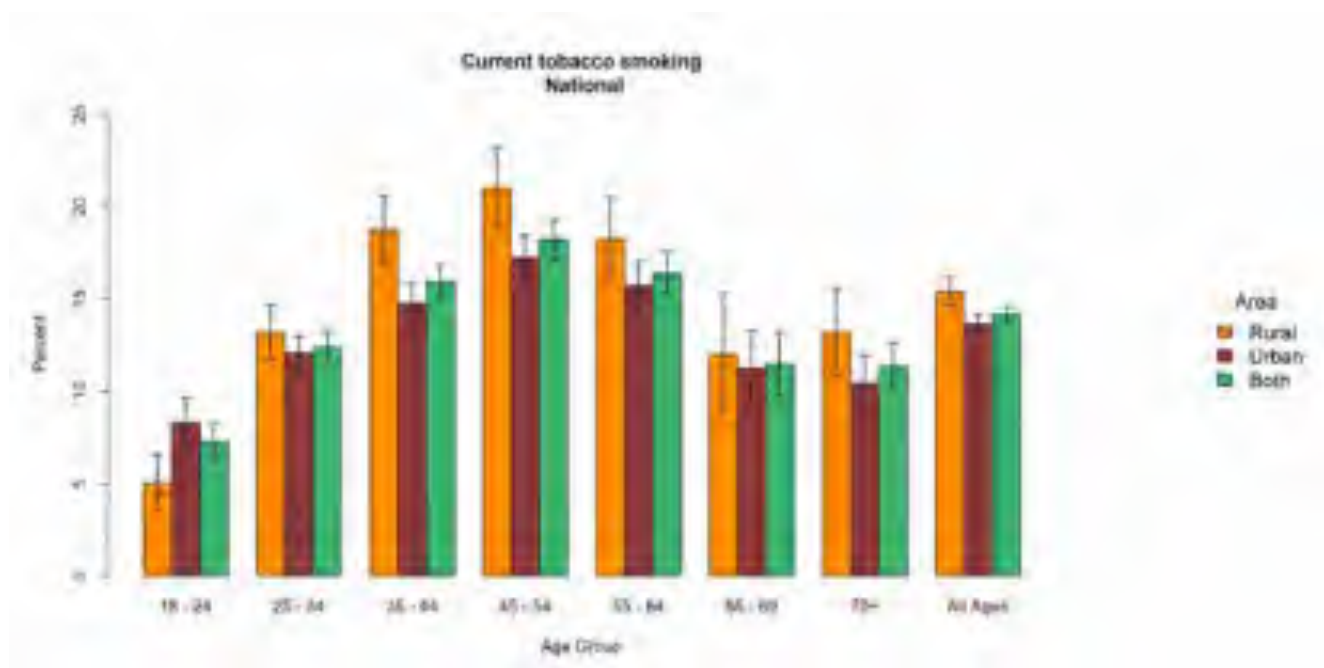


Figure 3.1.63. Prevalence of current tobacco smoking by age and area of residency at national level

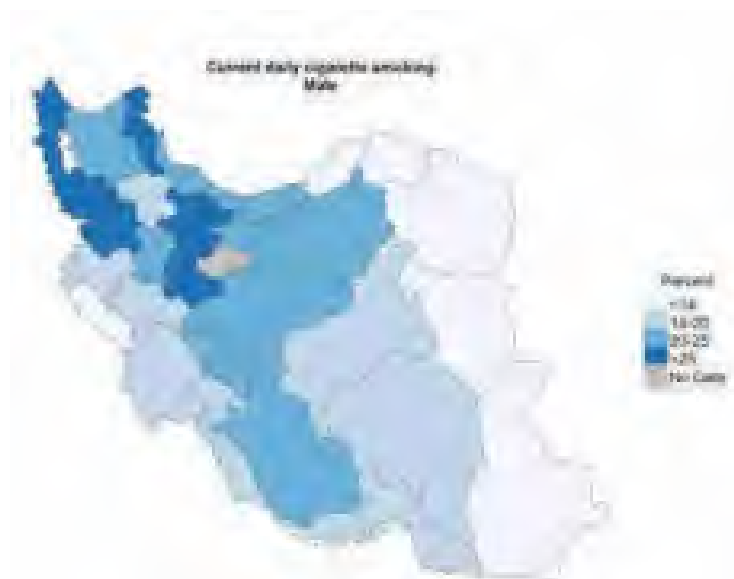


Figure 3.1.68. Geographical distribution of prevalence of current daily cigarette smoking in males

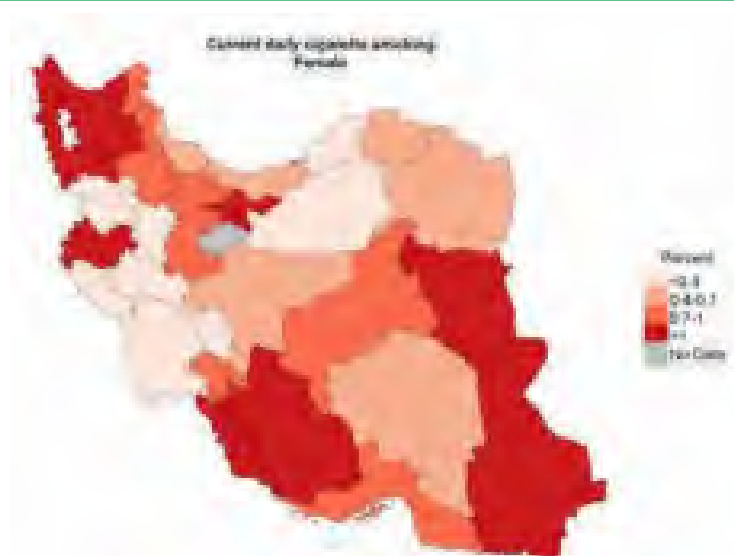


Figure 3.1.69. Geographical distribution of prevalence of current daily cigarette smoking in females

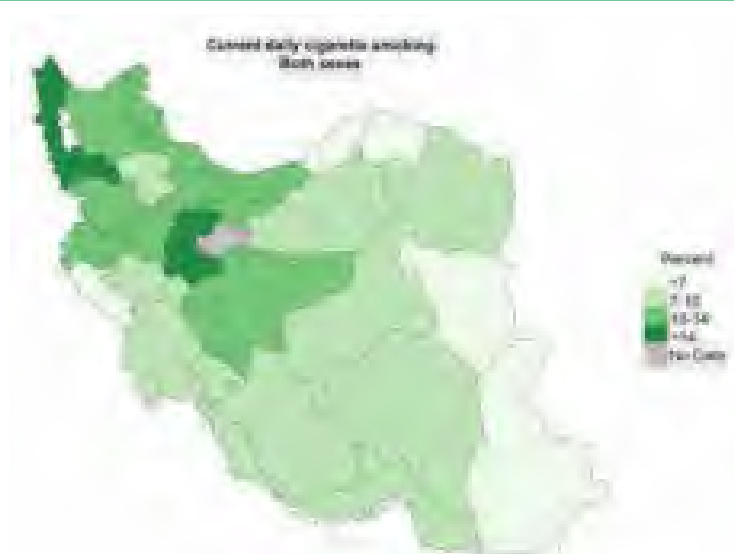


Figure 3.1.70. Geographical distribution of prevalence of current daily cigarette smoking in both sexes

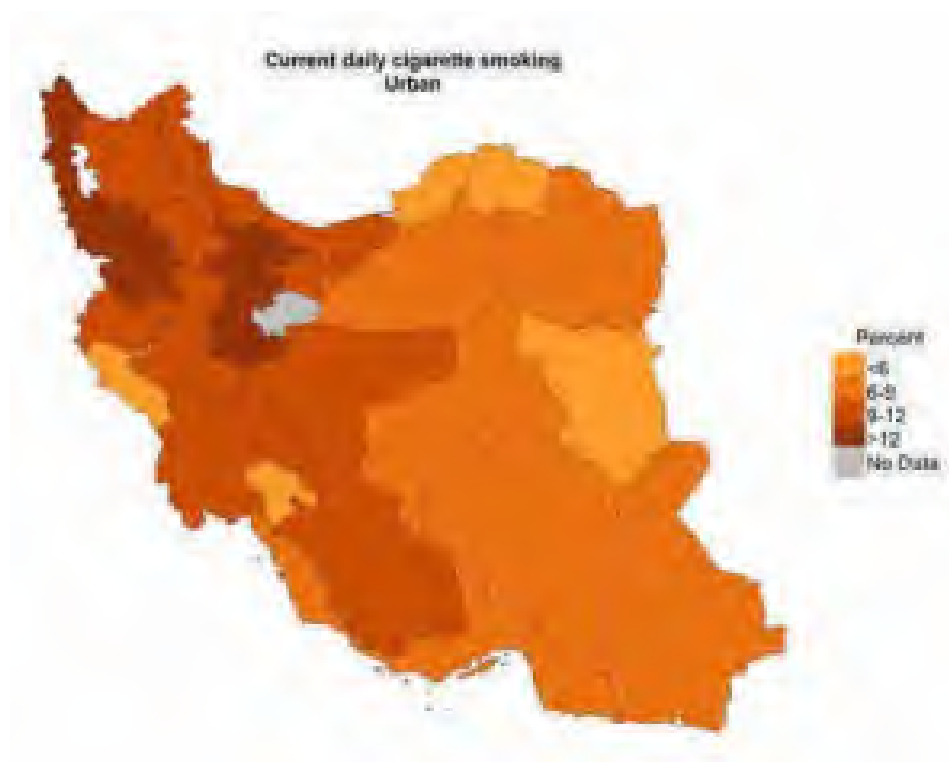


Figure 3.1.73. Geographical distribution of prevalence of current daily cigarette smoking in urban area of residency

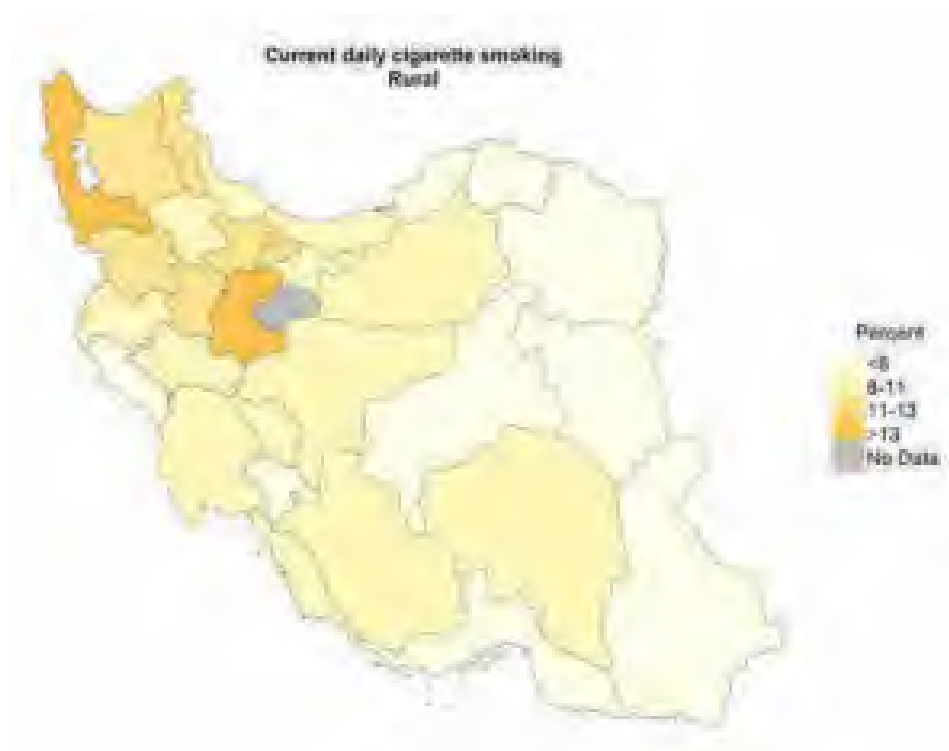


Figure 3.1.74. Geographical distribution of prevalence of current daily cigarette smoking in rural area of residency

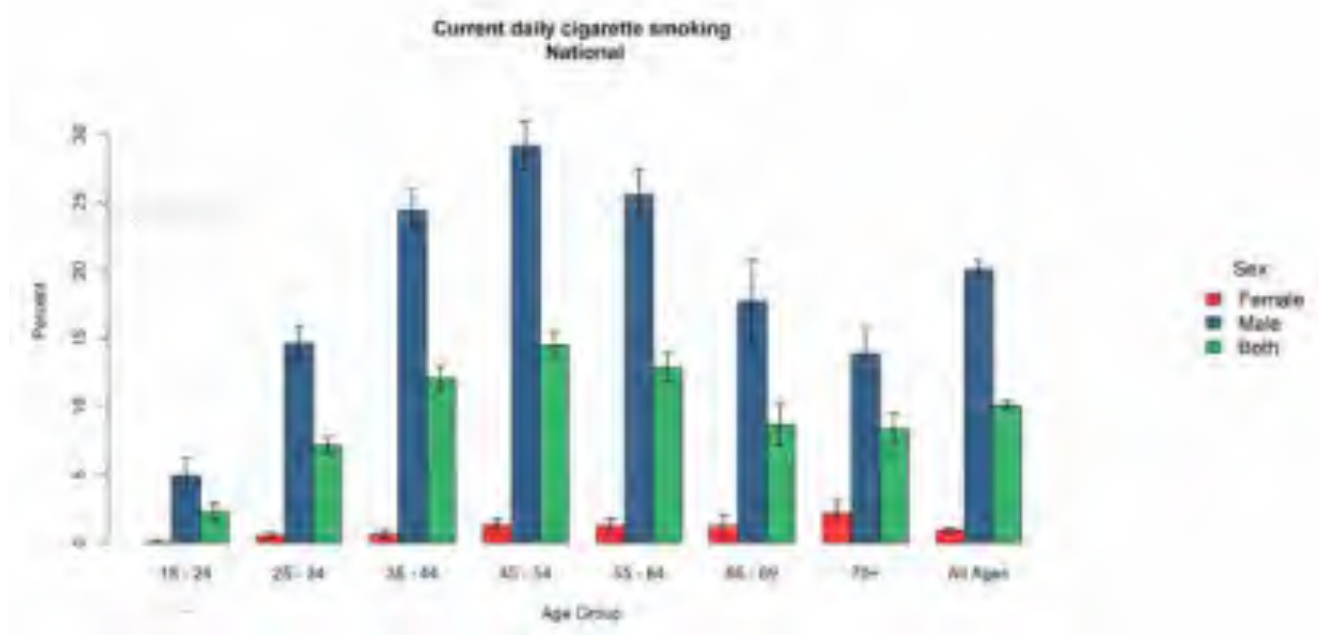


Figure 3.1.75. Prevalence of current daily cigarette smoking by age and sex at national level

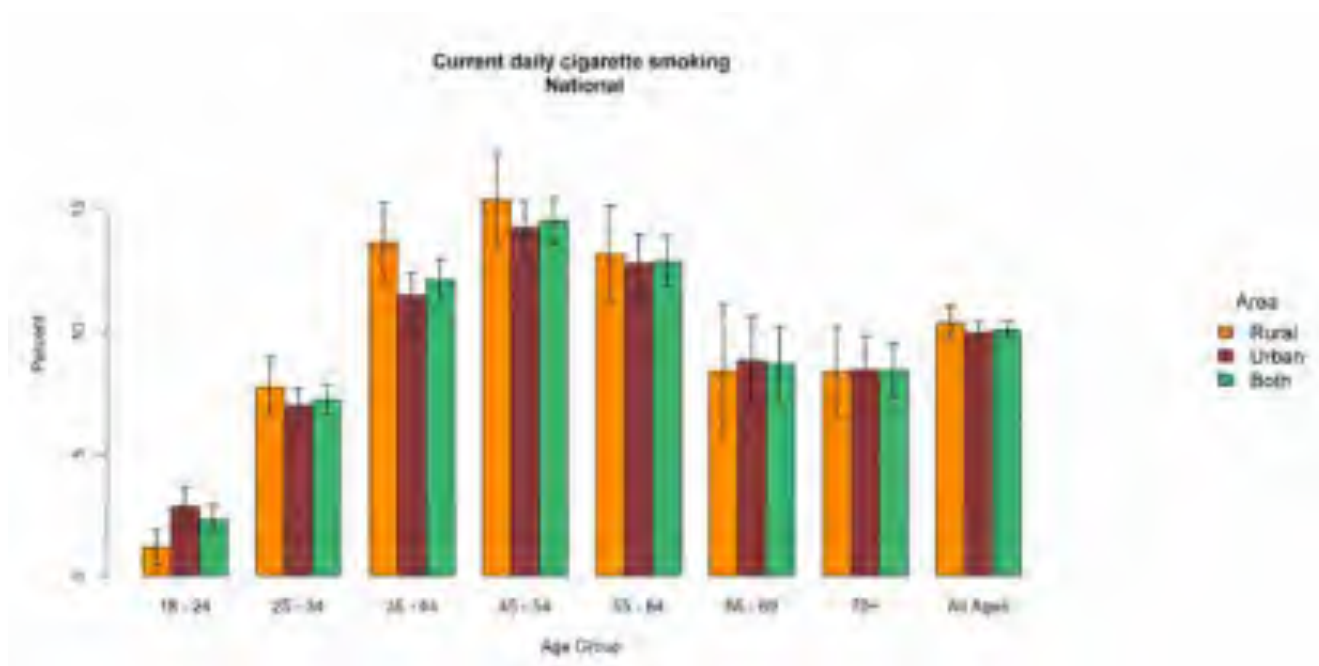


Figure 3.1.76. Prevalence of current daily cigarette smoking by age and area of residency at national level

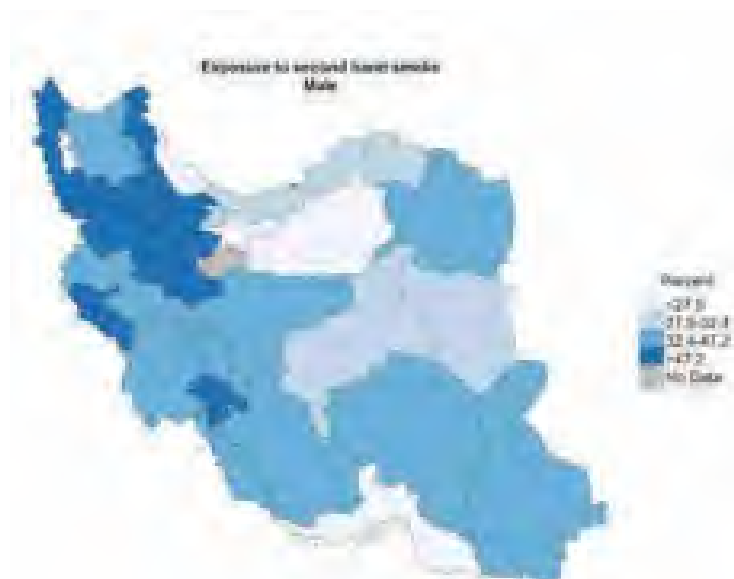


Figure 3.1.81. Geographical distribution of prevalence of exposure to second hand smoke in males

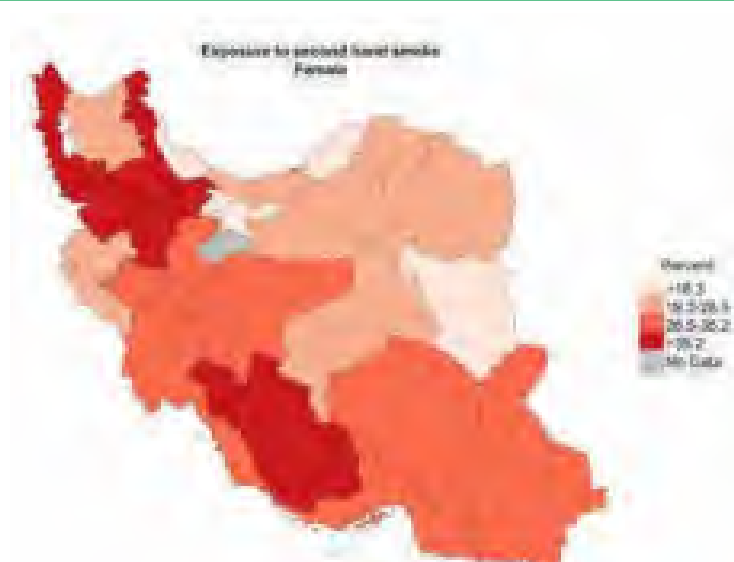


Figure 3.1.82. Geographical distribution of prevalence of exposure to second hand smoke in females

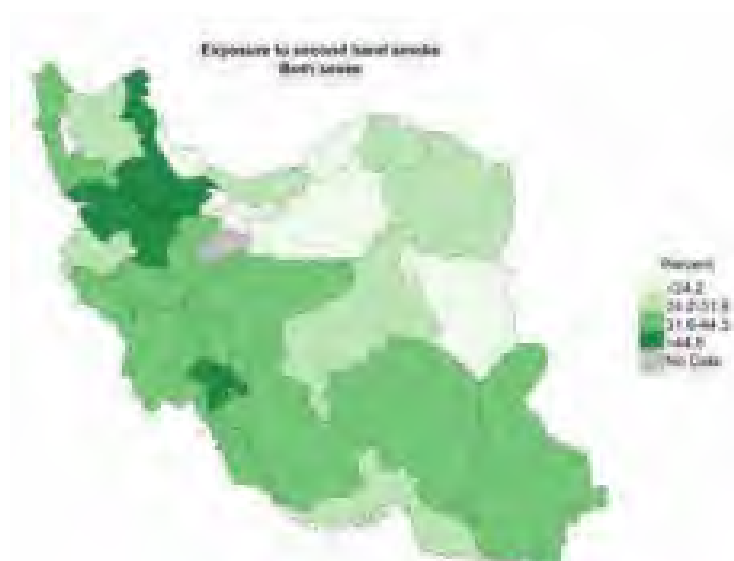


Figure 3.1.83. Geographical distribution of prevalence of exposure to second hand smoke in both sexes

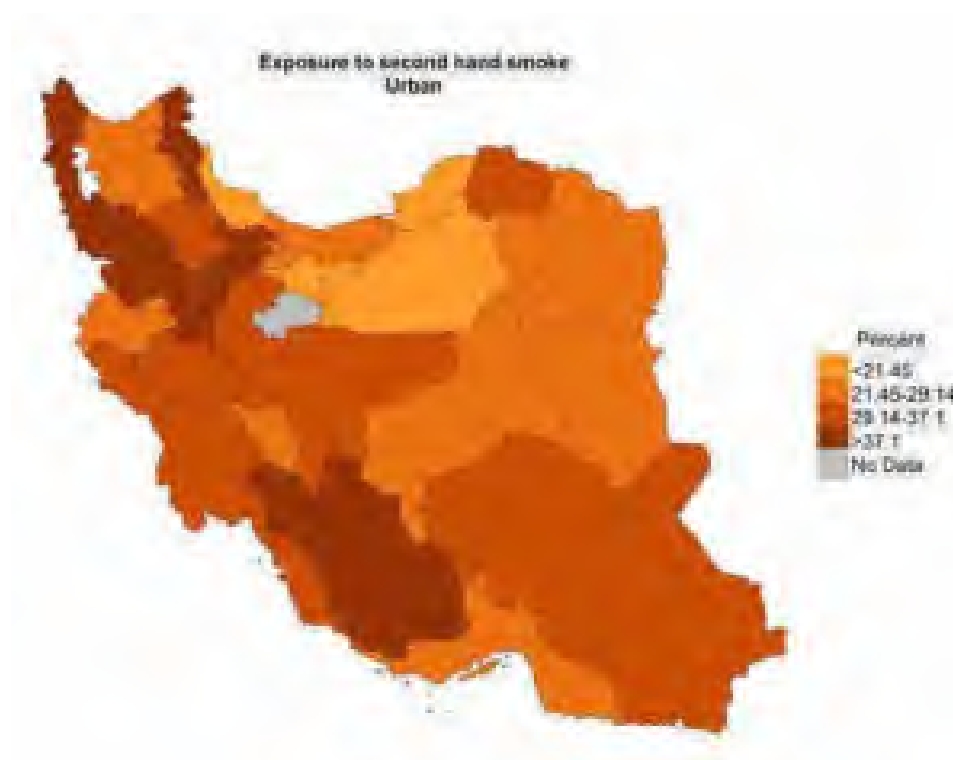


Figure 3.1.86. Geographical distribution of prevalence of exposure to second hand smoke in urban area of residency



Figure 3.1.87. Geographical distribution of prevalence of exposure to second hand smoke in rural area of residency

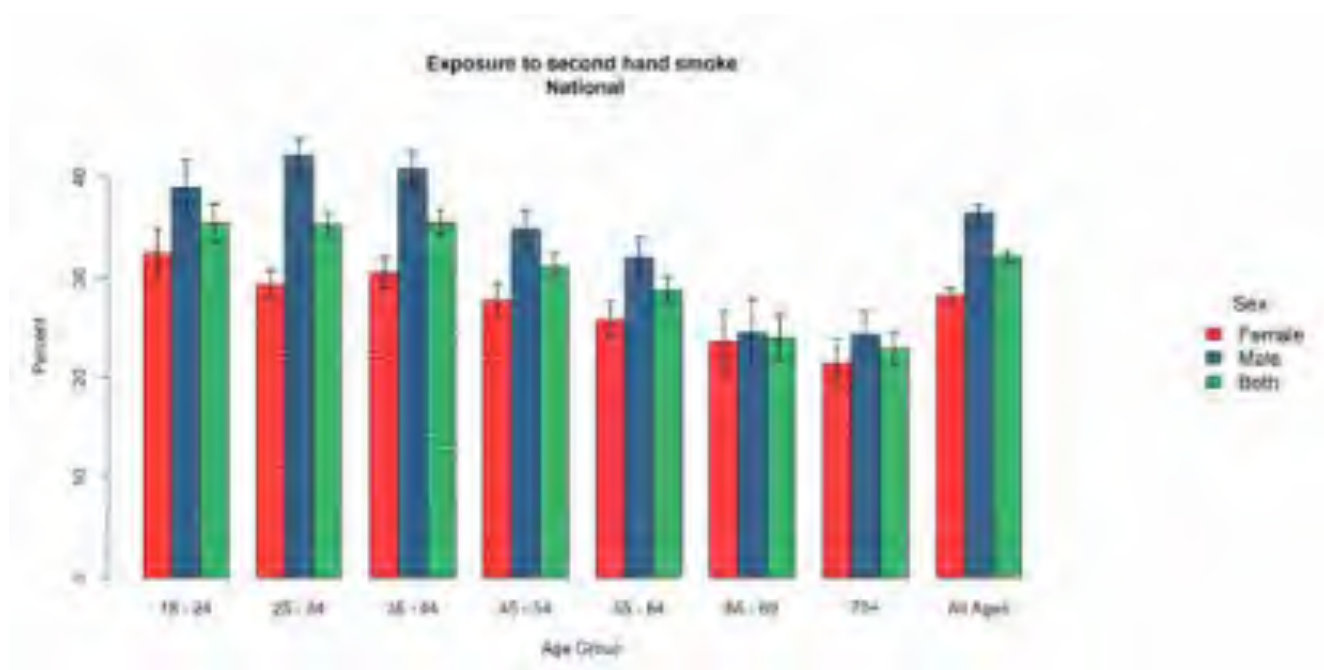


Figure 3.1.88. Prevalence of exposure to second hand smoke by age and sex at national level

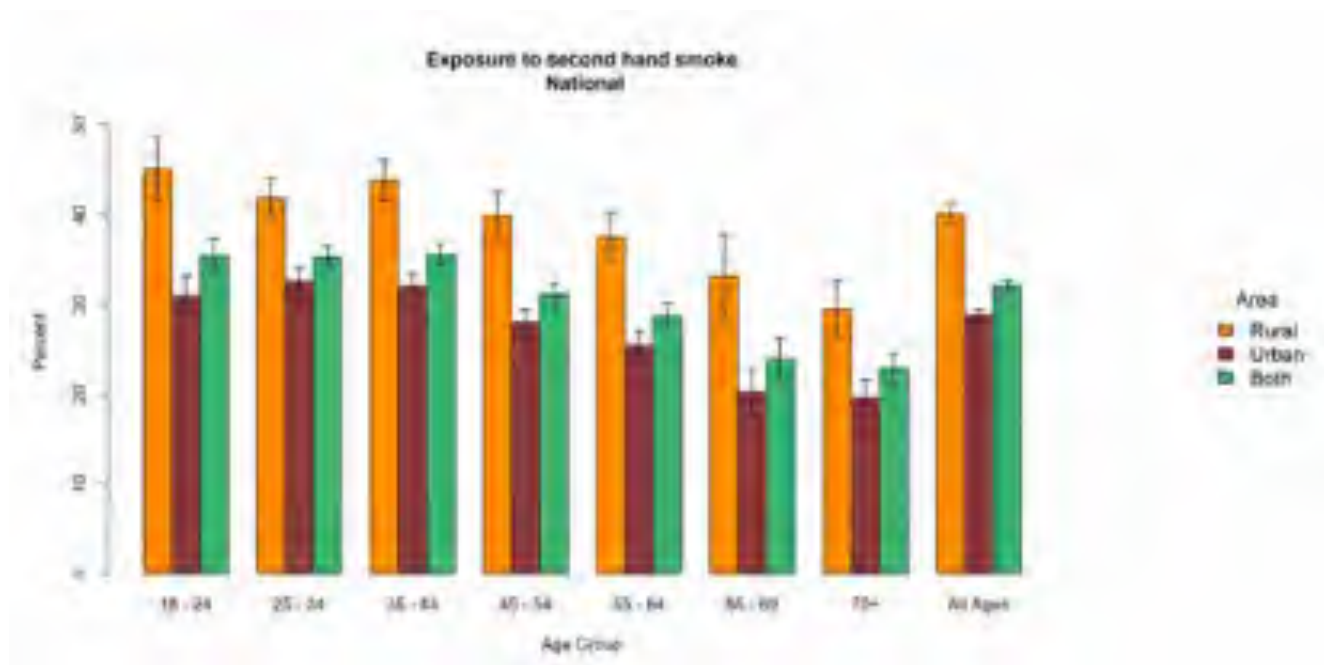


Figure 3.1.89. Prevalence of exposure to second hand smoke by age and area of residency at national level

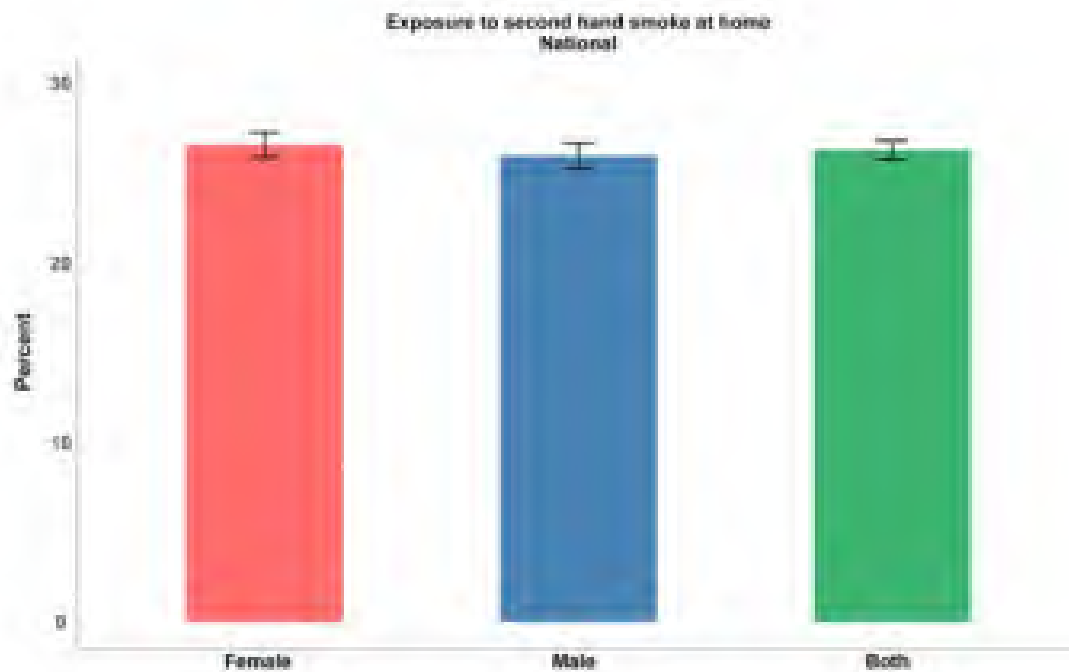


Figure 3.1.92. Prevalence of exposure to second hand smoke at home by sex at national level

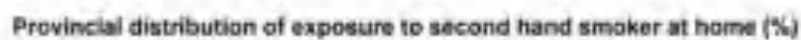


Figure 3.1.93. Provincial distribution of prevalence of exposure to second hand smoke at home by sex

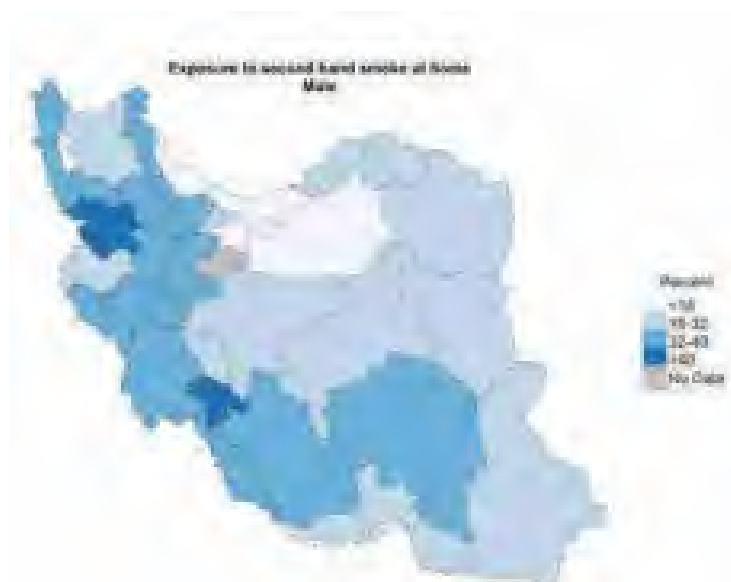


Figure 3.1.94. Geographical distribution of prevalence of exposure to second hand smoke at home in males

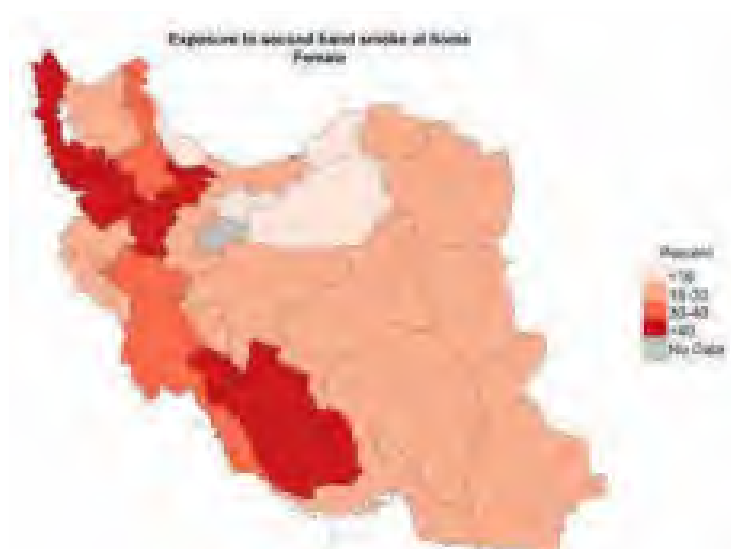


Figure 3.1.95. Geographical distribution of prevalence of exposure to second hand smoke at home in females

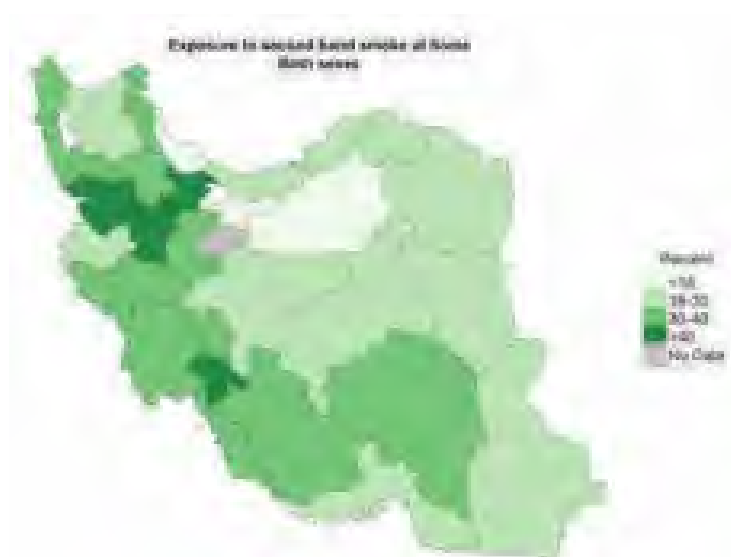


Figure 3.1.96. Geographical distribution of prevalence of exposure to second hand smoke at home in both sexes

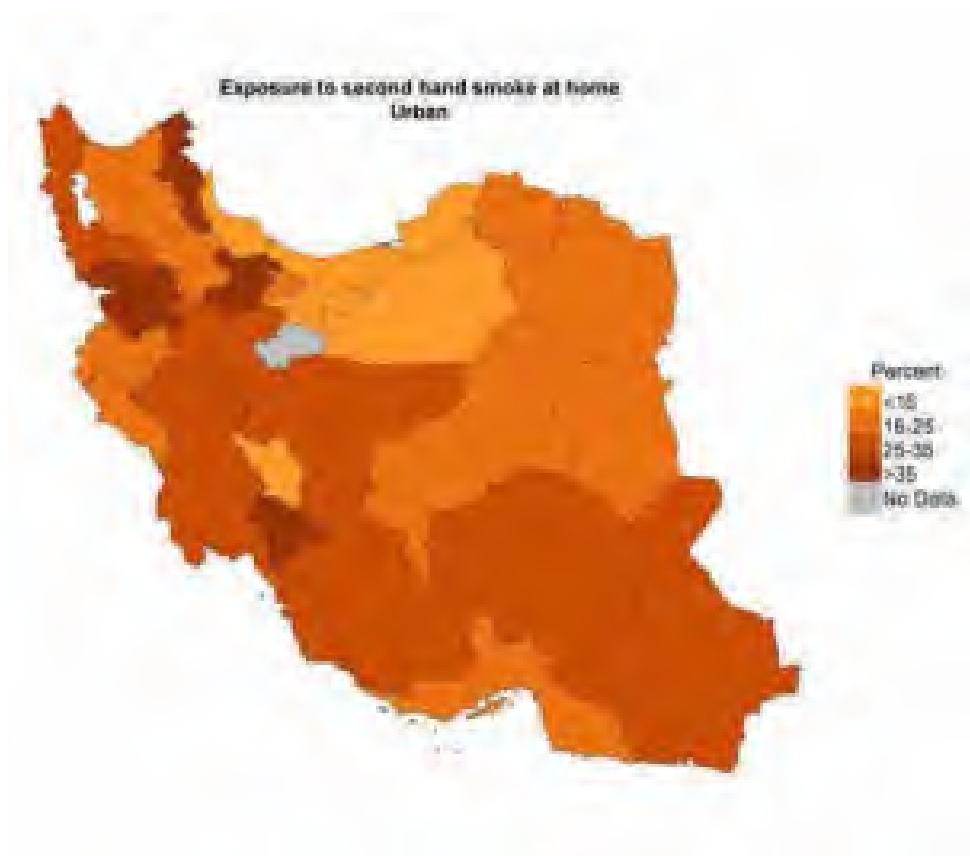


Figure 3.1.99. Geographical distribution of prevalence of exposure to second hand smoke at home in urban area of residency

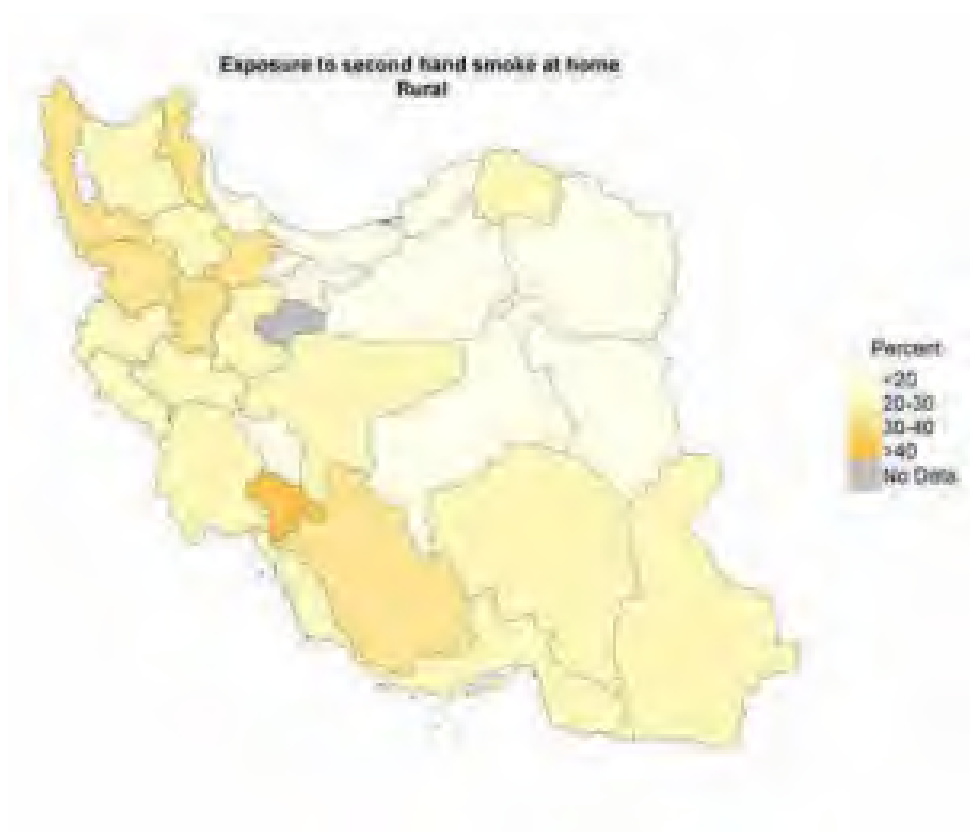


Figure 3.1.100. Geographical distribution of prevalence of exposure to second hand smoke at home in rural area of residency

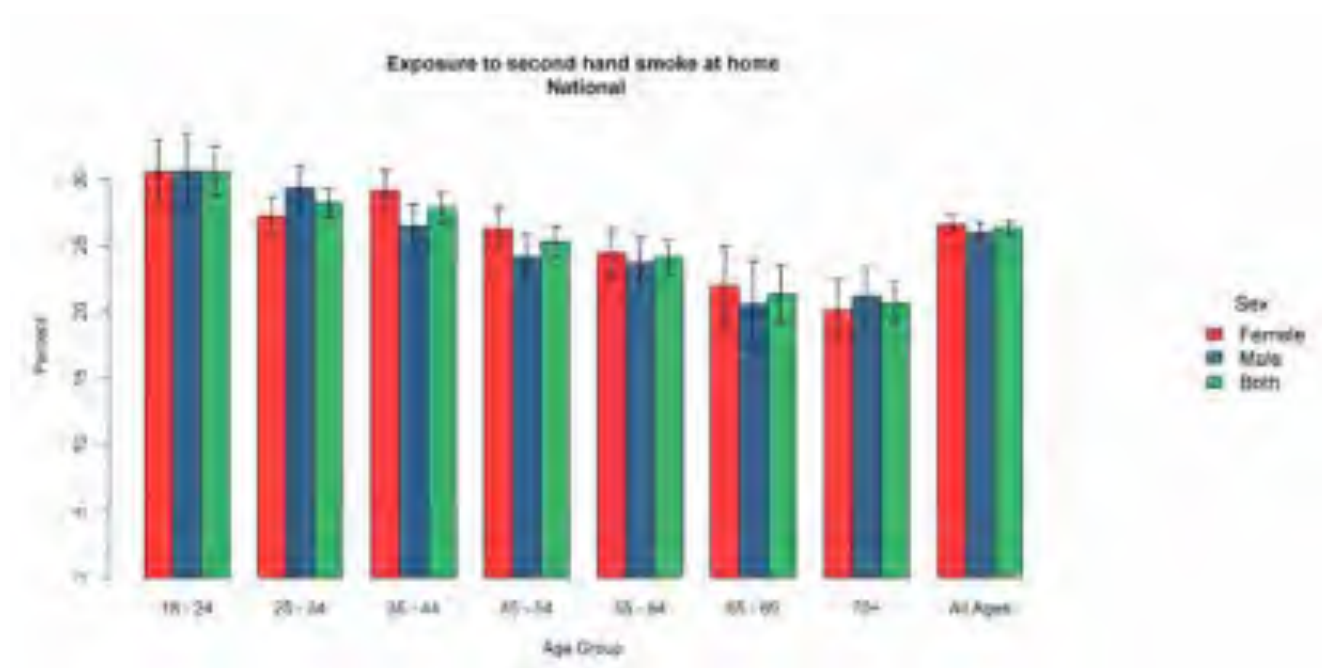


Figure 3.1.101. Prevalence of exposure to second hand smoke at home by age and sex at national level

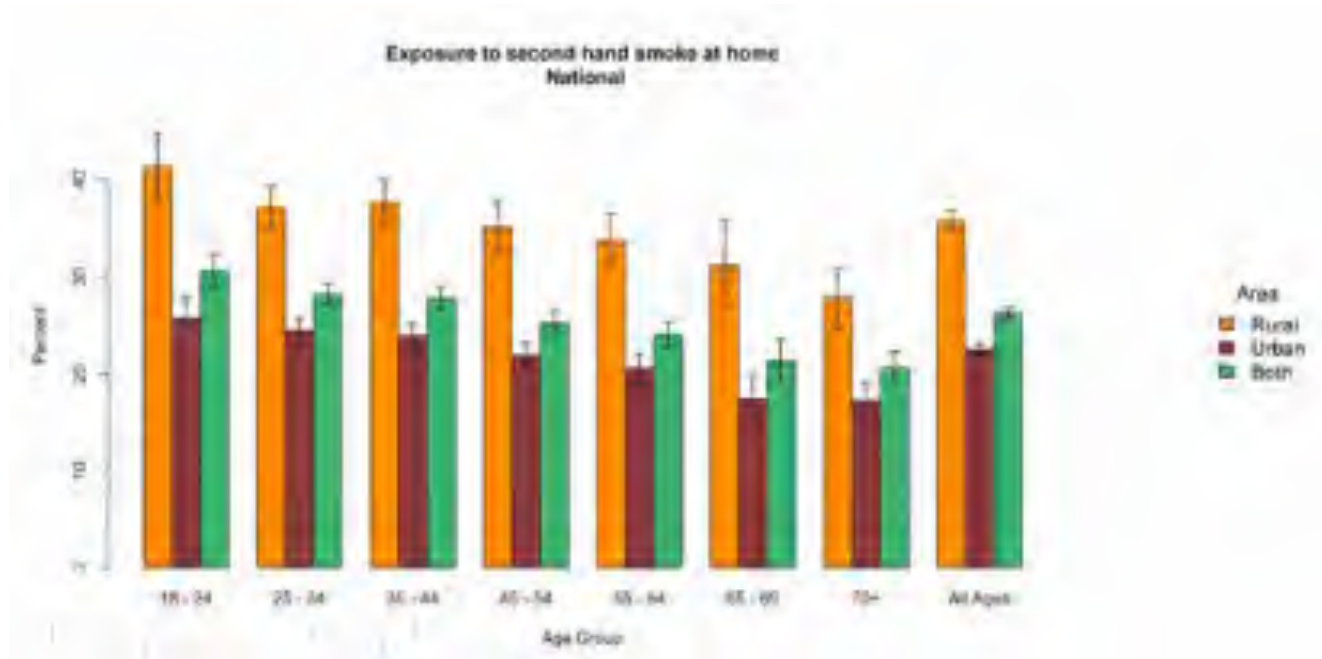


Figure 3.1.102. Prevalence of exposure to second hand smoke at home by age and area of residency at national level

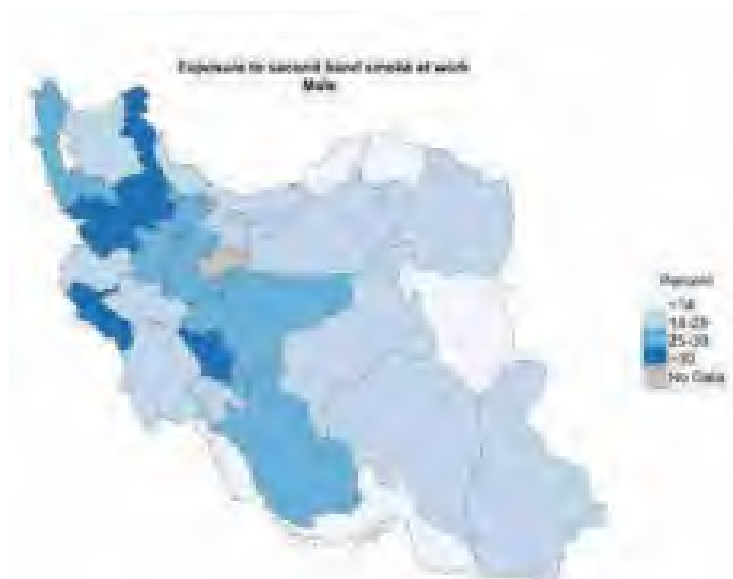


Figure 3.1.107. Geographical distribution of prevalence of exposure to second hand smoke at work in males

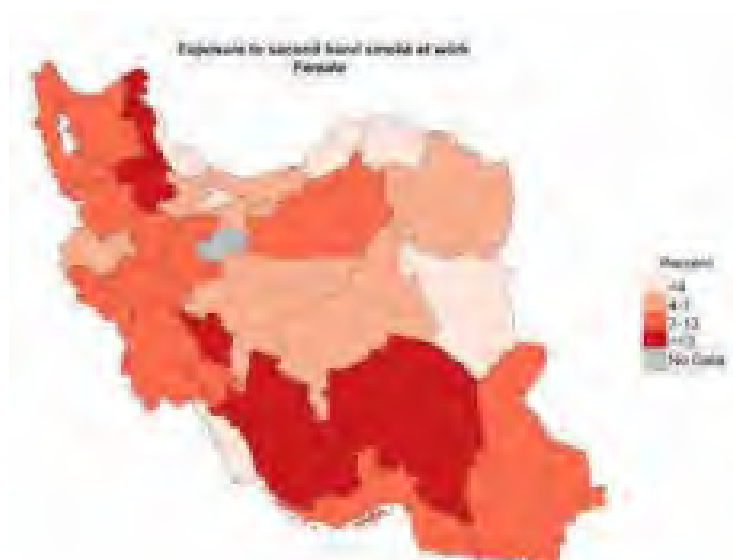


Figure 3.1.108. Geographical distribution of prevalence of exposure to second hand smoke at work in females

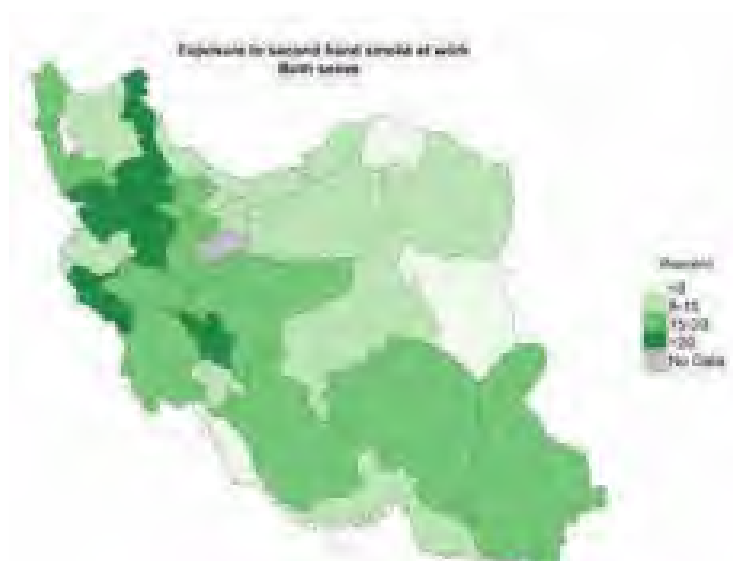


Figure 3.1.109. Geographical distribution of prevalence of exposure to second hand smoke at work in both sexes

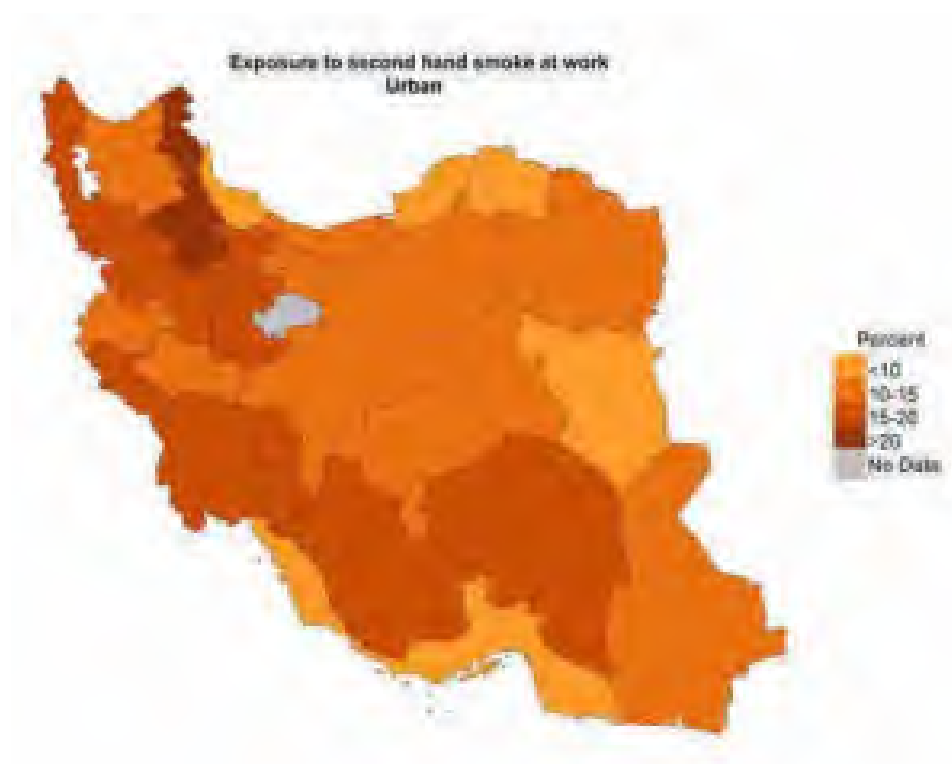


Figure 3.1.112. Geographical distribution of prevalence of exposure to second hand smoke at work in urban area of residency



Figure 3.1.113. Geographical distribution of prevalence of exposure to second hand smoke at work in rural area of residency

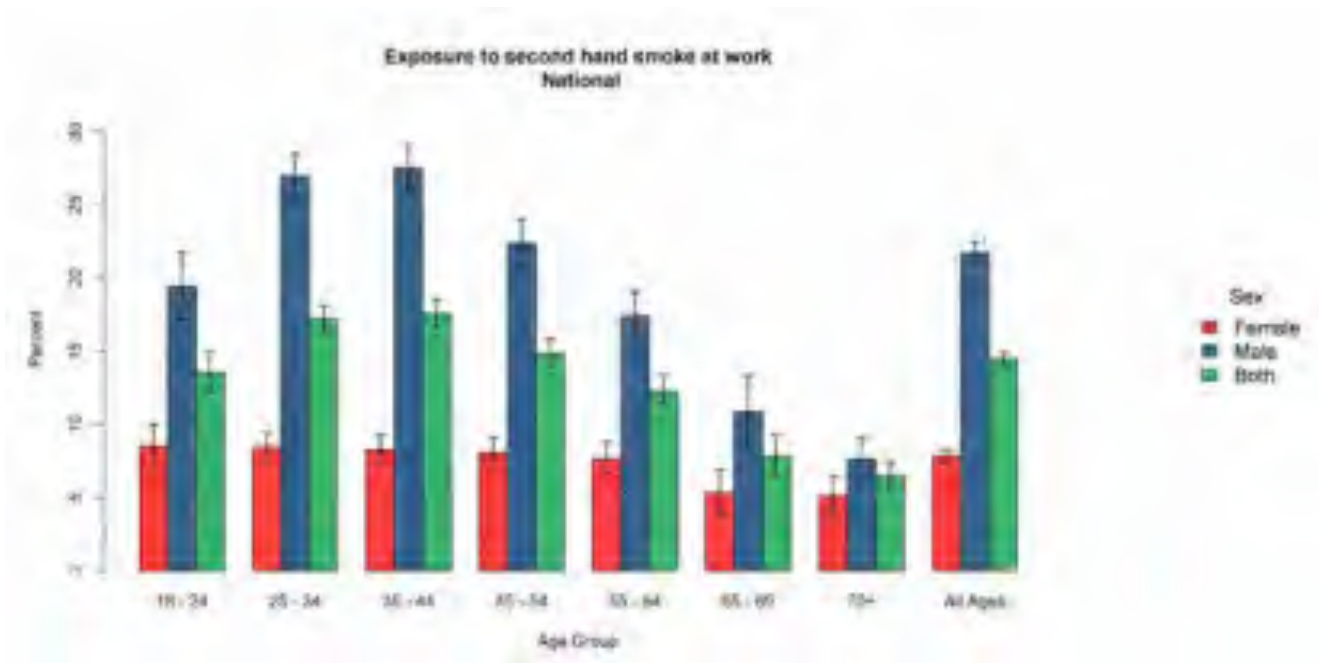


Figure 3.1.114. Prevalence of exposure to second hand smoke at work by age and sex at national level

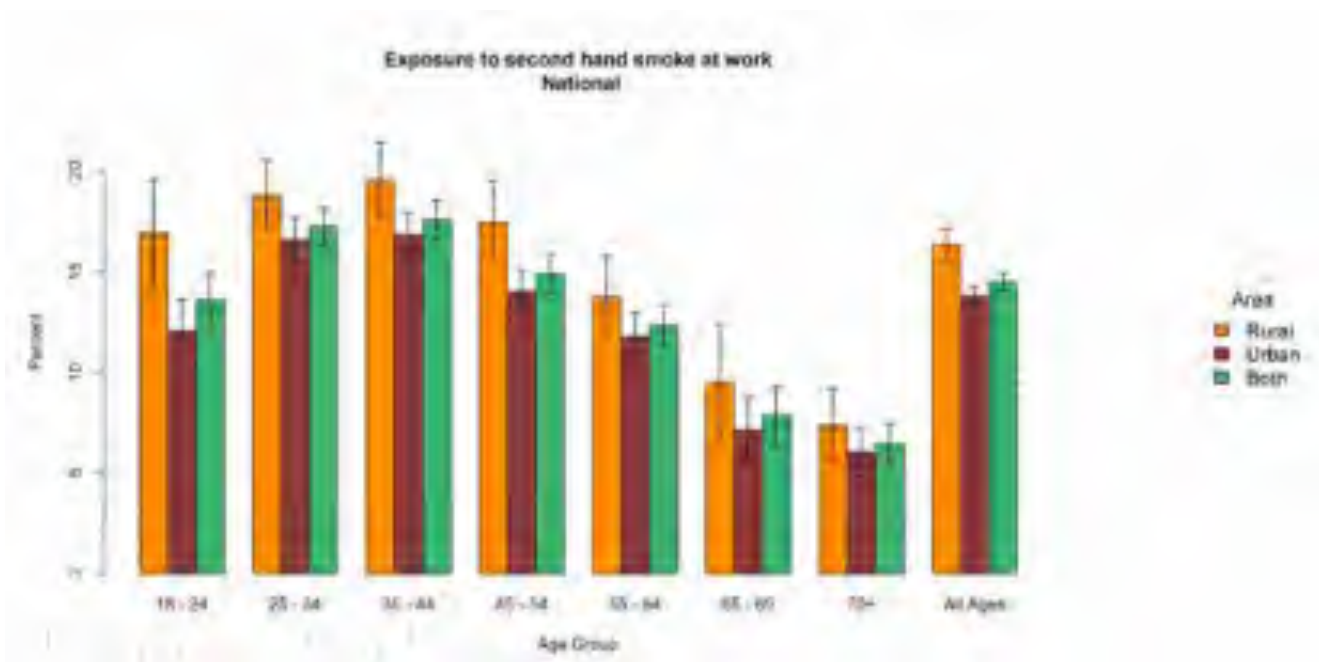


Figure 3.1.115. Prevalence of exposure to second hand smoke at work by age and area of residency at national level

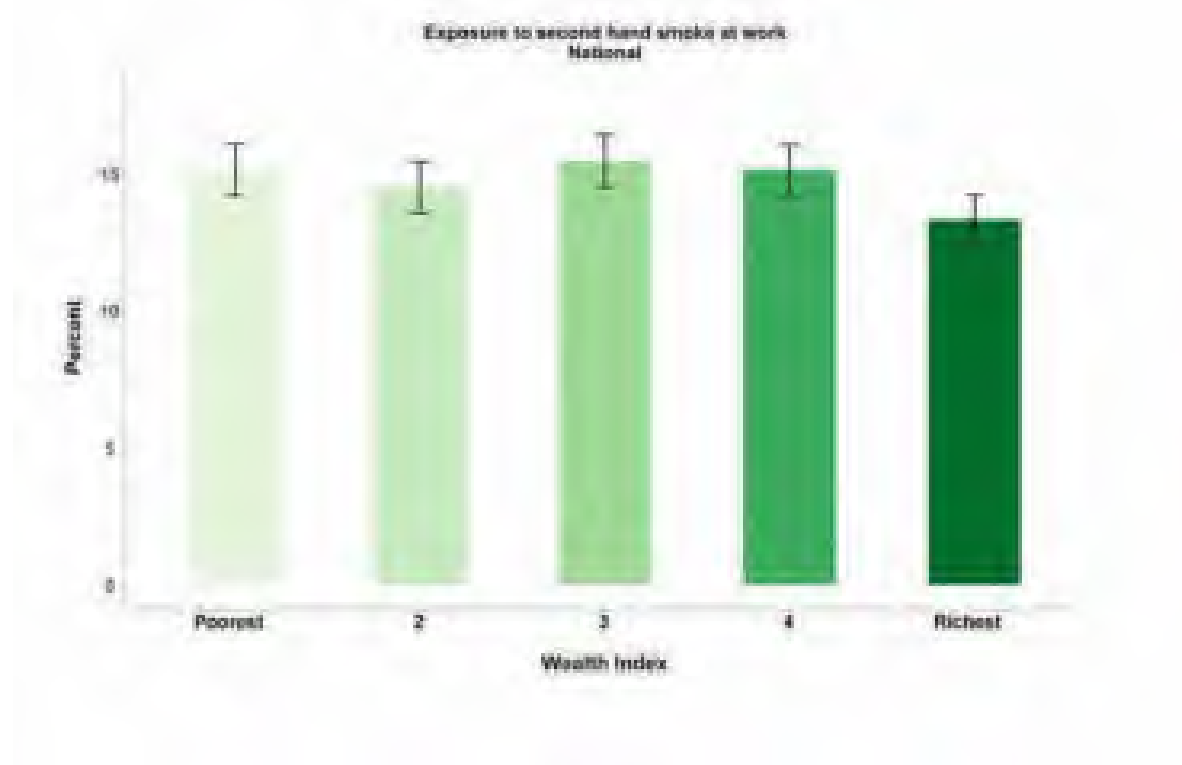


Figure 3.1.116. Prevalence of exposure to second hand smoke at work by wealth index quantiles at national level

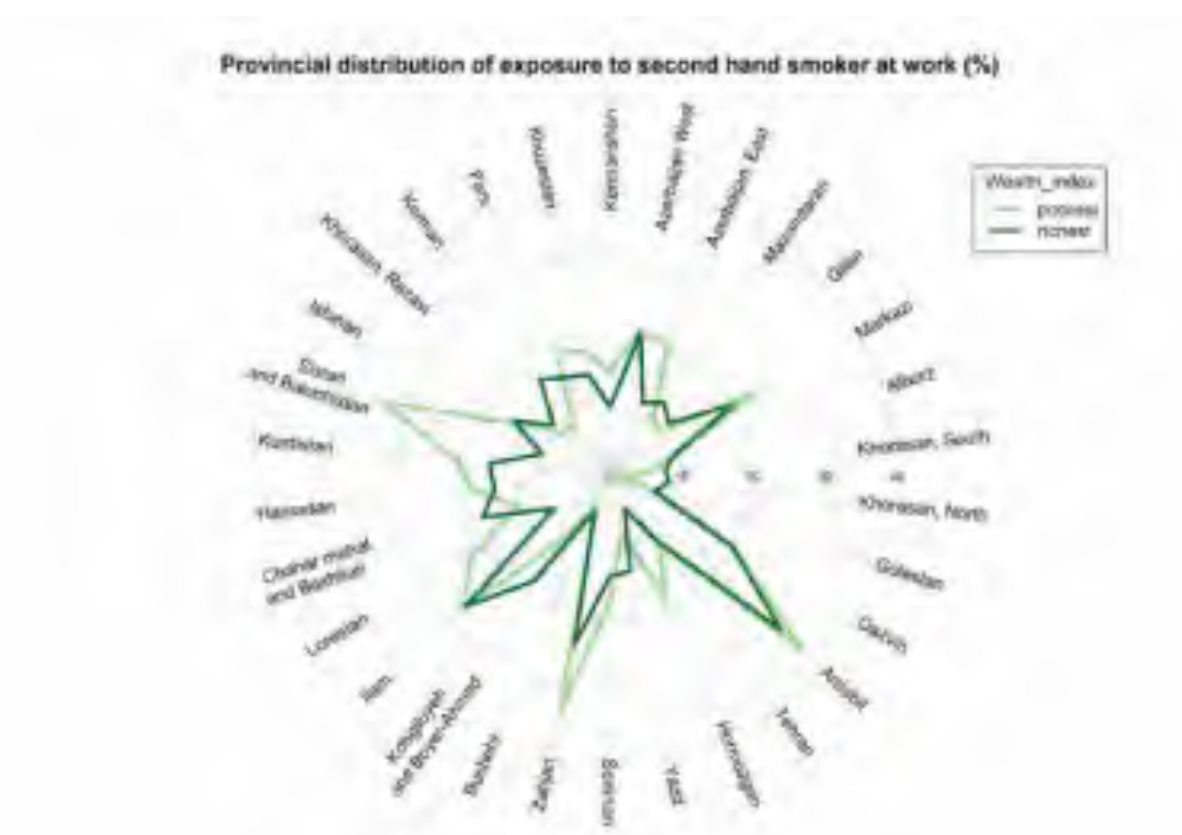


Figure 3.1.117. Provincial distribution of prevalence of exposure to second hand smoke at work by wealth index

CHAPTER 2

Results

Section 3.2

Lifestyle Risk Factors: Diet

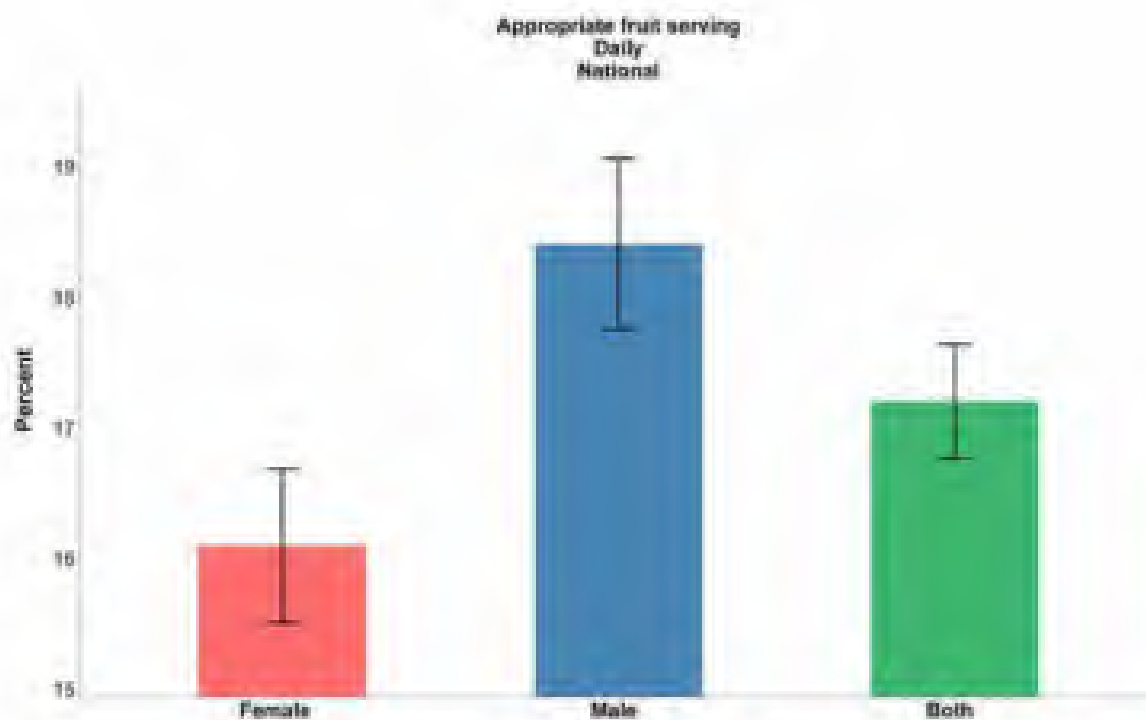


Figure 3.2.1. Prevalence of appropriate fruit serving (daily) by sex at national level

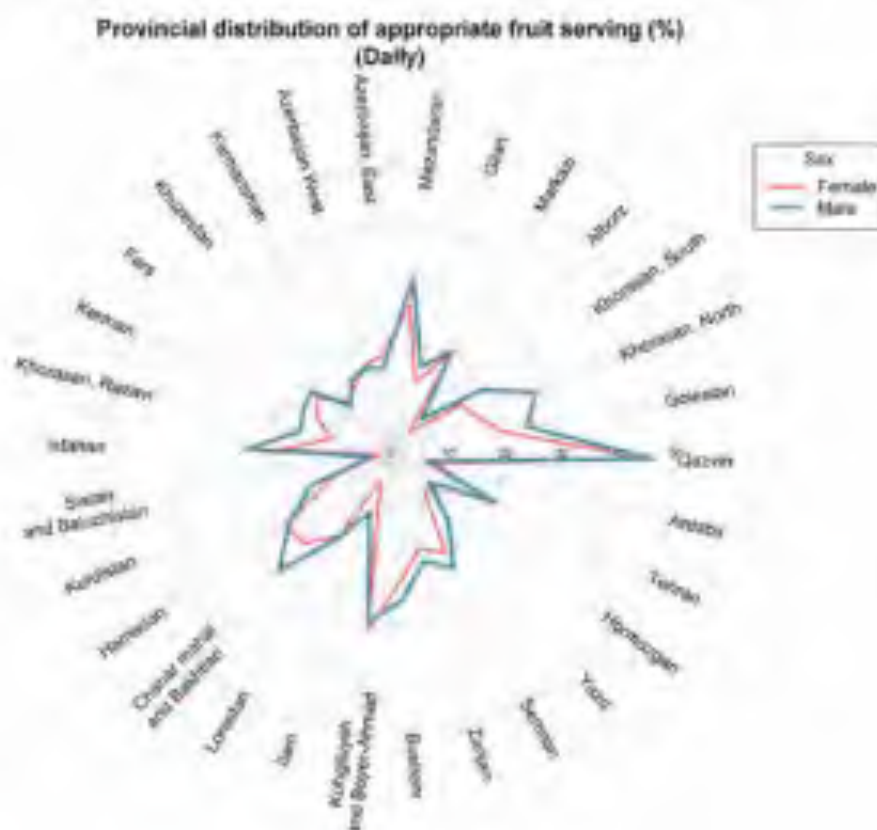


Figure 3.2.2. Provincial distribution of prevalence of appropriate fruit serving (daily) by sex

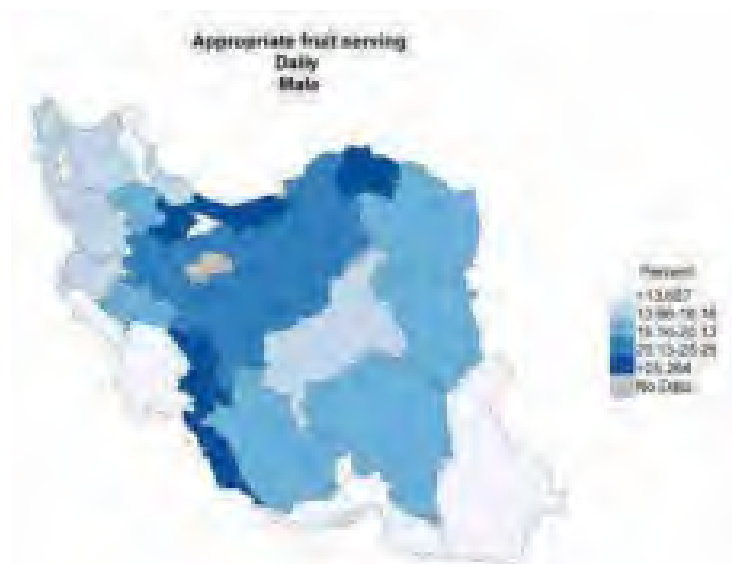


Figure 3.2.3. Geographical distribution of prevalence of appropriate fruit serving (daily) in males

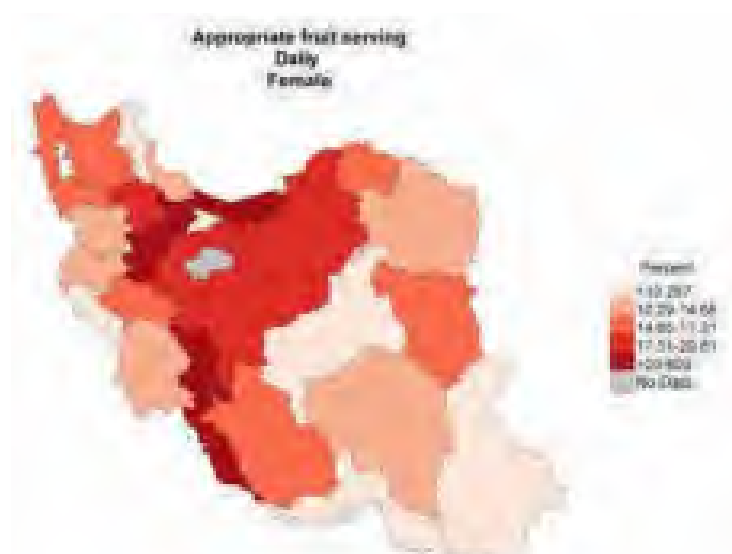


Figure 3.2.4. Geographical distribution of prevalence of appropriate fruit serving (daily) in females

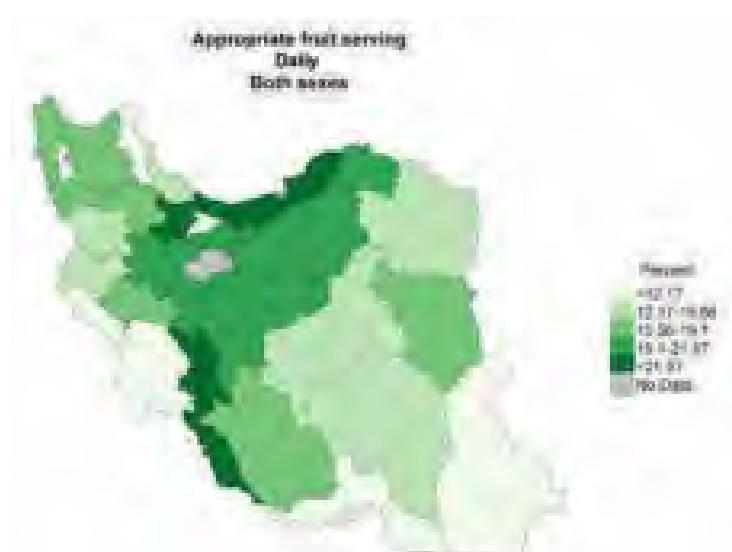


Figure 3.2.5. Geographical distribution of prevalence of appropriate fruit serving (daily) in both sexes

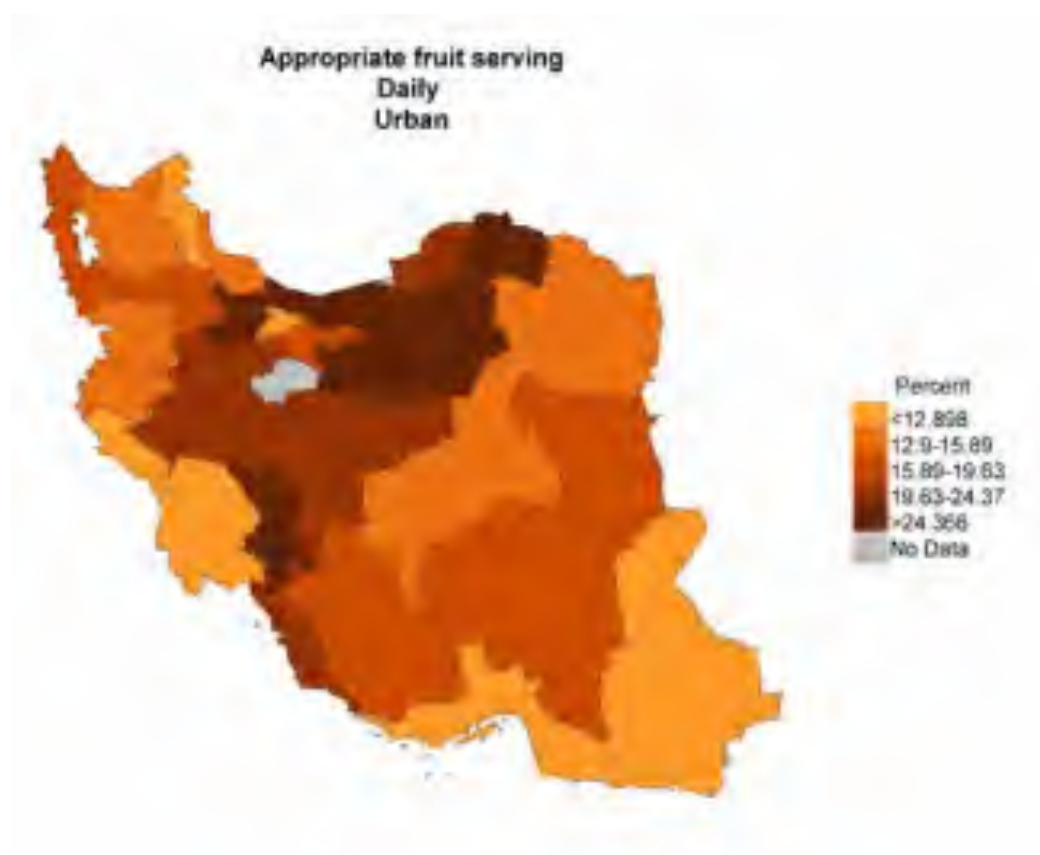


Figure 3.2.8. Geographical distribution of prevalence of appropriate fruit serving (daily) in urban area of residency

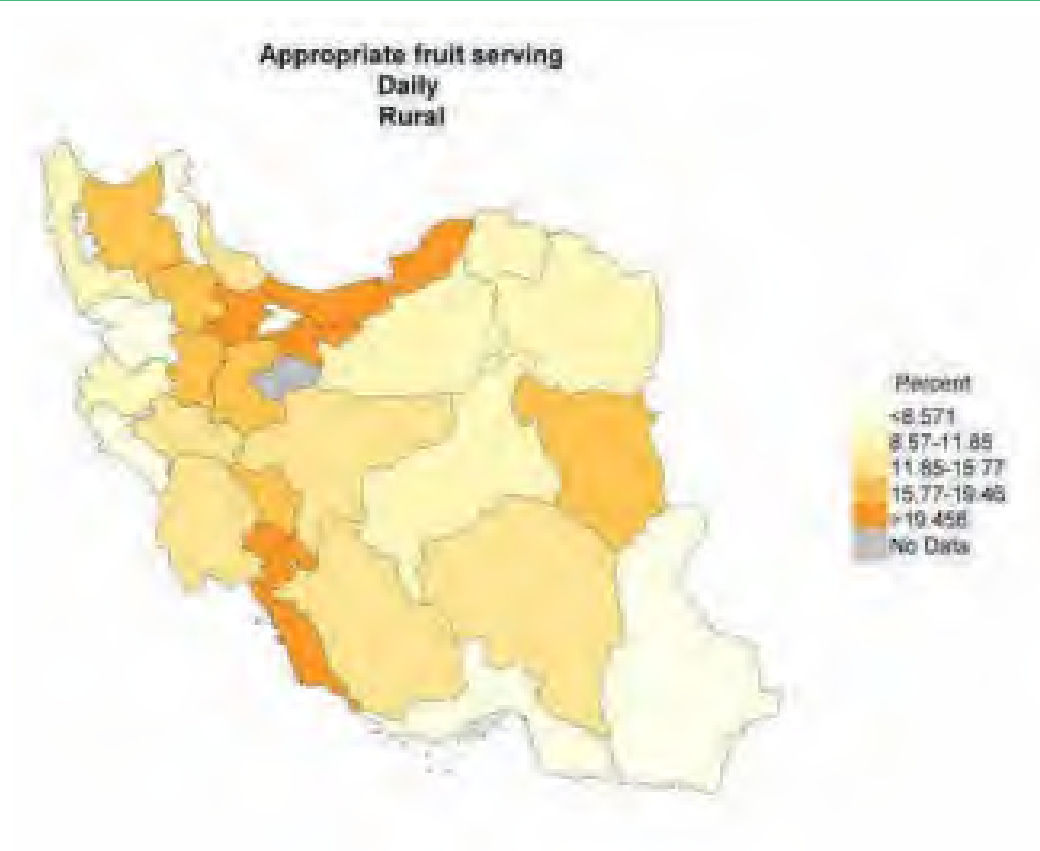


Figure 3.2.9. Geographical distribution of prevalence of appropriate fruit serving (daily) in rural area of residency

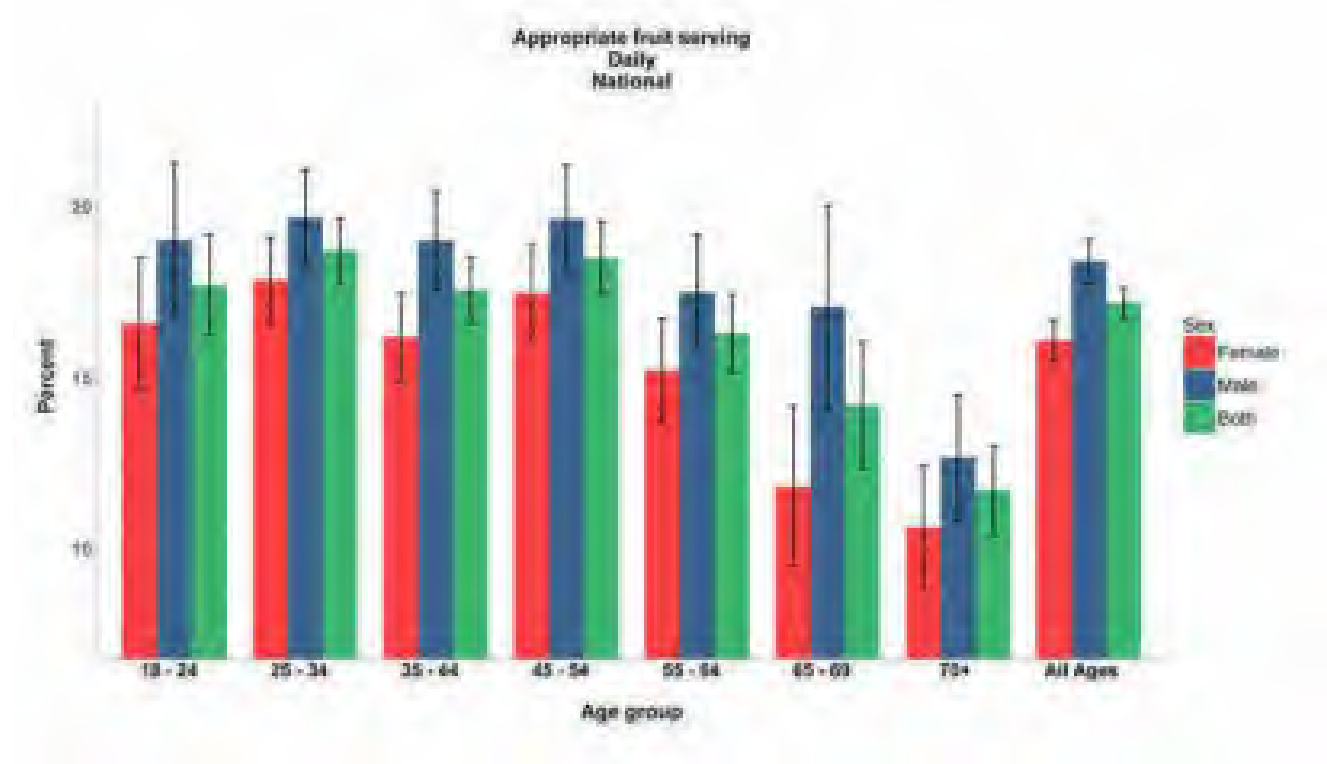


Figure 3.2.10. Prevalence of appropriate fruit serving (daily) by age and sex at national level

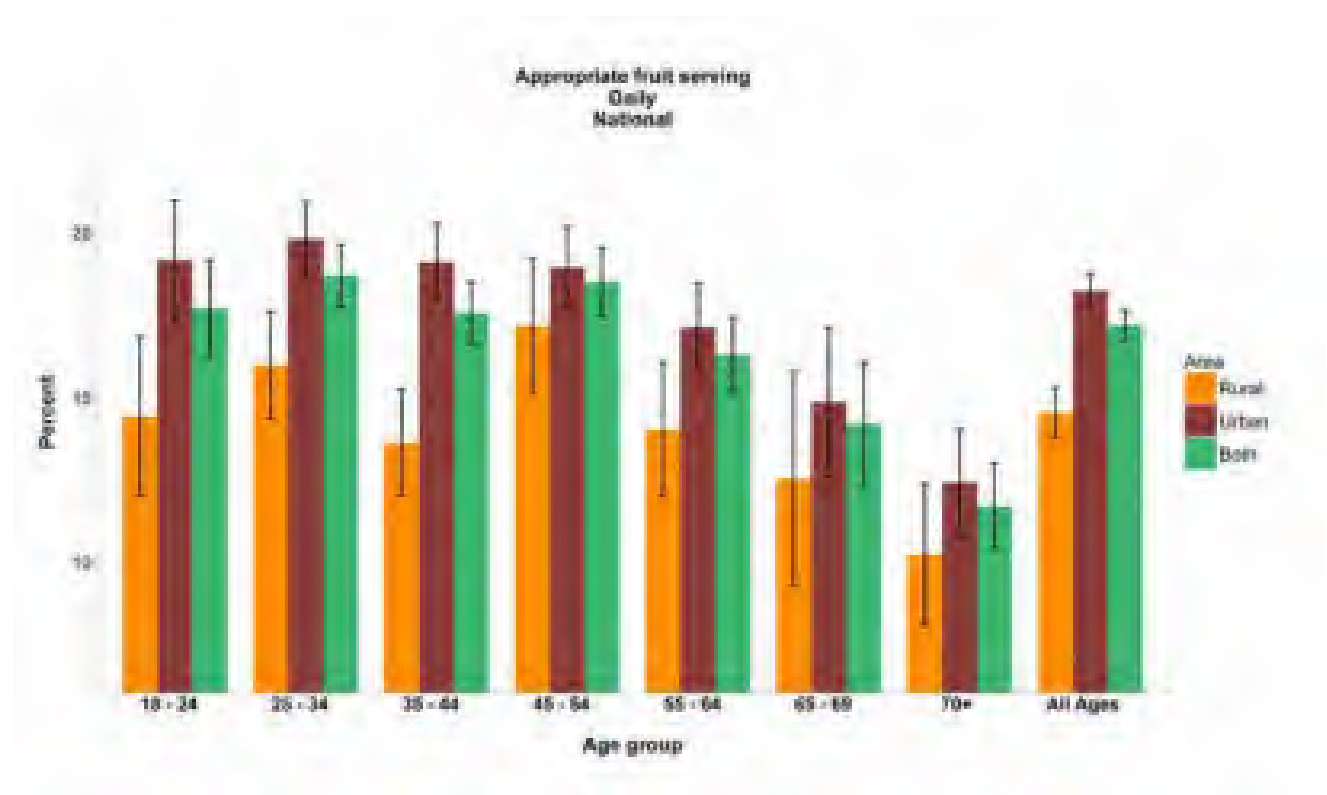


Figure 3.2.11. Prevalence of appropriate fruit serving (daily) by age and area of residency at national level

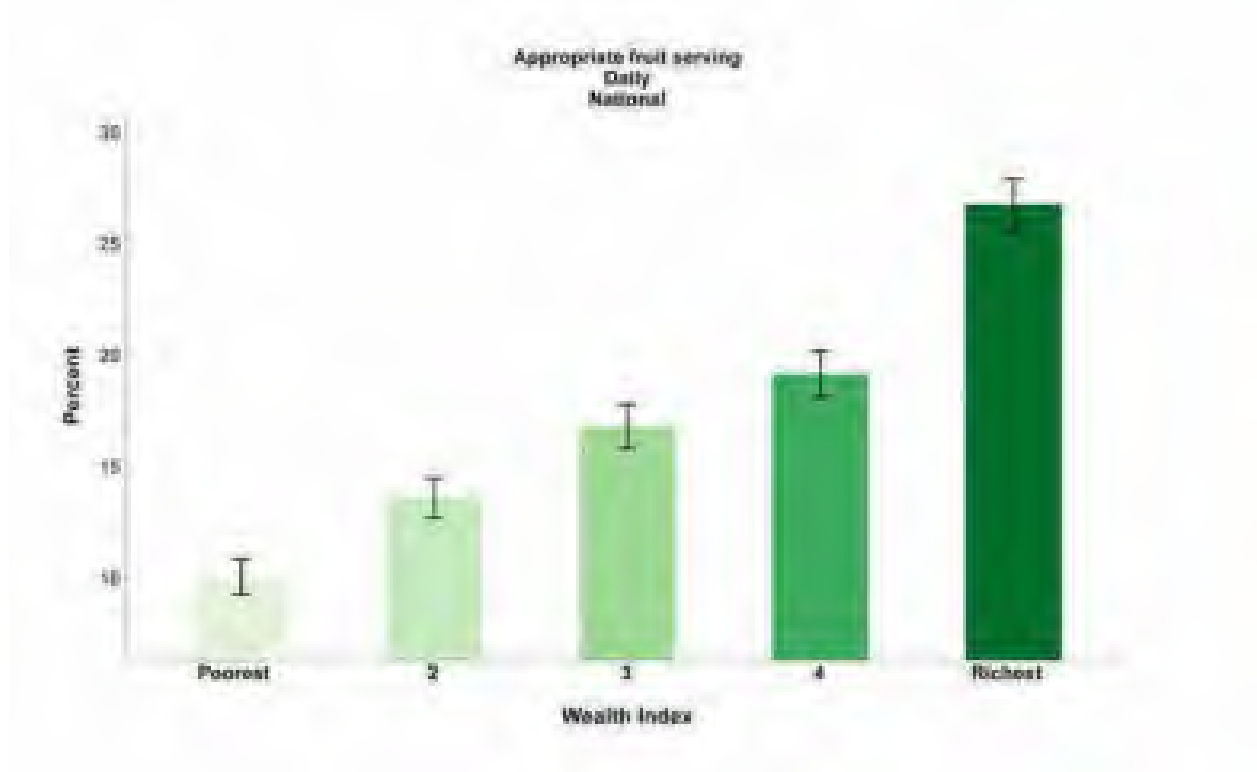


Figure 3.2.12. Prevalence of appropriate fruit serving (daily) by wealth index quantiles at national level

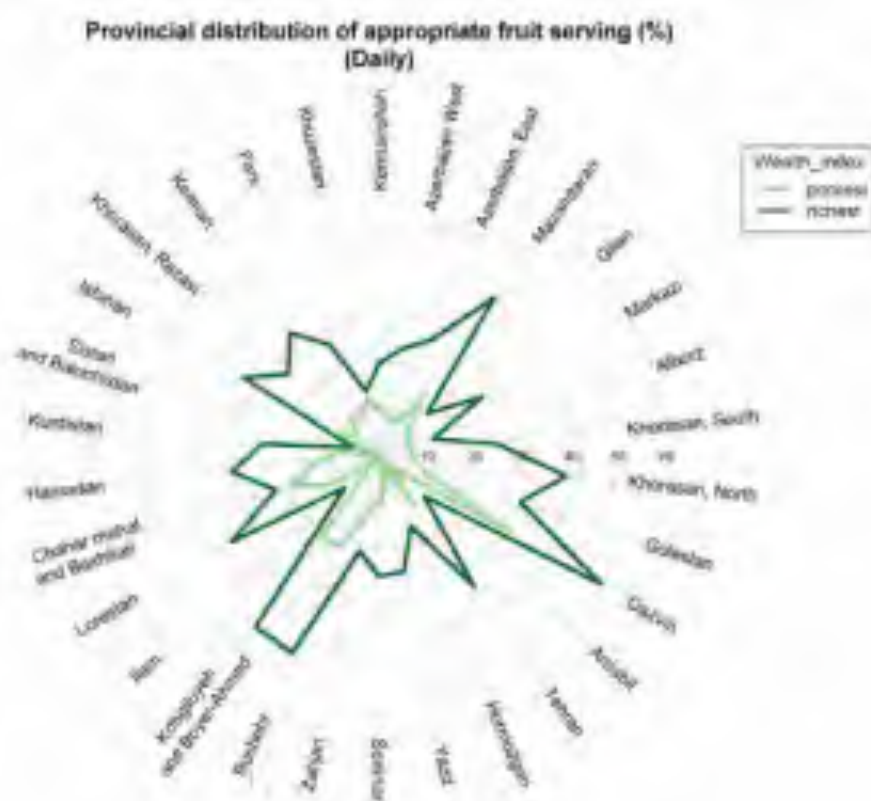


Figure 3.2.13. Provincial distribution of prevalence of appropriate fruit serving (daily) by wealth index

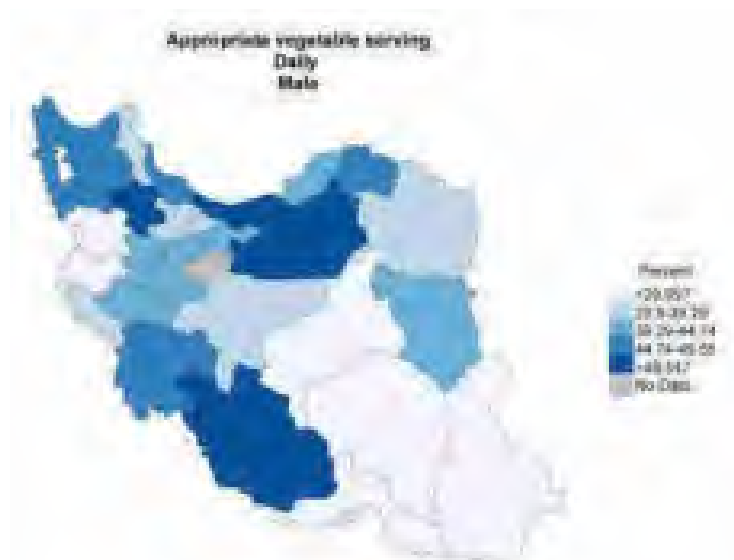


Figure 3.2.16. Geographical distribution of prevalence of appropriate vegetable serving (daily) in males

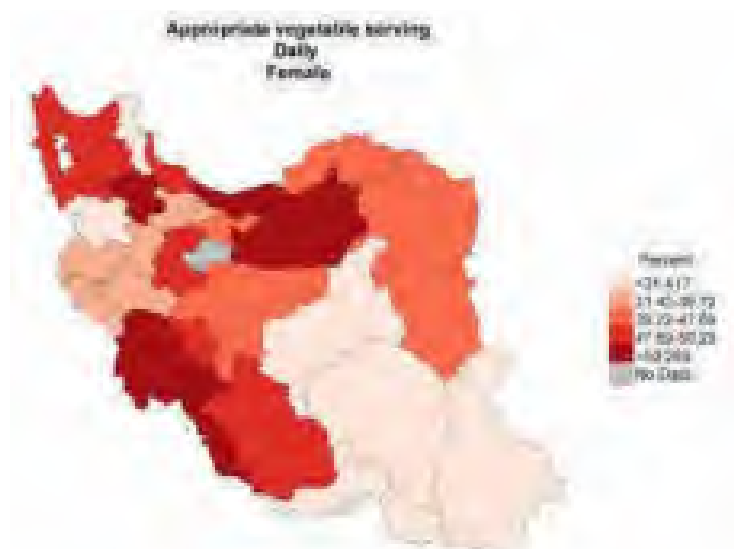


Figure 3.2.17. Geographical distribution of prevalence of appropriate vegetable serving (daily) in females

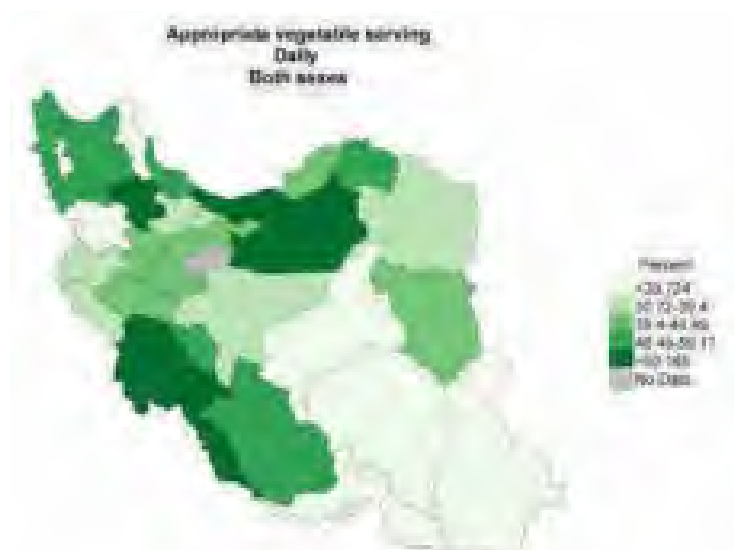


Figure 3.2.18. Geographical distribution of prevalence of appropriate vegetable serving (daily) in both sexes

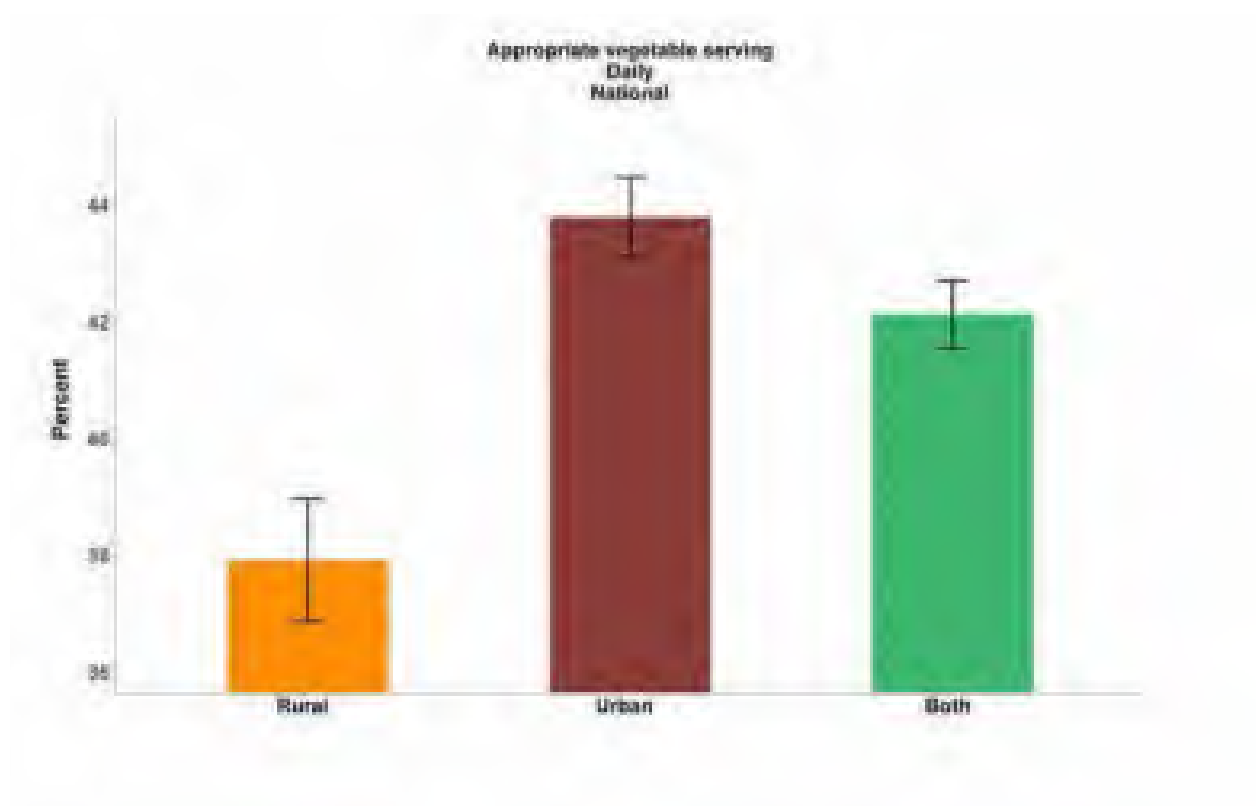


Figure 3.2.19. Prevalence of appropriate vegetable serving (daily) by area of residency at national level

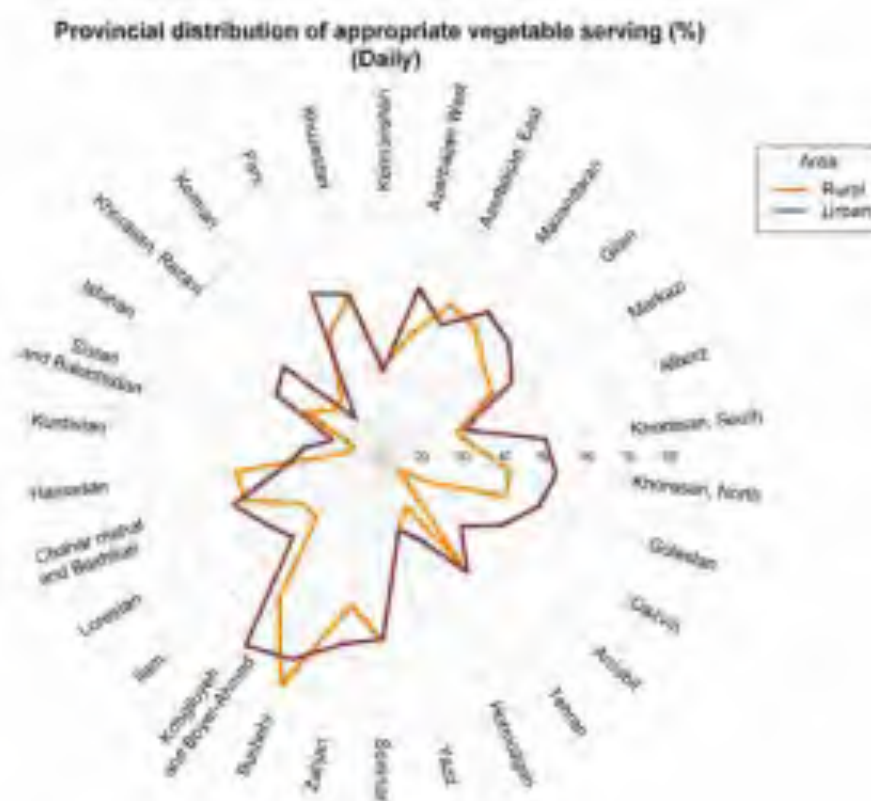


Figure 3.2.20. Provincial distribution of prevalence of appropriate vegetable serving (daily) by area of residency

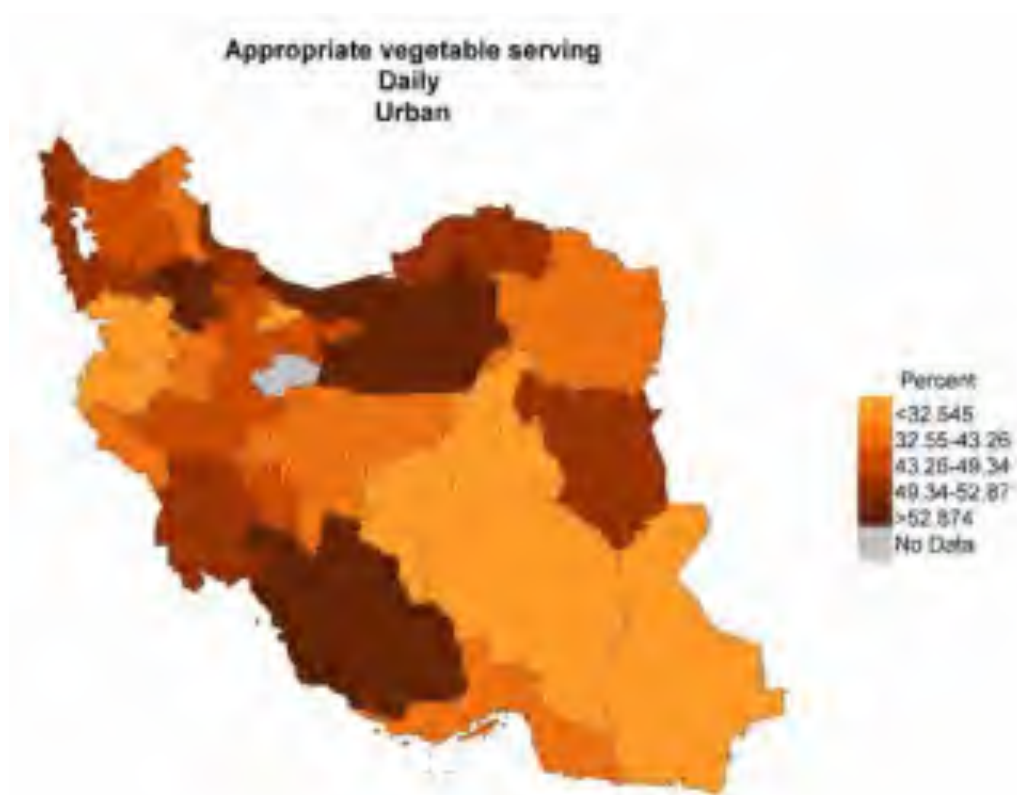


Figure 3.2.21. Geographical distribution of prevalence of appropriate vegetable serving (daily) in urban area of residency

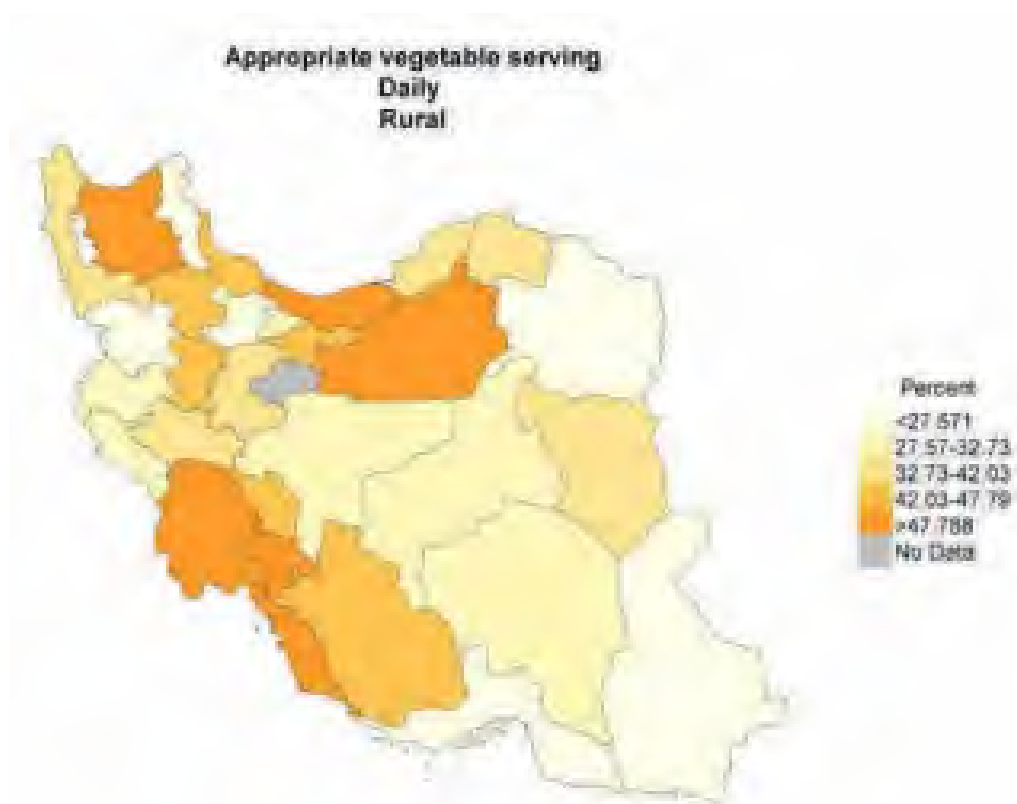


Figure 3.2.22. Geographical distribution of prevalence of appropriate vegetable serving (daily) in rural area of residency

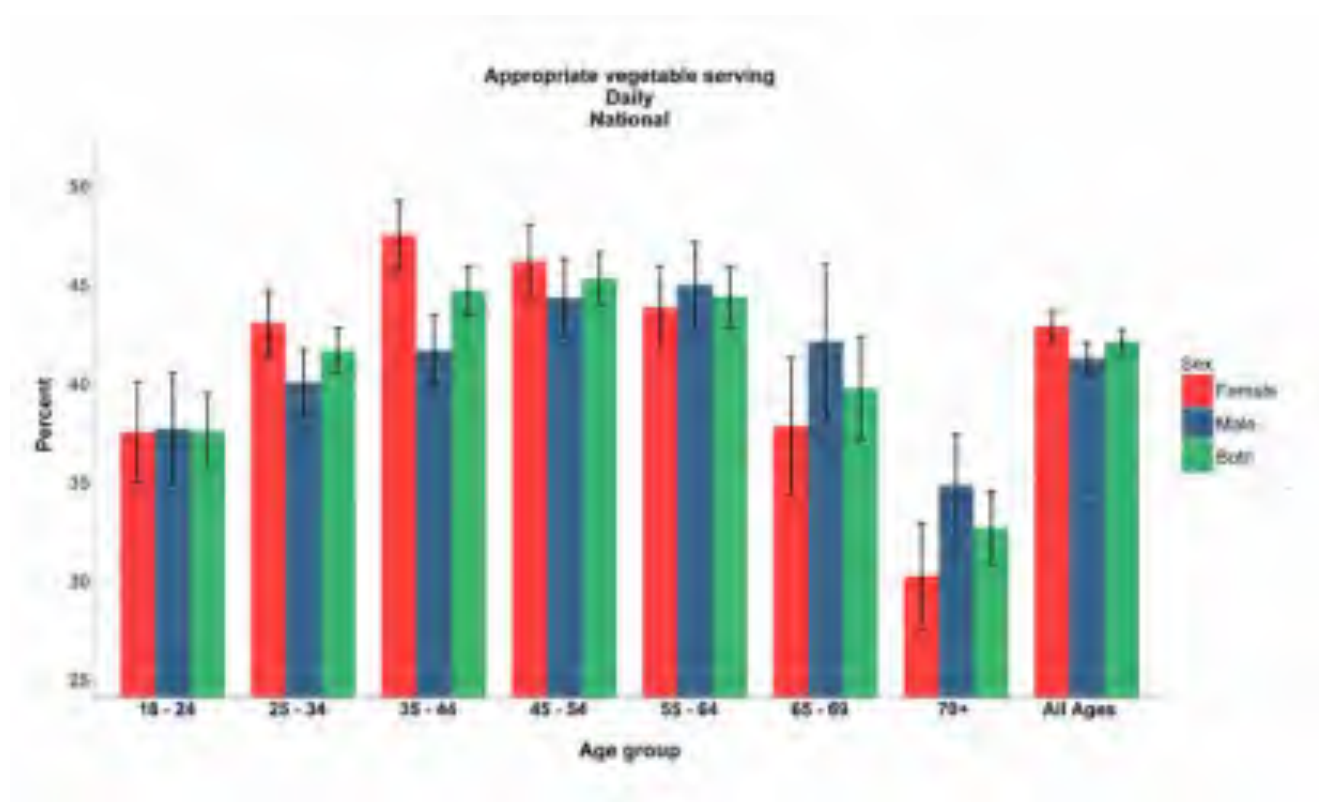


Figure 3.2.23. Prevalence of appropriate vegetable serving (daily) by age and sex at national level

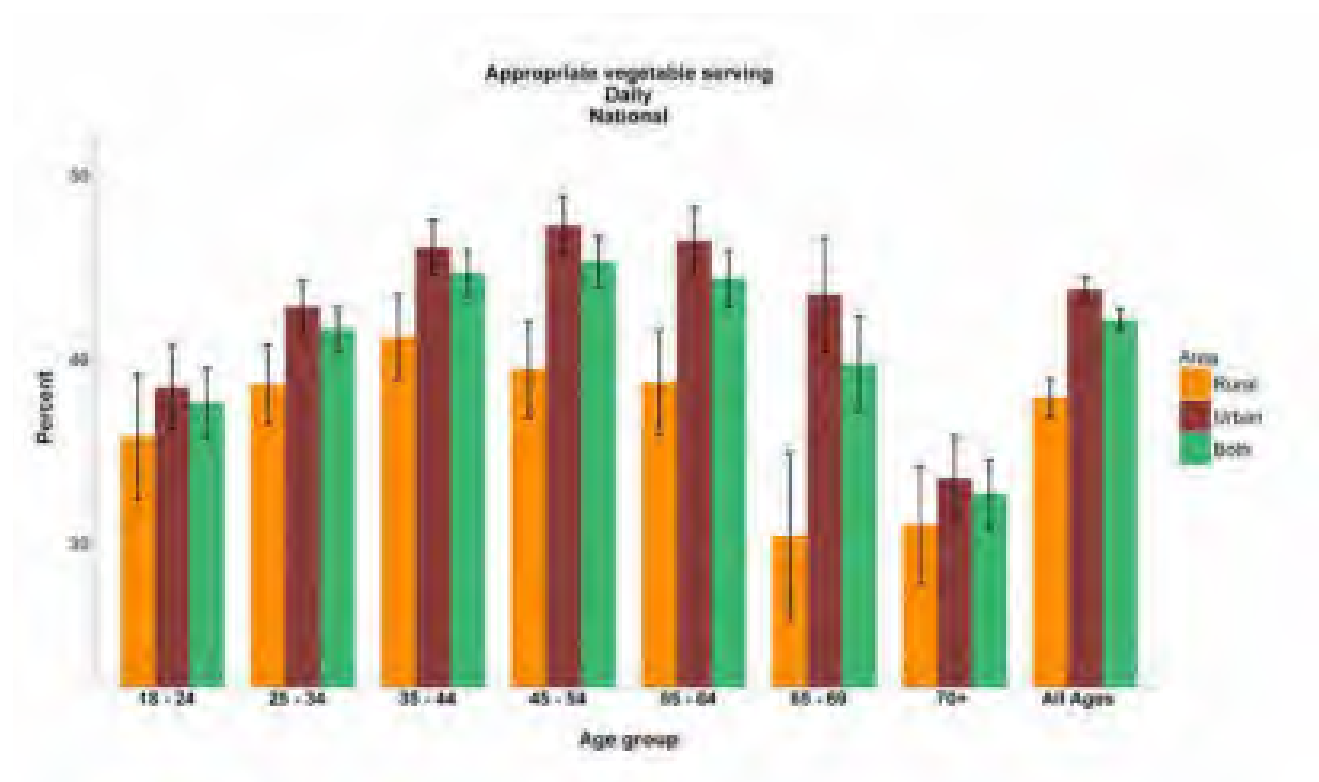


Figure 3.2.24. Prevalence of appropriate vegetable serving (daily) by age and area of residency at national level

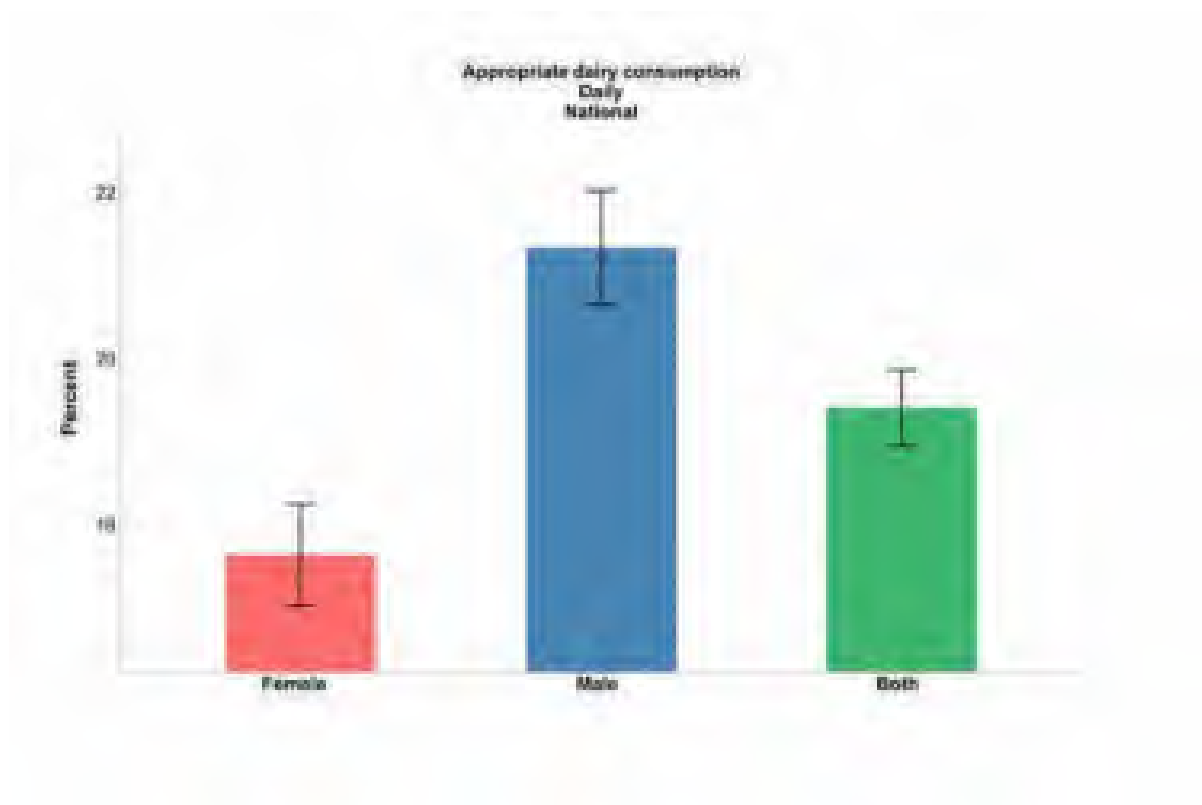


Figure 3.2.27. Prevalence of appropriate dairy consumption (daily) by sex at national level

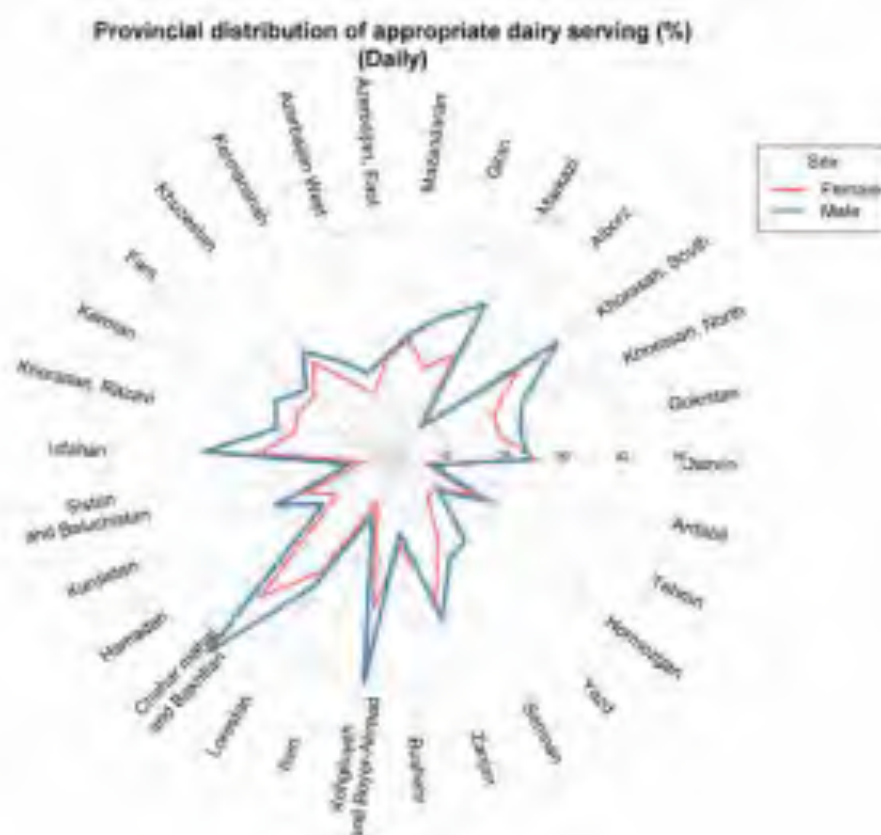


Figure 3.2.28. Provincial distribution of prevalence of appropriate dairy consumption (daily) by sex

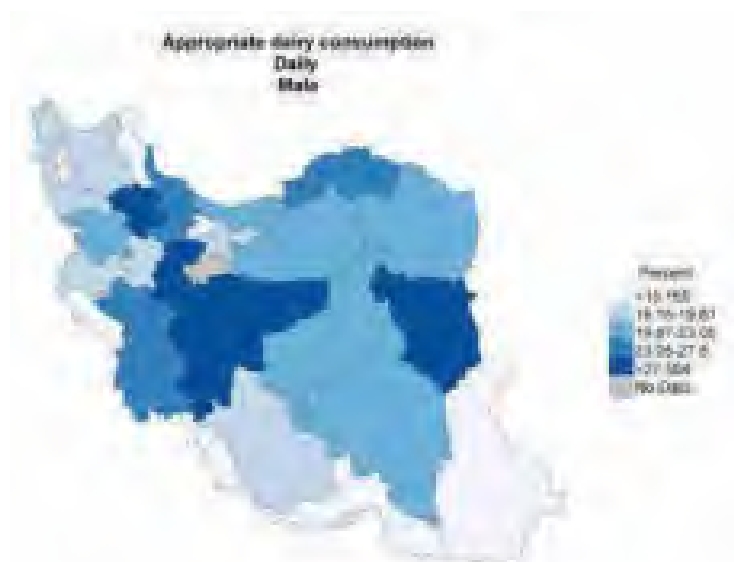


Figure 3.2.29. Geographical distribution of prevalence of appropriate dairy consumption (daily) in males

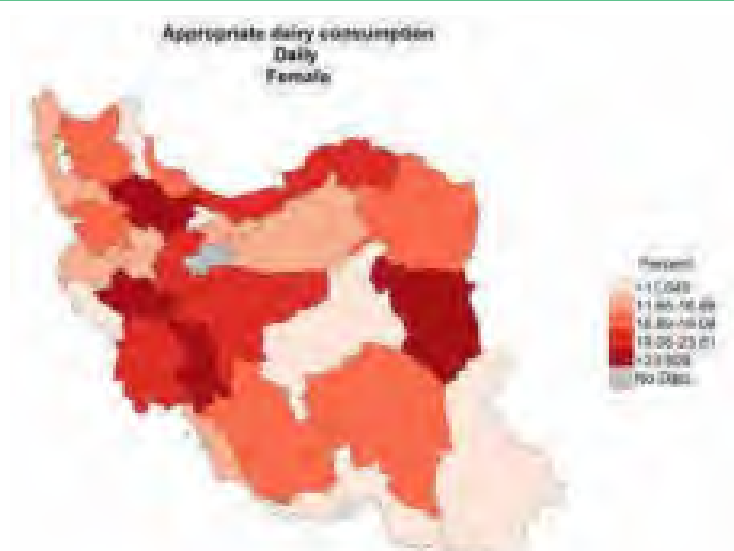


Figure 3.2.30. Geographical distribution of prevalence of appropriate dairy consumption (daily) in females

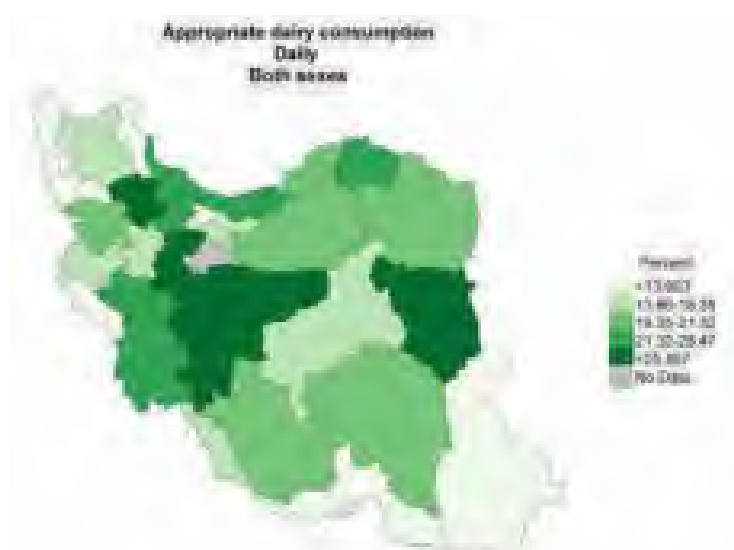


Figure 3.2.31. Geographical distribution of prevalence of appropriate dairy consumption (daily) in both sexes

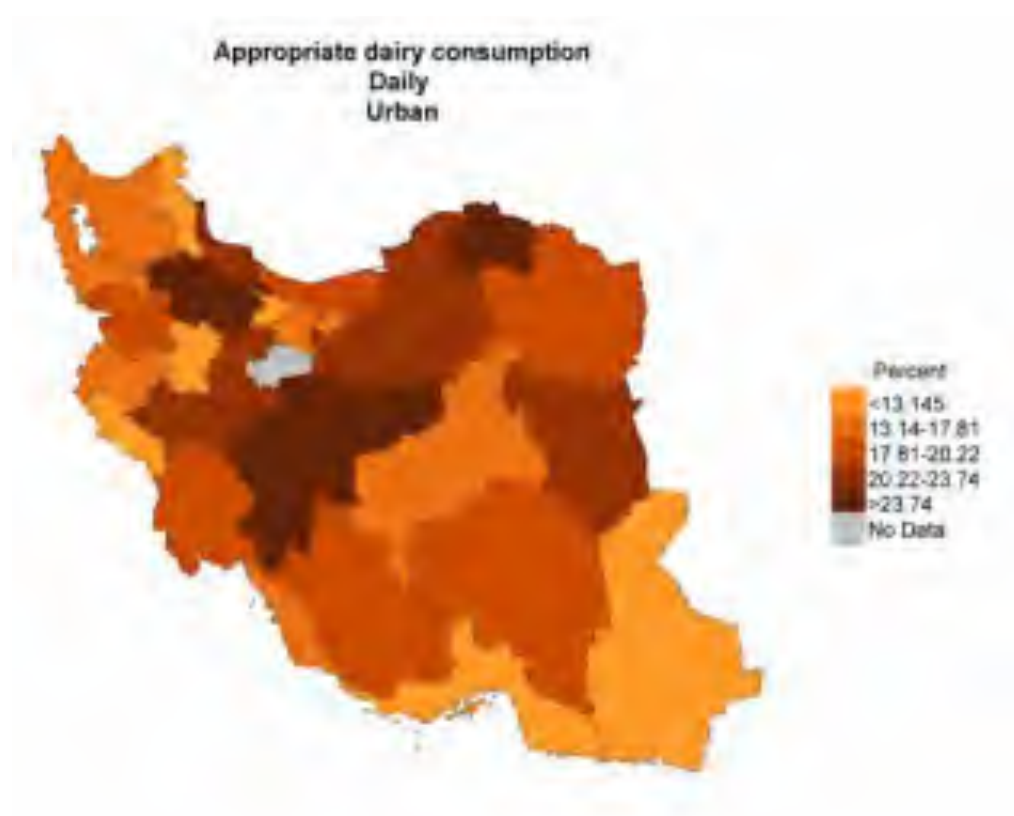


Figure 3.2.34. Geographical distribution of prevalence of appropriate dairy consumption (daily) in urban area of residency

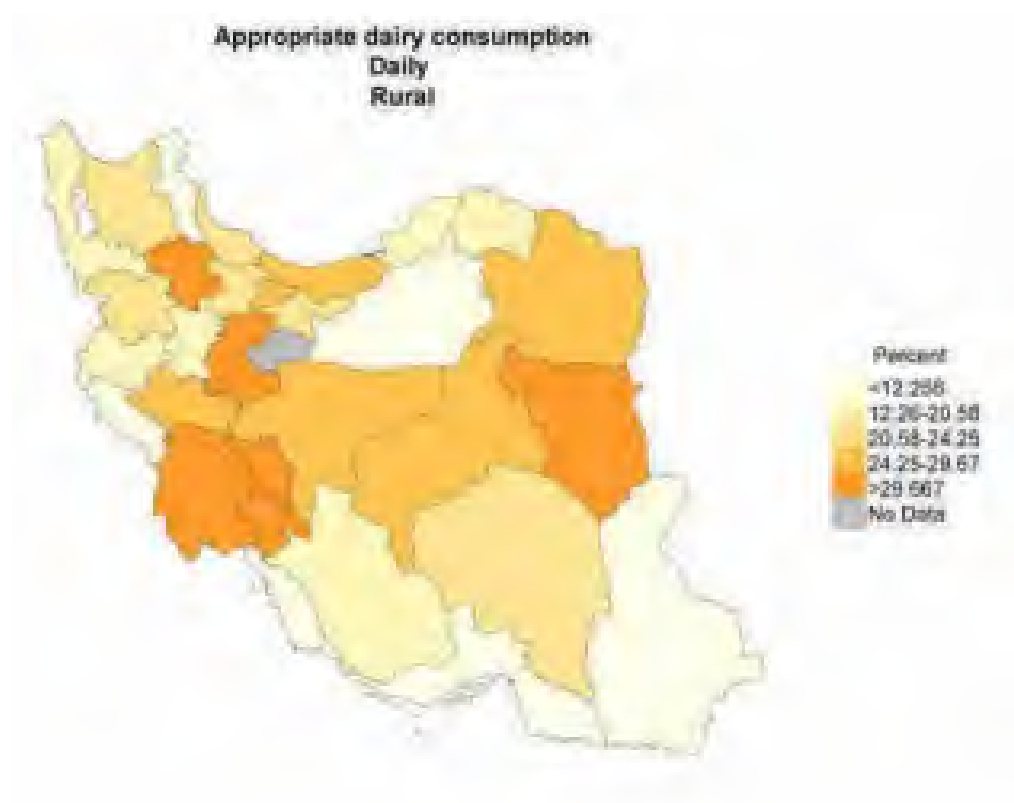


Figure 3.2.35. Geographical distribution of prevalence of appropriate dairy consumption (daily) in rural area of residency

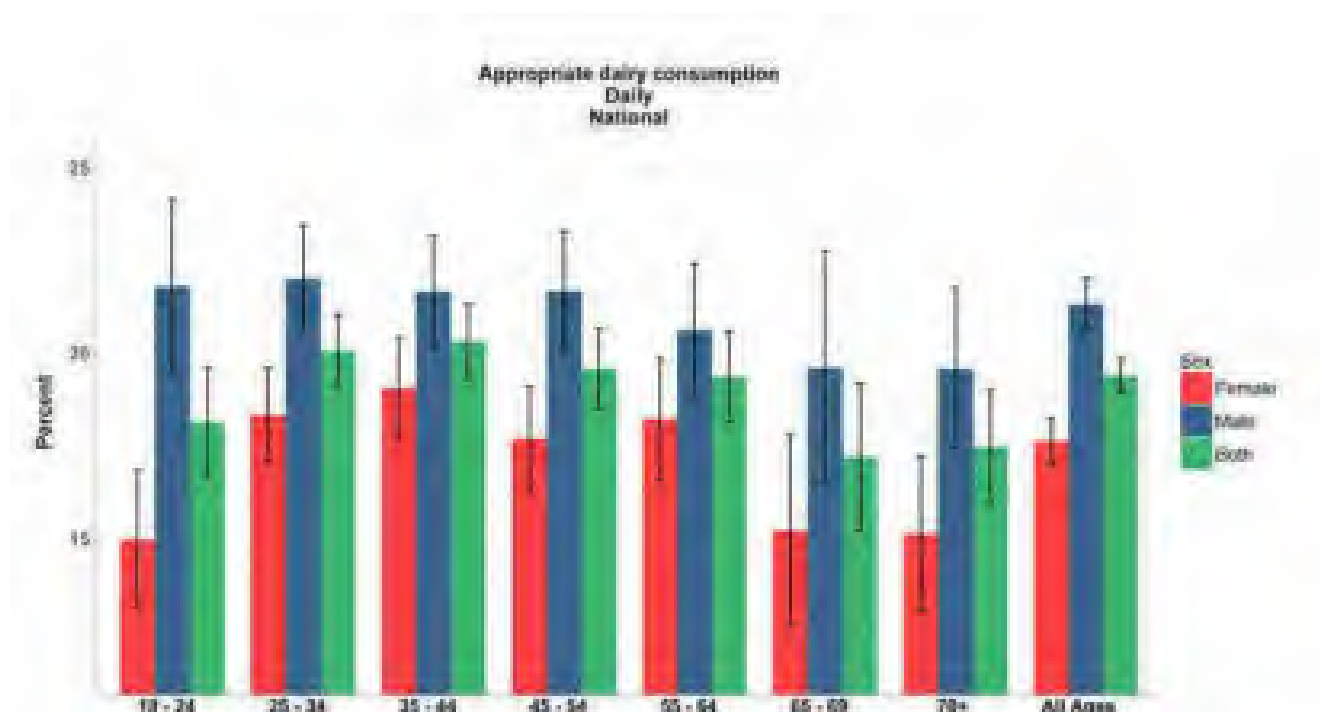


Figure 3.2.36. Prevalence of appropriate dairy consumption (daily) by age and sex at national level

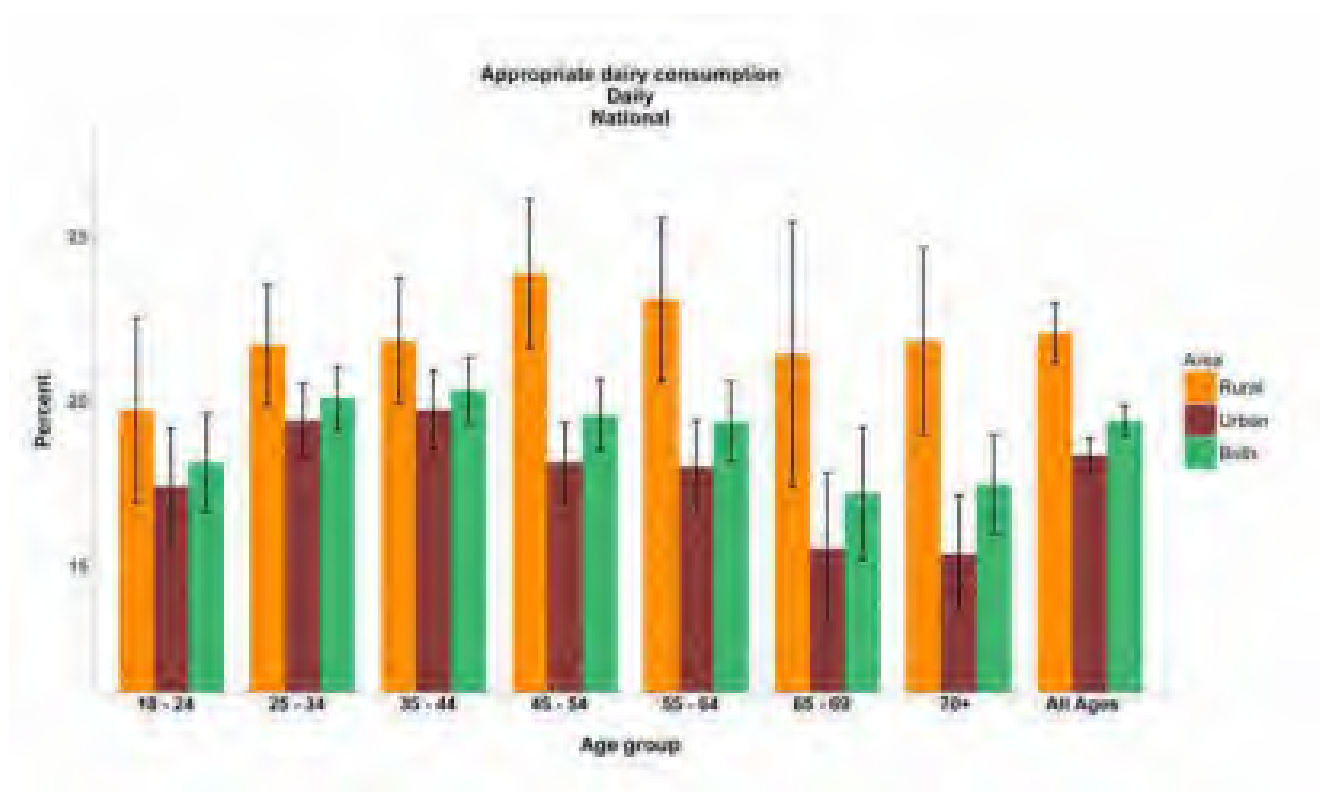


Figure 3.2.37. Prevalence of appropriate dairy consumption (daily) by age and area of residency at national level

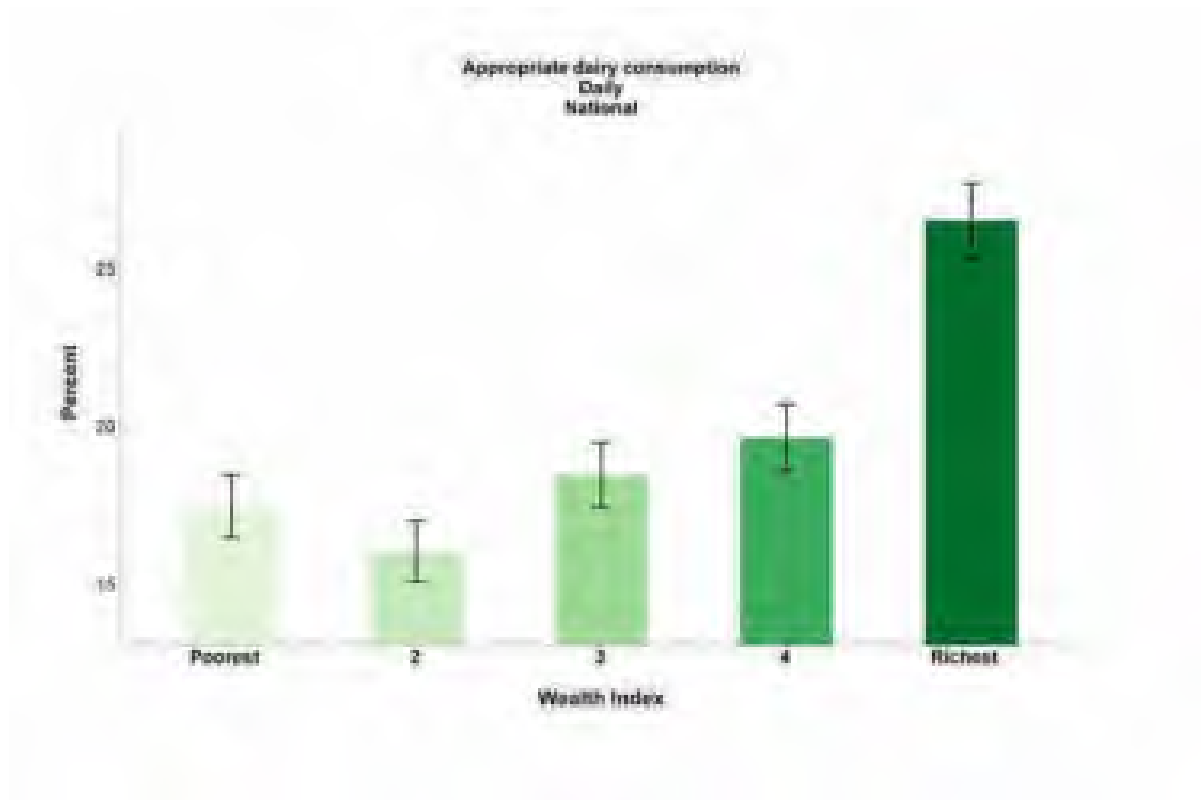


Figure 3.2.38. Prevalence of appropriate dairy consumption (daily) by wealth index quantiles at national level

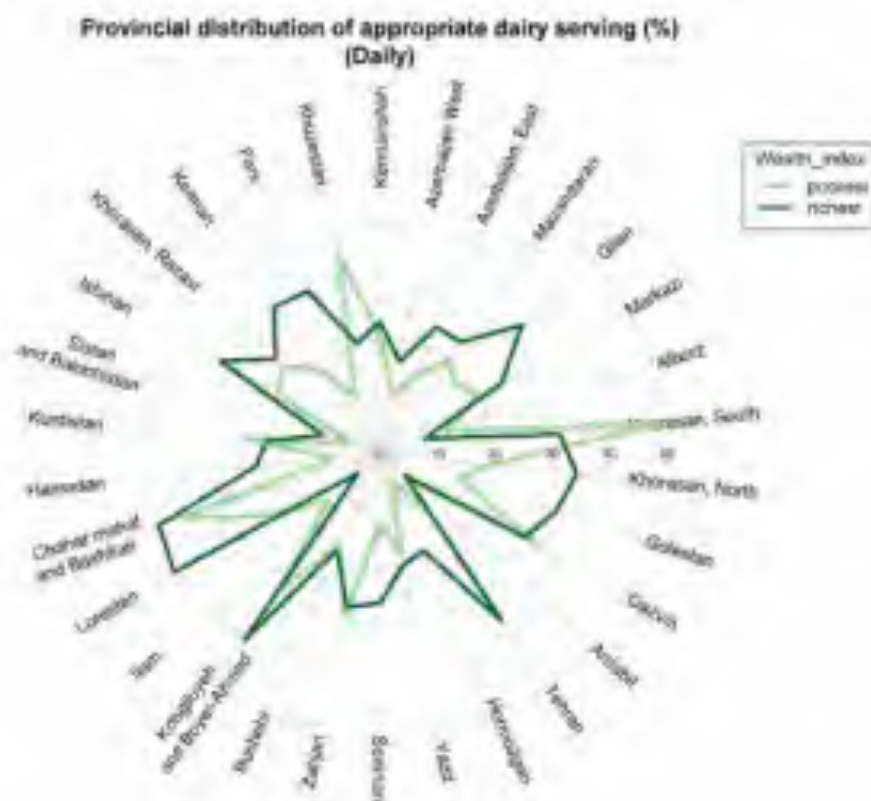


Figure 3.2.39. Provincial distribution of prevalence of appropriate dairy consumption (daily) by wealth index

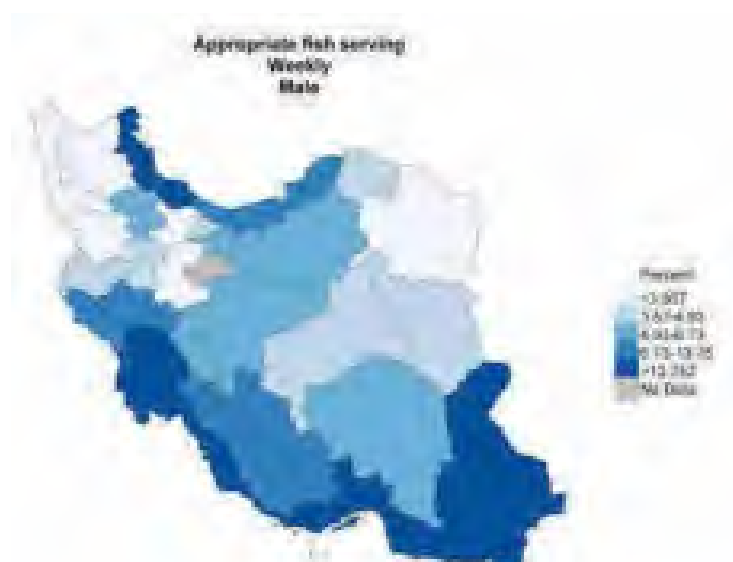


Figure 3.2.42. Geographical distribution of prevalence of appropriate fish serving (weekly) in males

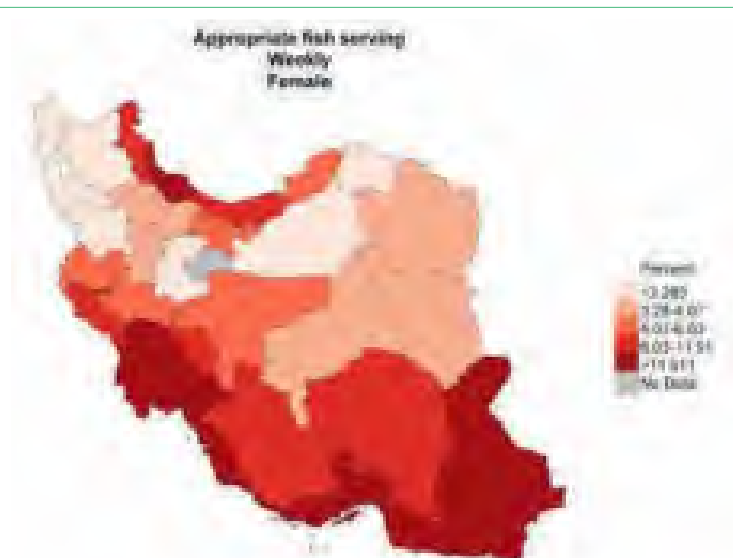


Figure 3.2.43. Geographical distribution of prevalence of appropriate fish serving (weekly) in females

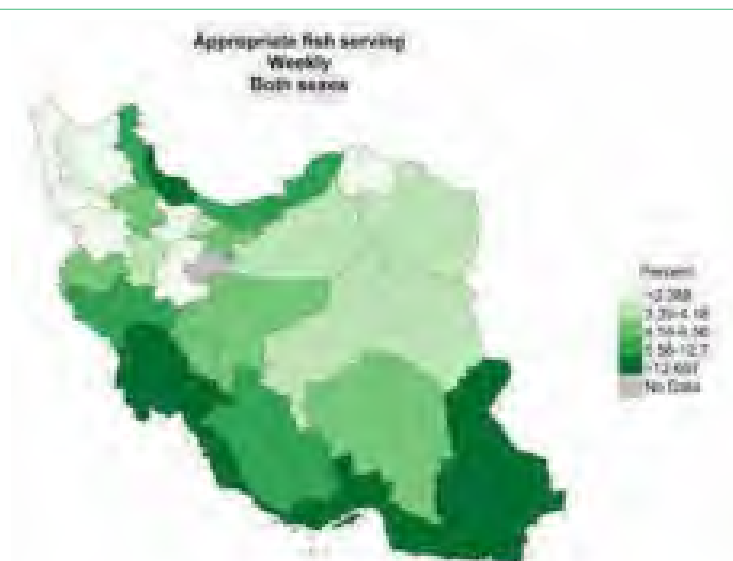


Figure 3.2.44. Geographical distribution of prevalence of appropriate fish serving (weekly) in both sexes

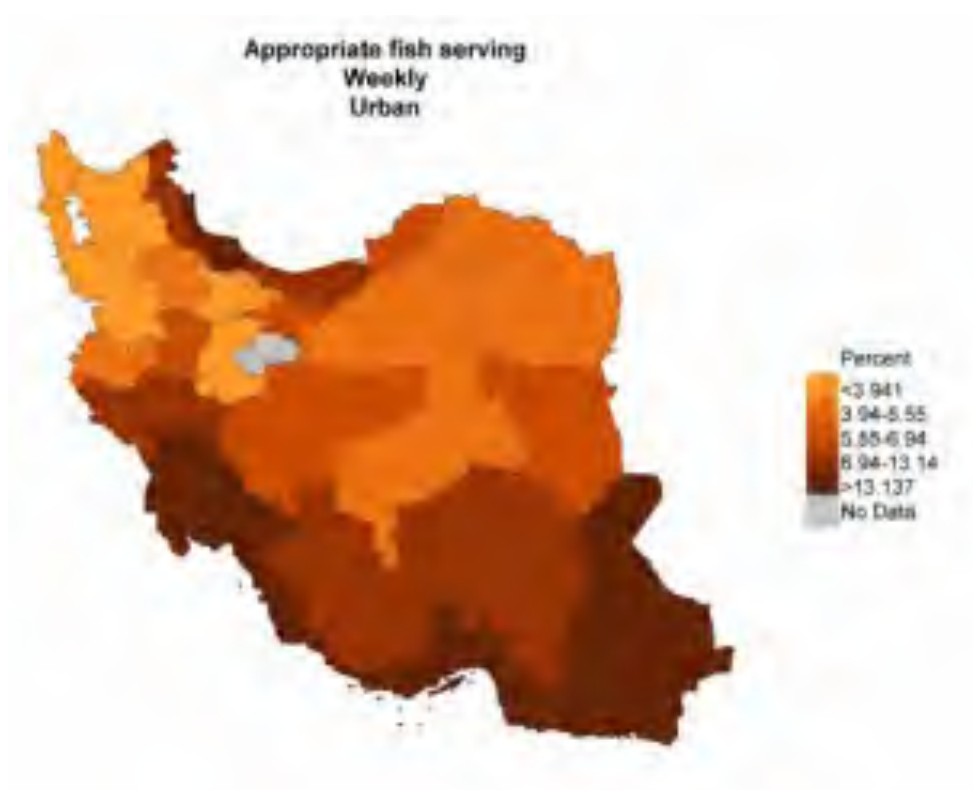


Figure 3.2.47. Geographical distribution of prevalence of appropriate fish serving (weekly) in urban area of residency

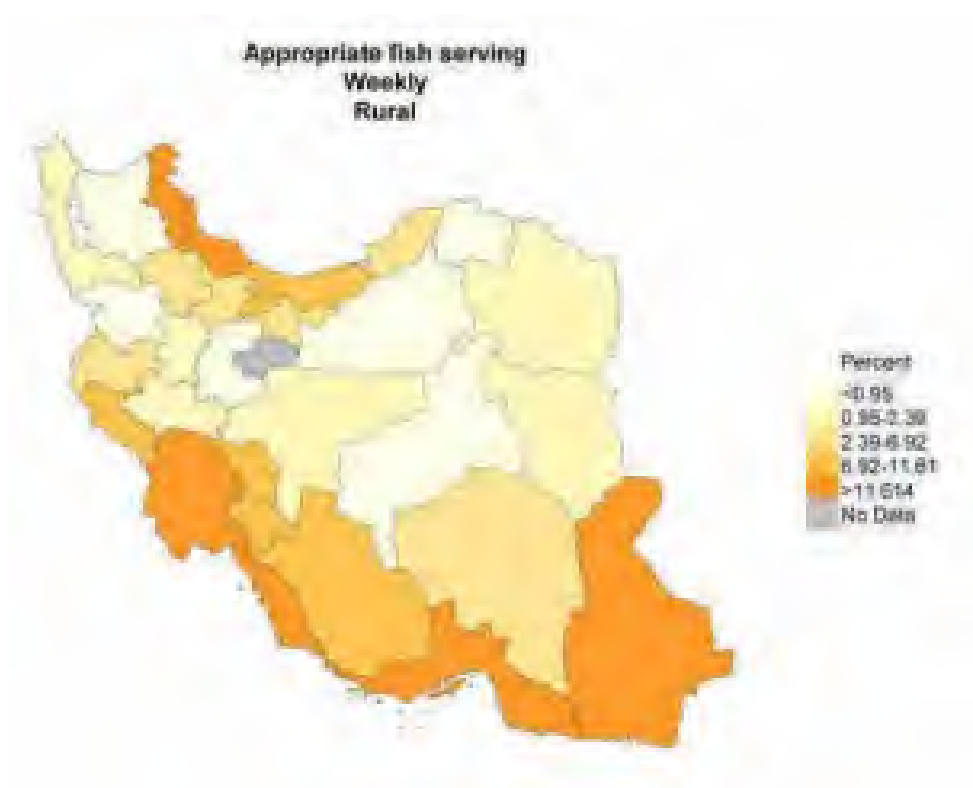


Figure 3.2.48. Geographical distribution of prevalence of appropriate fish serving (weekly) in rural area of residency

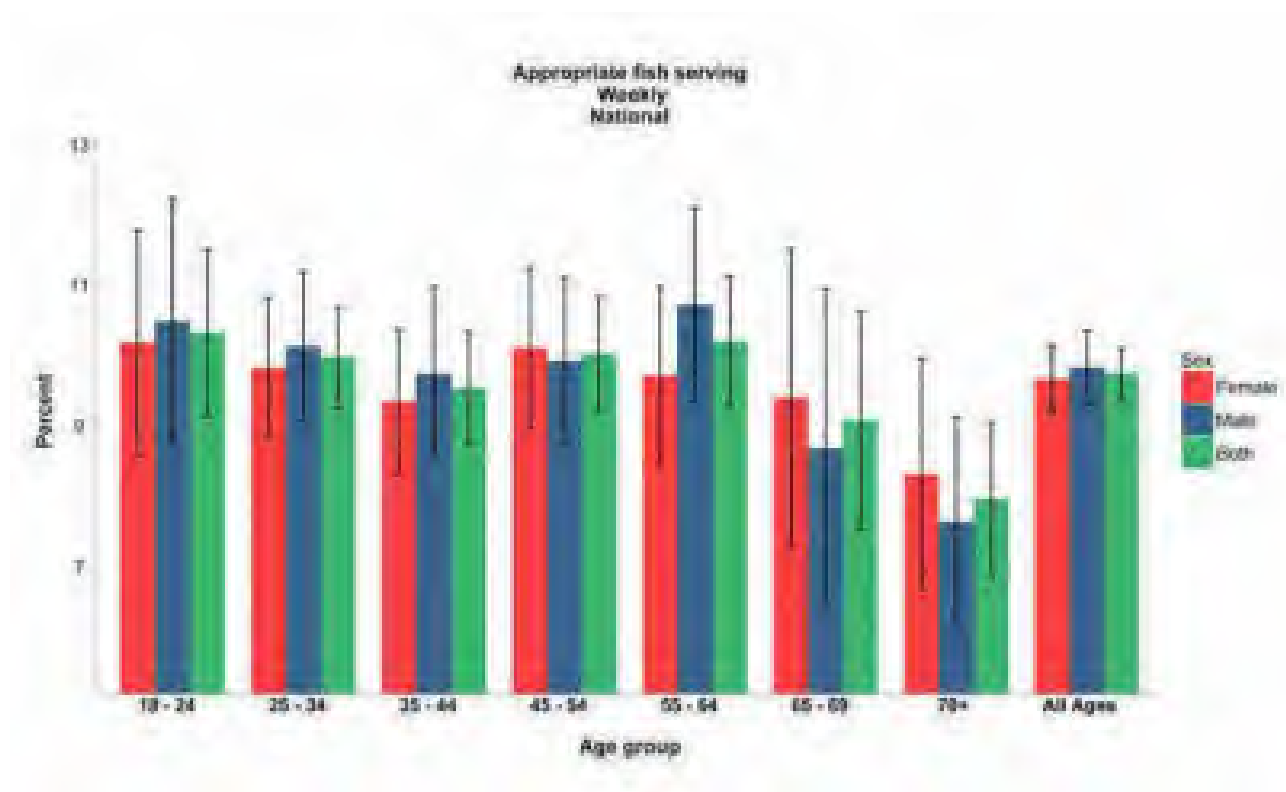


Figure 3.2.49. Prevalence of appropriate fish serving (weekly) by age and sex at national level

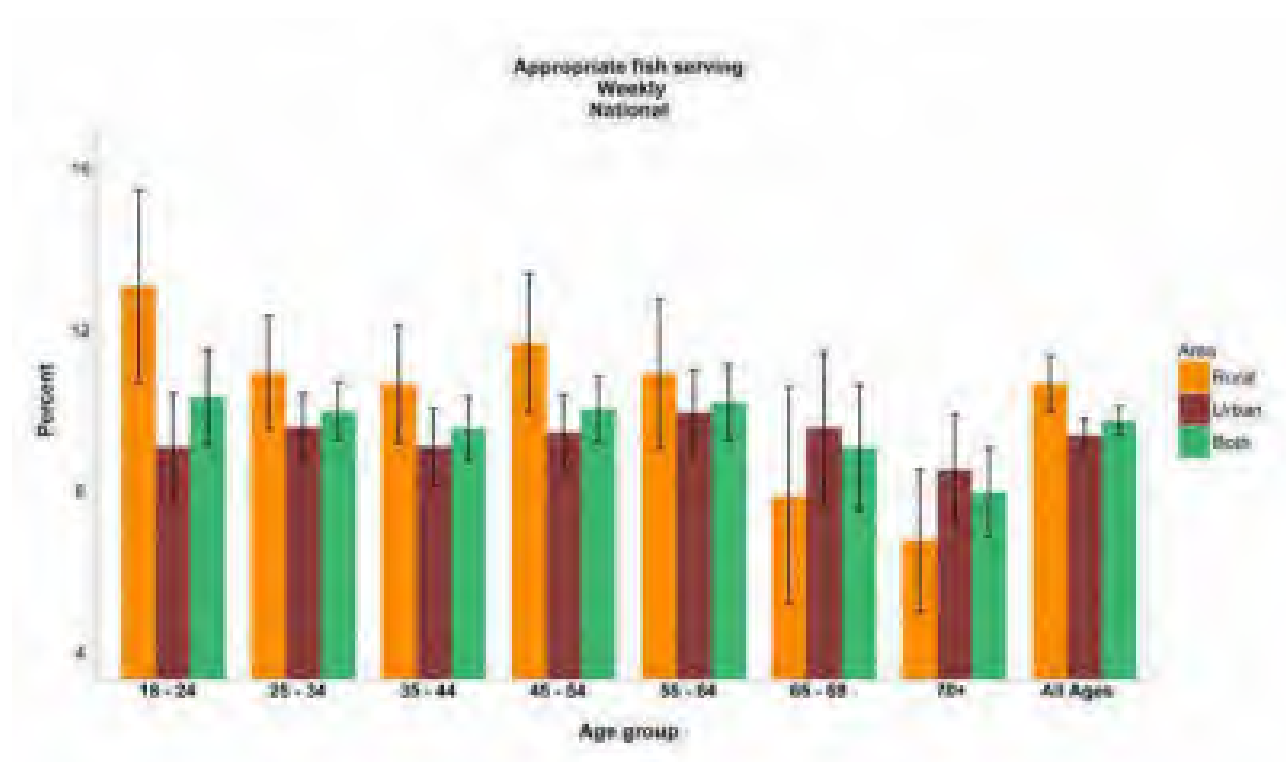


Figure 3.2.50. Prevalence of appropriate fish serving (weekly) by age and area of residency at national level

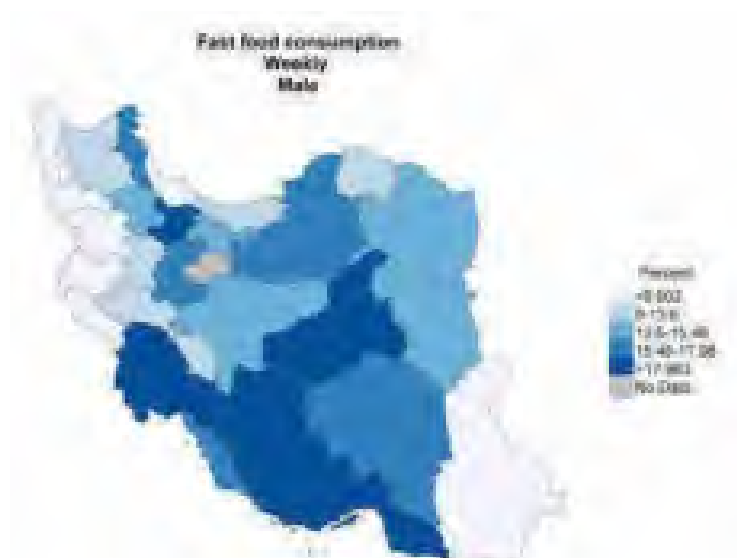


Figure 3.2.55. Geographical distribution of prevalence of fast food consumption (weekly) in males

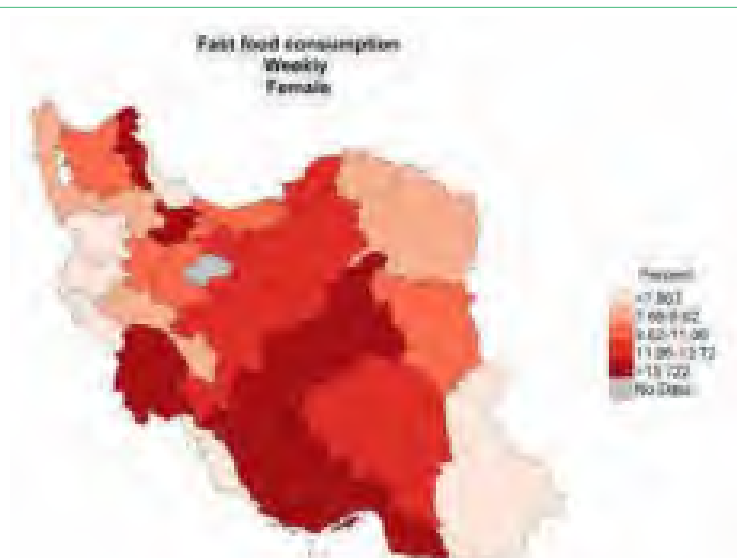


Figure 3.2.56. Geographical distribution of prevalence of fast food consumption (weekly) in females

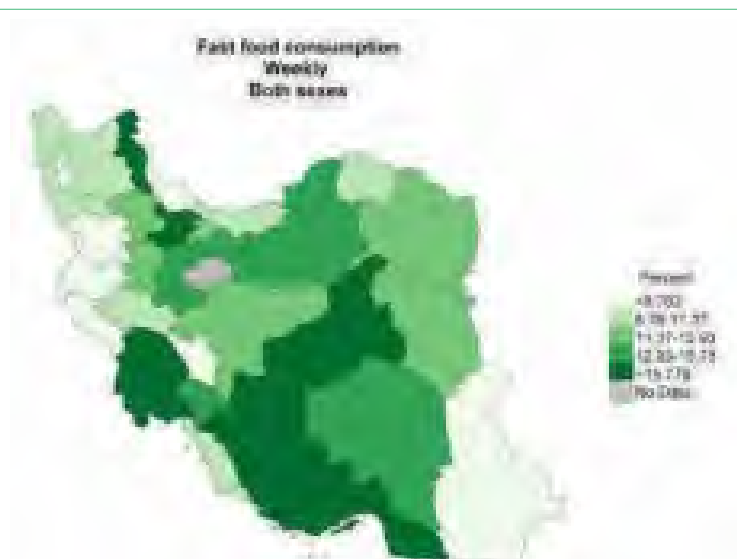


Figure 3.2.57. Geographical distribution of prevalence of fast food consumption (weekly) in both sexes

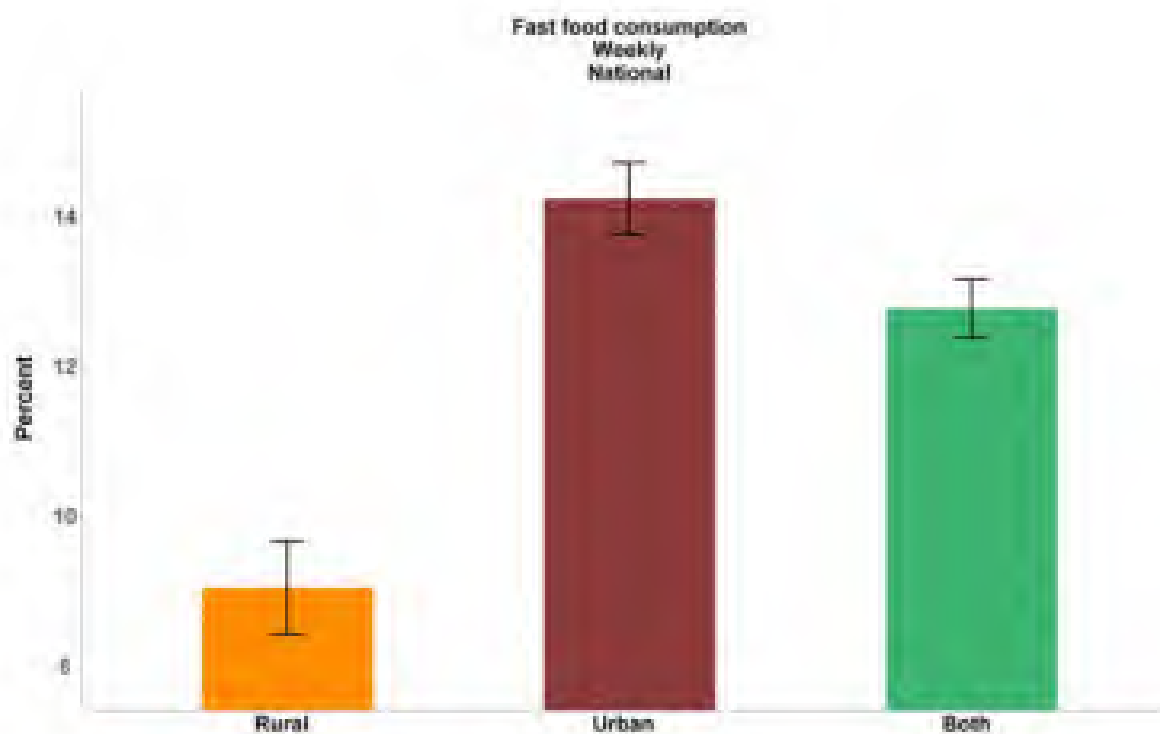


Figure 3.2.58. Prevalence of fast food consumption (weekly) by area of residency at national level

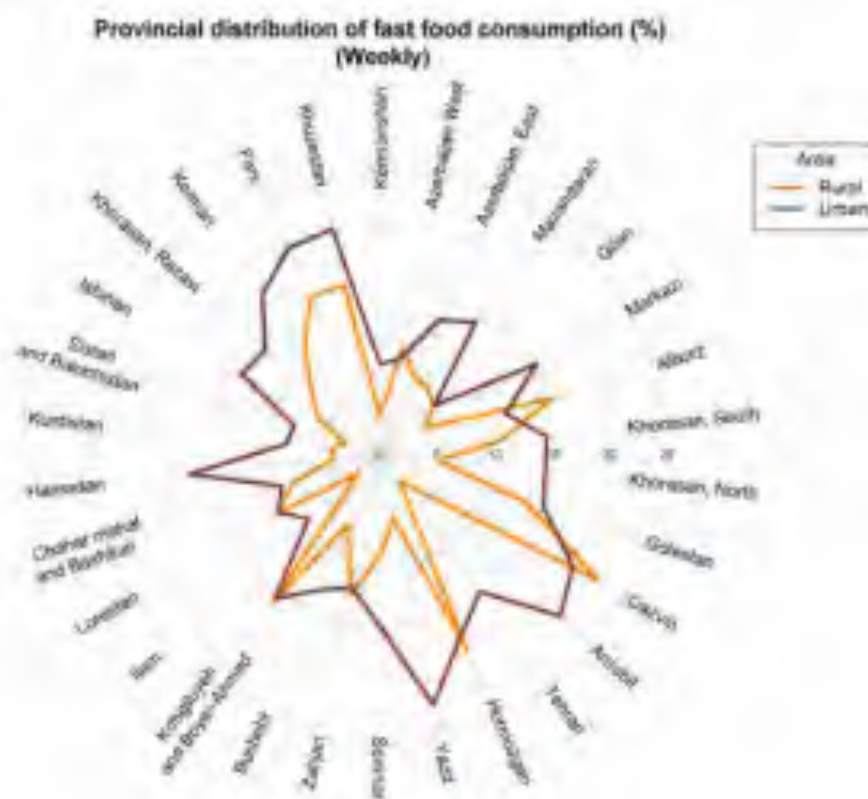


Figure 3.2.59. Provincial distribution of prevalence of fast food consumption (weekly) by area of residency

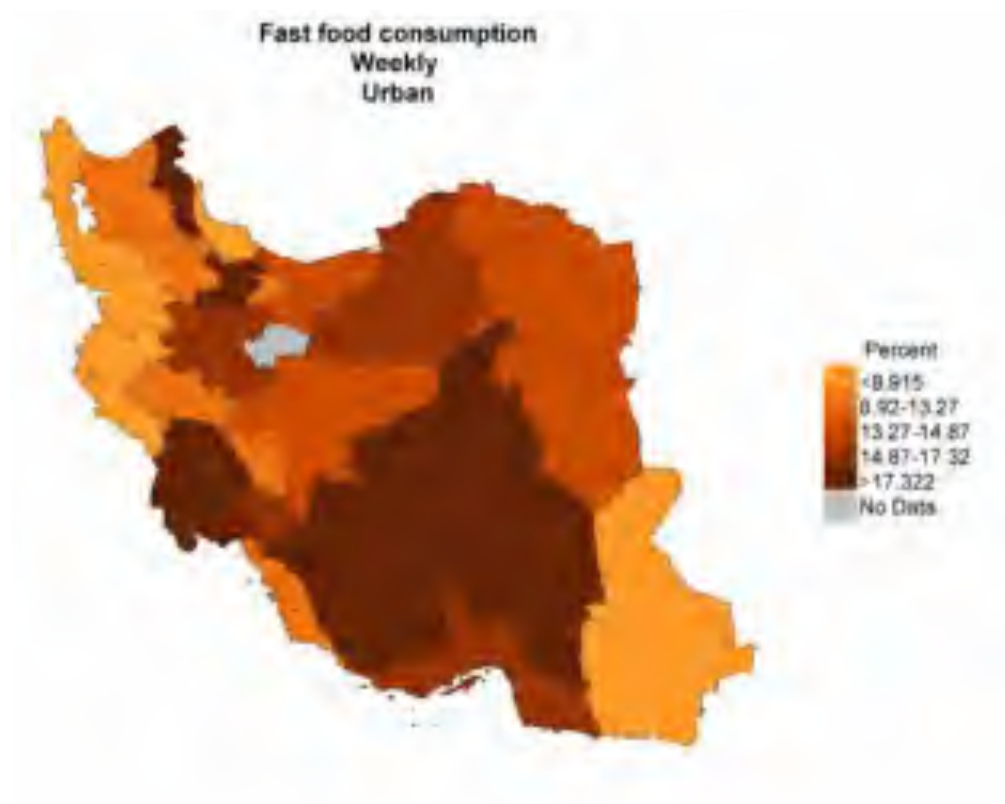


Figure 3.2.60. Geographical distribution of prevalence of fast food consumption (weekly) in urban area of residency

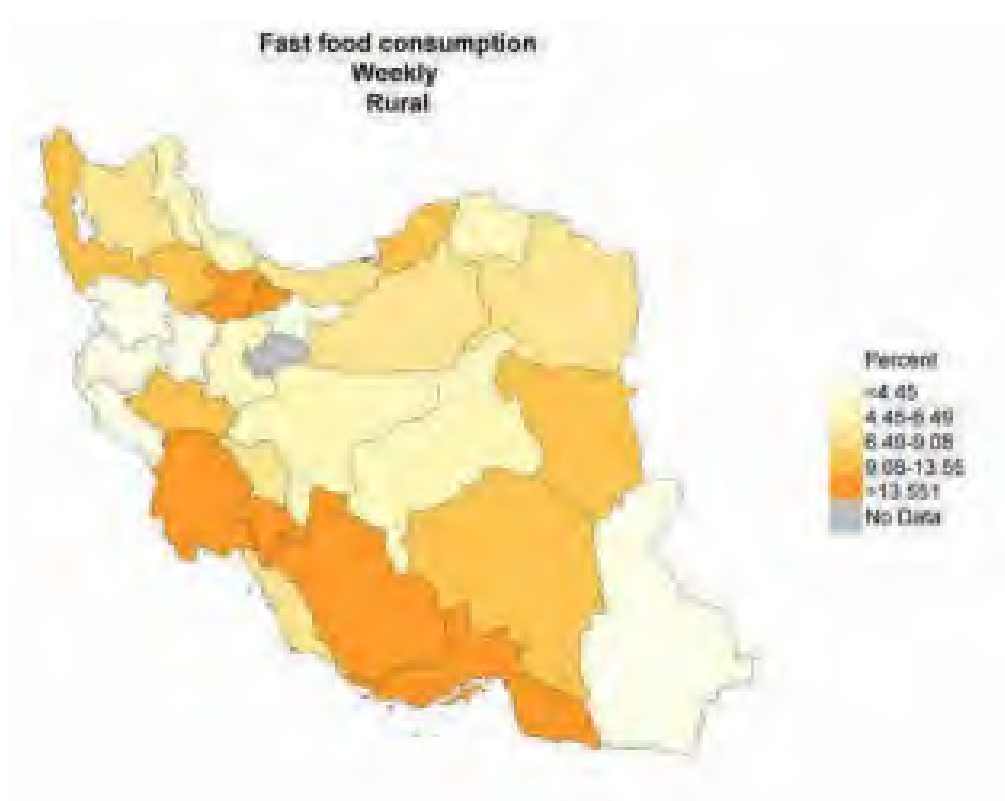


Figure 3.2.61. Geographical distribution of prevalence of fast food consumption (weekly) in rural area of residency

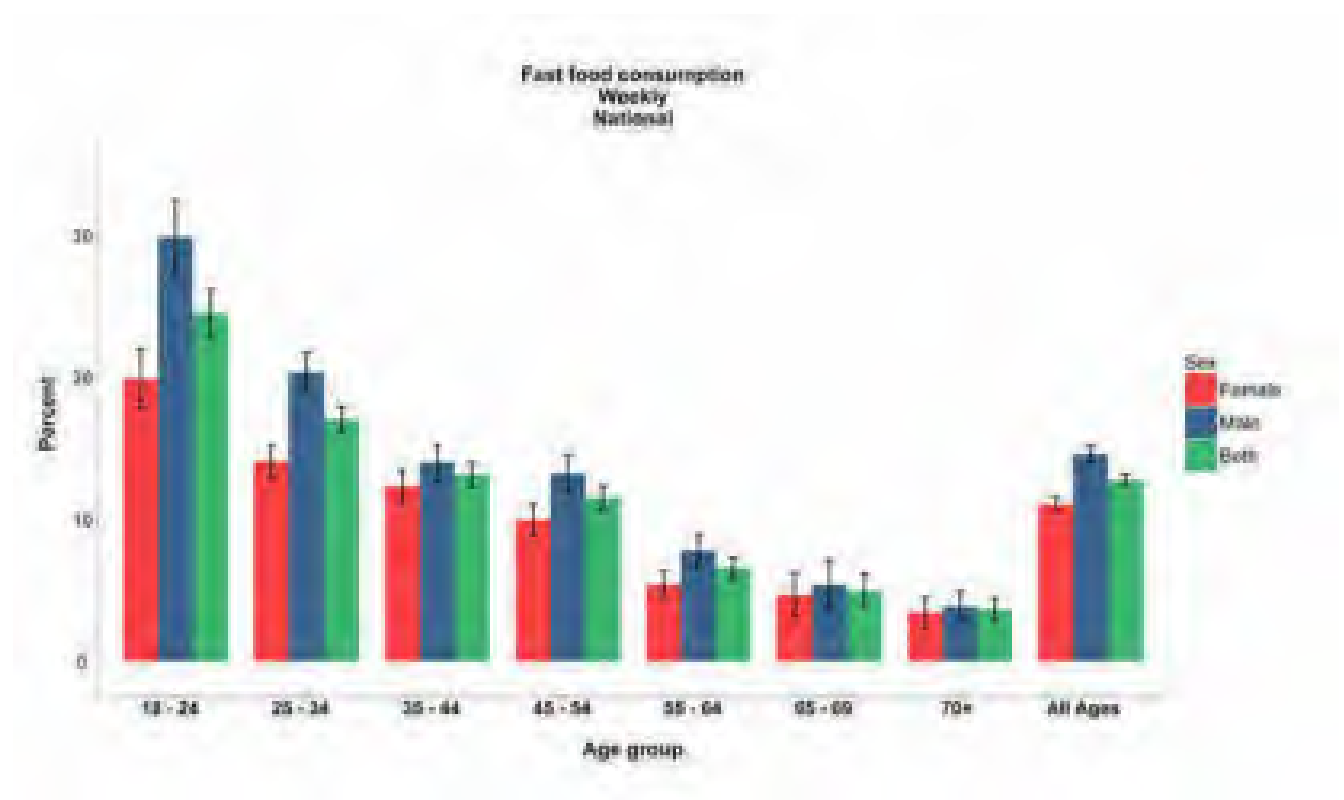


Figure 3.2.62. Prevalence of fast food consumption (weekly) by age and sex at national level

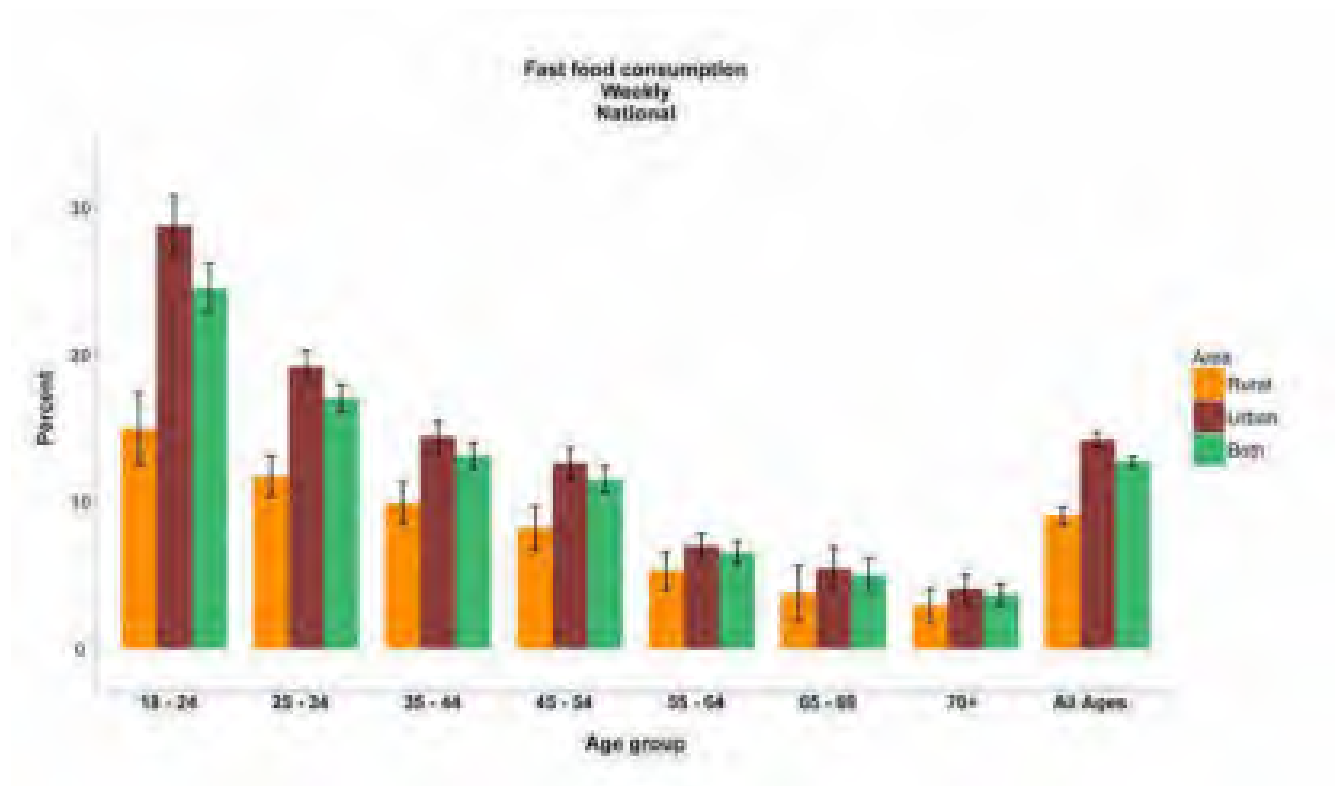


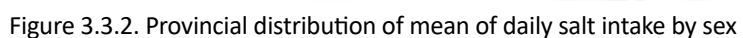
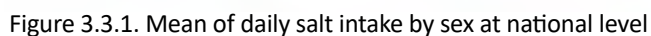
Figure 3.2.63. Prevalence of fast food consumption (weekly) by age and area of residency at national level

CHAPTER 2

Results

Section 3.3

Lifestyle Risk Factors: Salt Consumption



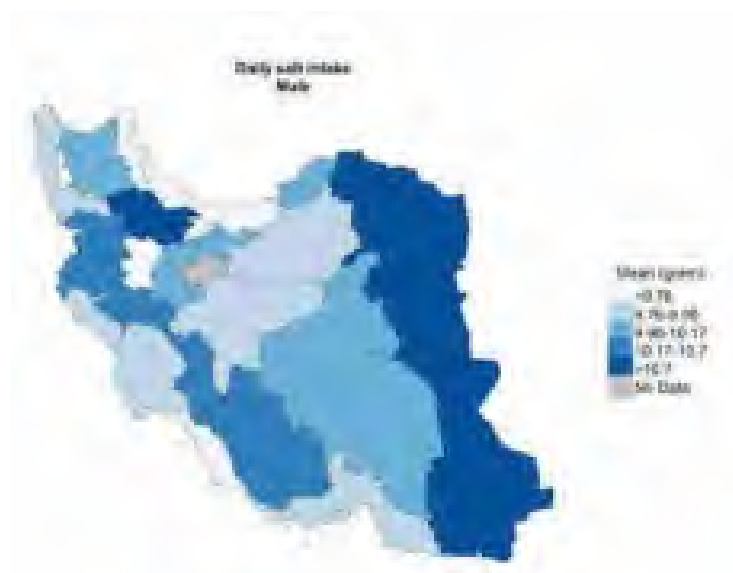


Figure 3.3.3. Geographical distribution of mean of daily salt intake in males

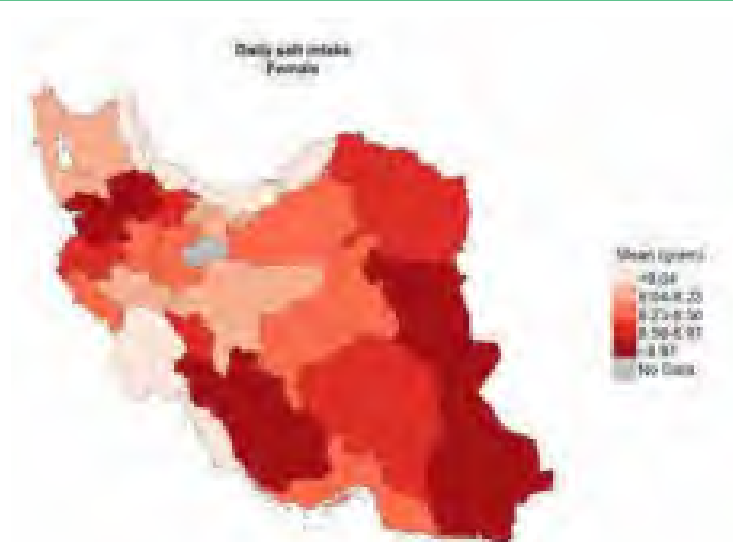


Figure 3.3.4. Geographical distribution of mean of daily salt intake in females

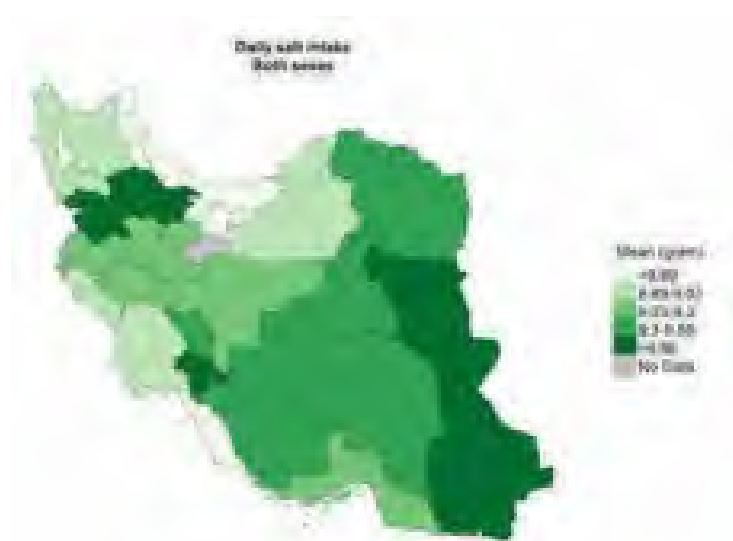


Figure 3.3.5. Geographical distribution of mean of daily salt intake in both sexes

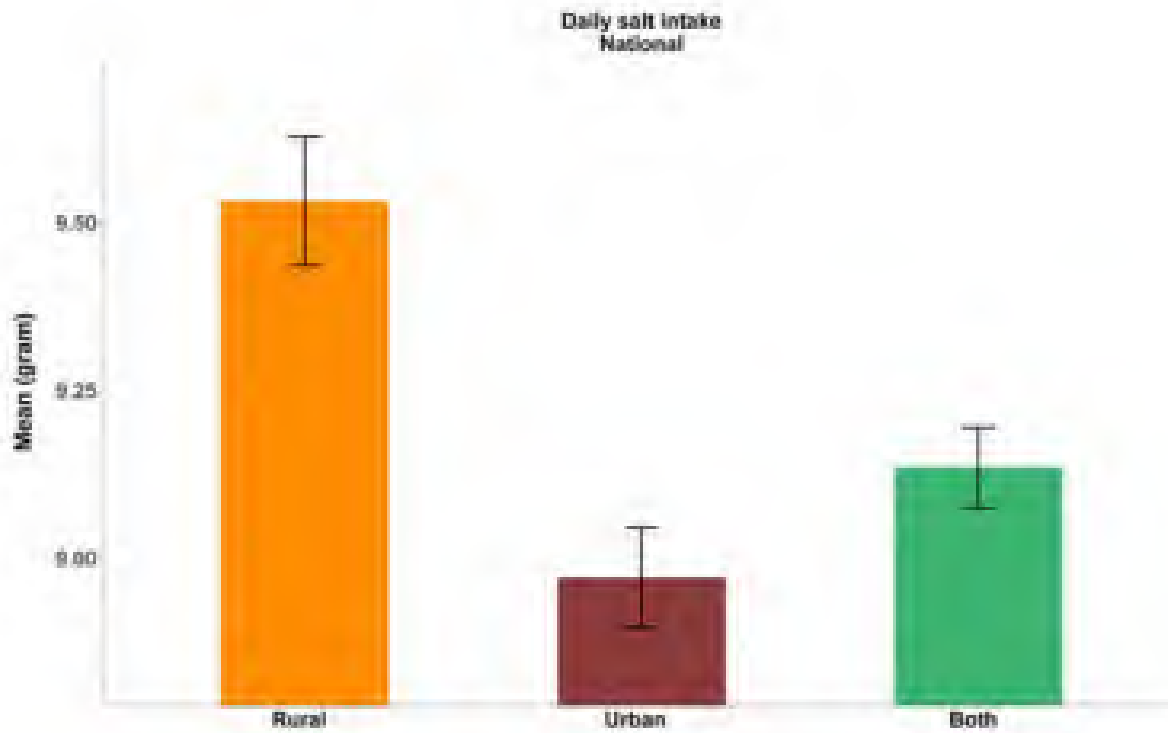


Figure 3.3.6. Mean of daily salt intake by area of residency at national level

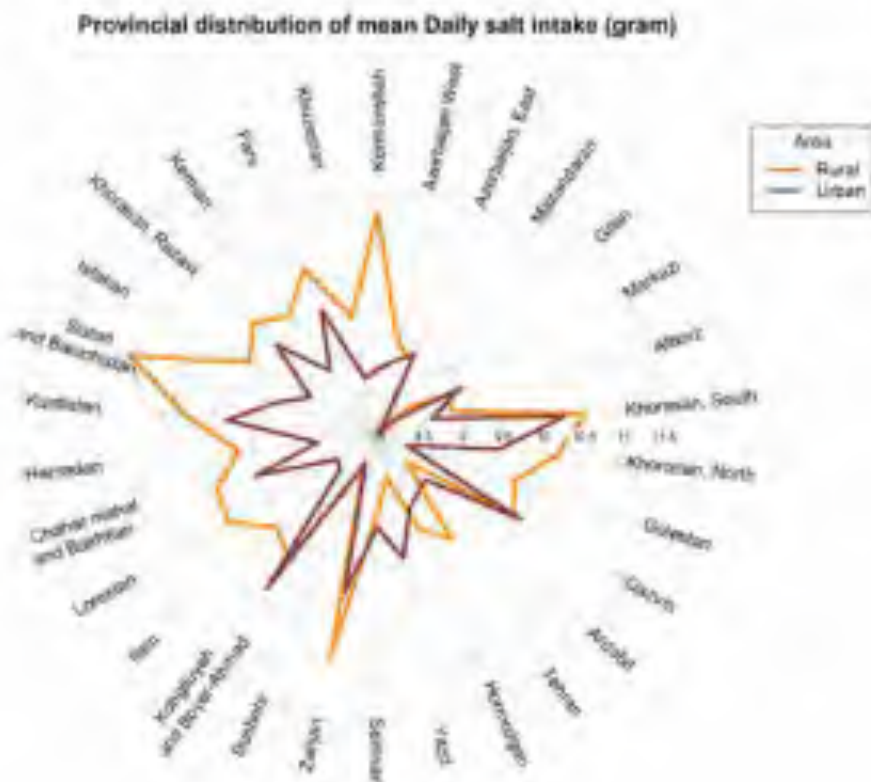


Figure 3.3.7. Provincial distribution of mean of daily salt intake by area of residency

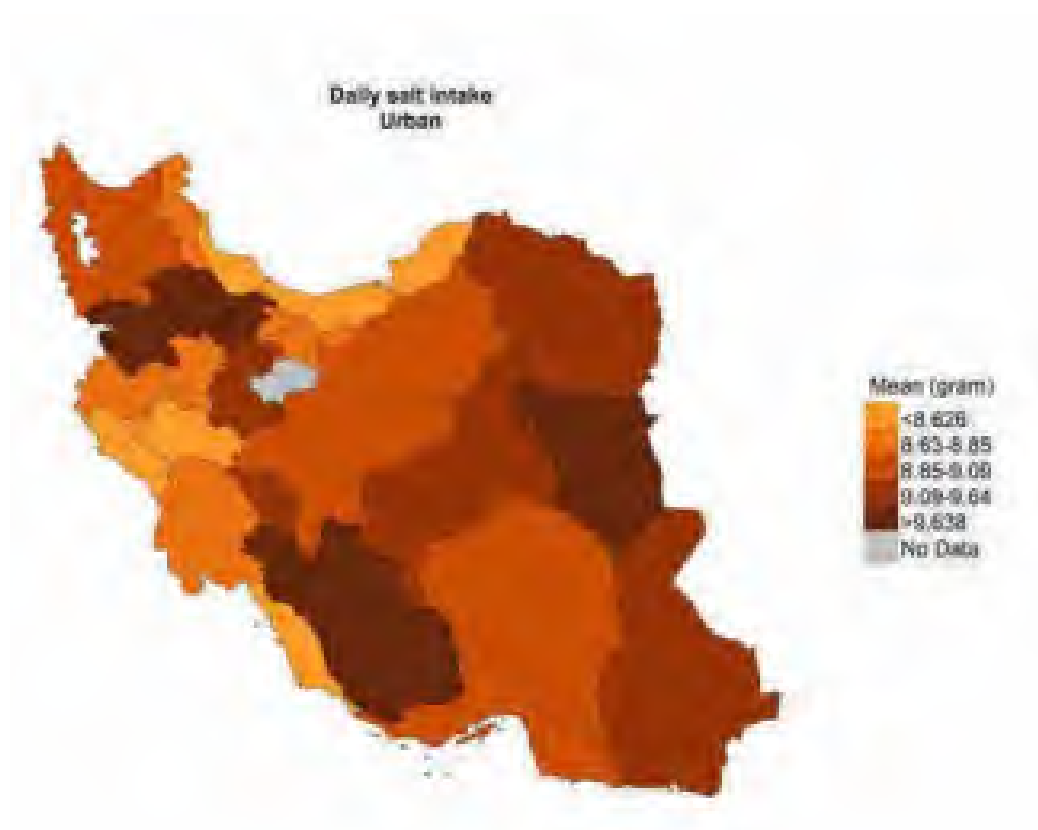


Figure 3.3.8. Geographical distribution of mean of daily salt intake in urban area of residency

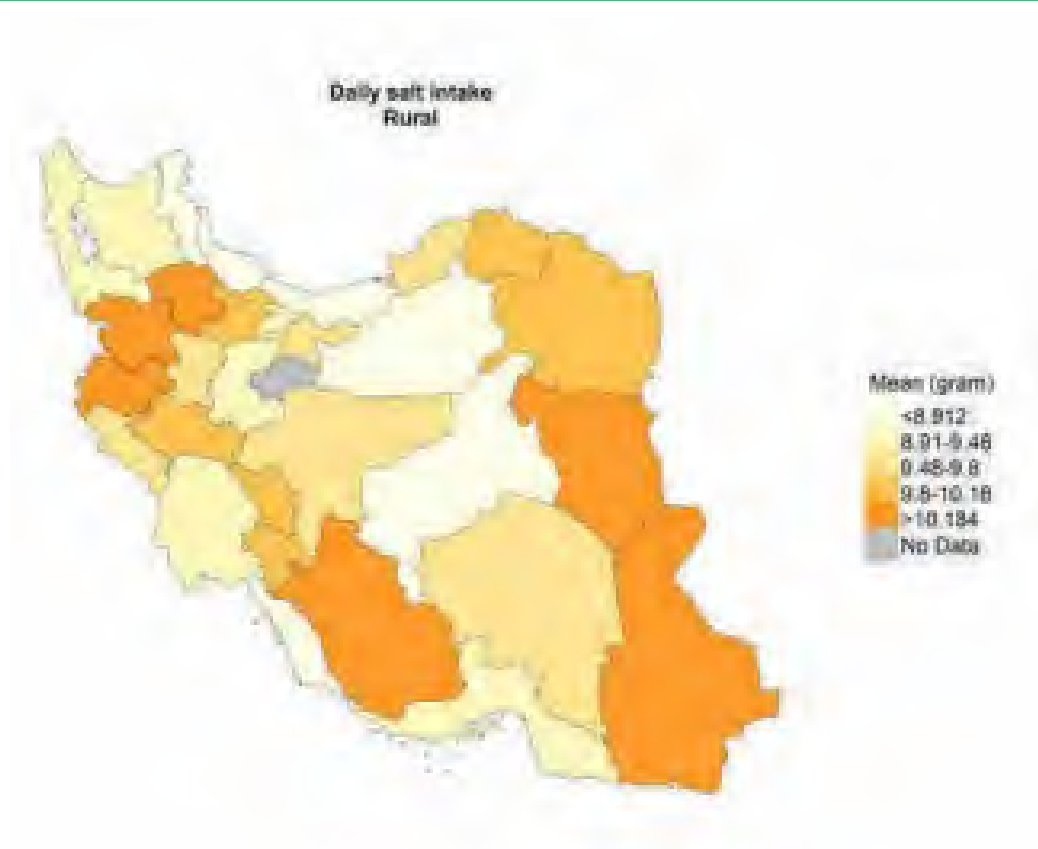


Figure 3.3.9. Geographical distribution of mean of daily salt intake in rural area of residency

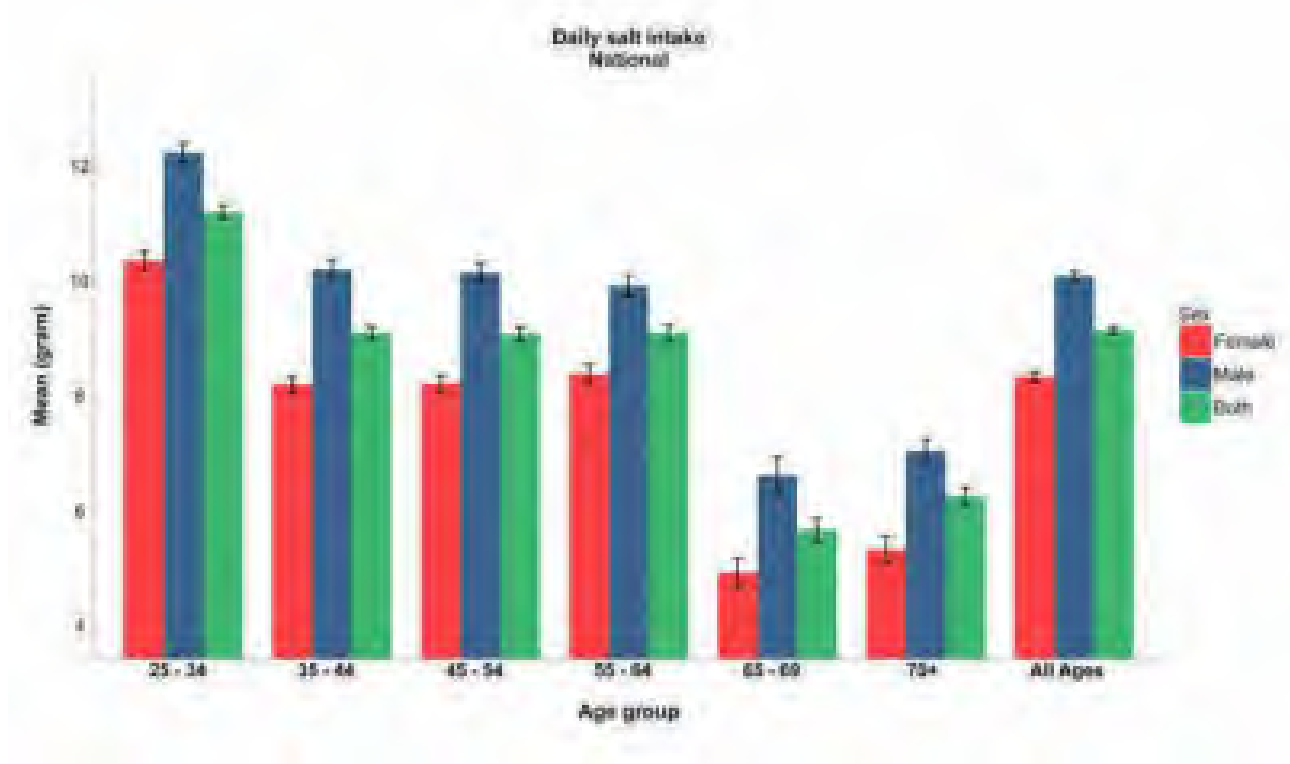


Figure 3.3.10. Mean of daily salt intake by age and sex at national level

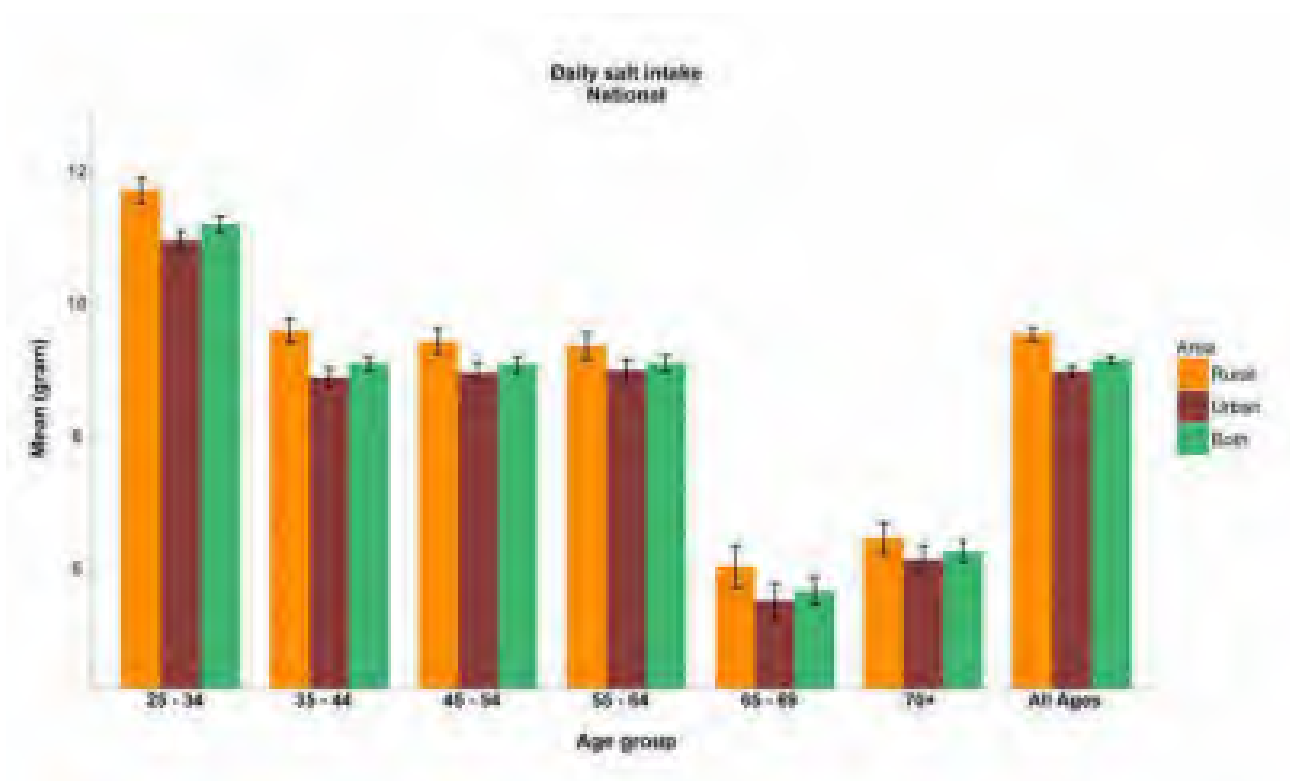


Figure 3.3.11. Mean of daily salt intake by age and area of residency at national level

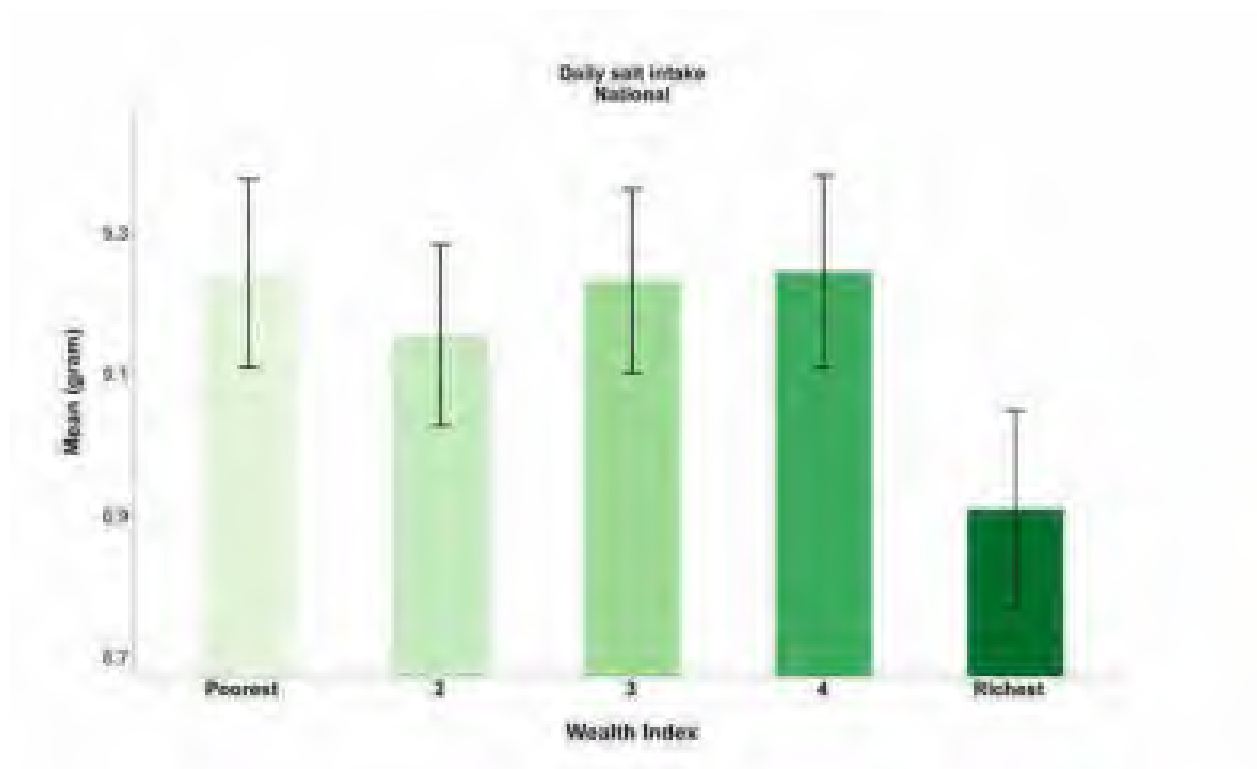


Figure 3.3.12. Mean of daily salt intake by wealth index quantiles at national level

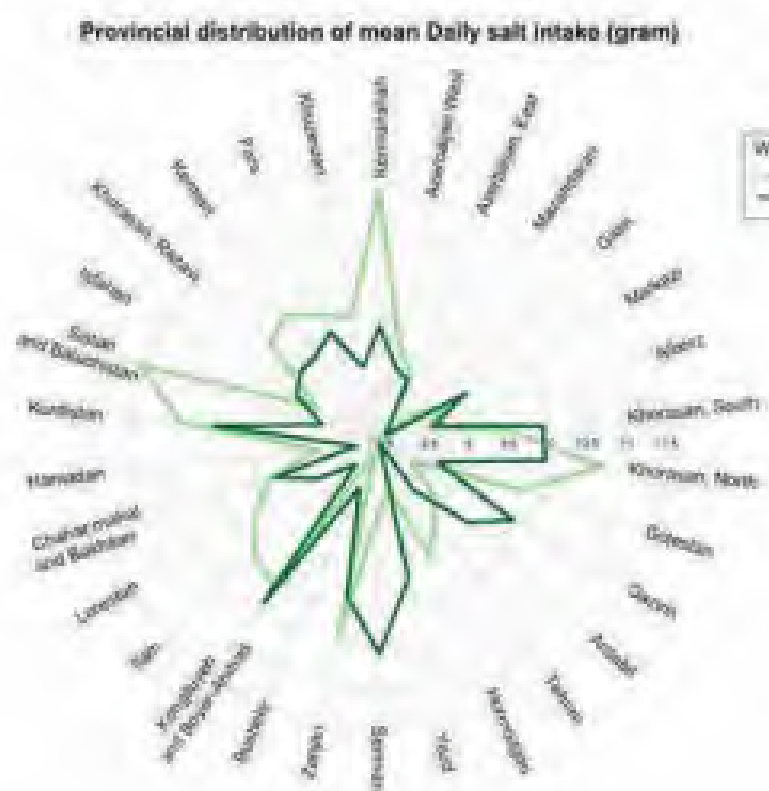


Figure 3.3.13. Provincial distribution of mean of daily salt intake by wealth index

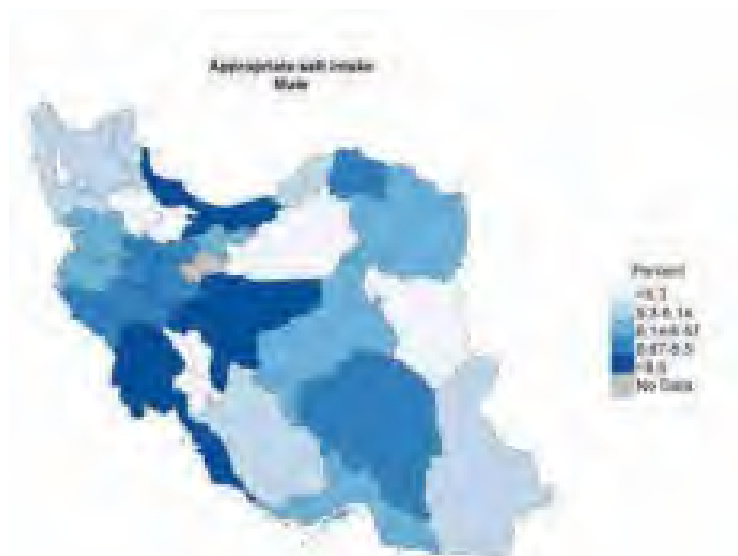


Figure 3.3.16. Geographical distribution of prevalence of appropriate salt intake in males

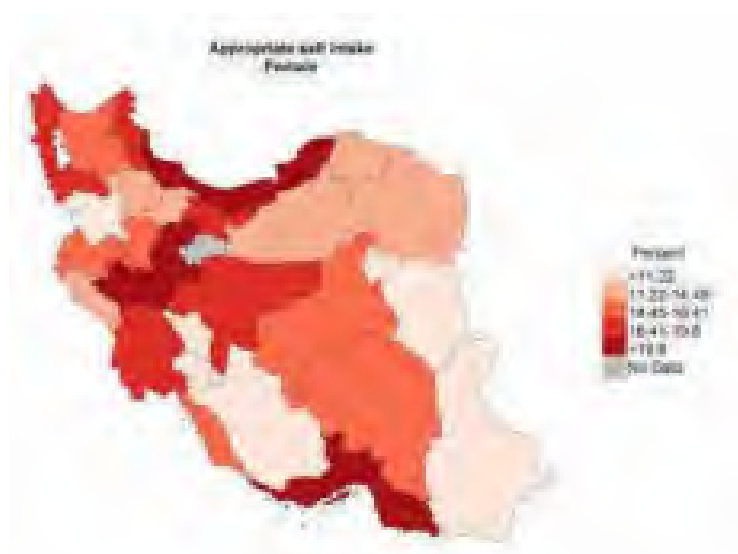


Figure 3.3.17. Geographical distribution of prevalence of appropriate salt intake in females

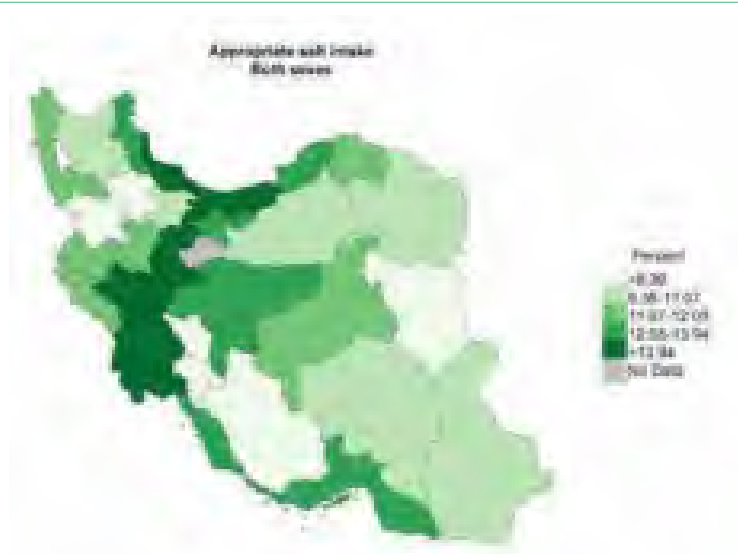


Figure 3.3.18. Geographical distribution of prevalence of appropriate salt intake in both sexes

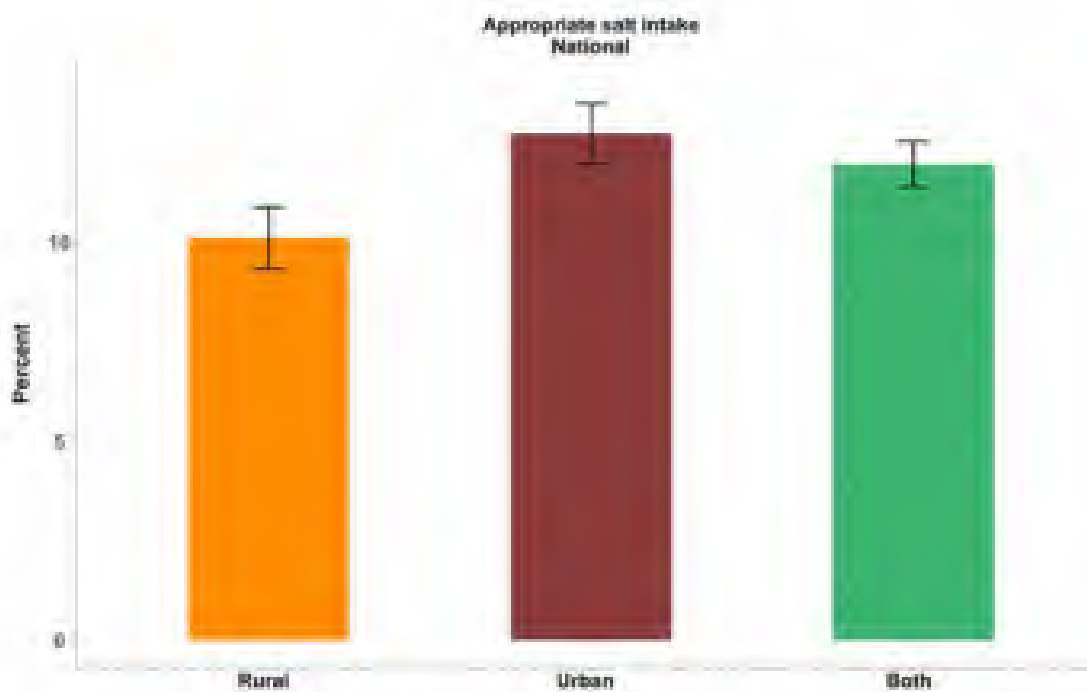


Figure 3.3.19. Prevalence of appropriate salt intake by area of residency at national level

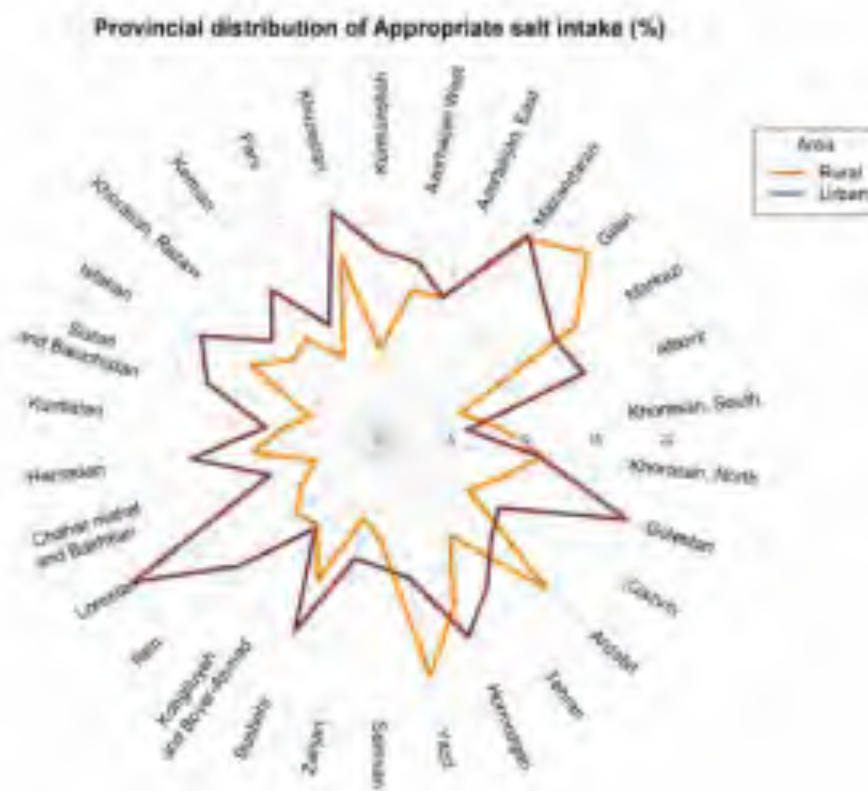


Figure 3.3.20. Provincial distribution of prevalence of appropriate salt intake by area of residency

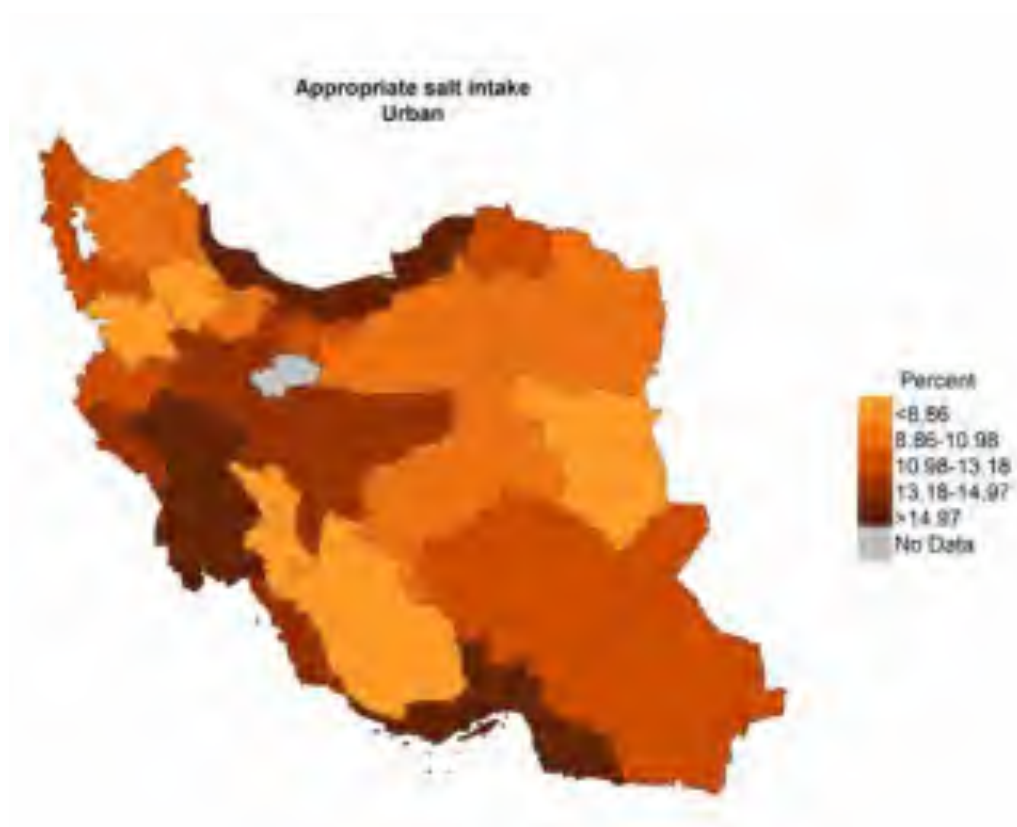


Figure 3.3.21. Geographical distribution of prevalence of appropriate salt intake in urban area of residency

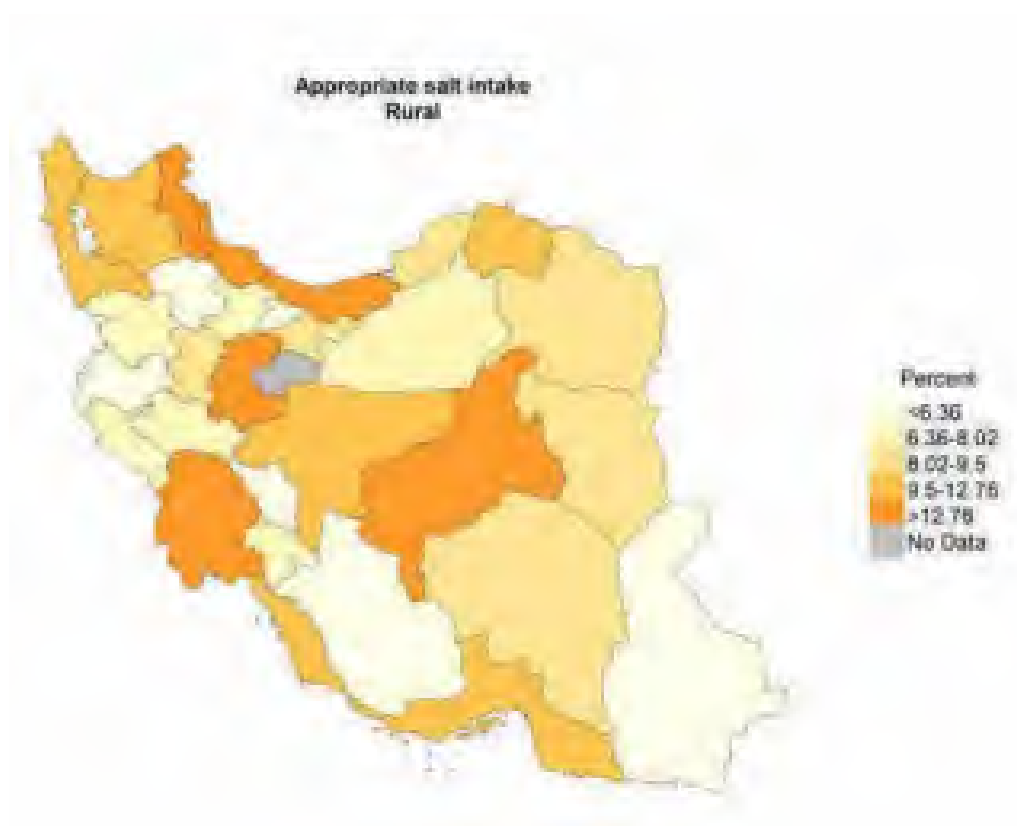


Figure 3.3.22. Geographical distribution of prevalence of appropriate salt intake in rural area of residency

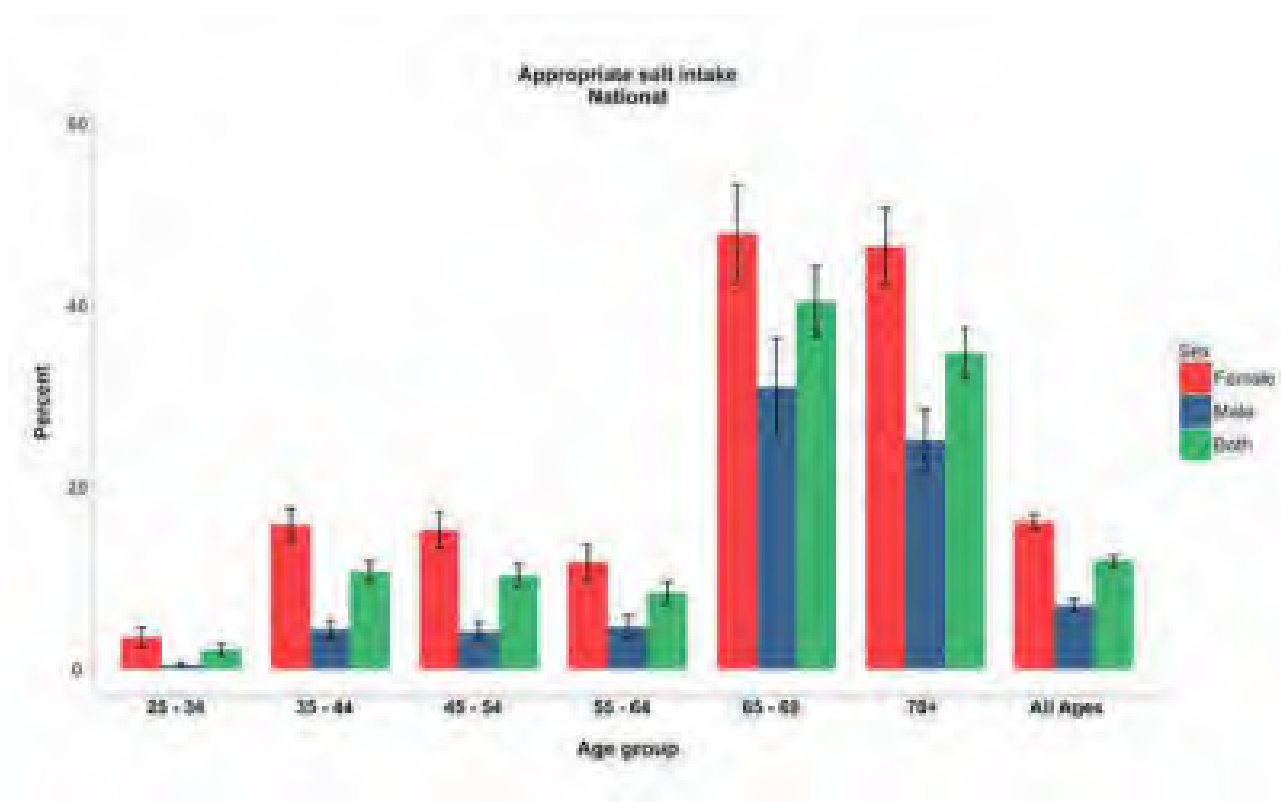


Figure 3.3.23. Prevalence of appropriate salt intake by age and sex at national level

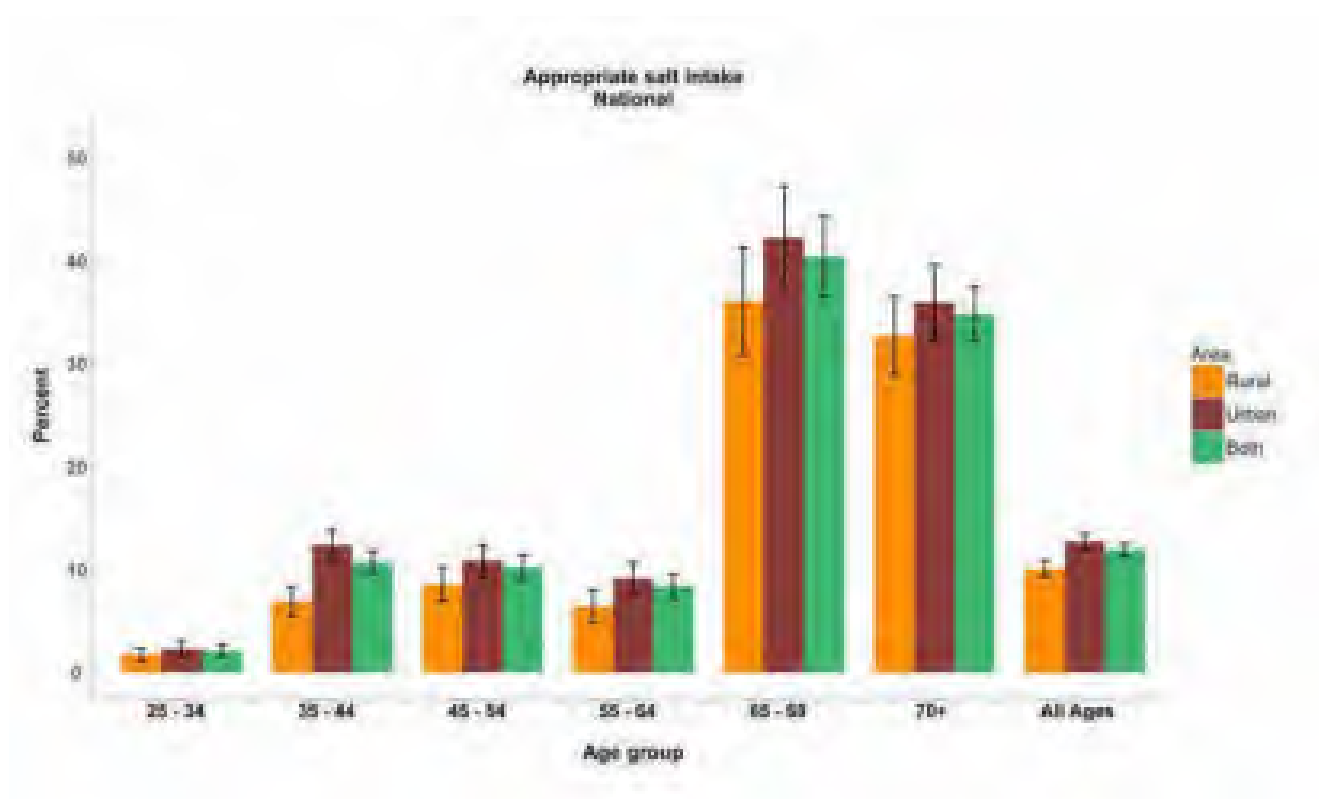


Figure 3.3.24. Prevalence of appropriate salt intake by age and area of residency at national level

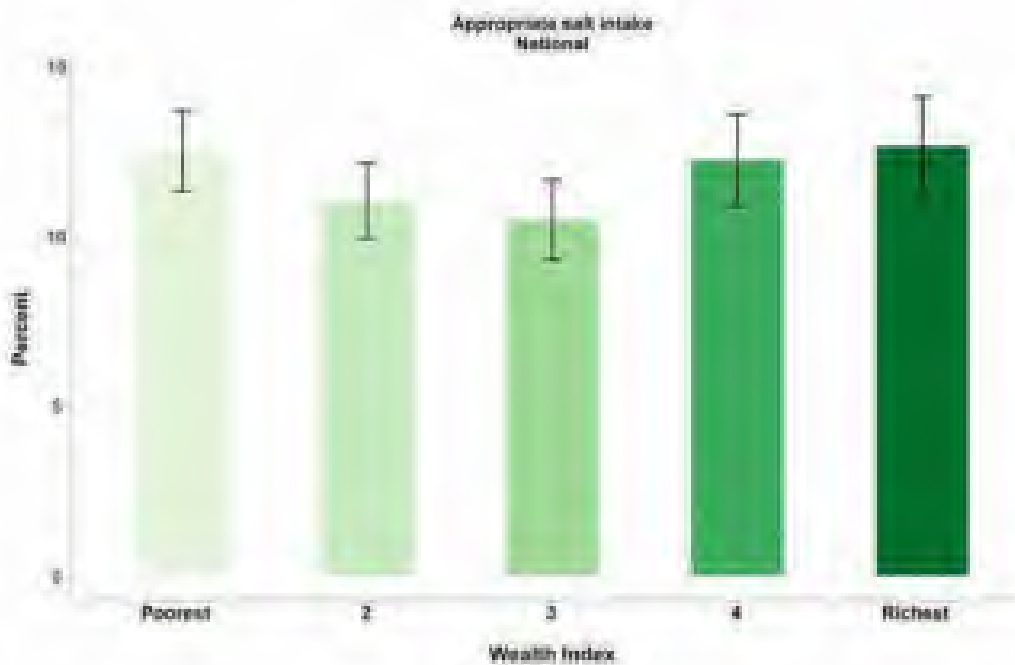


Figure 3.3.25. Prevalence of appropriate salt intake by wealth index quantiles at national level

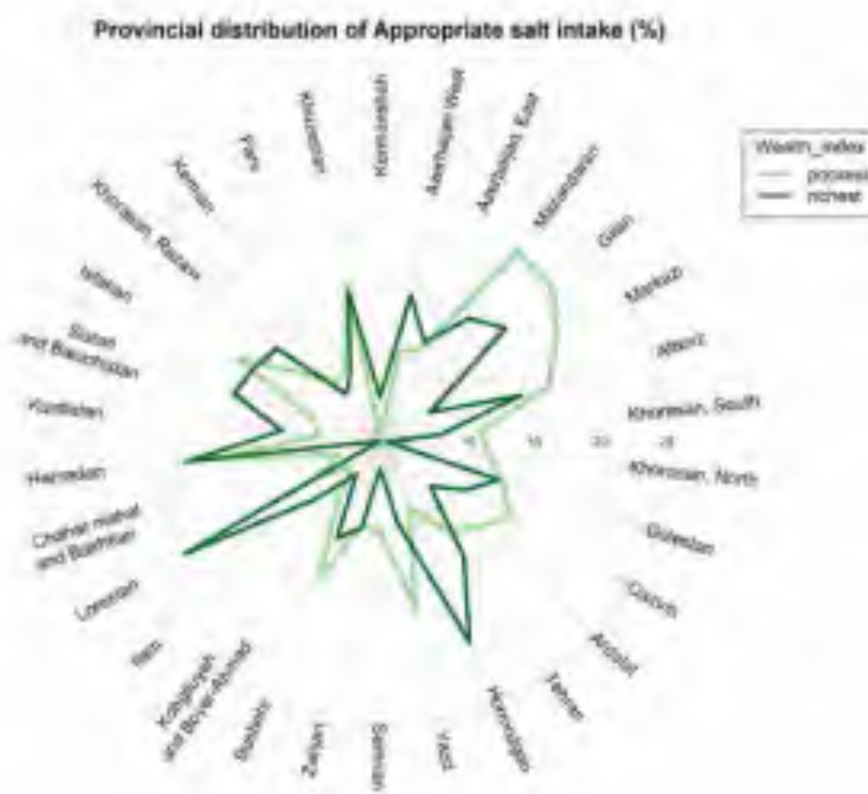


Figure 3.3.26. Provincial distribution of prevalence of appropriate salt intake by wealth index

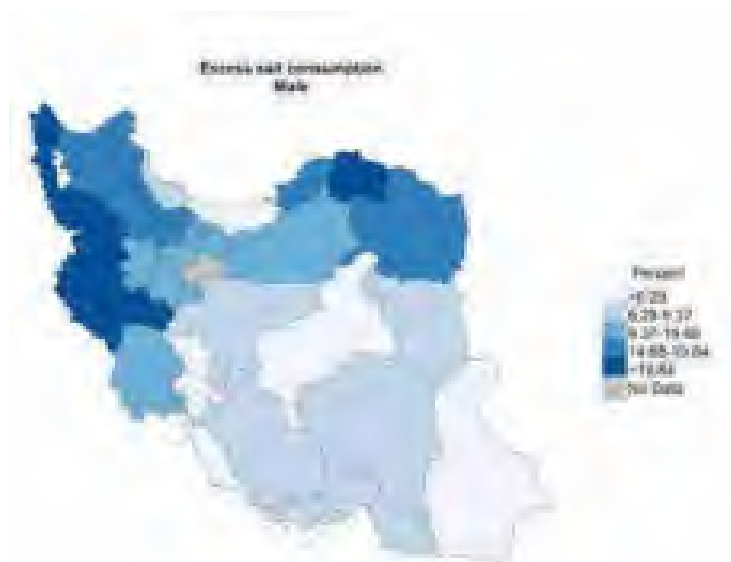


Figure 3.3.29. Geographical distribution of prevalence of excess salt consumption in males

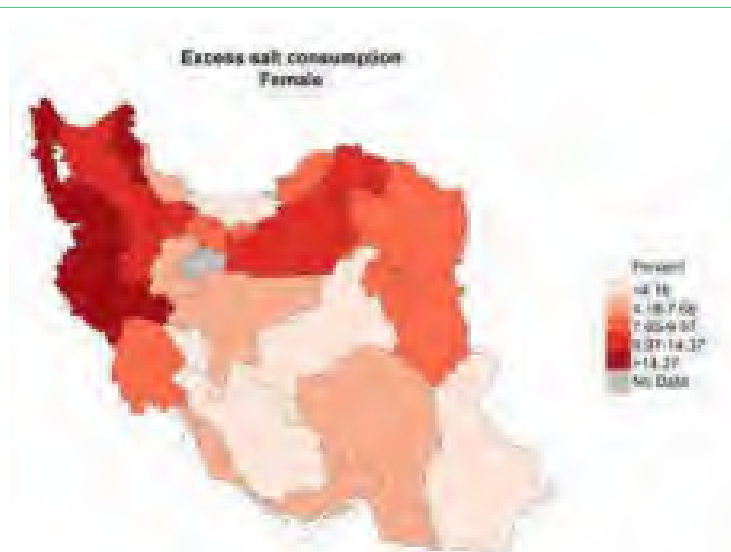


Figure 3.3.30. Geographical distribution of prevalence of excess salt consumption in females

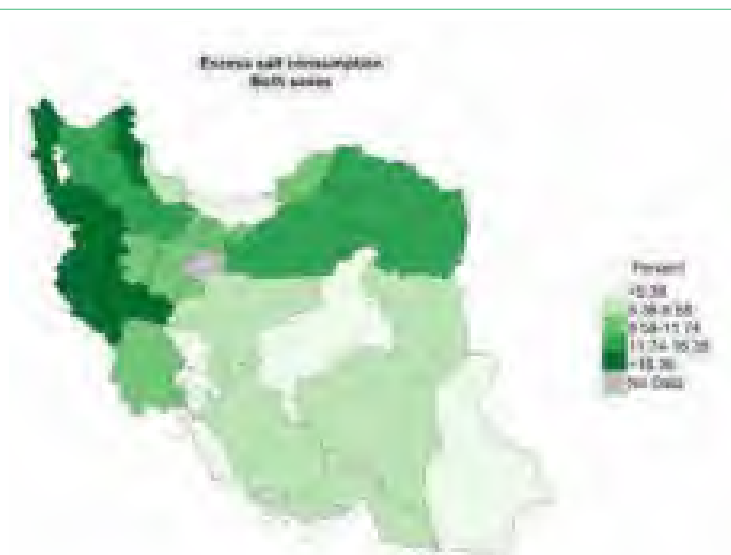


Figure 3.3.31. Geographical distribution of prevalence of excess salt consumption in both sexes

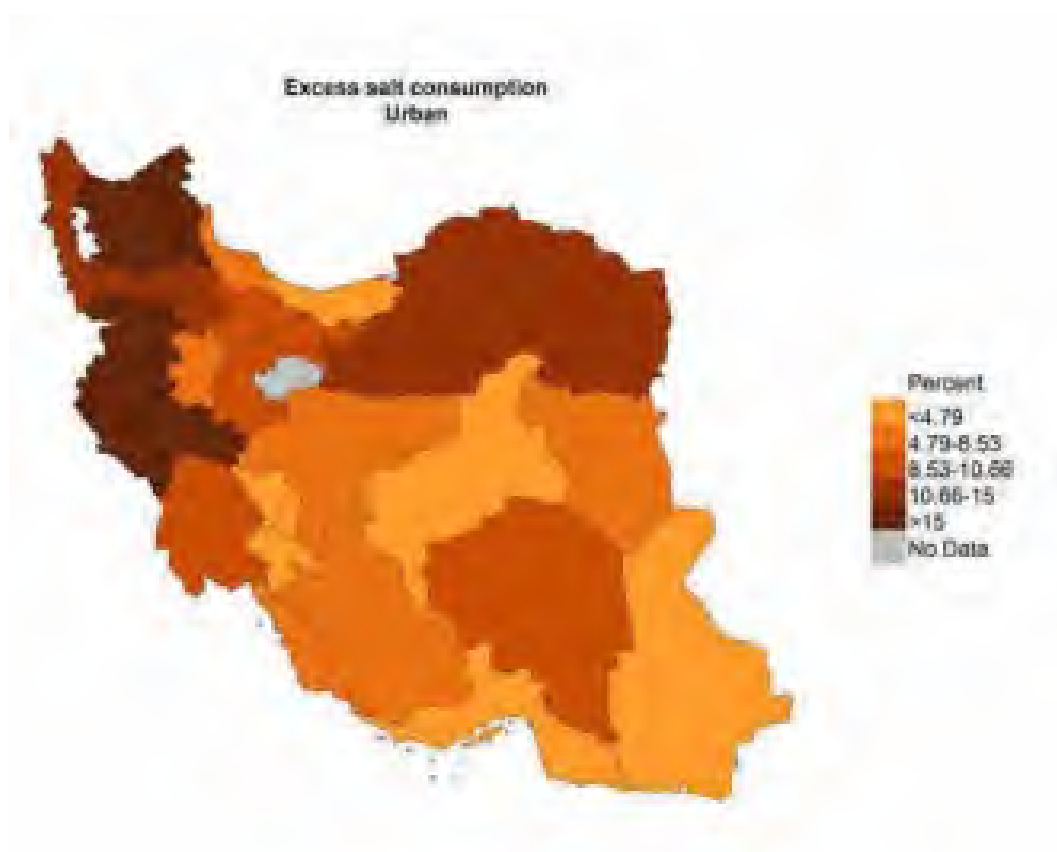


Figure 3.3.34. Geographical distribution of prevalence of excess salt consumption in urban area of residency

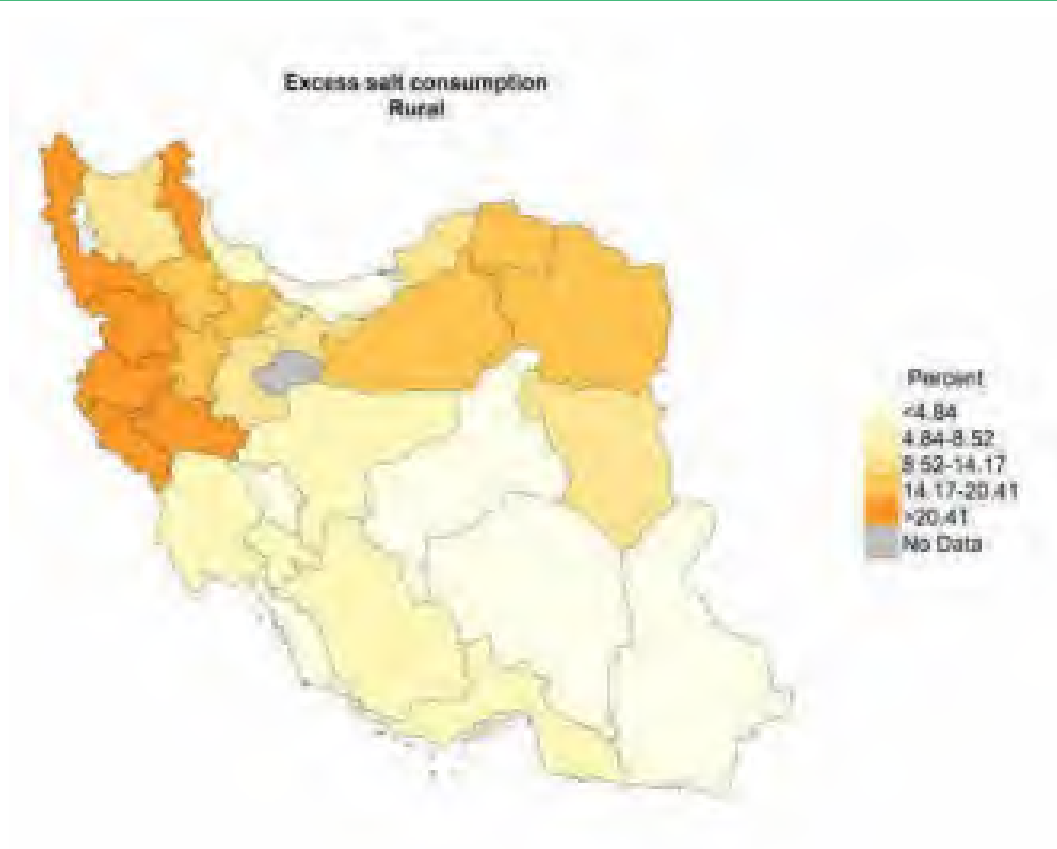


Figure 3.3.35. Geographical distribution of prevalence of excess salt consumption in rural area of residency

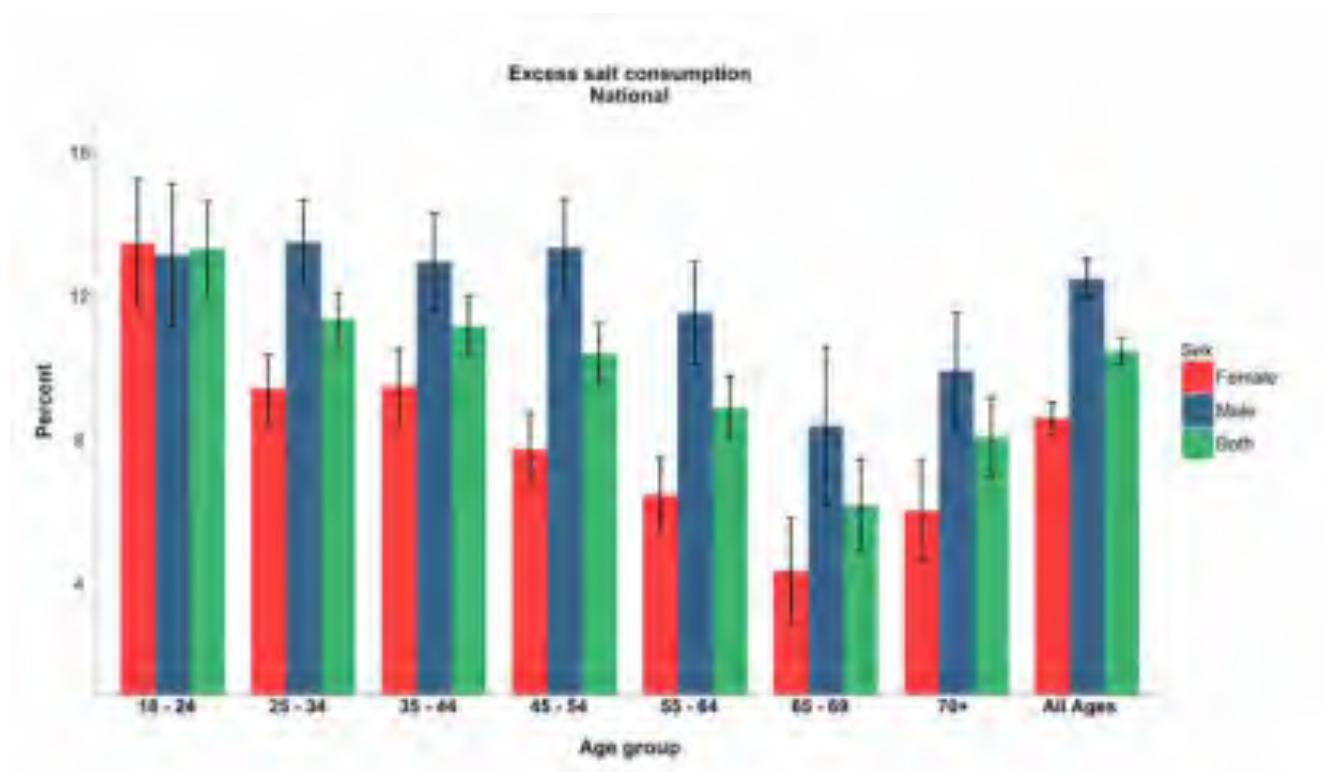


Figure 3.3.36. Prevalence of excess salt consumption by age and sex at national level

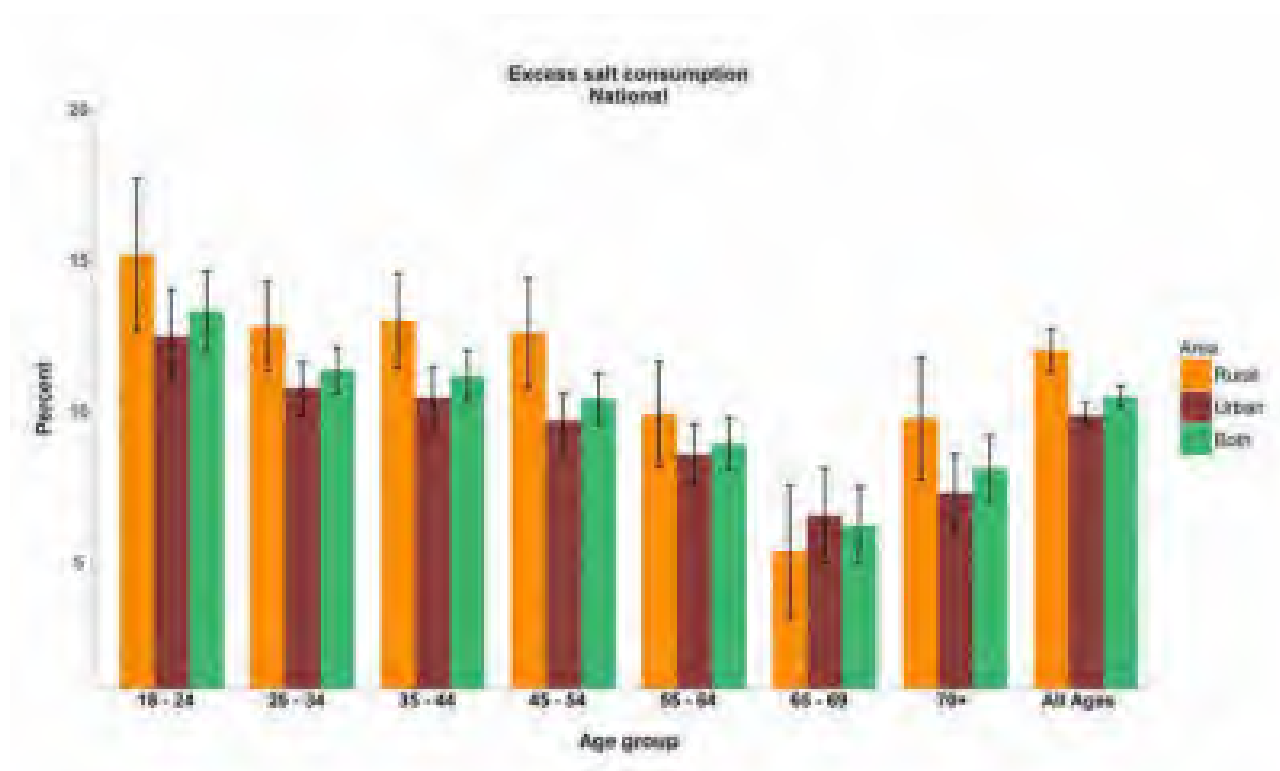


Figure 3.3.37. Prevalence of excess salt consumption by age and area of residency at national level



Figure 3.3.42. Geographical distribution of prevalence of using salt shaker at last meal in males

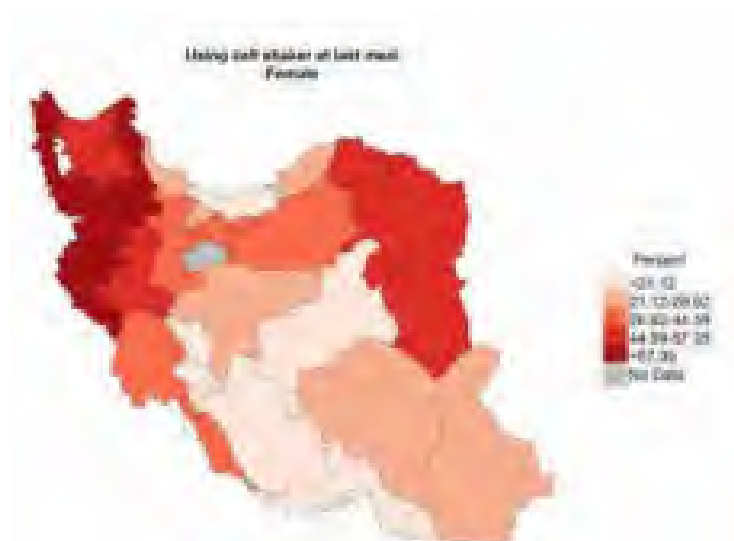


Figure 3.3.43. Geographical distribution of prevalence of using salt shaker at last meal in females

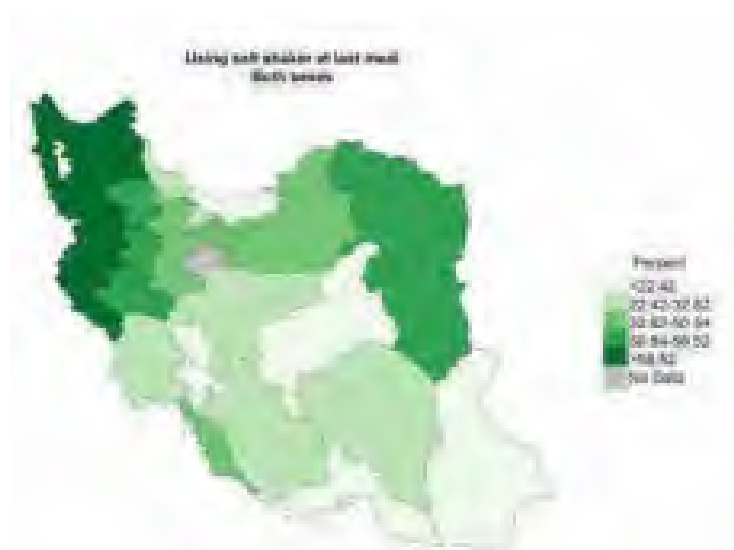


Figure 3.3.44. Geographical distribution of prevalence of using salt shaker at last meal in both sexes

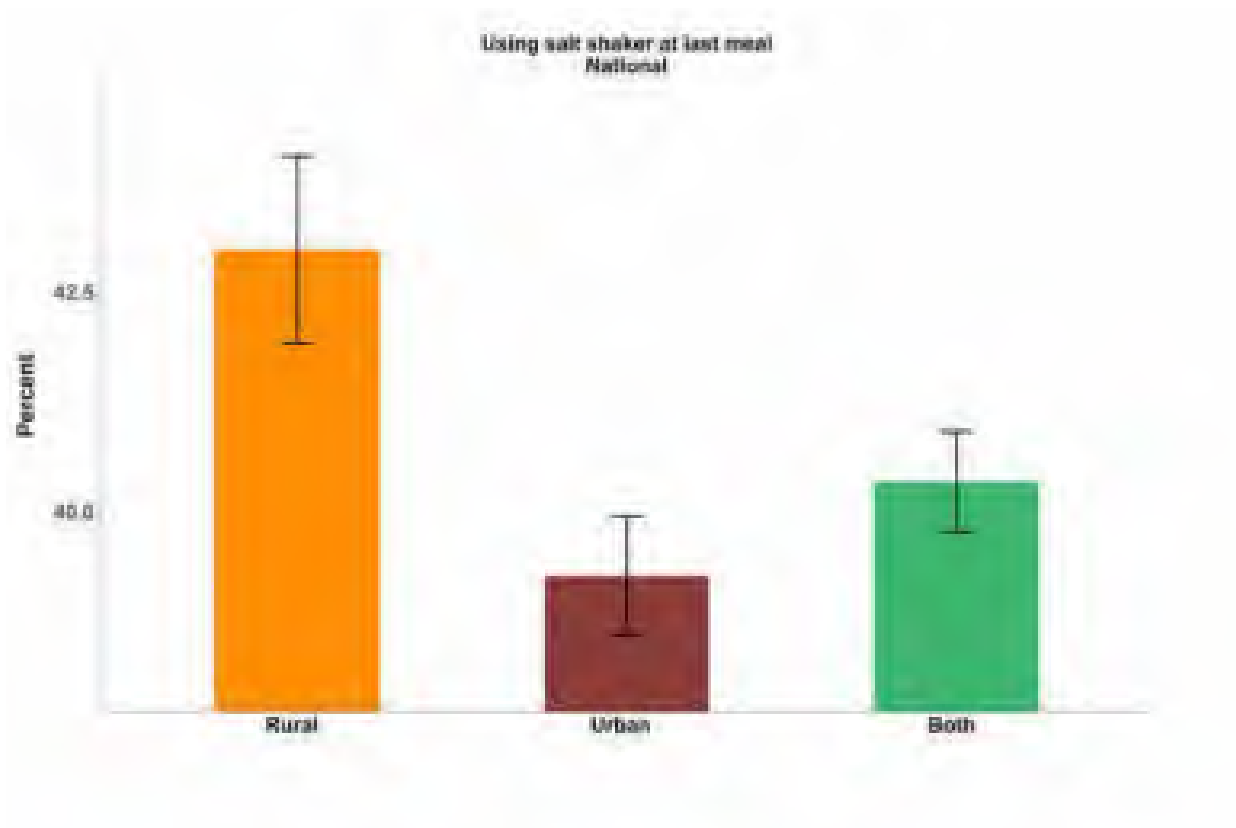


Figure 3.3.45. Prevalence of using salt shaker at last meal by area of residency at national level

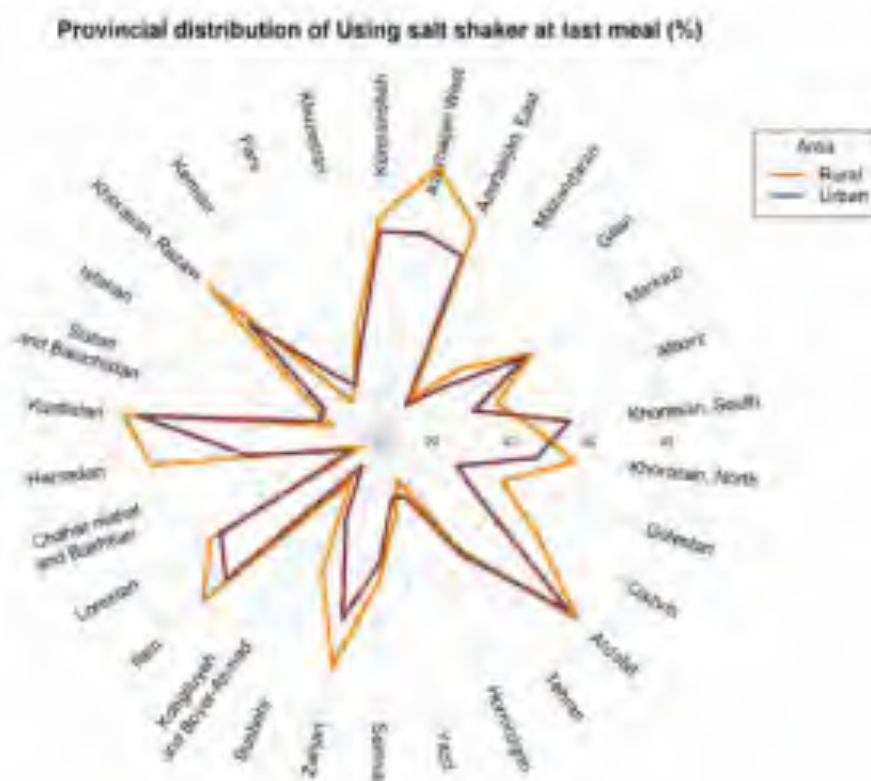


Figure 3.3.46. Provincial distribution of prevalence of using salt shaker at last meal by area of residency

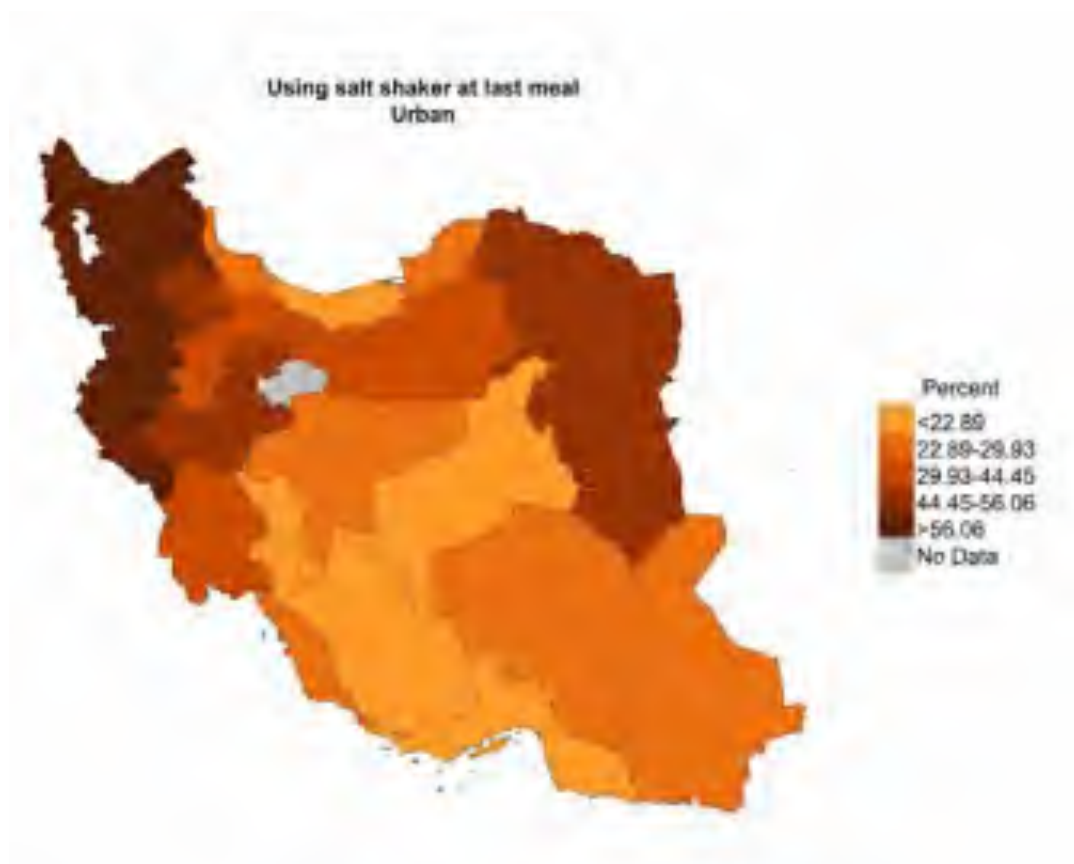


Figure 3.3.47. Geographical distribution of prevalence of using salt shaker at last meal in urban area of residency

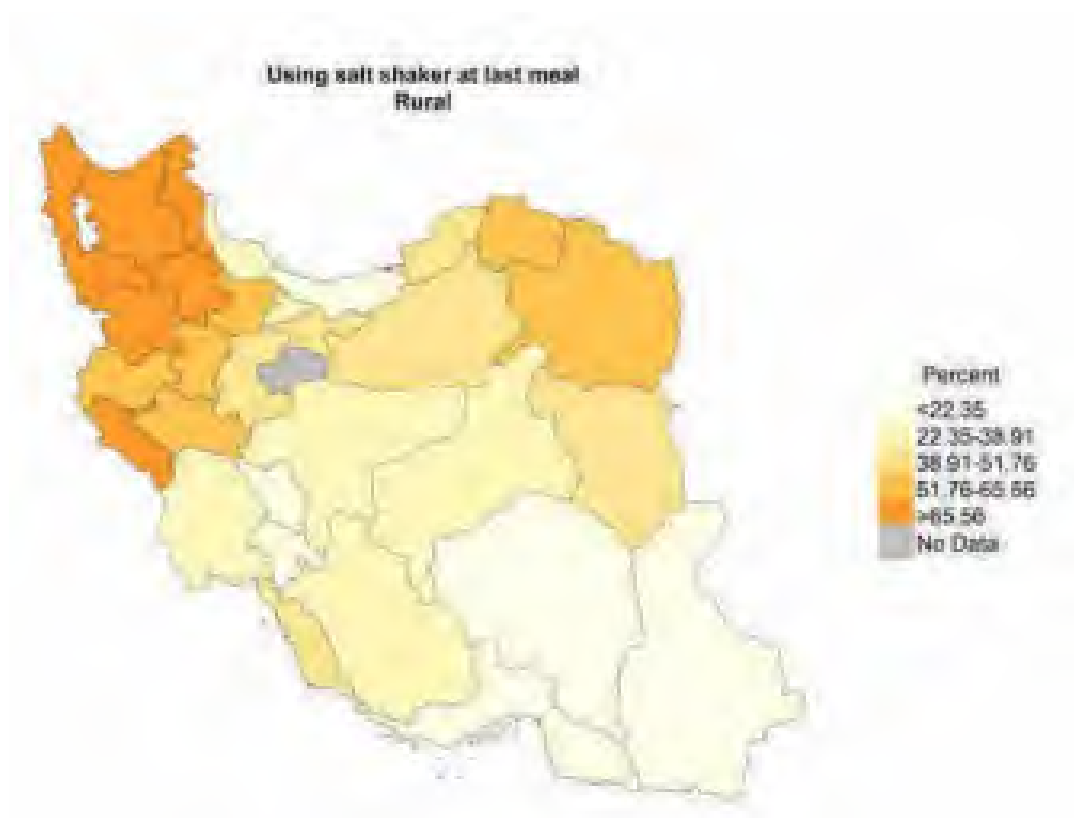


Figure 3.3.48. Geographical distribution of prevalence of using salt shaker at last meal in rural area of residency

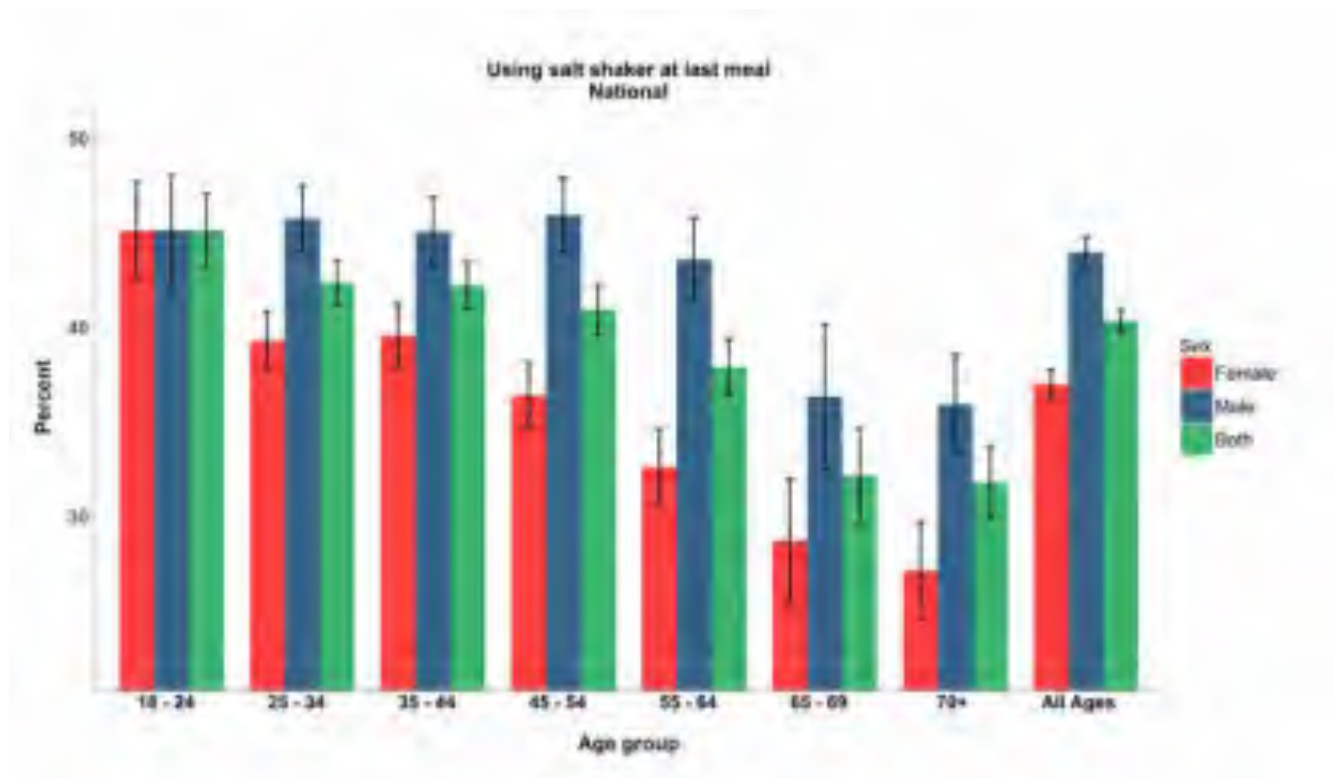


Figure 3.3.49. Prevalence of using salt shaker at last meal by age and sex at national level

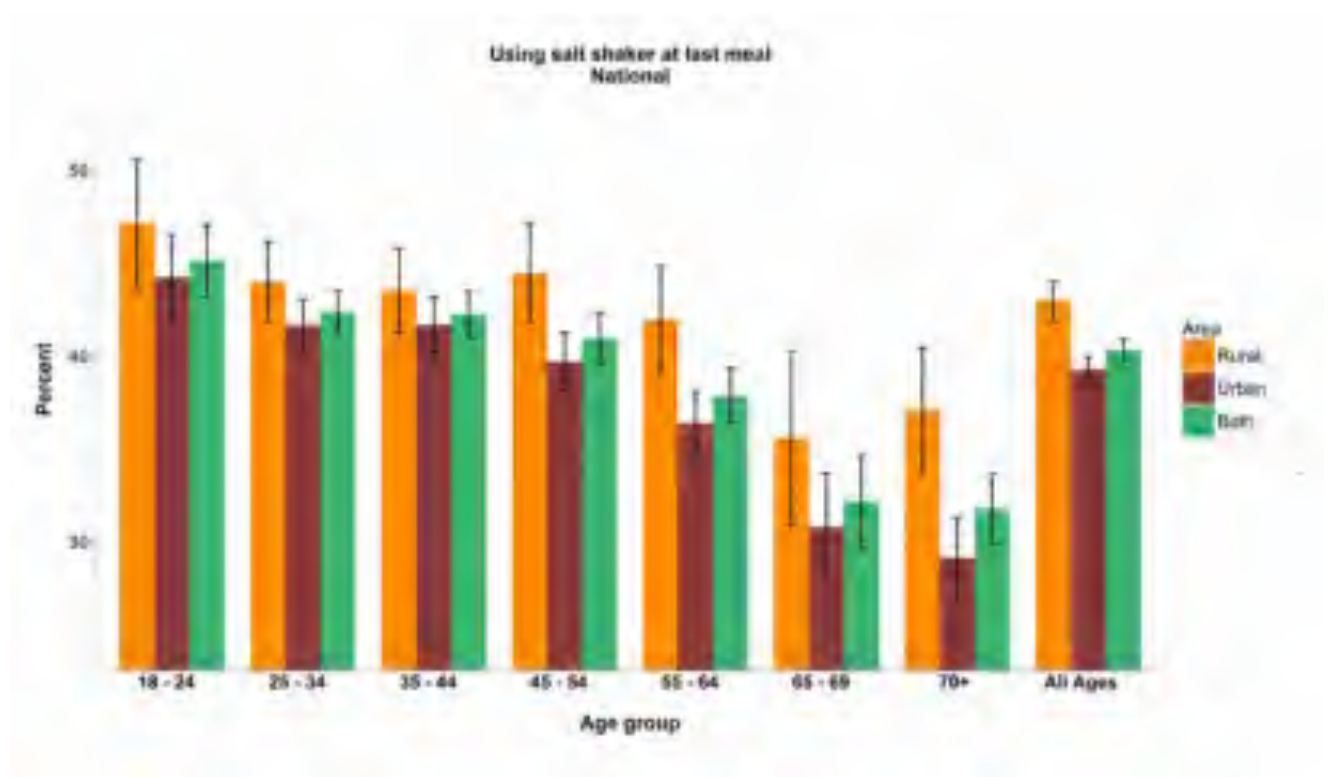


Figure 3.3.50. Prevalence of using salt shaker at last meal by age and area of residency at national level

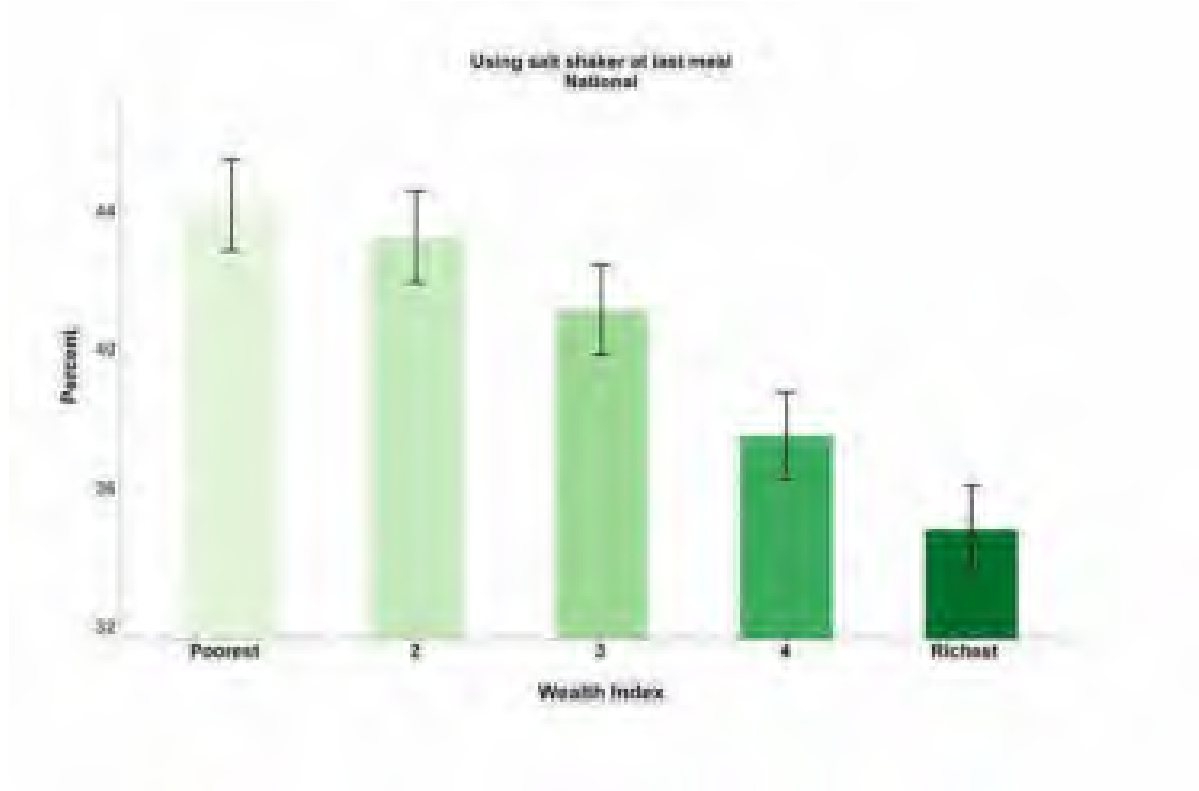


Figure 3.3.51. Prevalence of using salt shaker at last meal by wealth index quantiles at national level

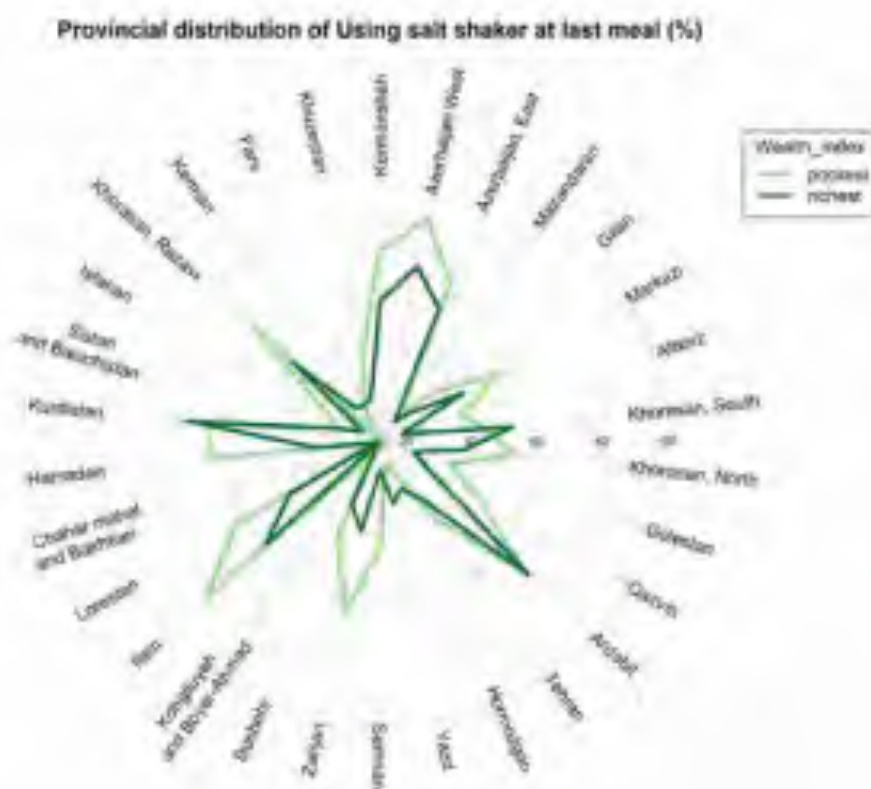


Figure 3.3.52. Provincial distribution of prevalence of using salt shaker at last meal by wealth index

CHAPTER 2

Results

Section 3.4

Lifestyle Risk Factors: Physical Activity

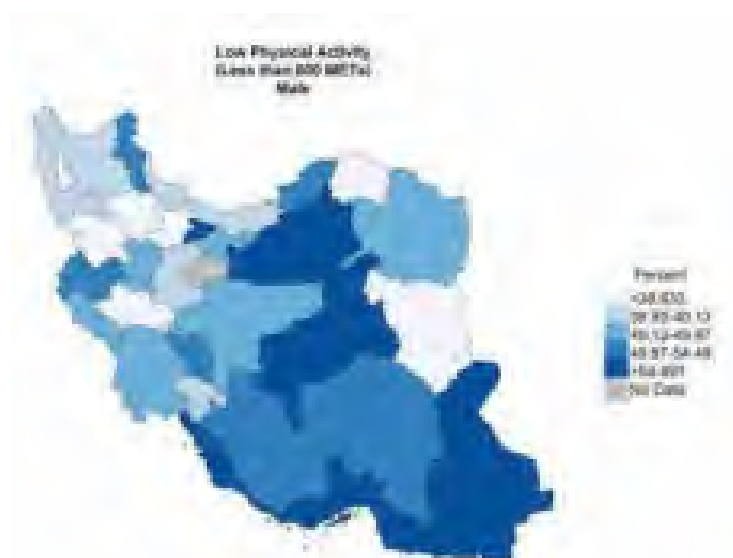


Figure 3.4.3. Geographical distribution of prevalence of low physical activity (less than 600 METs) in males

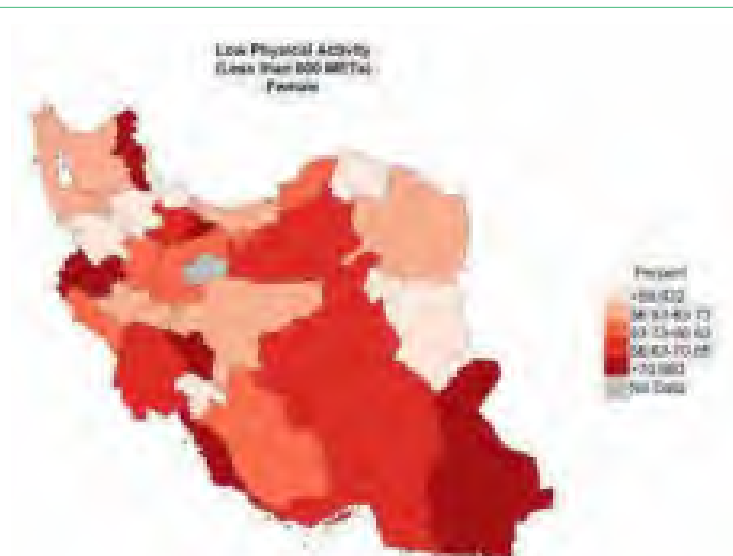


Figure 3.4.4. Geographical distribution of prevalence of low physical activity (less than 600 METs) in females

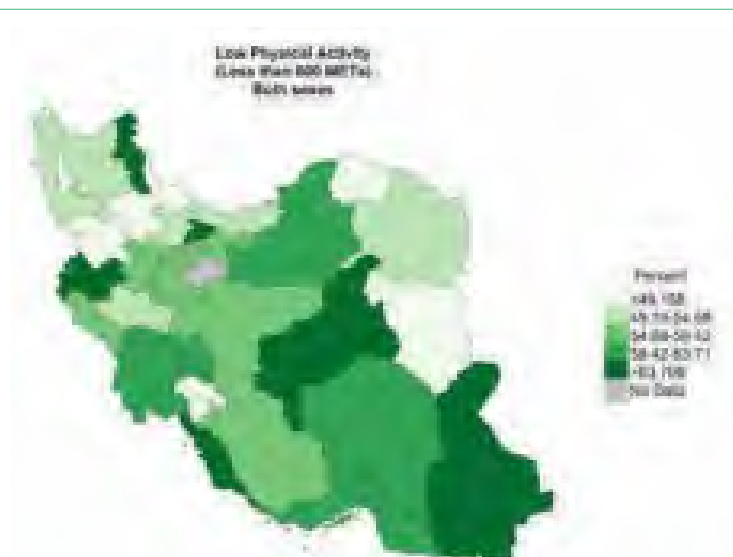


Figure 3.4.5. Geographical distribution of prevalence of low physical activity (less than 600 METs) in both sexes

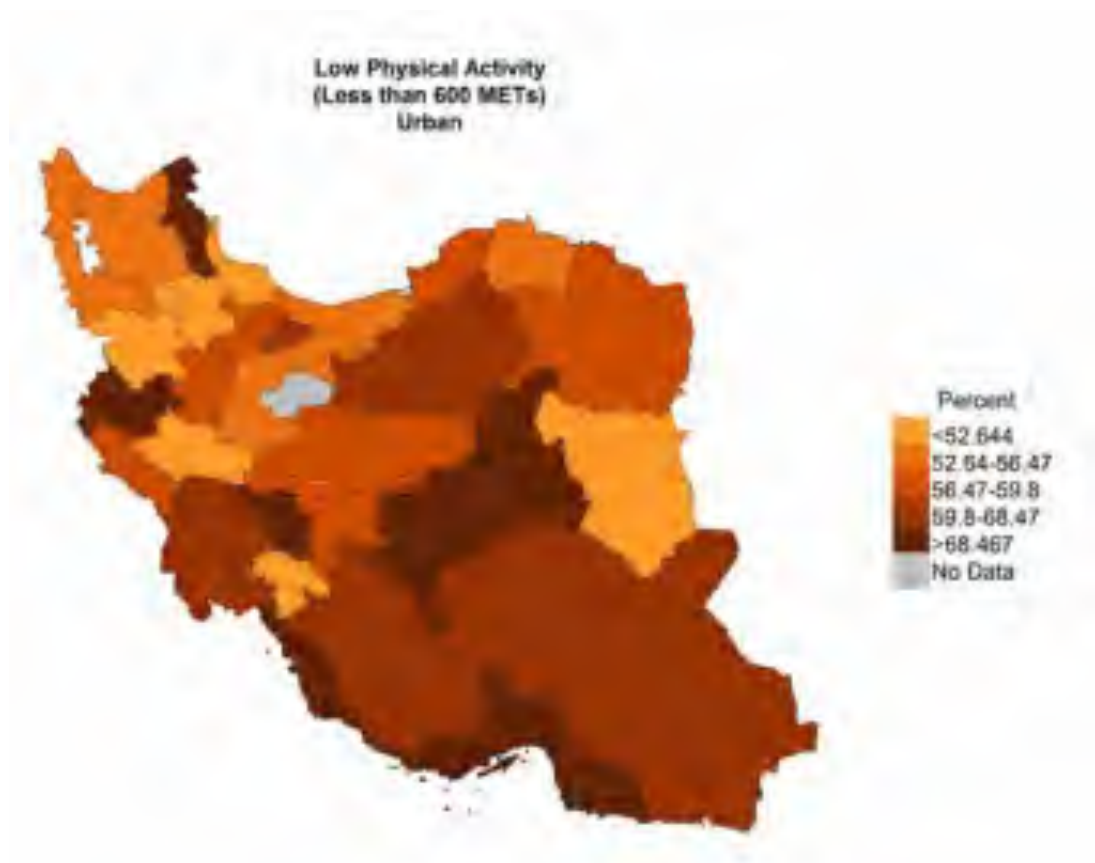


Figure 3.4.8. Geographical distribution of prevalence of low physical activity (less than 600 METs) in urban area of residency

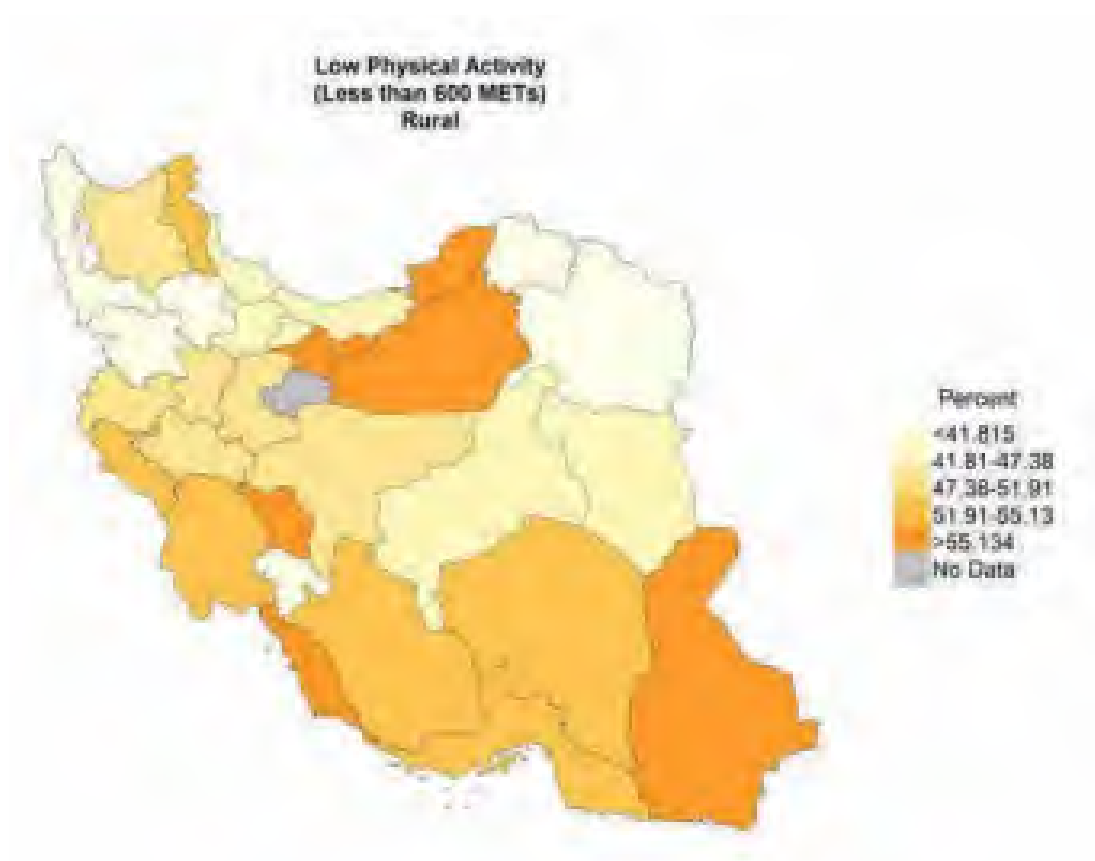


Figure 3.4.9. Geographical distribution of prevalence of low physical activity (less than 600 METs) in rural area of residency

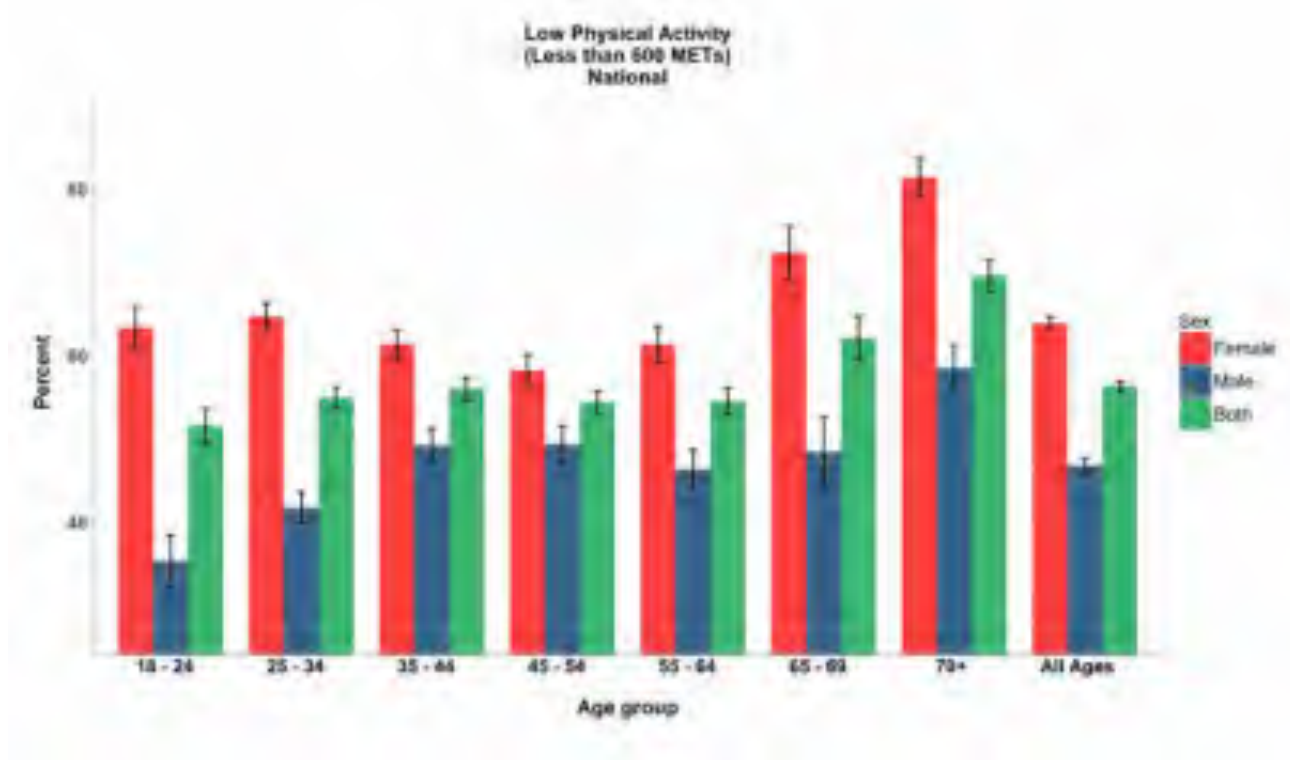


Figure 3.4.10. Prevalence of low physical activity (less than 600 METs) by age and sex at national level

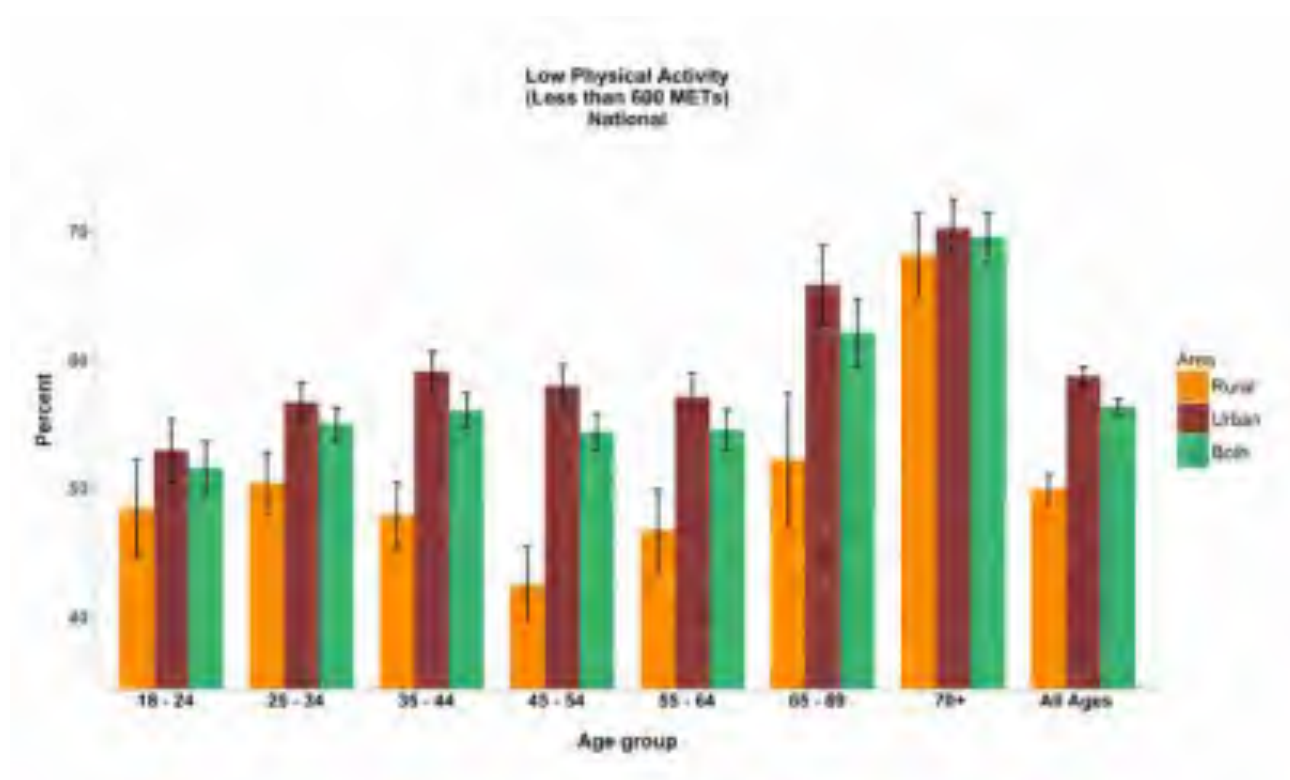


Figure 3.4.11. Prevalence of low physical activity (less than 600 METs) by age and area of residency at national level

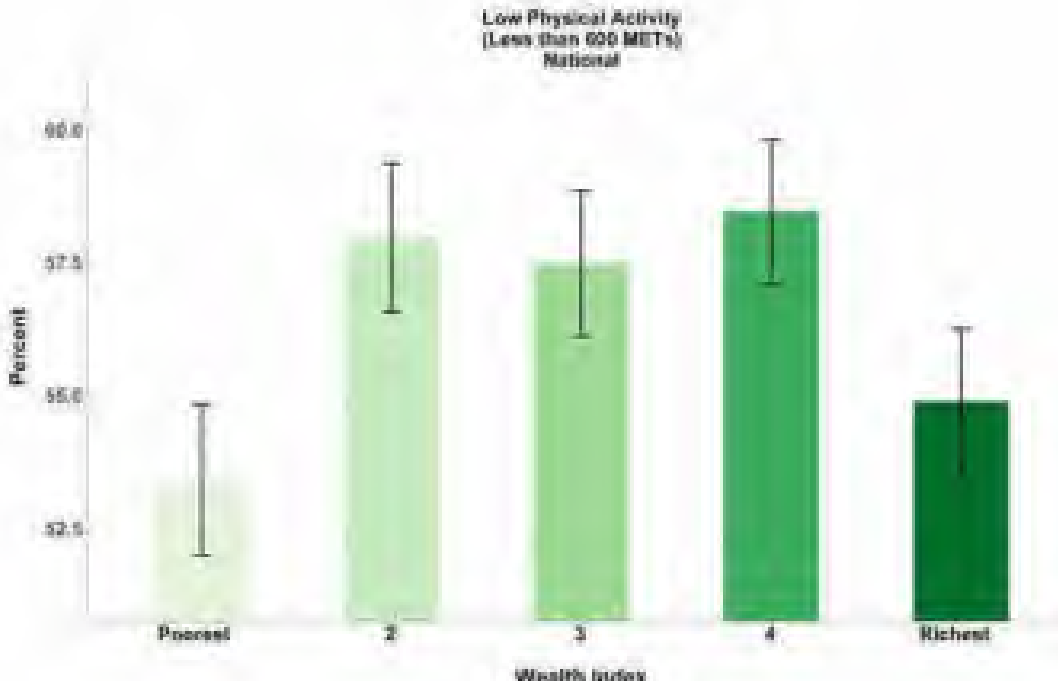


Figure 3.4.12. Prevalence of low physical activity (less than 600 METs) by wealth index quantiles at national level

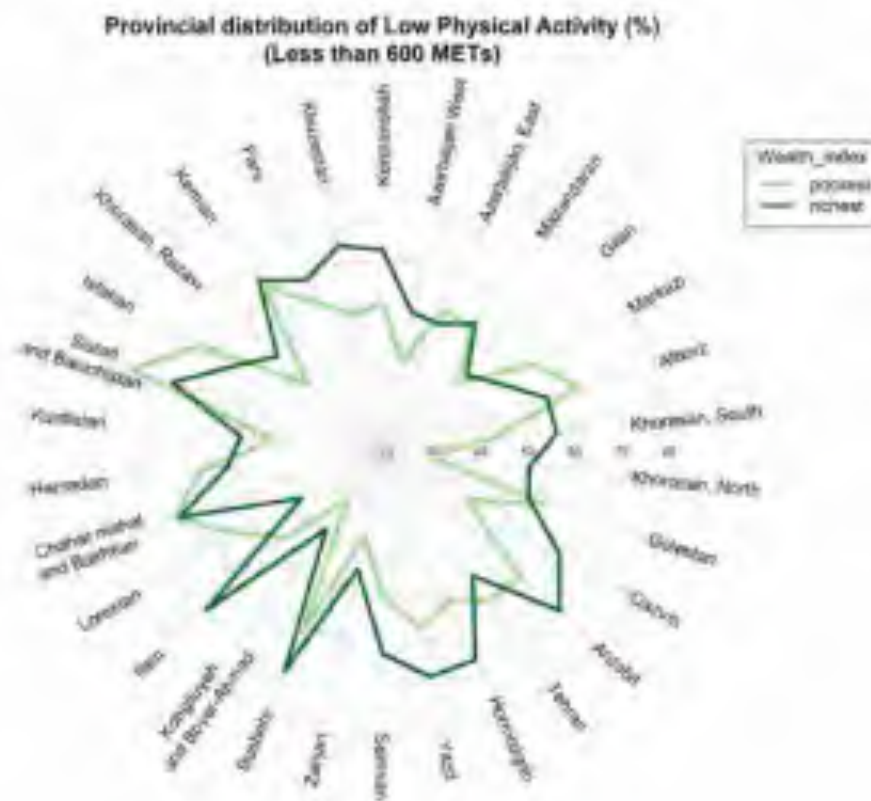


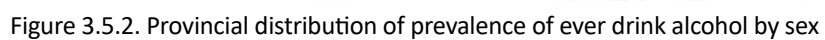
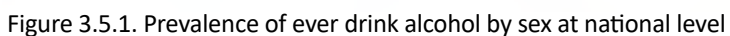
Figure 3.4.13. Provincial distribution of prevalence of low physical activity (less than 600 METs) by wealth index

CHAPTER 2

Results

Section 3.5

Lifestyle Risk Factors: Alcohol Consumption



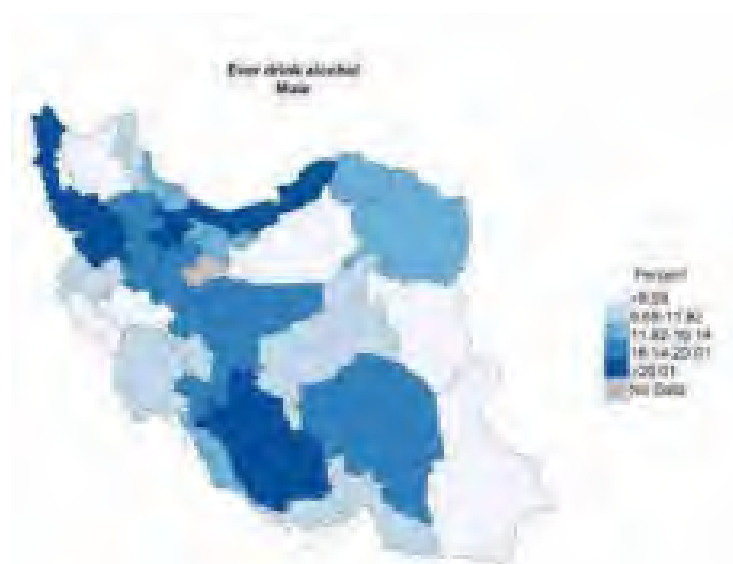


Figure 3.5.3. Geographical distribution of prevalence of ever drink alcohol in males

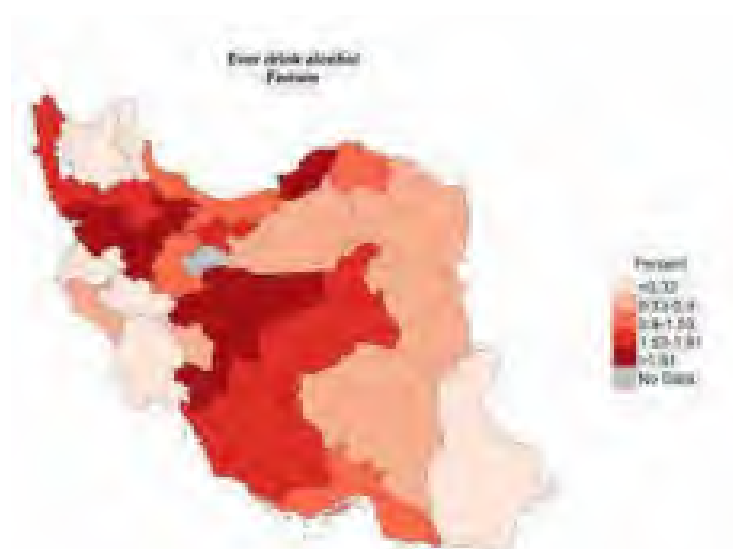


Figure 3.5.4. Geographical distribution of prevalence of ever drink alcohol in females

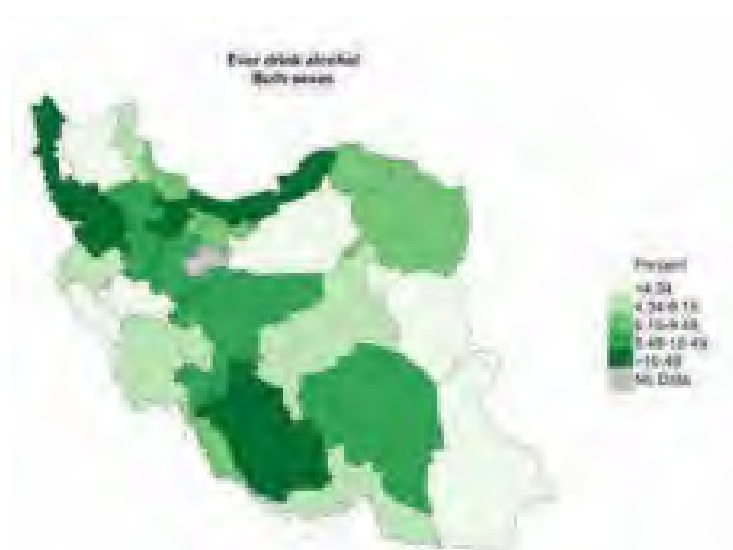


Figure 3.5.5. Geographical distribution of prevalence of ever drink alcohol in both sexes

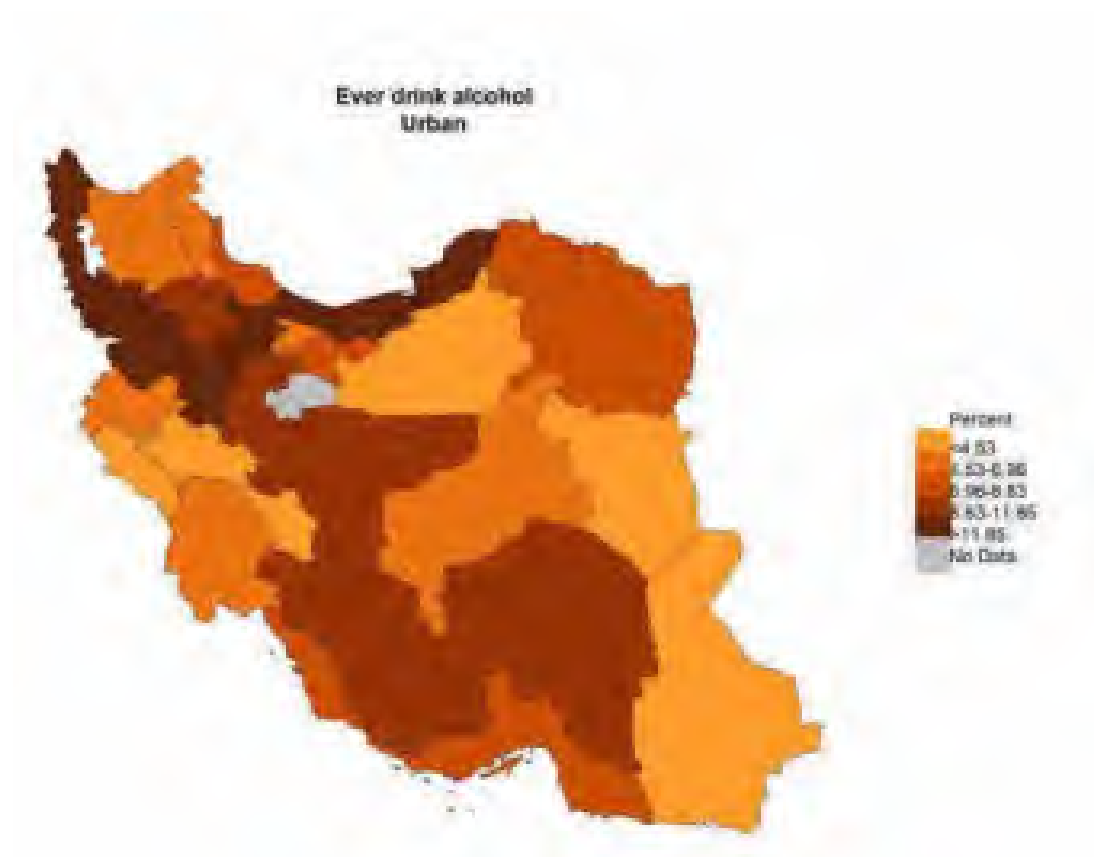


Figure 3.5.8. Geographical distribution of prevalence of ever drink alcohol in urban area of residency

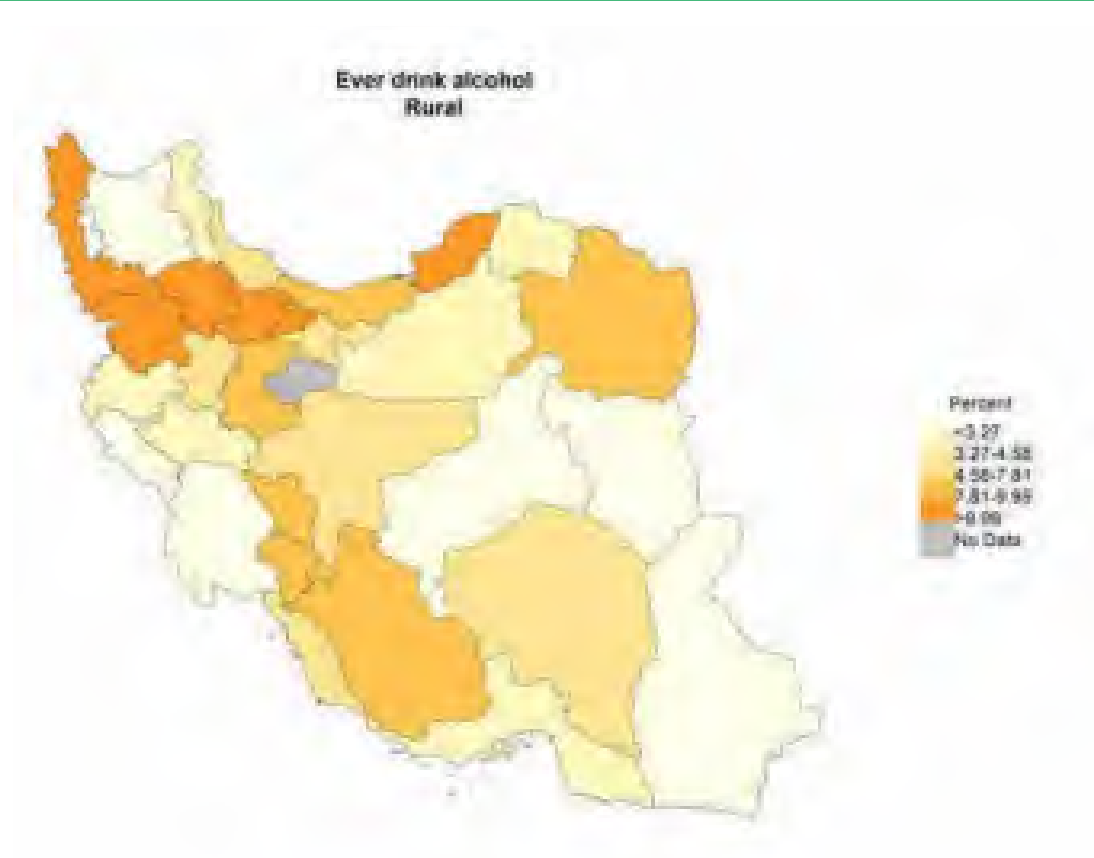


Figure 3.5.9. Geographical distribution of prevalence of ever drink alcohol in rural area of residency

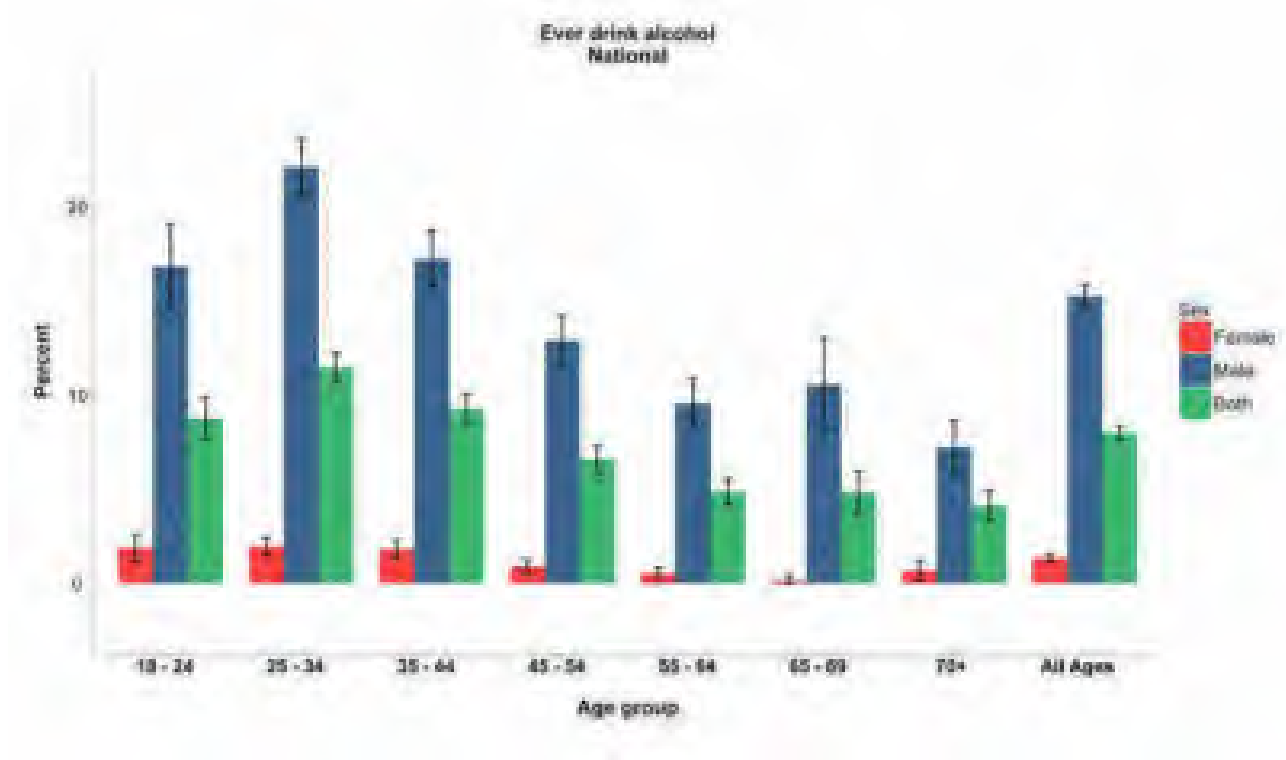


Figure 3.5.10. Prevalence of ever drink alcohol by age and sex at national level

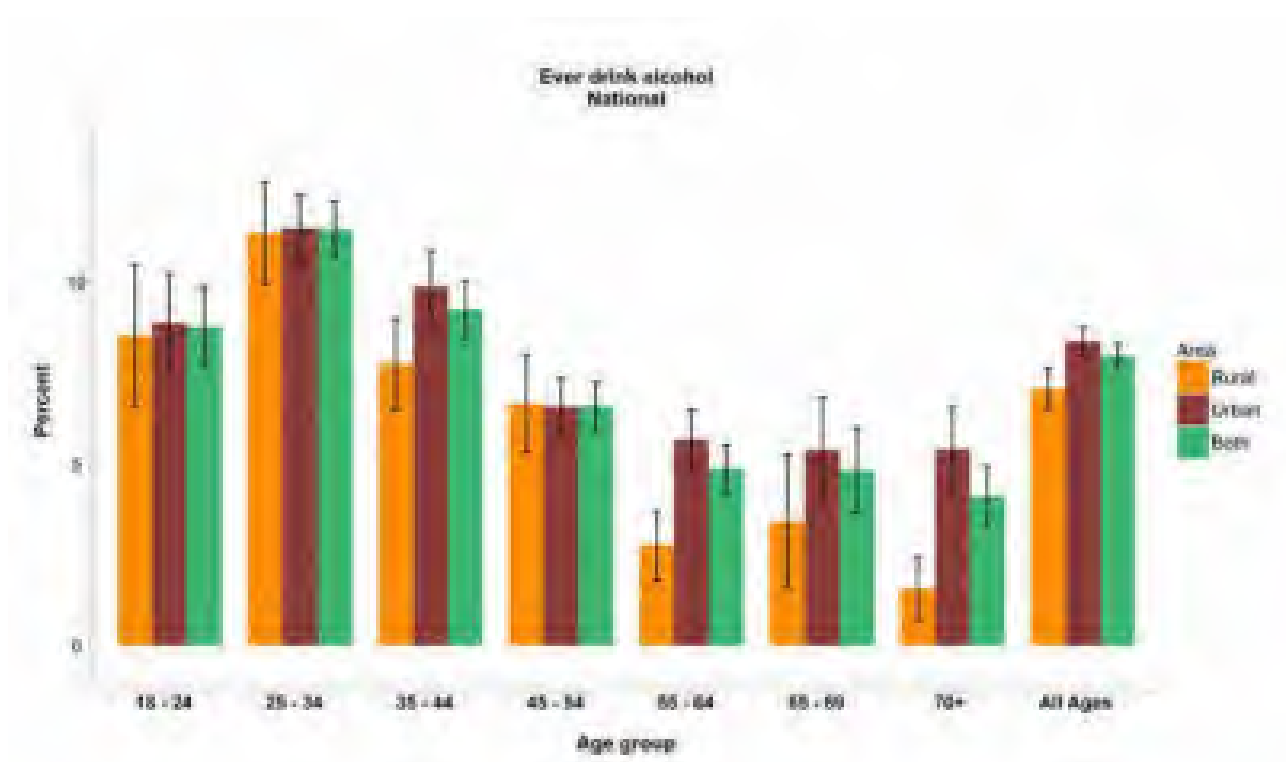


Figure 3.5.11. Prevalence of ever drink alcohol by age and area of residency at national level

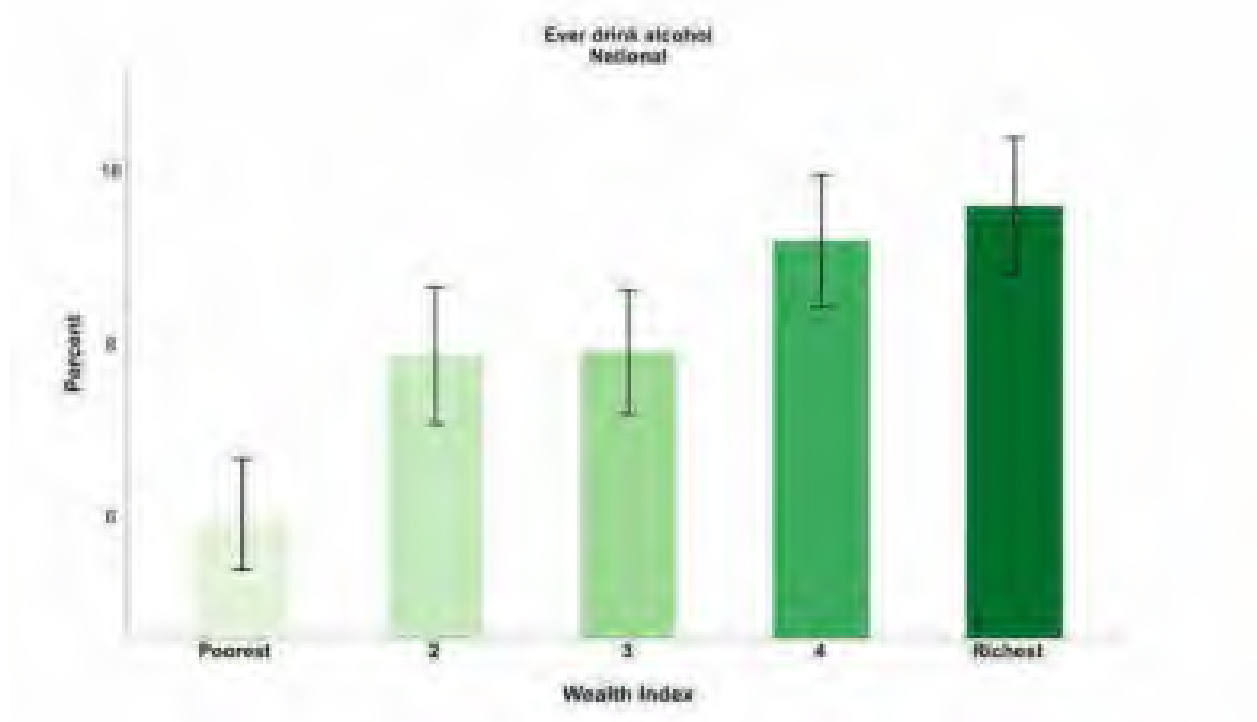


Figure 3.5.12. Prevalence of ever drink alcohol by wealth index quantiles at national level

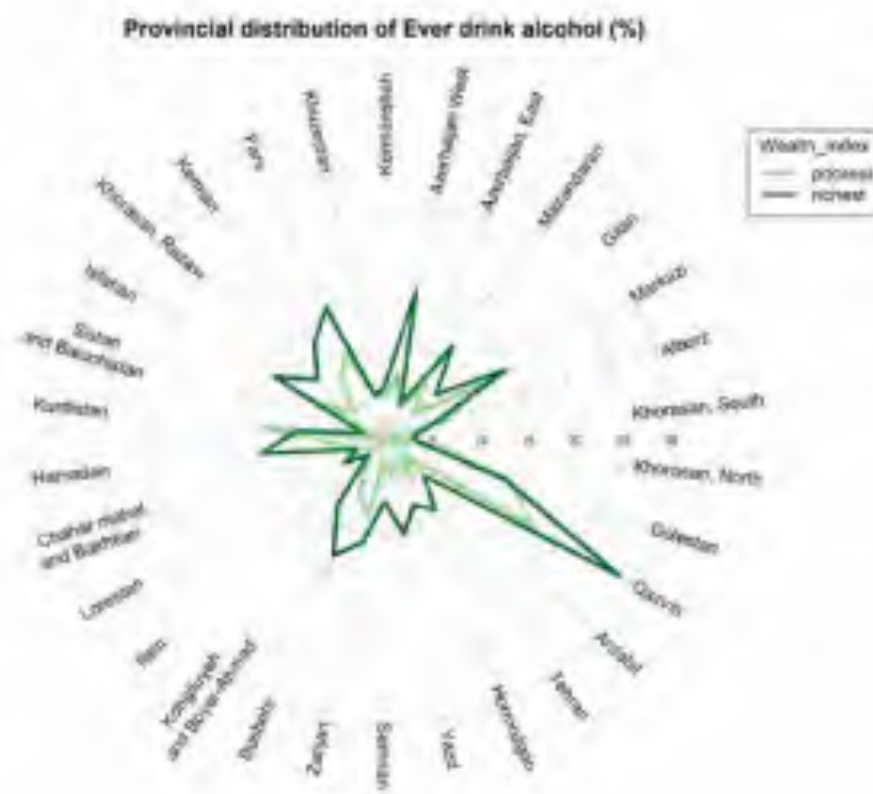


Figure 3.5.13. Provincial distribution of prevalence of ever drink alcohol by wealth index

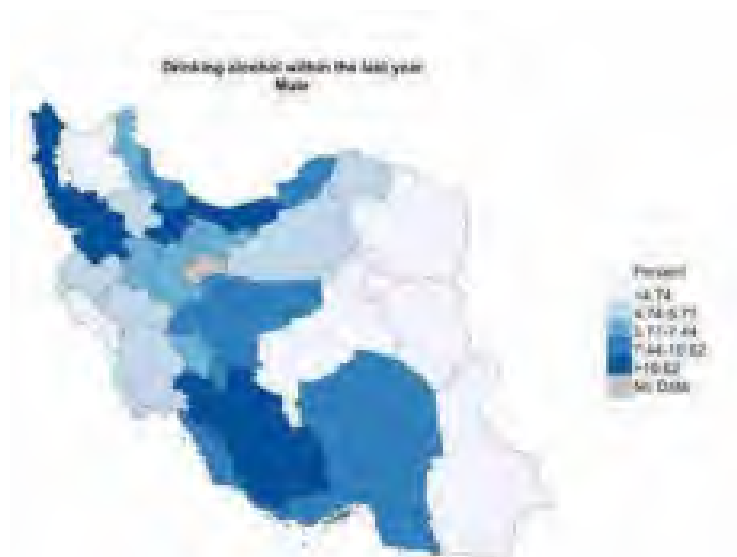


Figure 3.5.16. Geographical distribution of prevalence of drinking alcohol within the last year in males

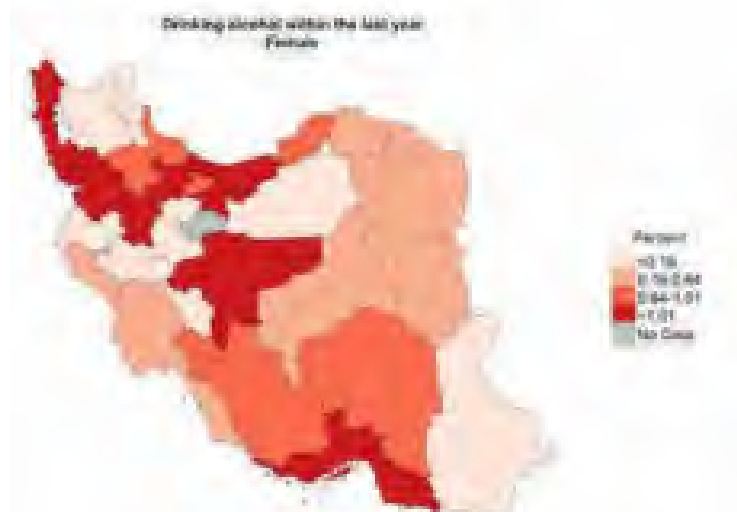


Figure 3.5.17. Geographical distribution of prevalence of drinking alcohol within the last year in females

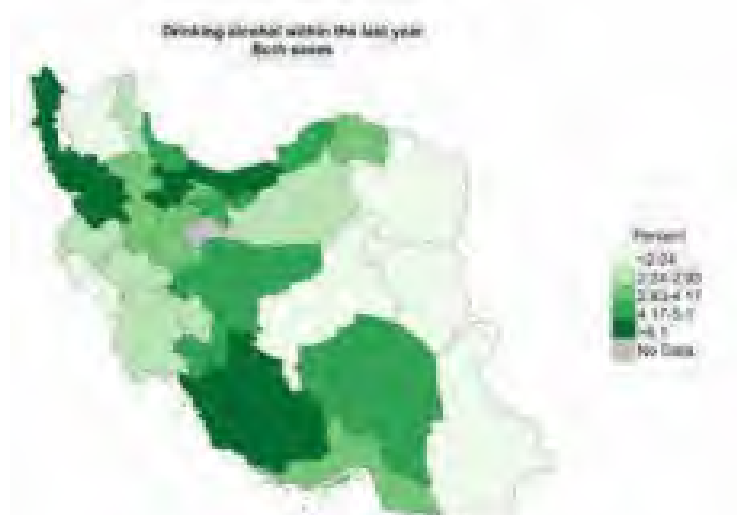


Figure 3.5.18. Geographical distribution of prevalence of drinking alcohol within the last year in both sexes

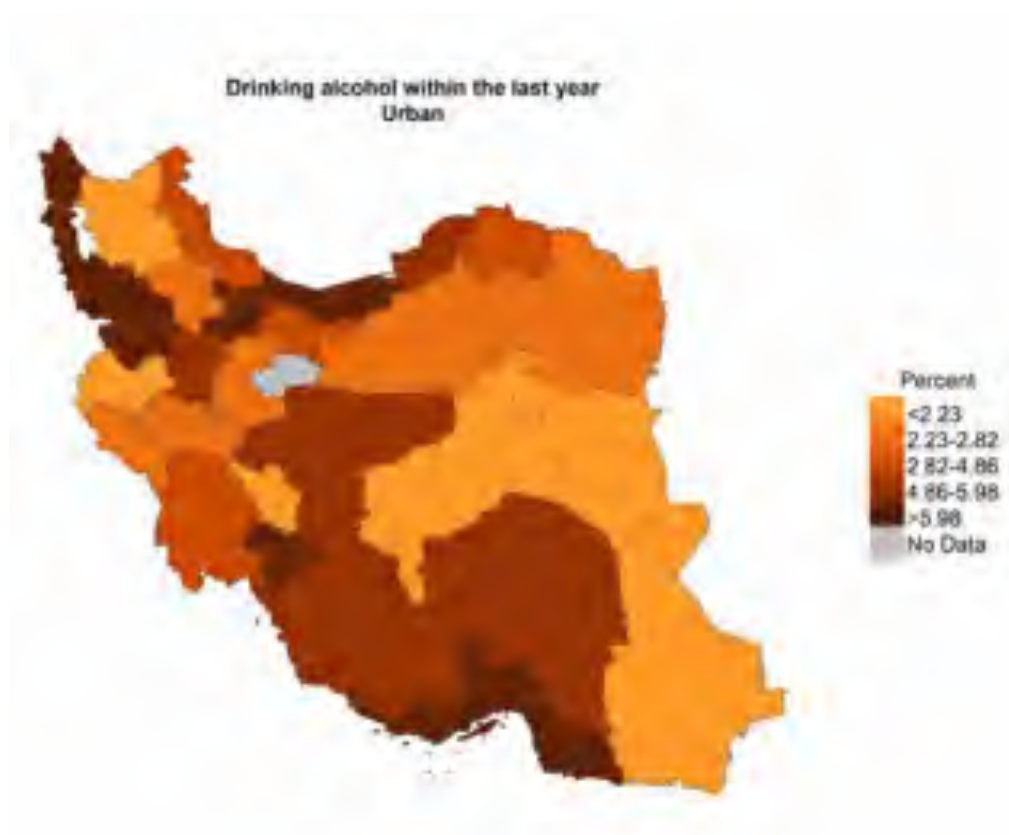


Figure 3.5.21. Geographical distribution of prevalence of drinking alcohol within the last year in urban area of residency

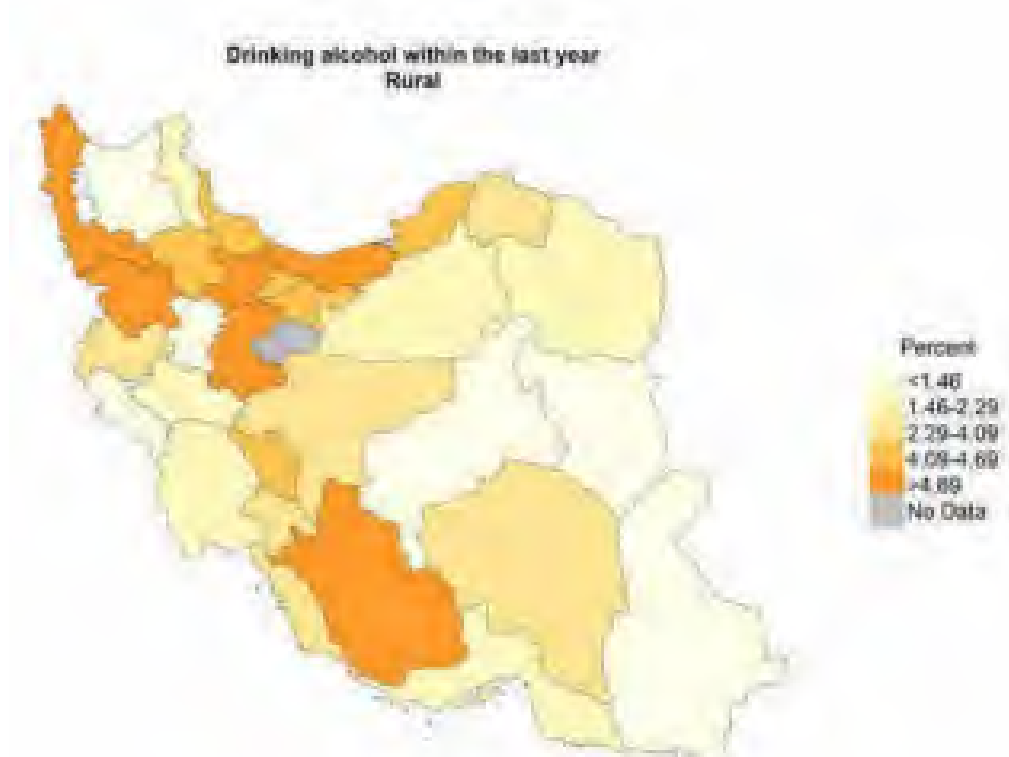


Figure 3.5.22. Geographical distribution of prevalence of drinking alcohol within the last year in rural area of residency

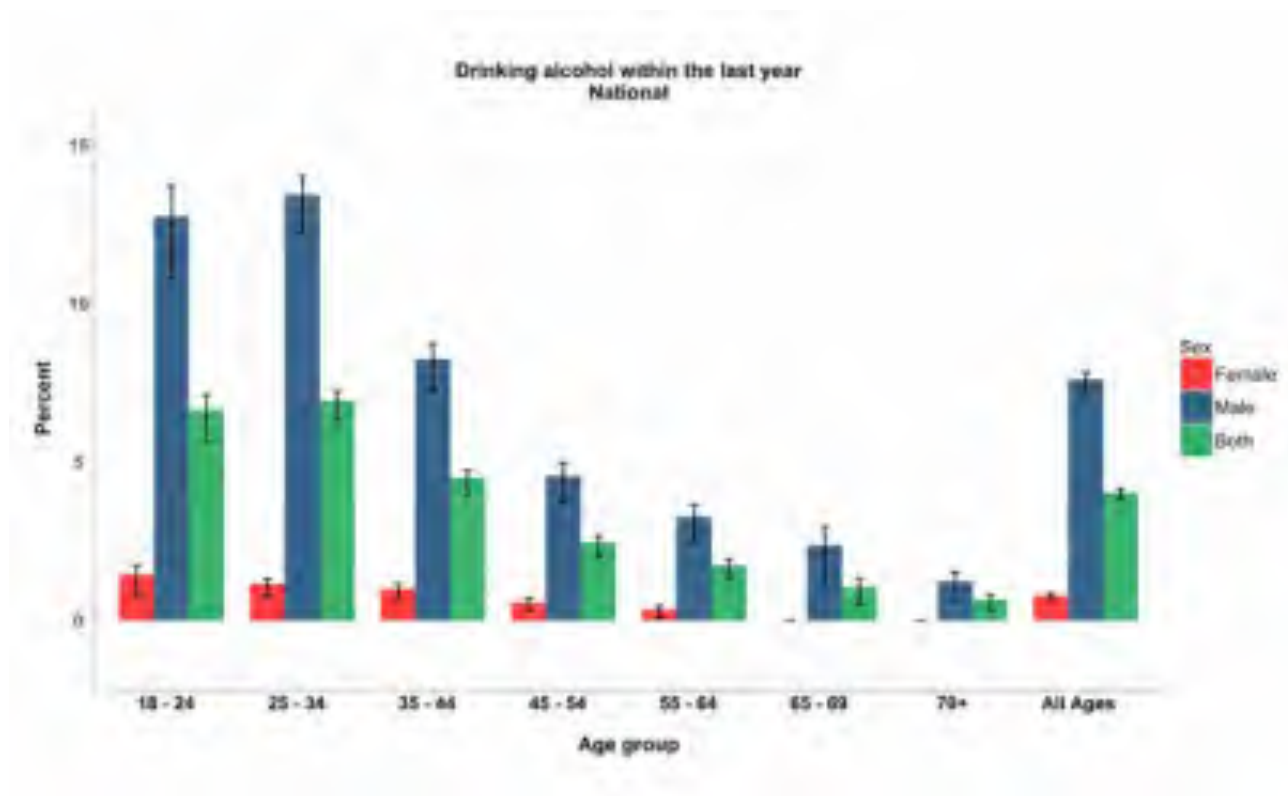


Figure 3.5.23. Prevalence of drinking alcohol within the last year by age and sex at national level

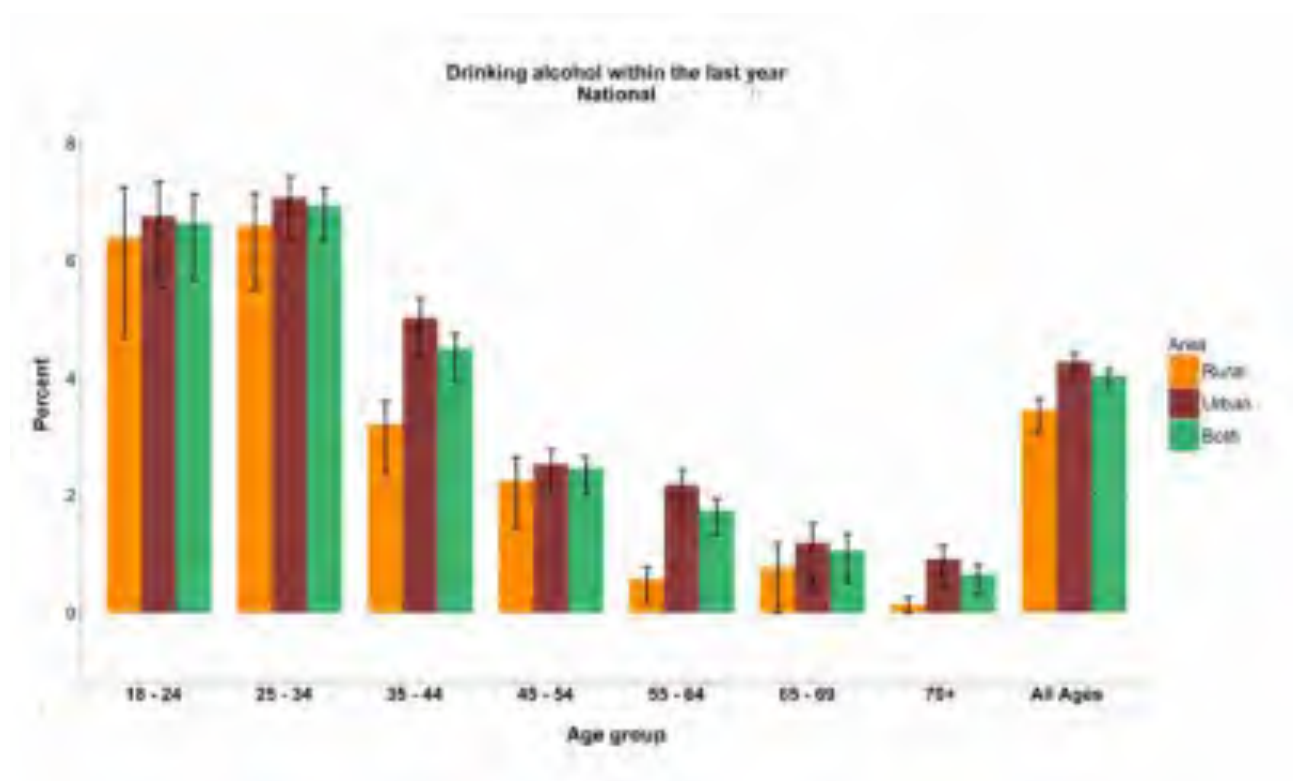


Figure 3.5.24. Prevalence of drinking alcohol within the last year by age and area of residency at national level

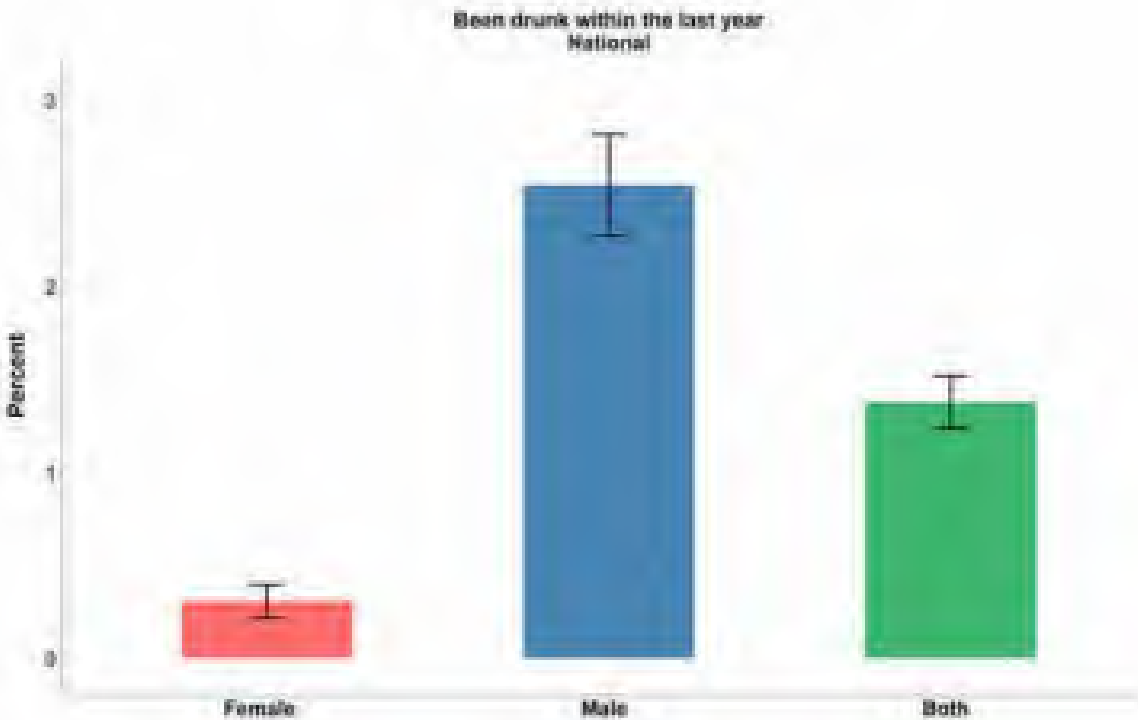


Figure 3.5.27. Prevalence of been drunk within the last year by sex at national level

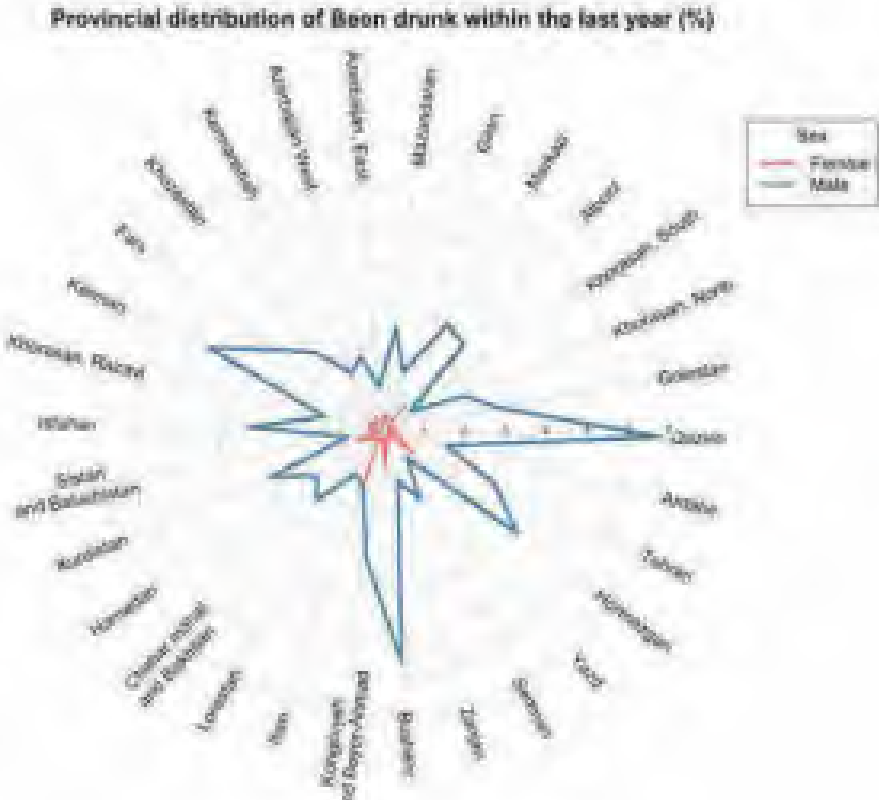


Figure 3.5.28. Provincial distribution of prevalence of been drunk within the last year by sex

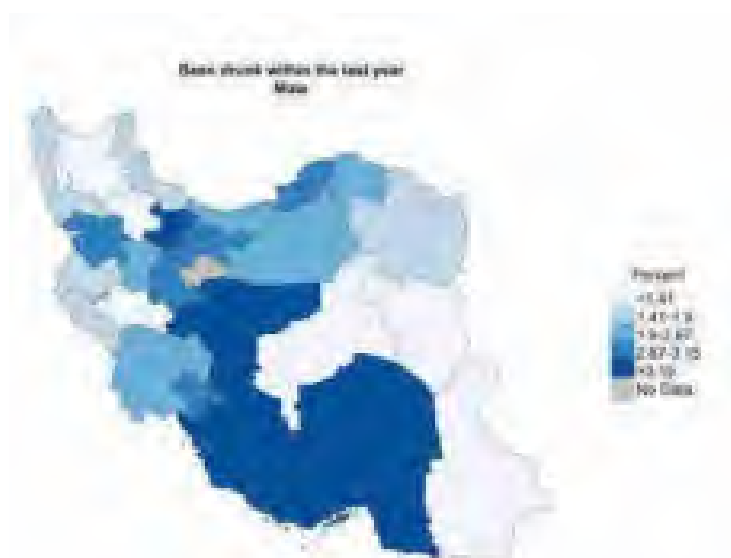


Figure 3.5.29. Geographical distribution of prevalence of been drunk within the last year in males

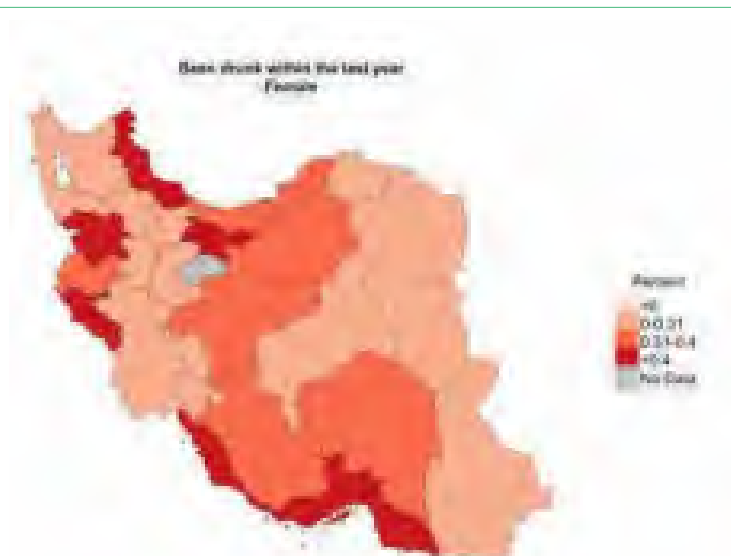


Figure 3.5.30. Geographical distribution of prevalence of been drunk within the last year in females

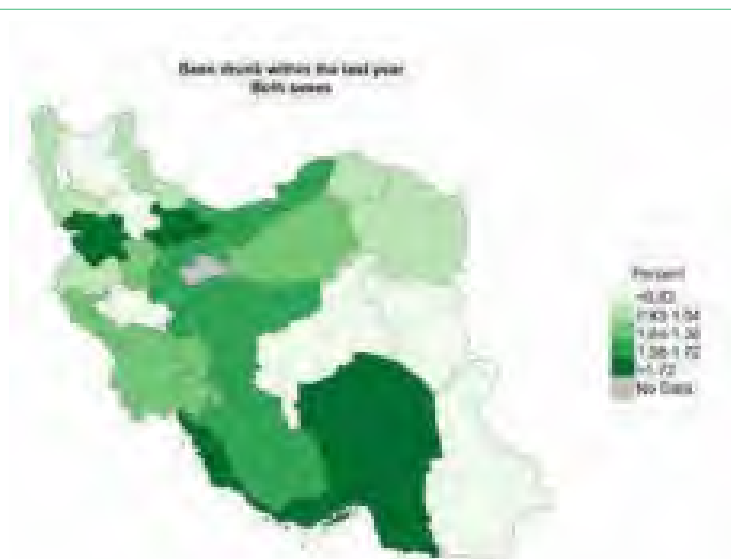


Figure 3.5.31. Geographical distribution of prevalence of been drunk within the last year in both sexes

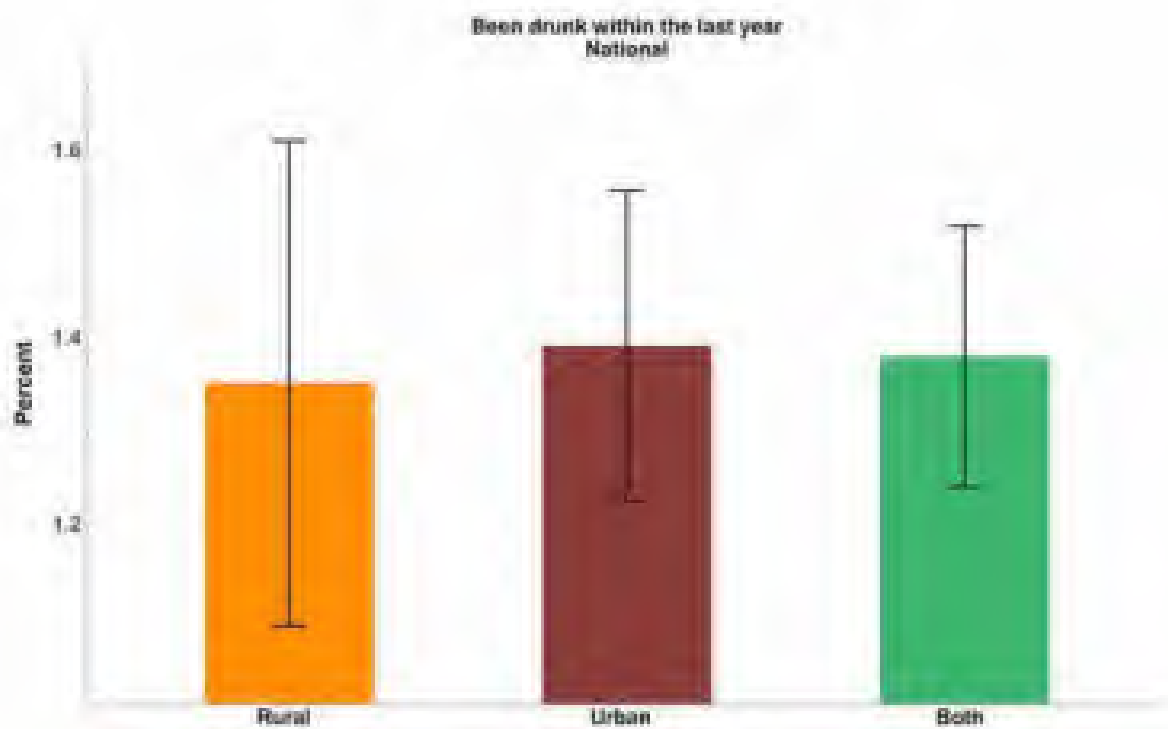


Figure 3.5.32. Prevalence of been drunk within the last year by area of residency at national level

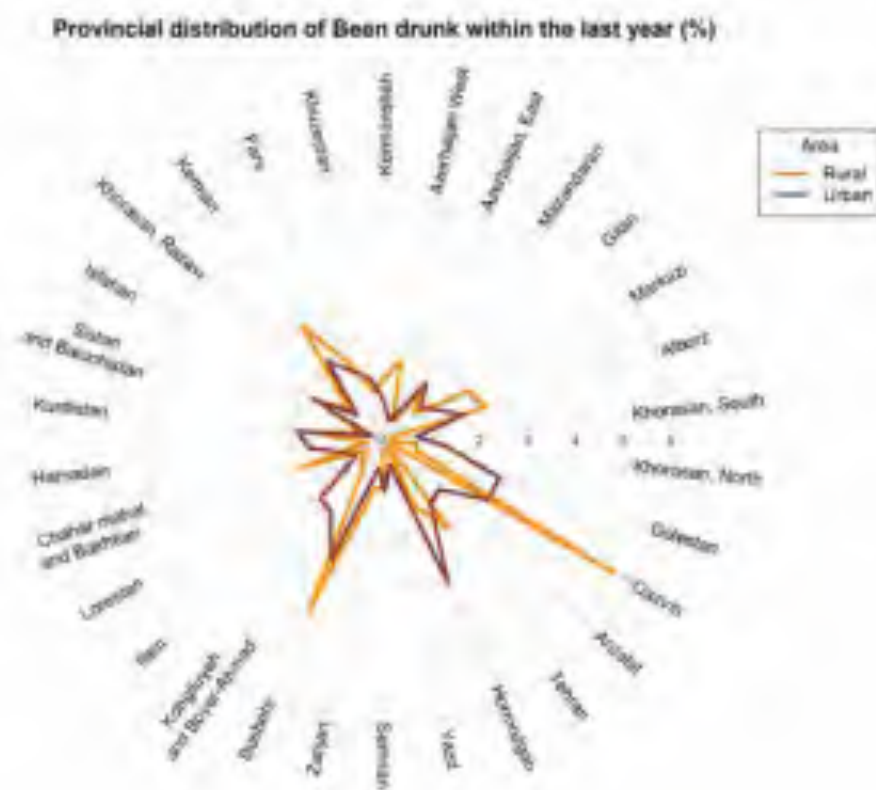


Figure 3.5.33. Provincial distribution of prevalence of been drunk within the last year by area of residency

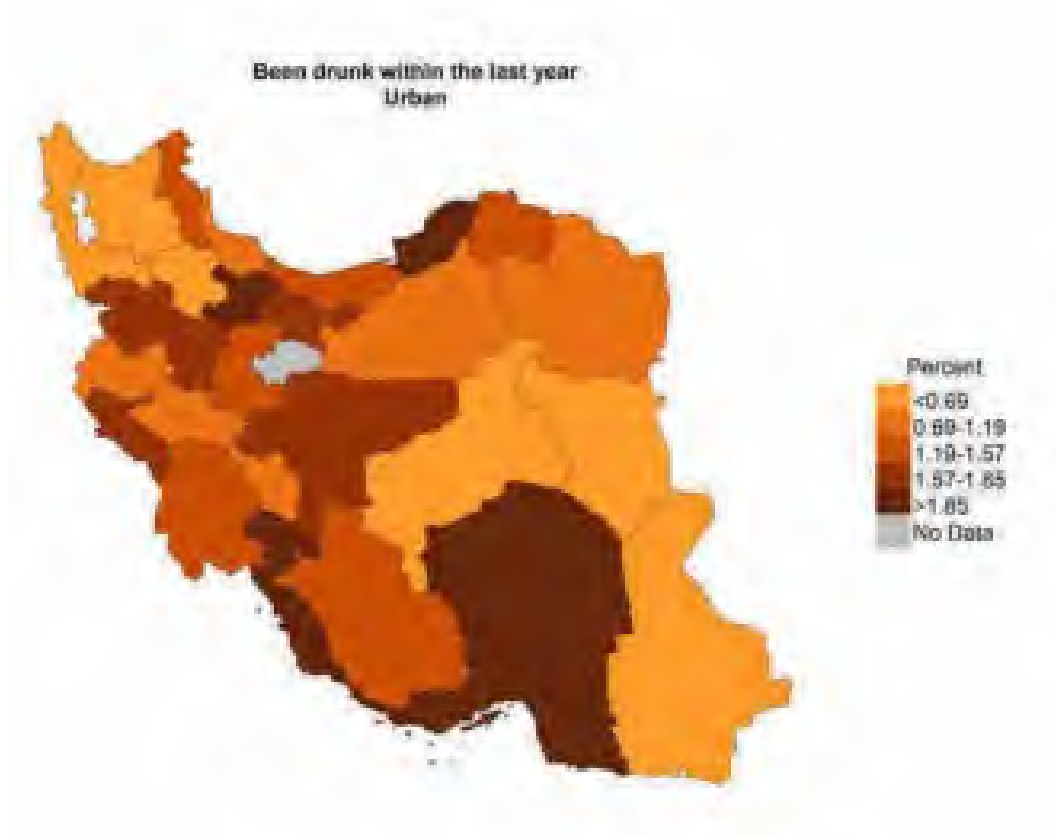


Figure 3.5.34. Geographical distribution of prevalence of been drunk within the last year in urban area of residency

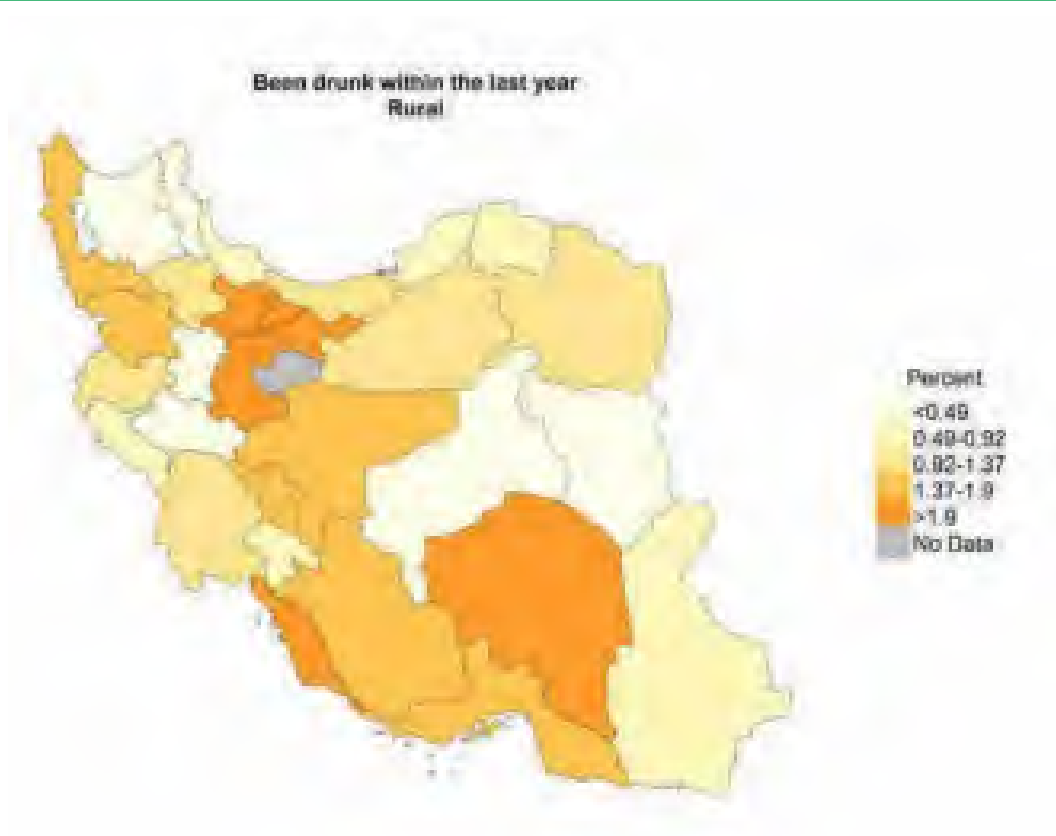


Figure 3.5.35. Geographical distribution of prevalence of been drunk within the last year in rural area of residency

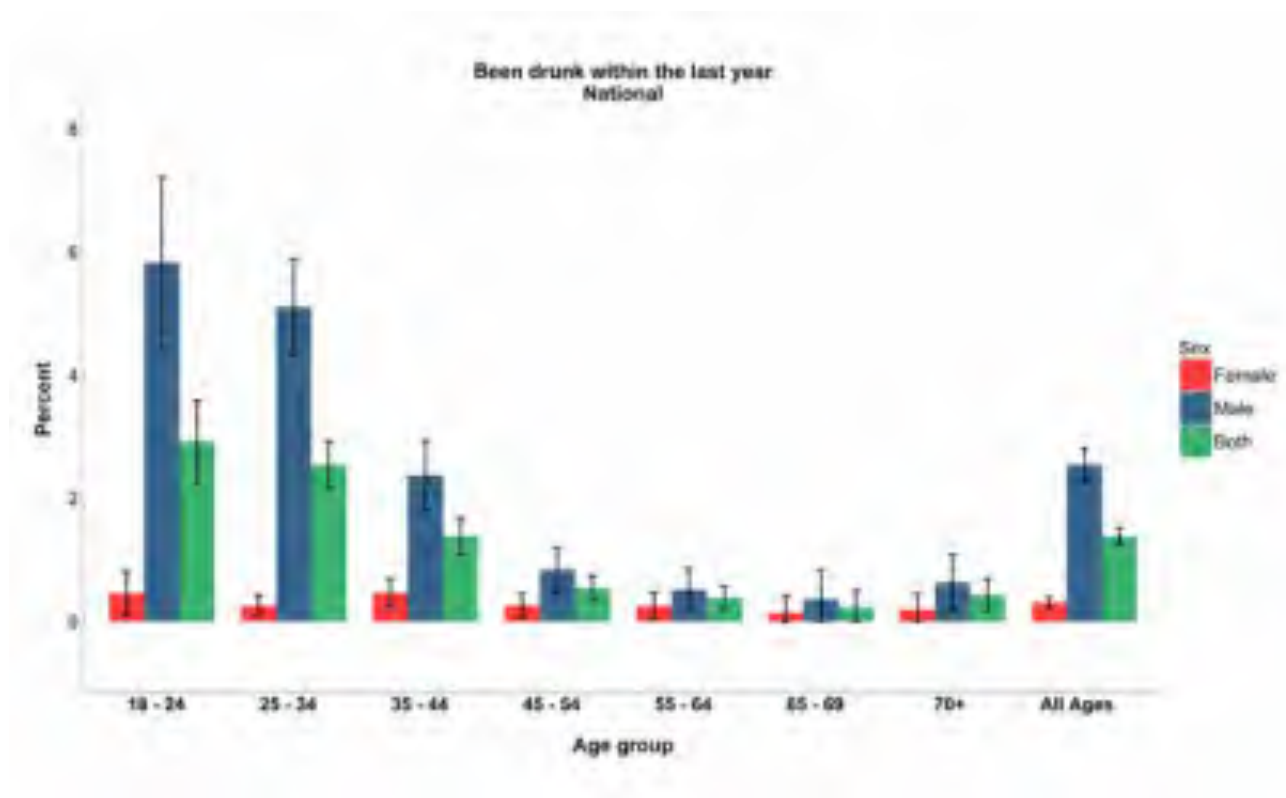


Figure 3.5.36. Prevalence of been drunk within the last year by age and sex at national level

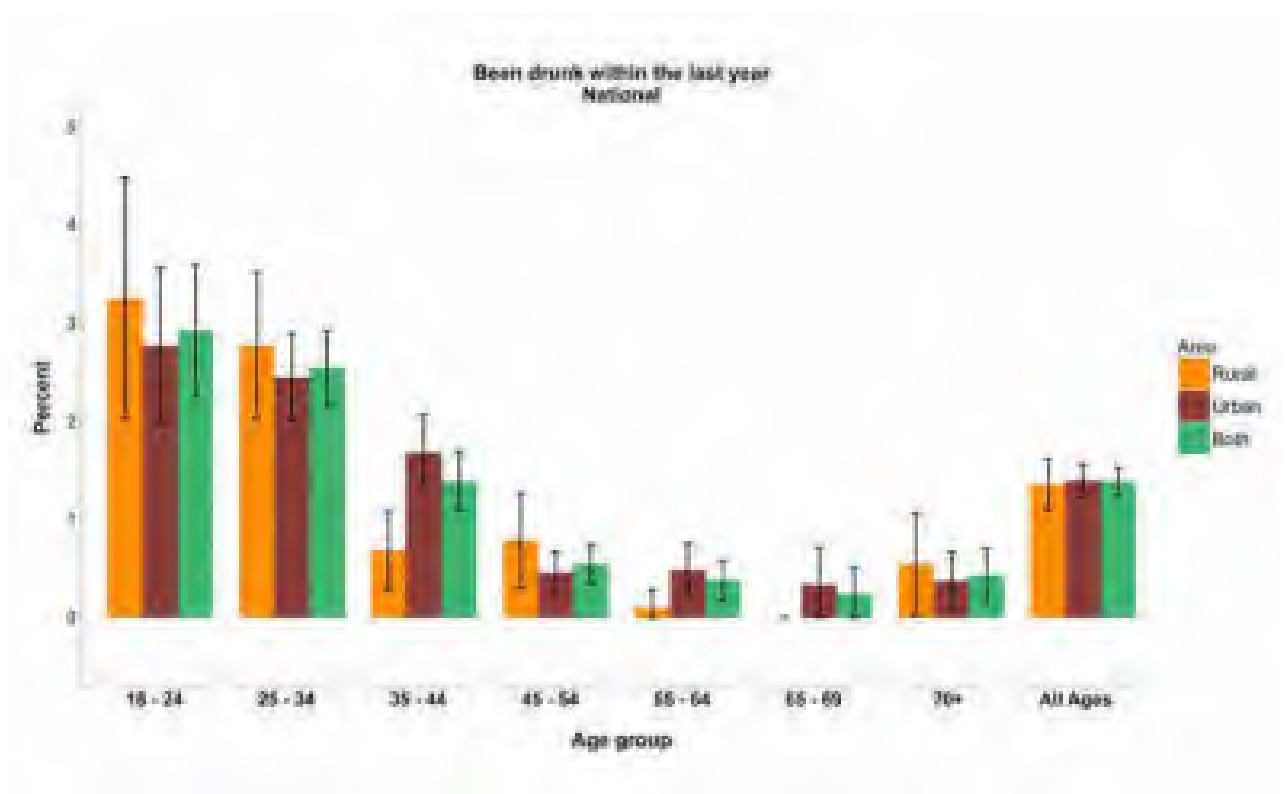


Figure 3.5.37. Prevalence of been drunk within the last year by age and area of residency at national level

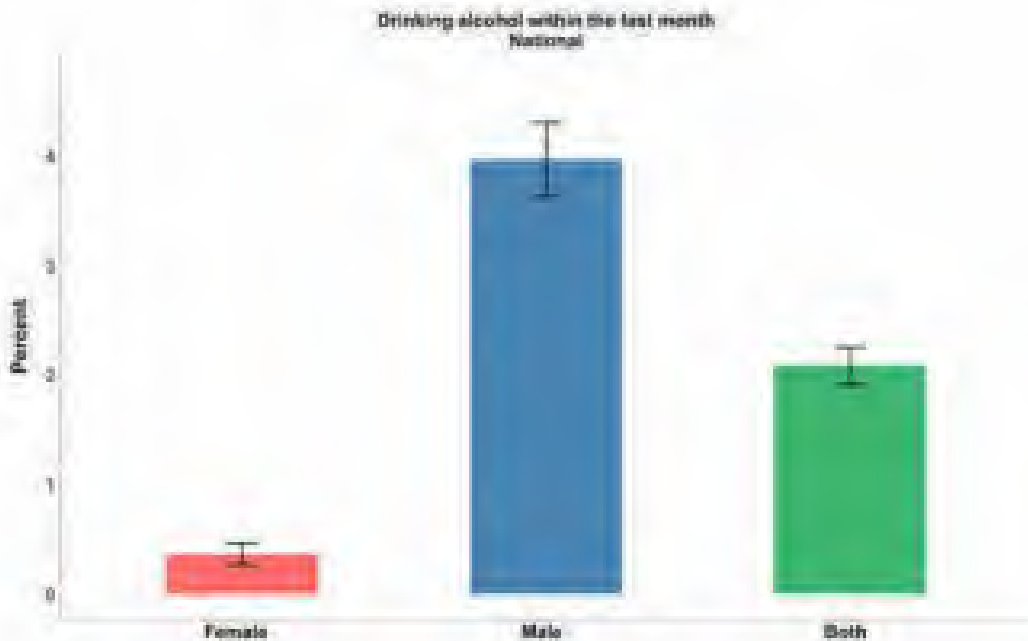


Figure 3.5.40. Prevalence of drinking alcohol within the last month by sex at national level

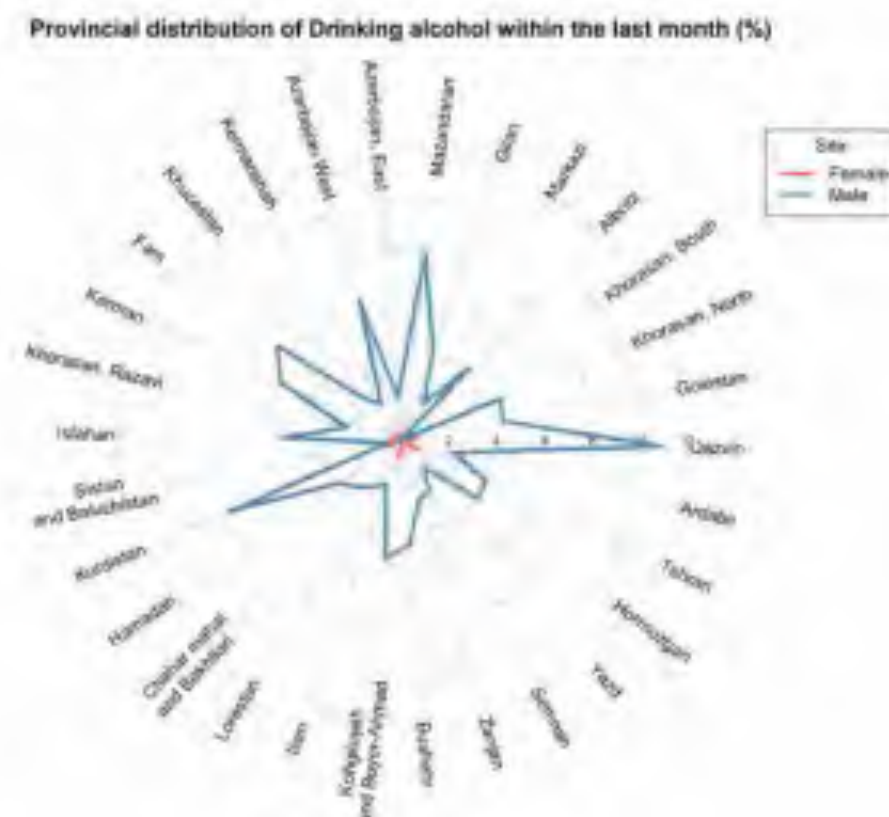


Figure 3.5.41. Provincial distribution of prevalence of drinking alcohol within the last month by sex

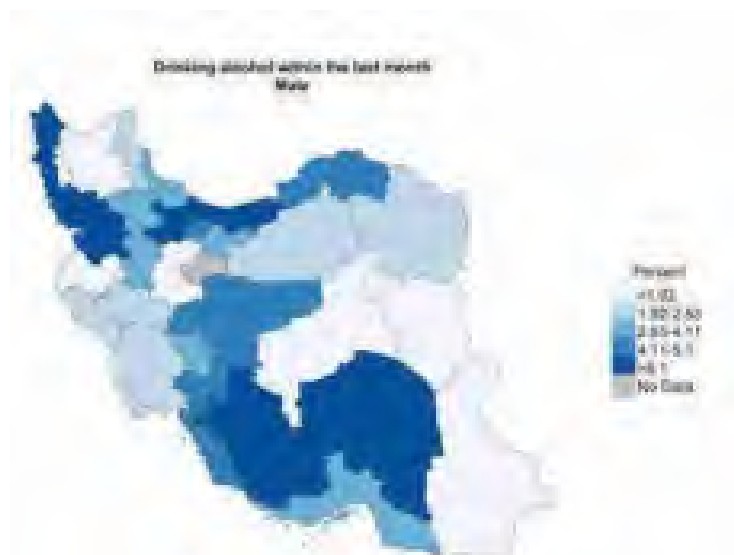


Figure 3.5.42. Geographical distribution of prevalence of drinking alcohol within the last month in males

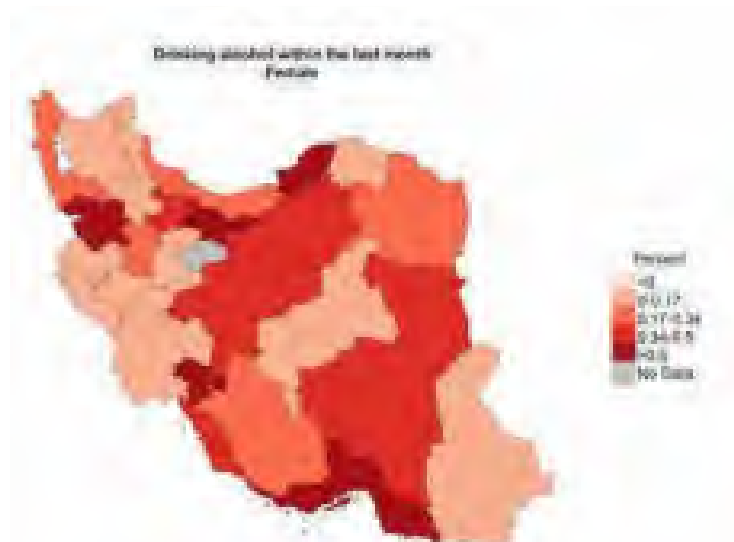


Figure 3.5.43. Geographical distribution of prevalence of drinking alcohol within the last month in females

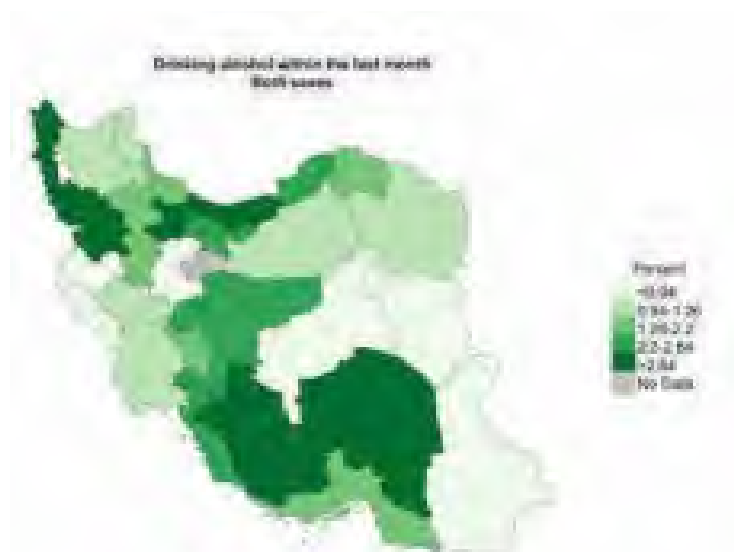


Figure 3.5.44. Geographical distribution of prevalence of drinking alcohol within the last month in both sexes

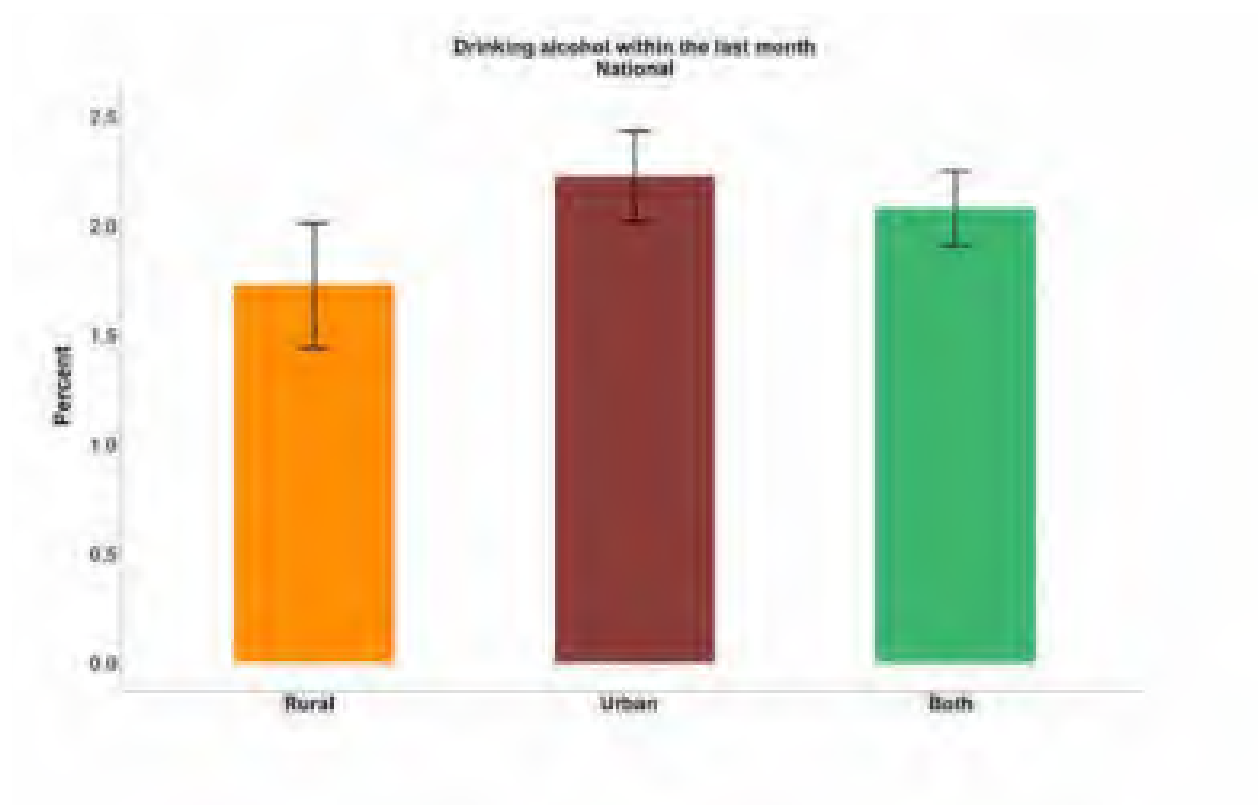


Figure 3.5.45. Prevalence of drinking alcohol within the last month by area of residency at national level

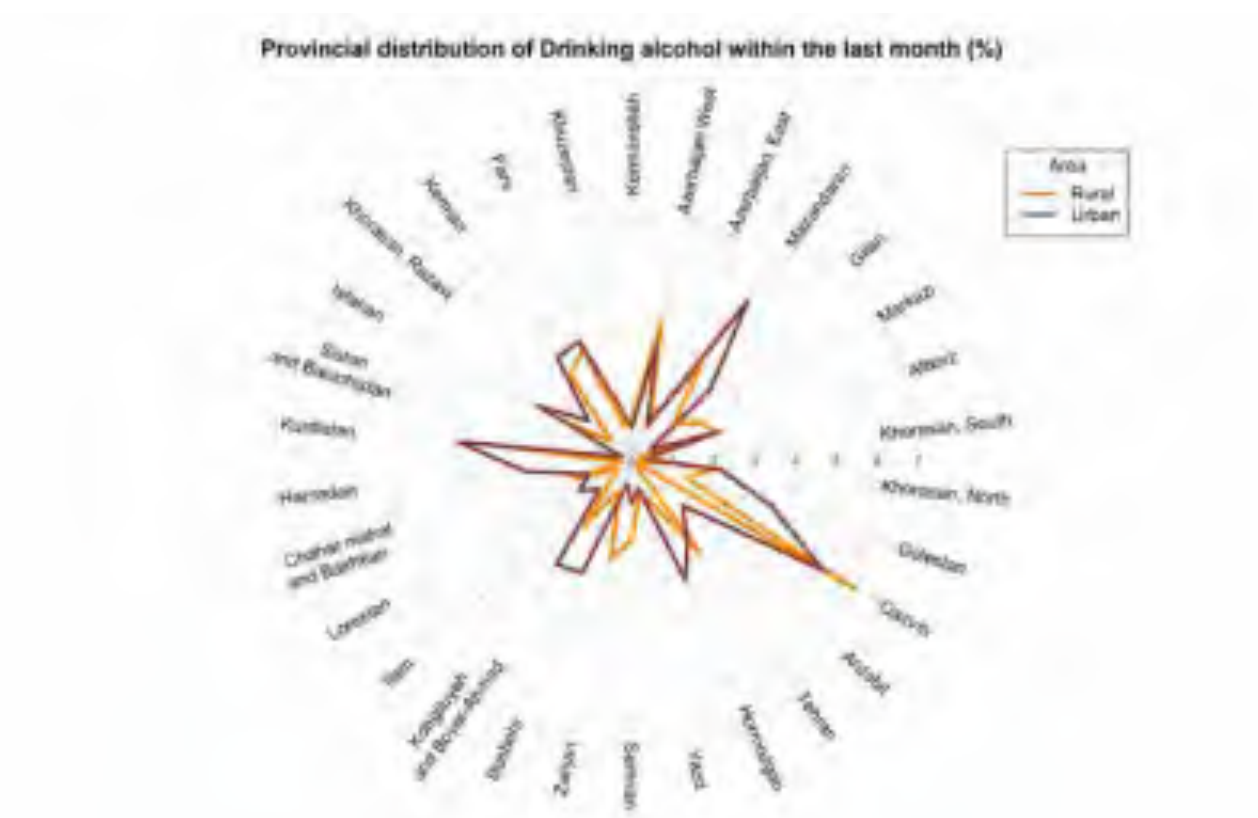


Figure 3.5.46. Provincial distribution of prevalence of drinking alcohol within the last month by area of residency

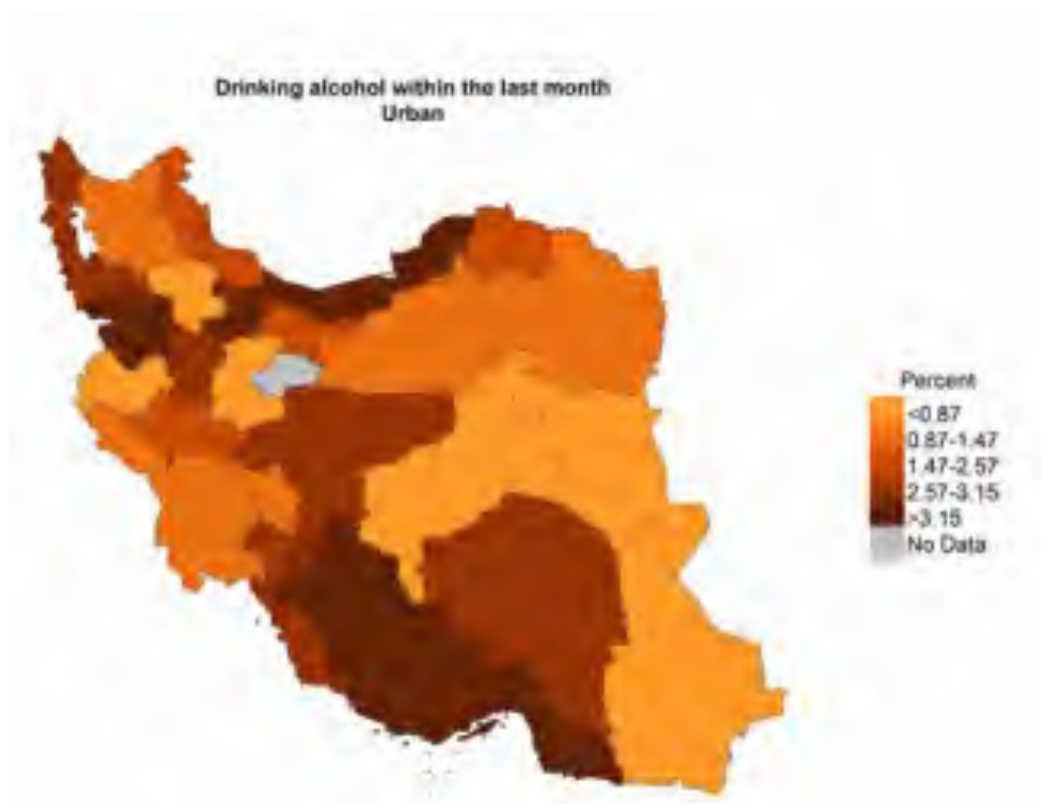


Figure 3.5.47. Geographical distribution of prevalence of drinking alcohol within the last month in urban area of residency

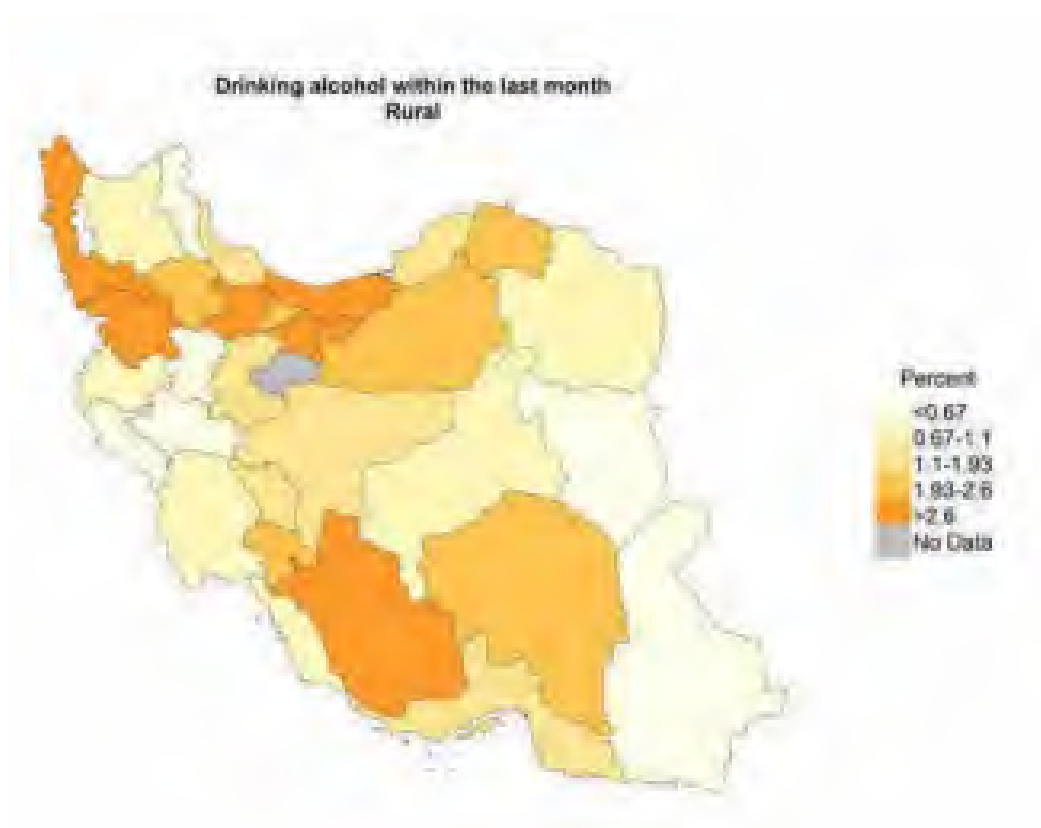


Figure 3.5.48. Geographical distribution of prevalence of drinking alcohol within the last month in rural area of residency

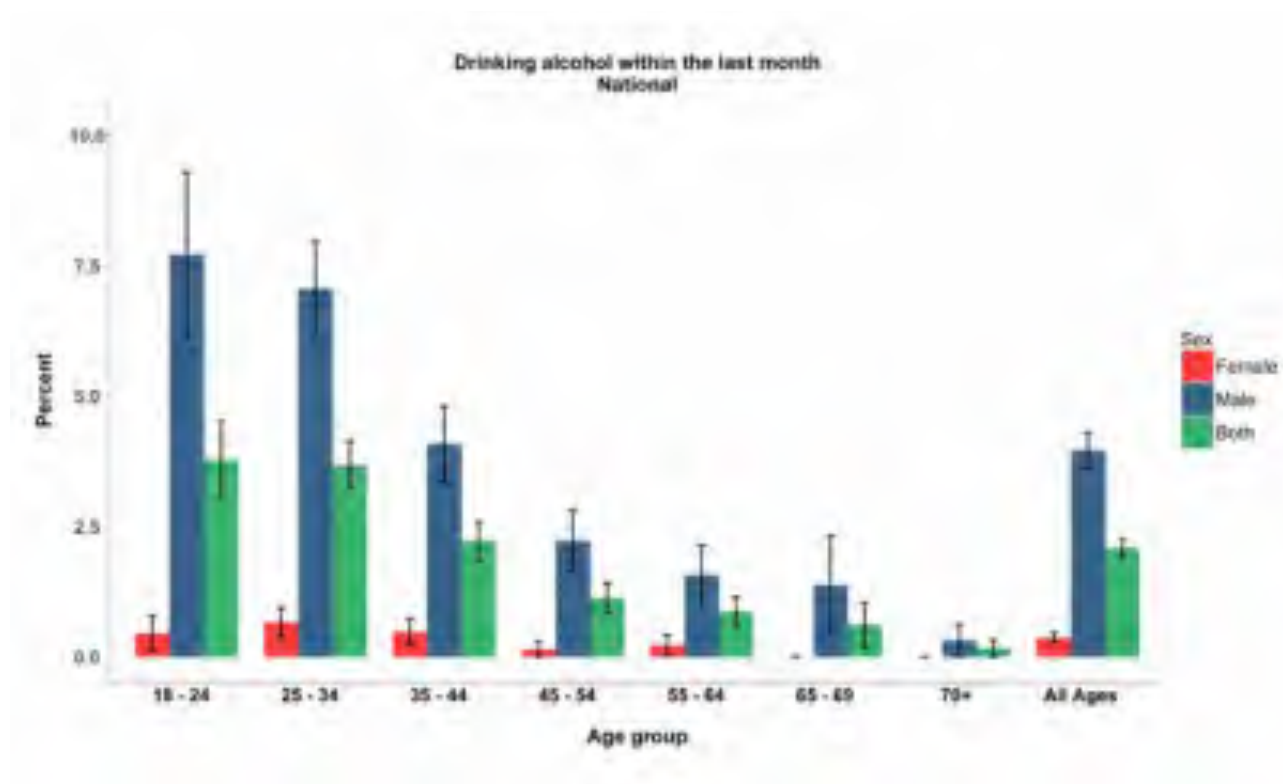


Figure 3.5.49. Prevalence of drinking alcohol within the last month by age and sex at national level

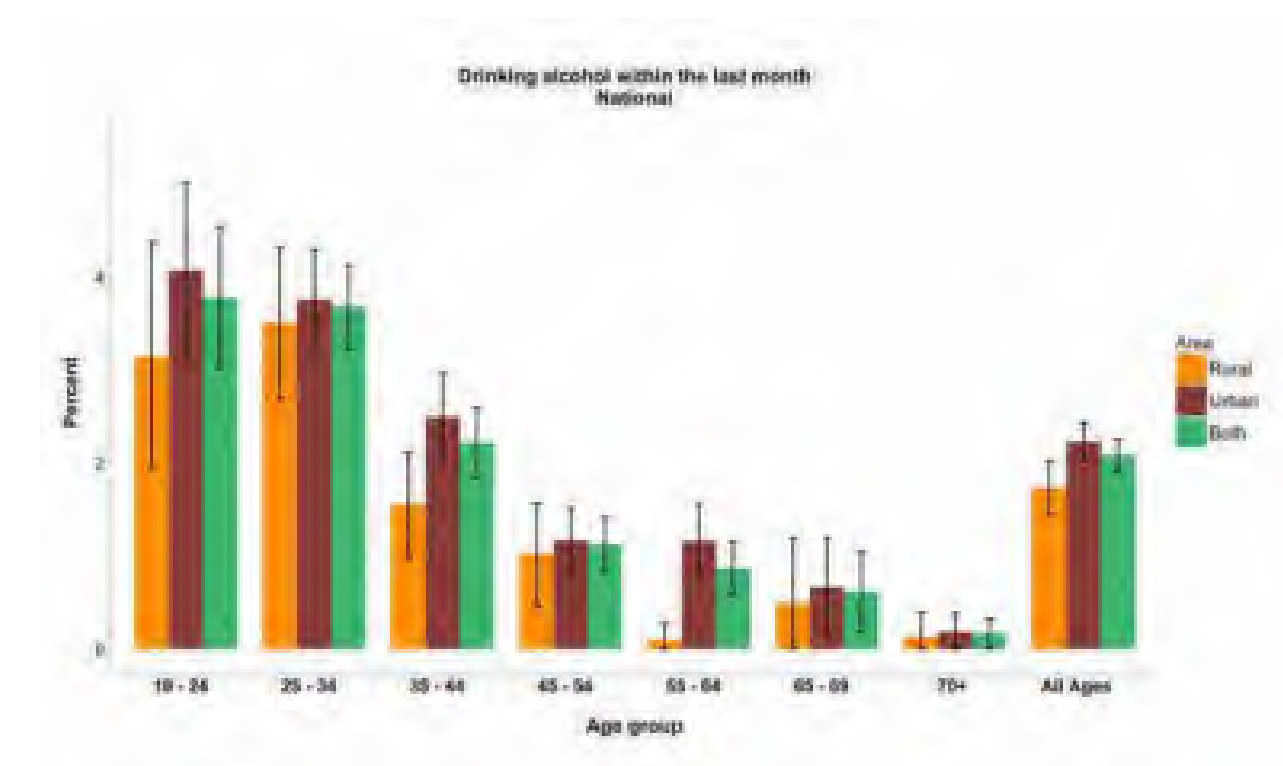


Figure 3.5.50. Prevalence of drinking alcohol within the last month by age and area of residency at national level

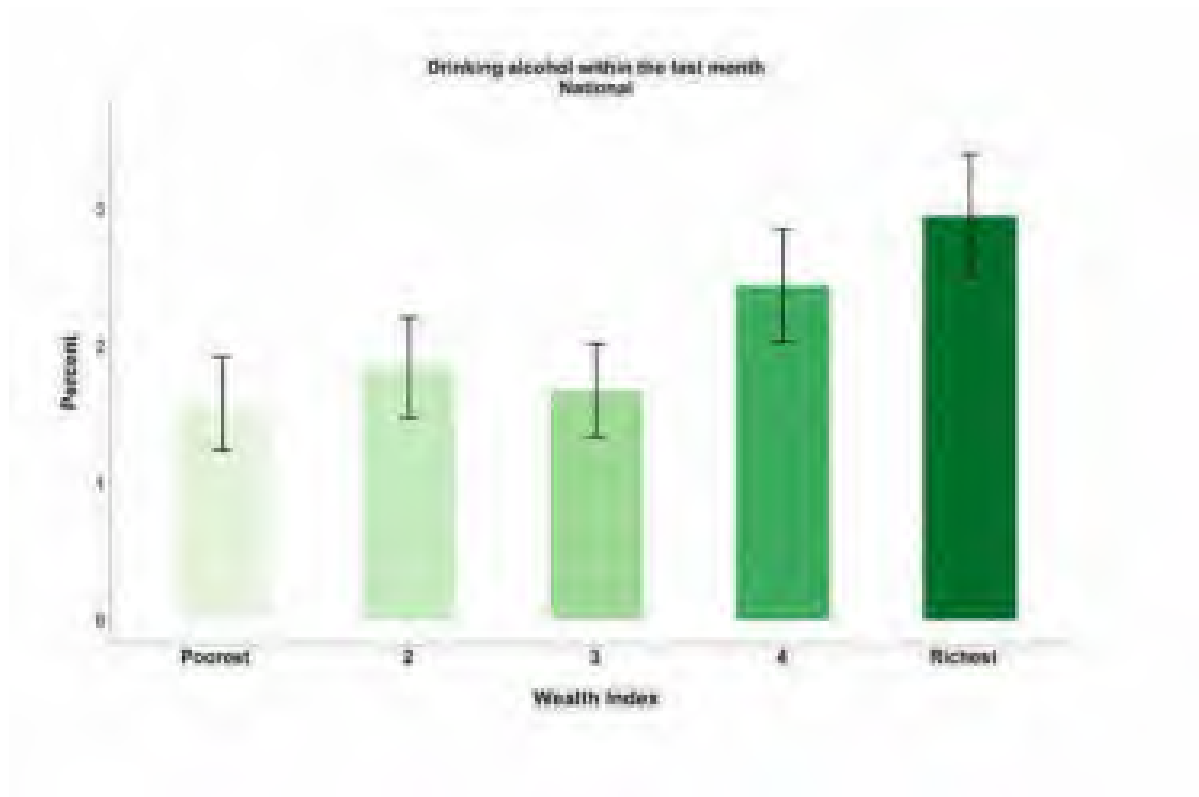


Figure 3.5.51. Prevalence of drinking alcohol within the last month by wealth index quantiles at national level

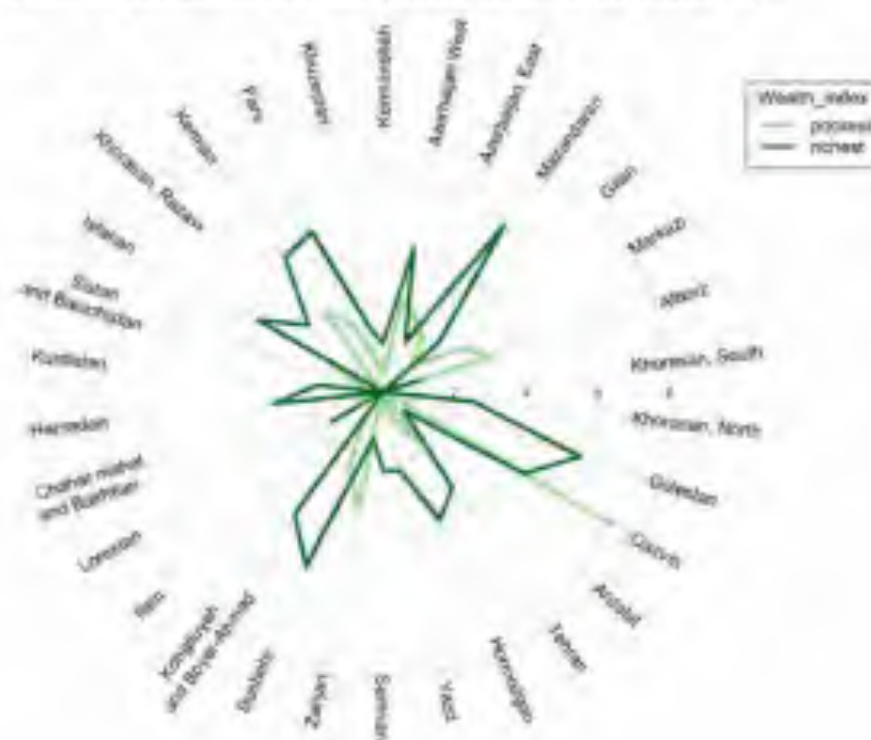
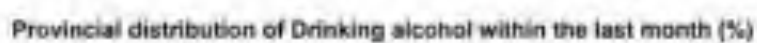


Figure 3.5.52. Provincial distribution of prevalence of drinking alcohol within the last month by wealth index

CHAPTER 2

Results

Section 4.1

Metabolic Risk Factors: Weight-related

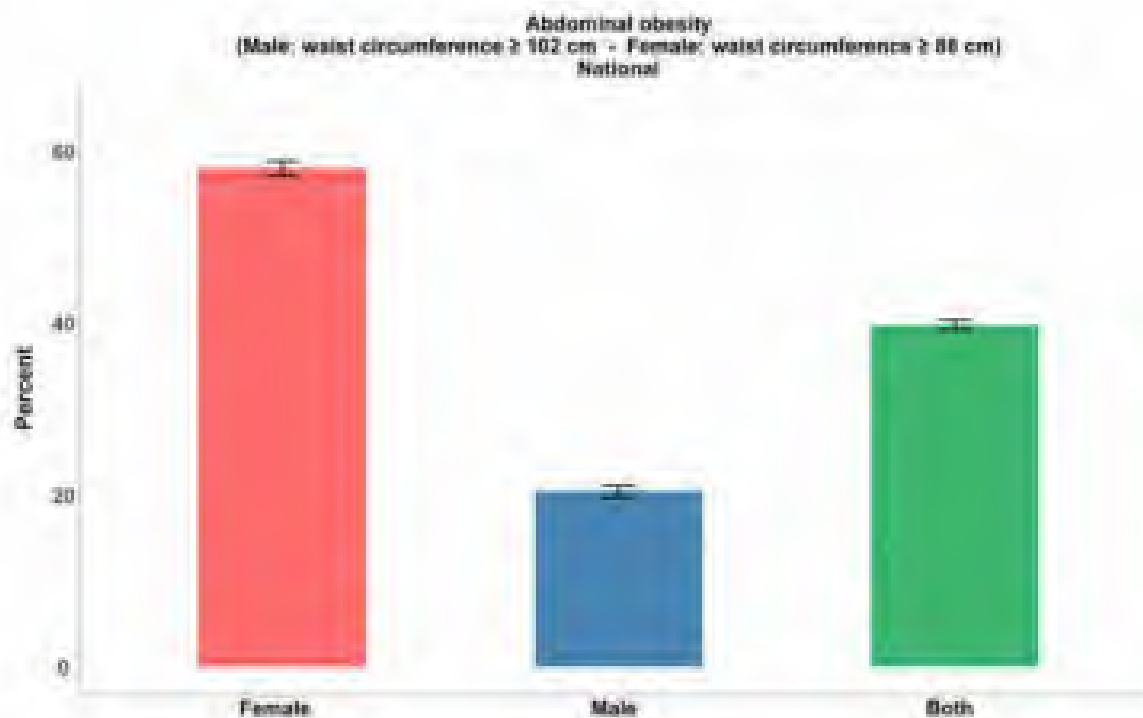


Figure 4.1.1. Prevalence of abdominal obesity based on waist circumference by sex at national level

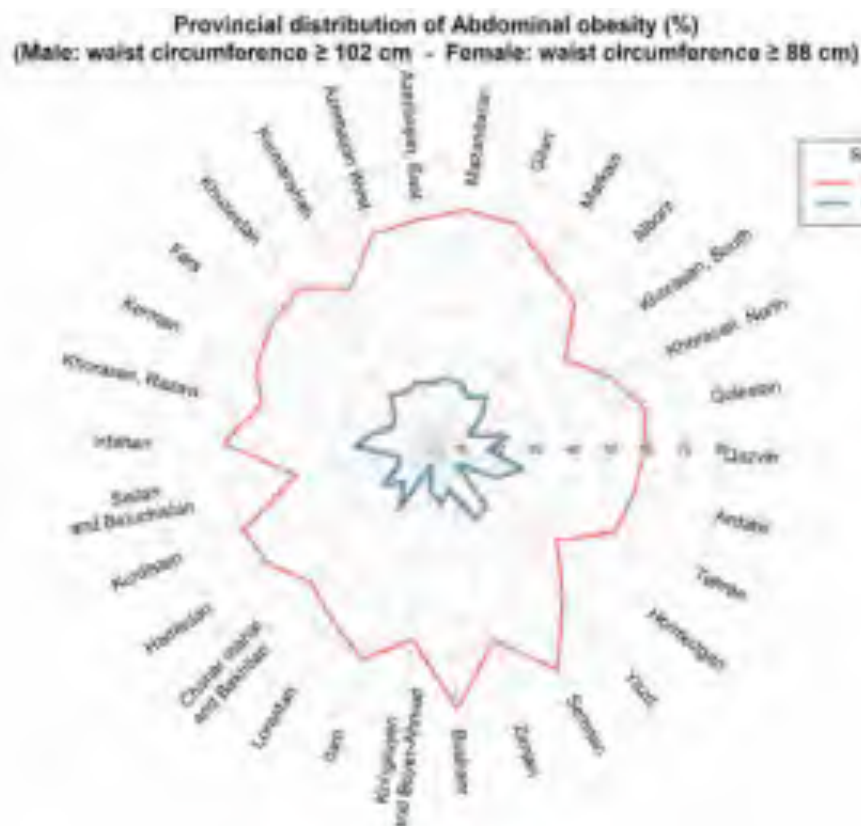


Figure 4.1.2. Provincial distribution of prevalence of abdominal obesity based on waist circumference by sex

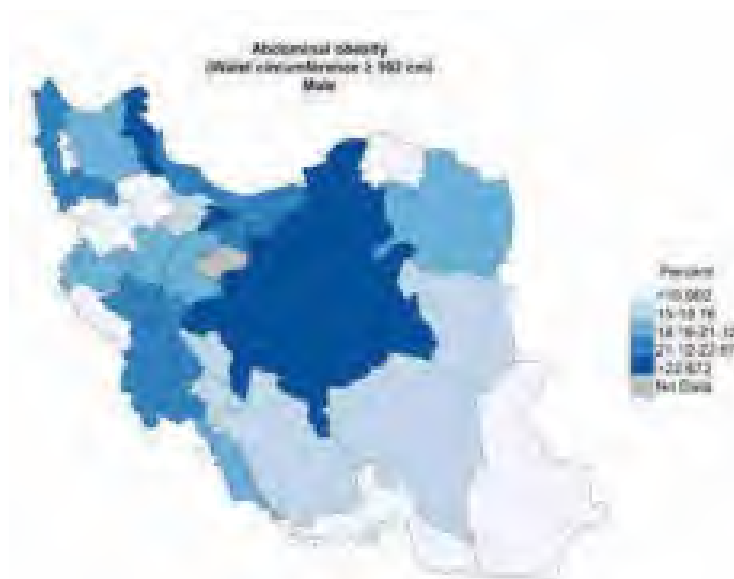


Figure 4.1.3. Geographical distribution of prevalence of abdominal obesity based on waist circumference in males

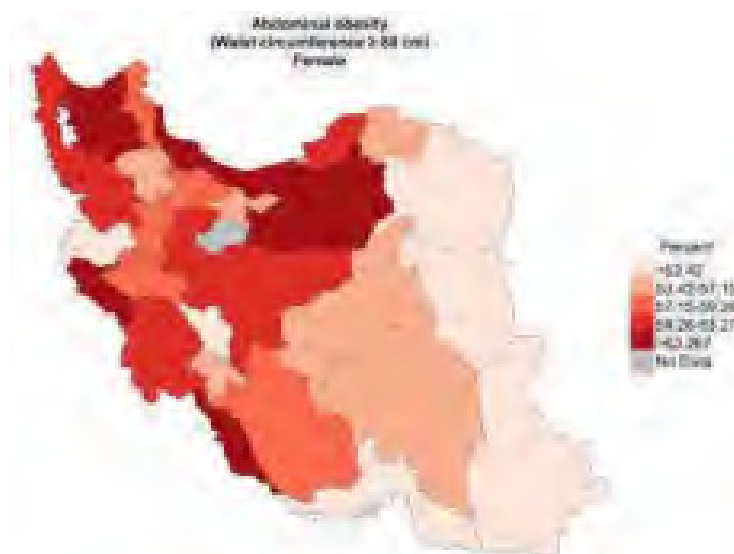


Figure 4.1.4. Geographical distribution of prevalence of abdominal obesity based on waist circumference in females

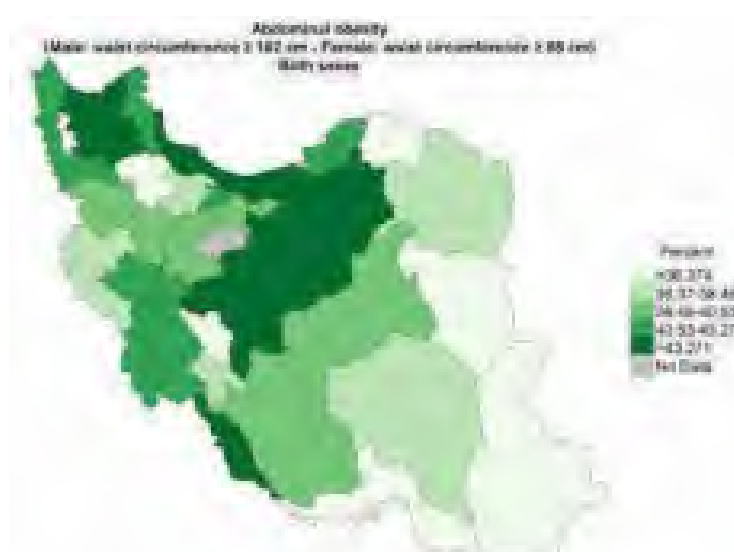


Figure 4.1.5. Geographical distribution of prevalence of abdominal obesity based on waist circumference in both sexes

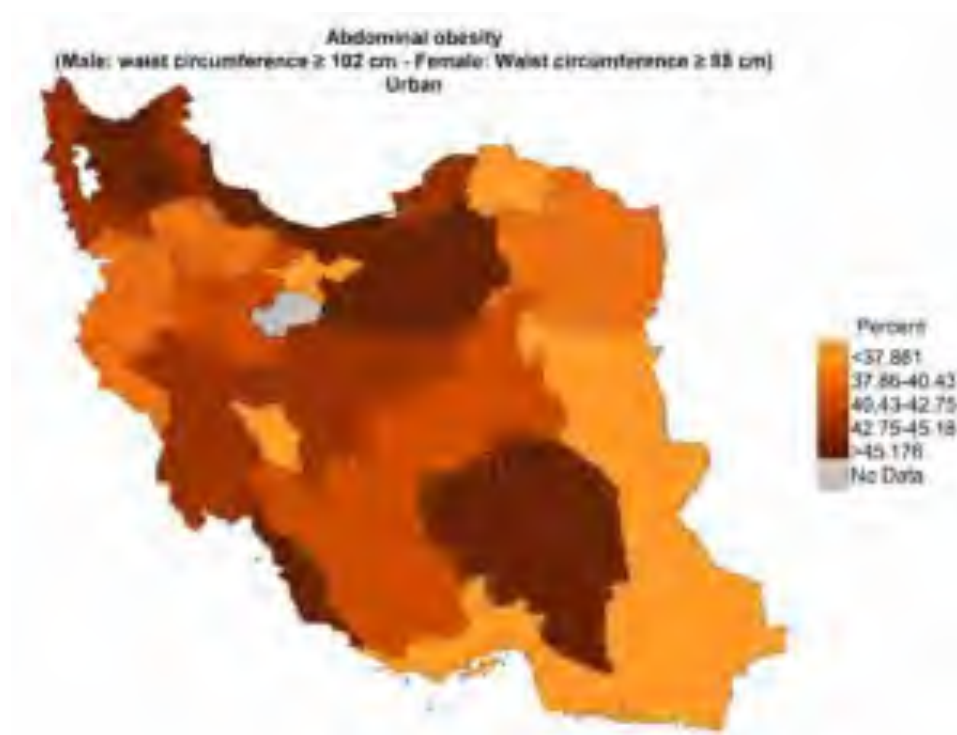


Figure 4.1.8. Geographical distribution of prevalence of abdominal obesity based on waist circumference in urban area of residency

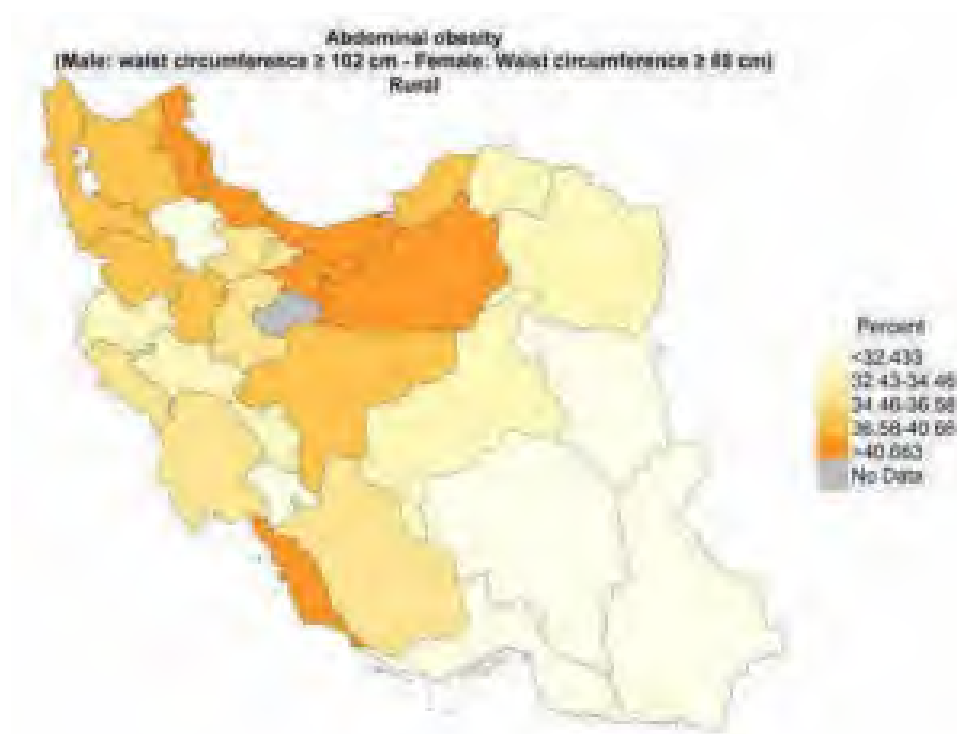


Figure 4.1.9. Geographical distribution of prevalence of abdominal obesity based on waist circumference in rural area of residency

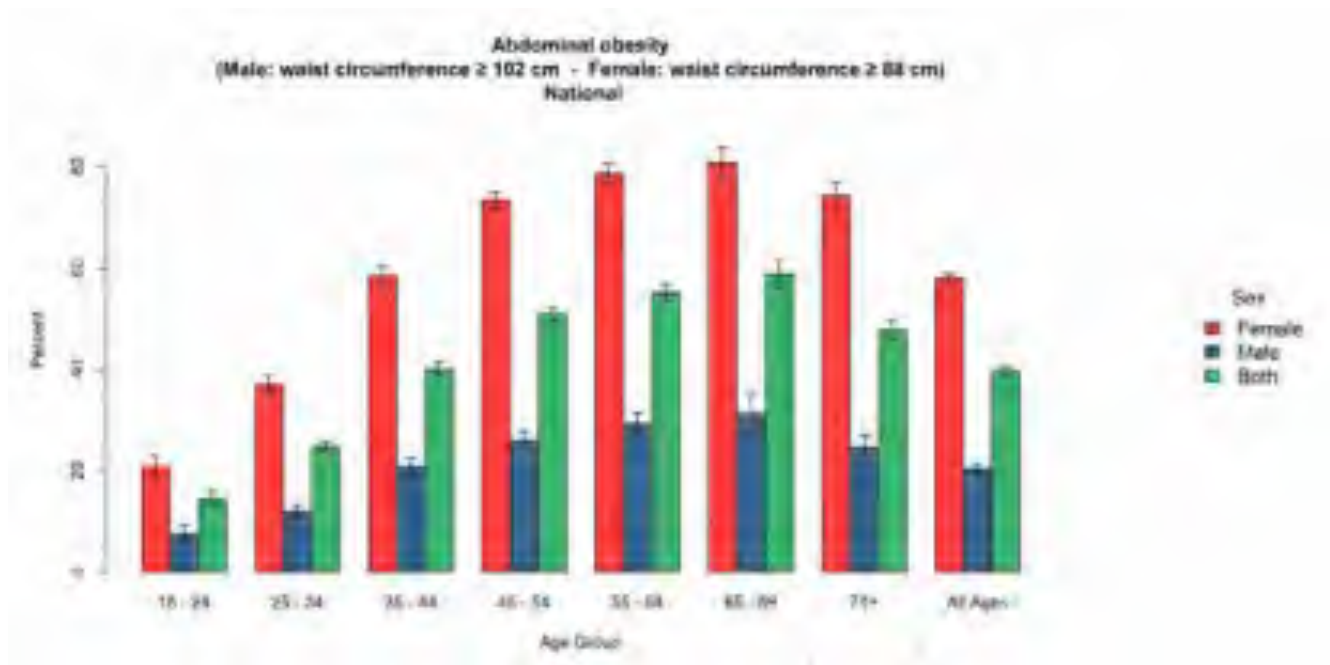


Figure 4.1.10. Prevalence of abdominal obesity based on waist circumference by age and sex at national level

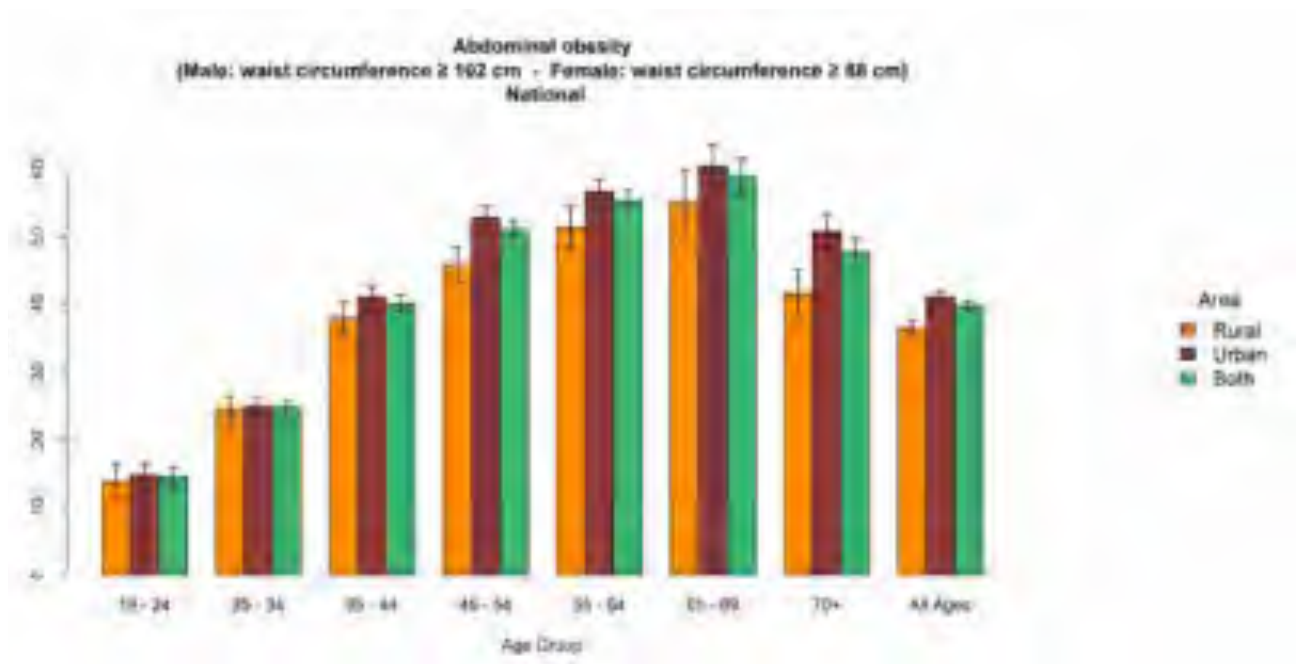


Figure 4.1.11. Prevalence of abdominal obesity based on waist circumference by age and area of residency at national level

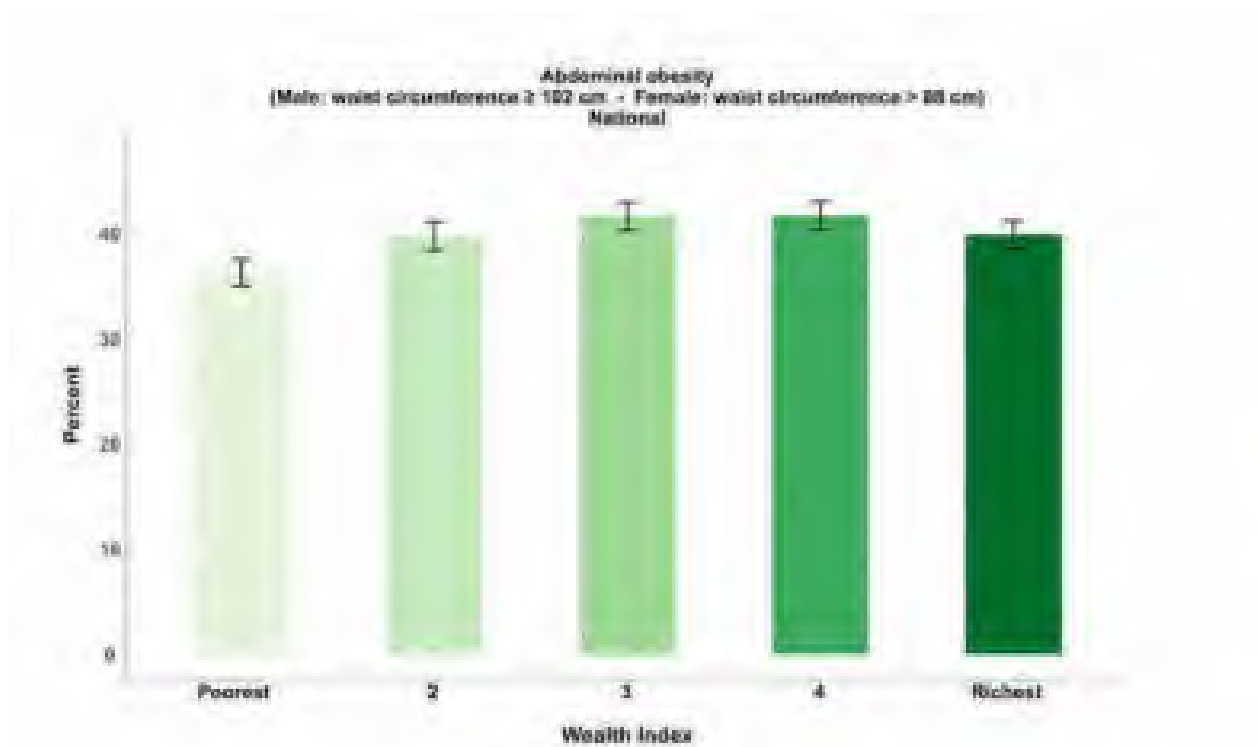


Figure 4.1.12. Prevalence of abdominal obesity based on waist circumference by wealth index quantiles at national level

Provincial distribution of Abdominal obesity (%)
(Male: waist circumference ≥ 102 cm - Female: waist circumference ≥ 88 cm)

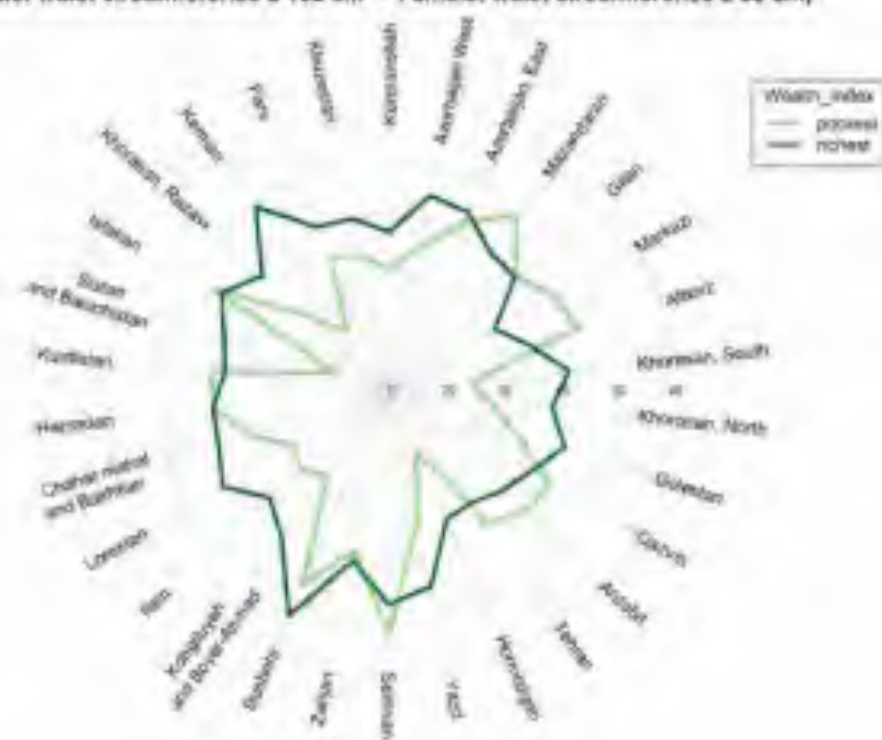


Figure 4.1.13. Provincial distribution of prevalence of abdominal obesity based on waist circumference by wealth index

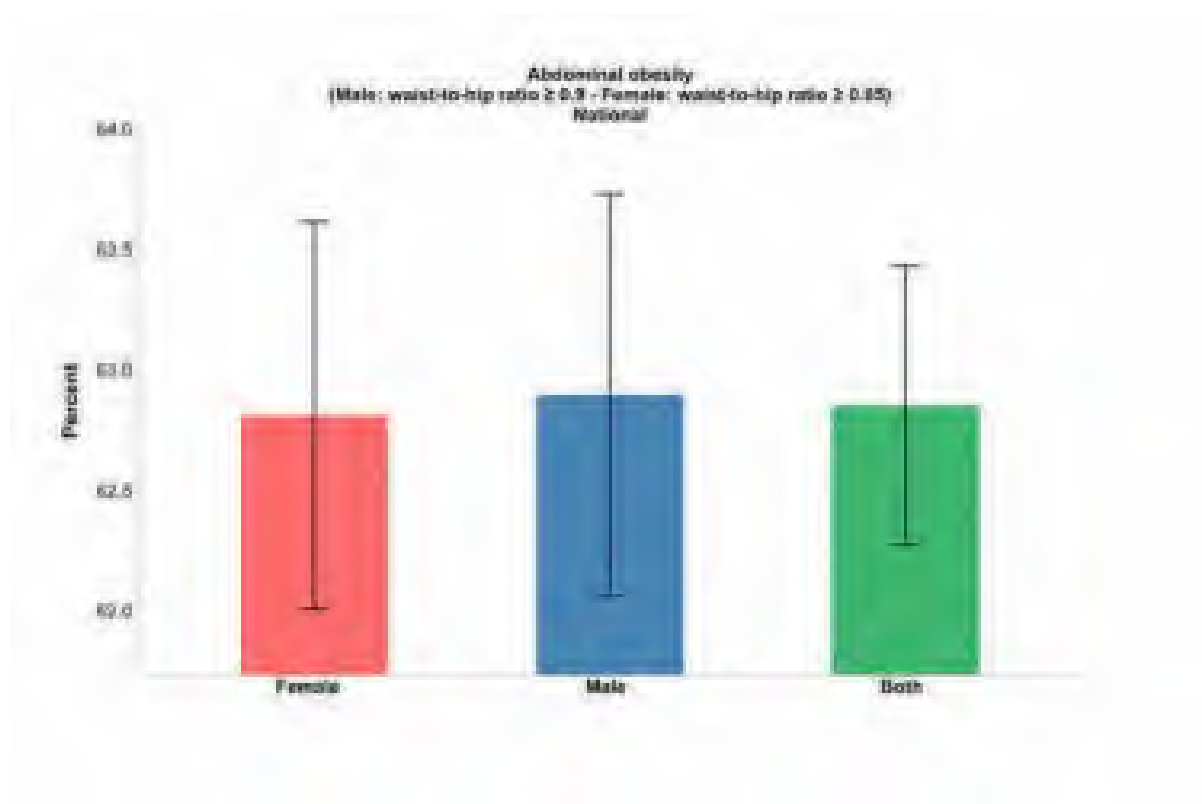


Figure 4.1.14. Prevalence of abdominal obesity based on waist-to-hip ratio by sex at national level

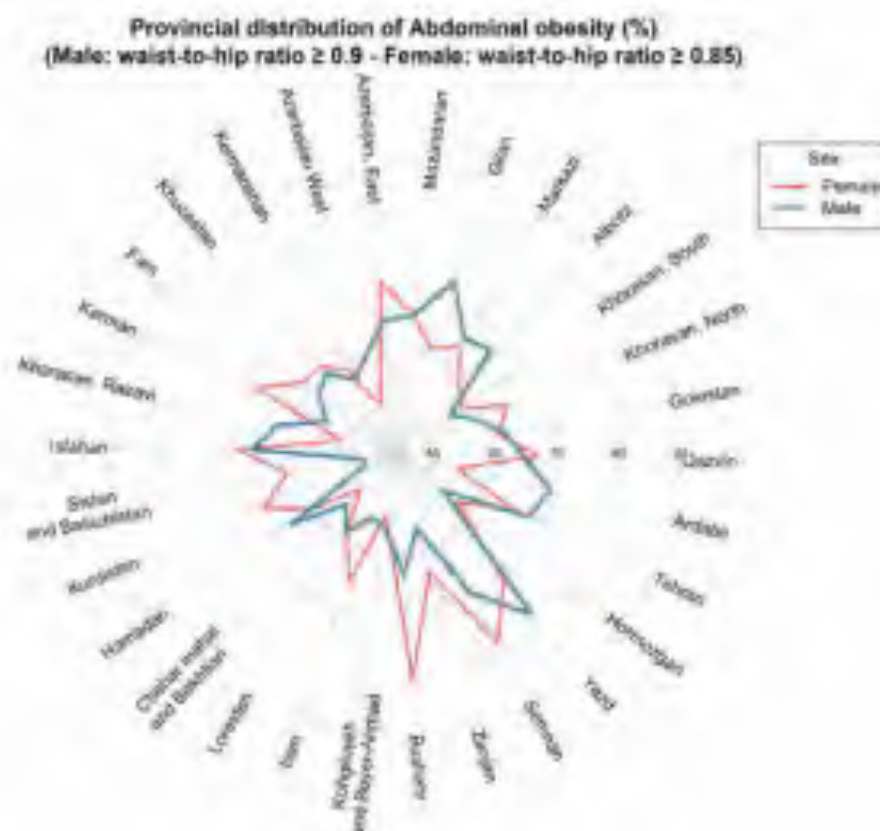


Figure 4.1.15. Provincial distribution of prevalence of abdominal obesity based on waist-to-hip ratio by sex

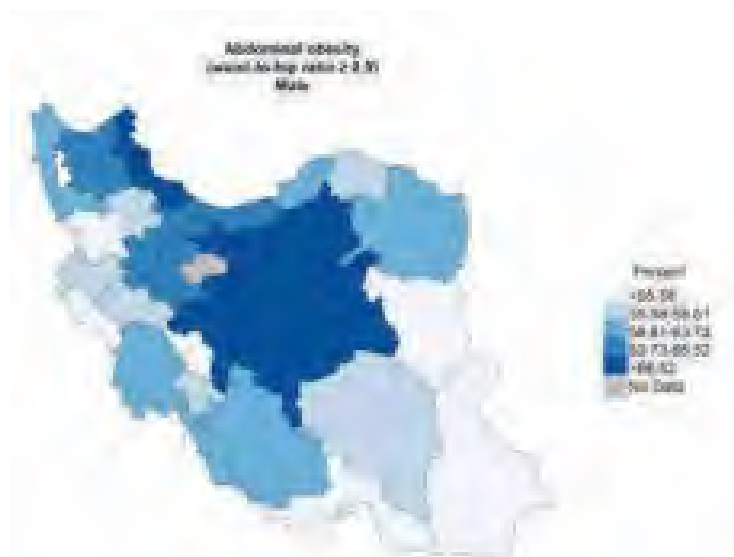


Figure 4.1.16. Geographical distribution of prevalence of abdominal obesity based on waist-to-hip ratio in males

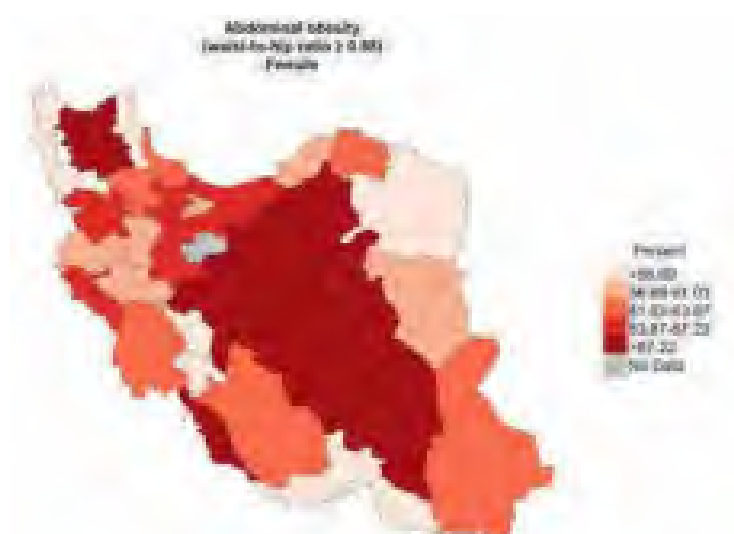


Figure 4.1.17. Geographical distribution of prevalence of abdominal obesity based on waist-to-hip ratio in females

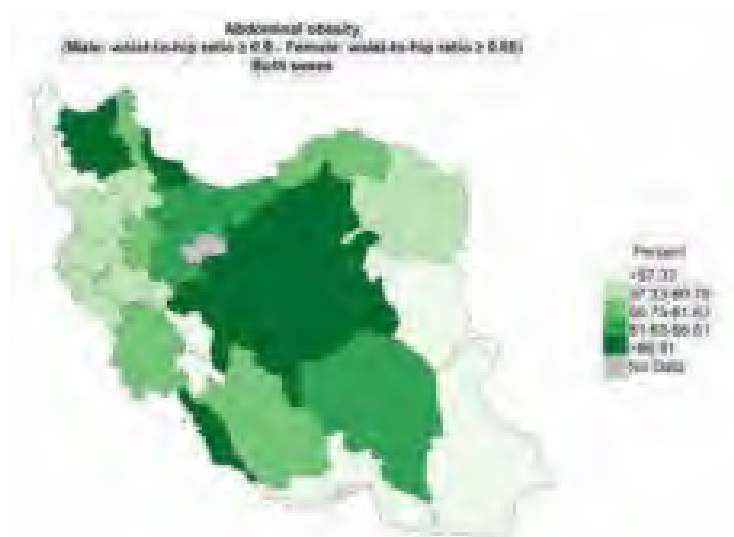


Figure 4.1.18. Geographical distribution of prevalence of abdominal obesity based on waist-to-hip ratio in both sexes

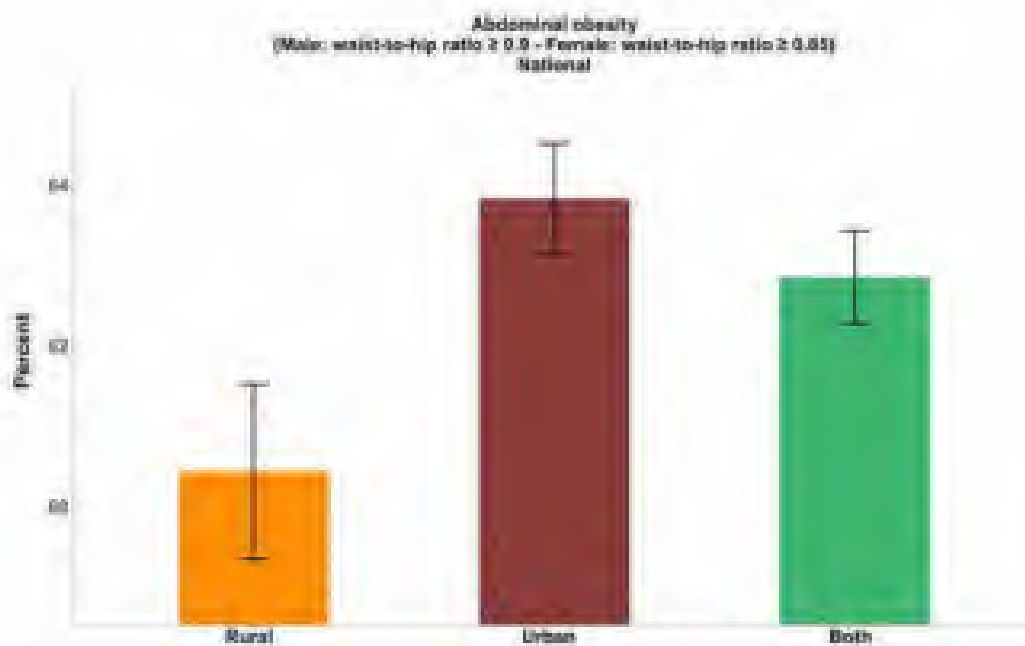


Figure 4.1.19. Prevalence of abdominal obesity based on waist-to-hip ratio by area of residency at national level

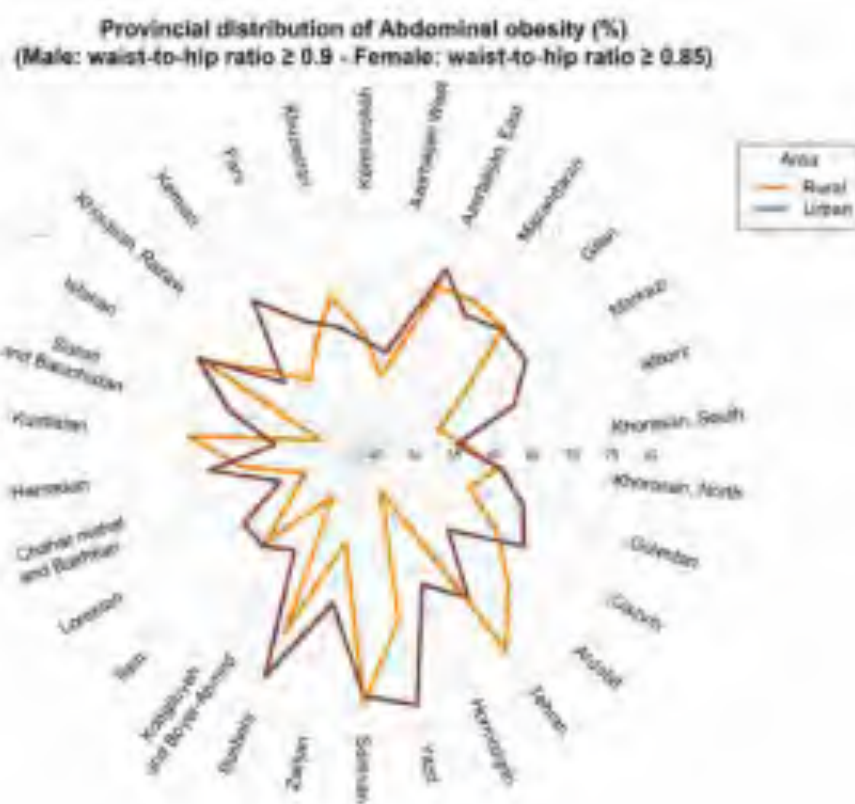


Figure 4.1.20. Provincial distribution of prevalence of abdominal obesity based on waist-to-hip ratio by area of residency

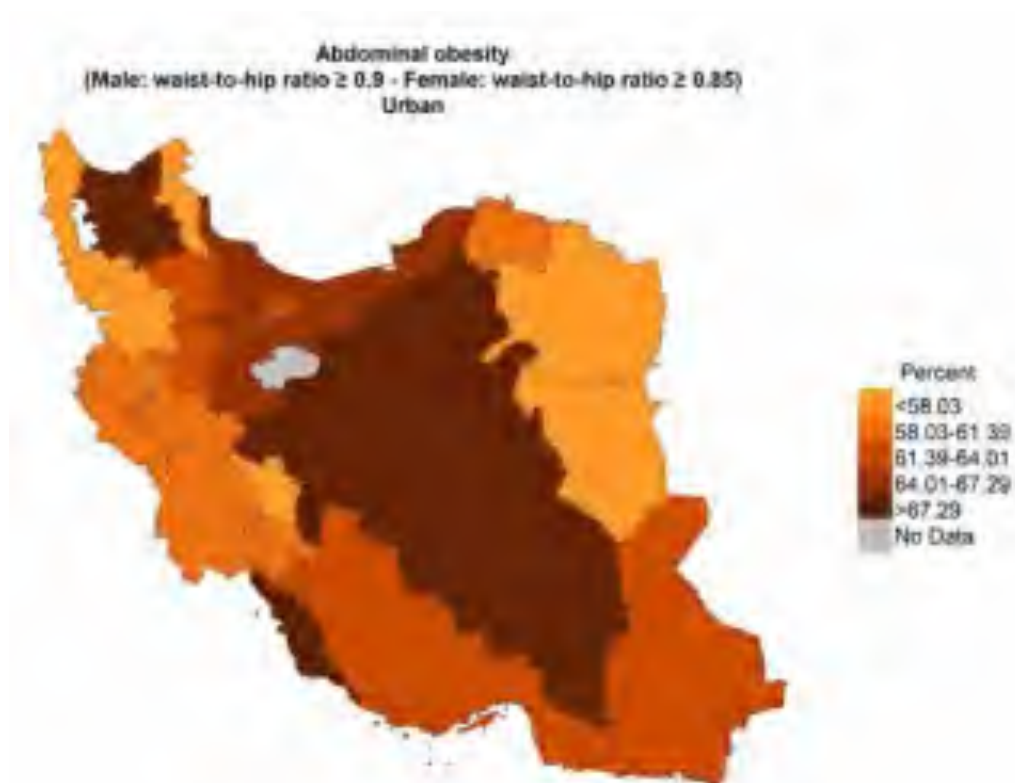


Figure 4.1.21. Geographical distribution of prevalence of abdominal obesity based on waist-to-hip ratio in urban area of residency

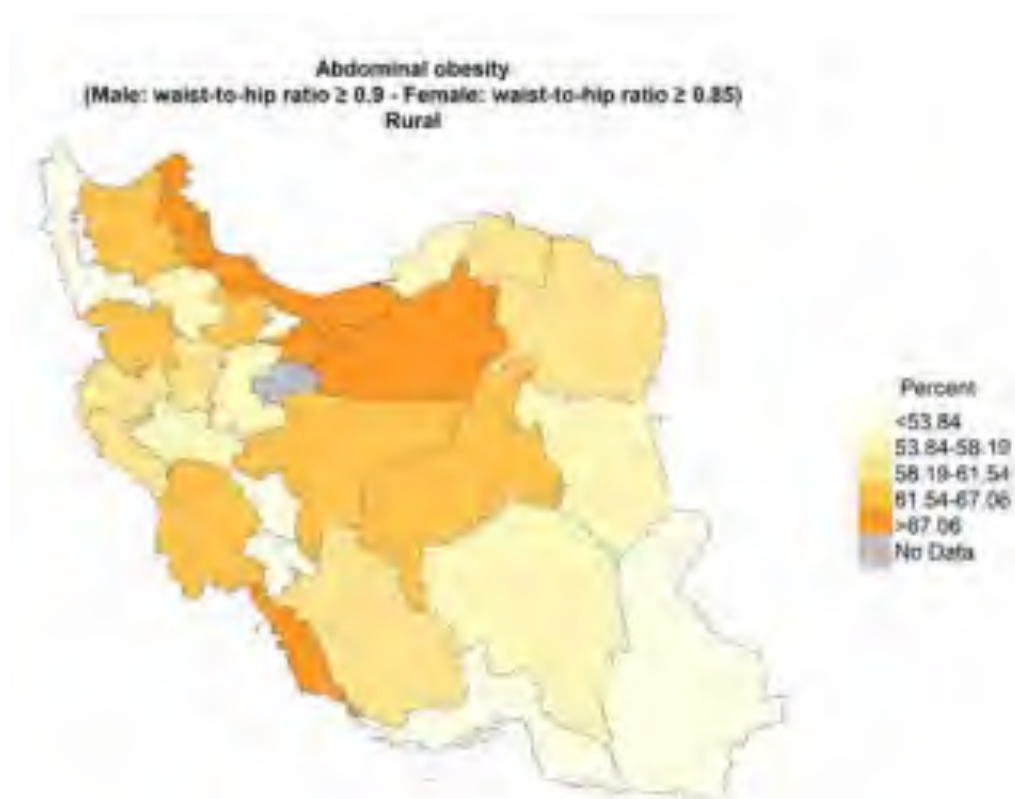


Figure 4.1.22. Geographical distribution of prevalence of abdominal obesity based on waist-to-hip ratio in rural area of residency

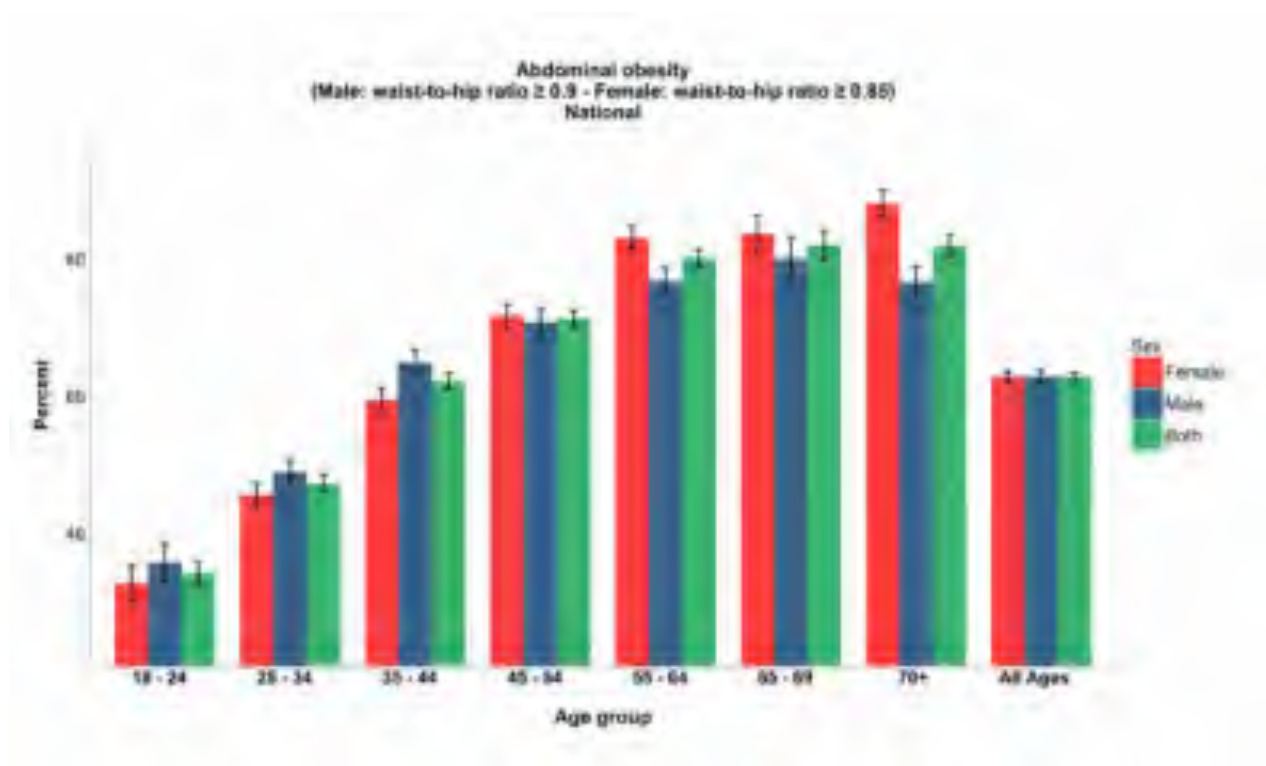


Figure 4.1.23. Prevalence of abdominal obesity based on waist-to-hip ratio by age and sex at national level

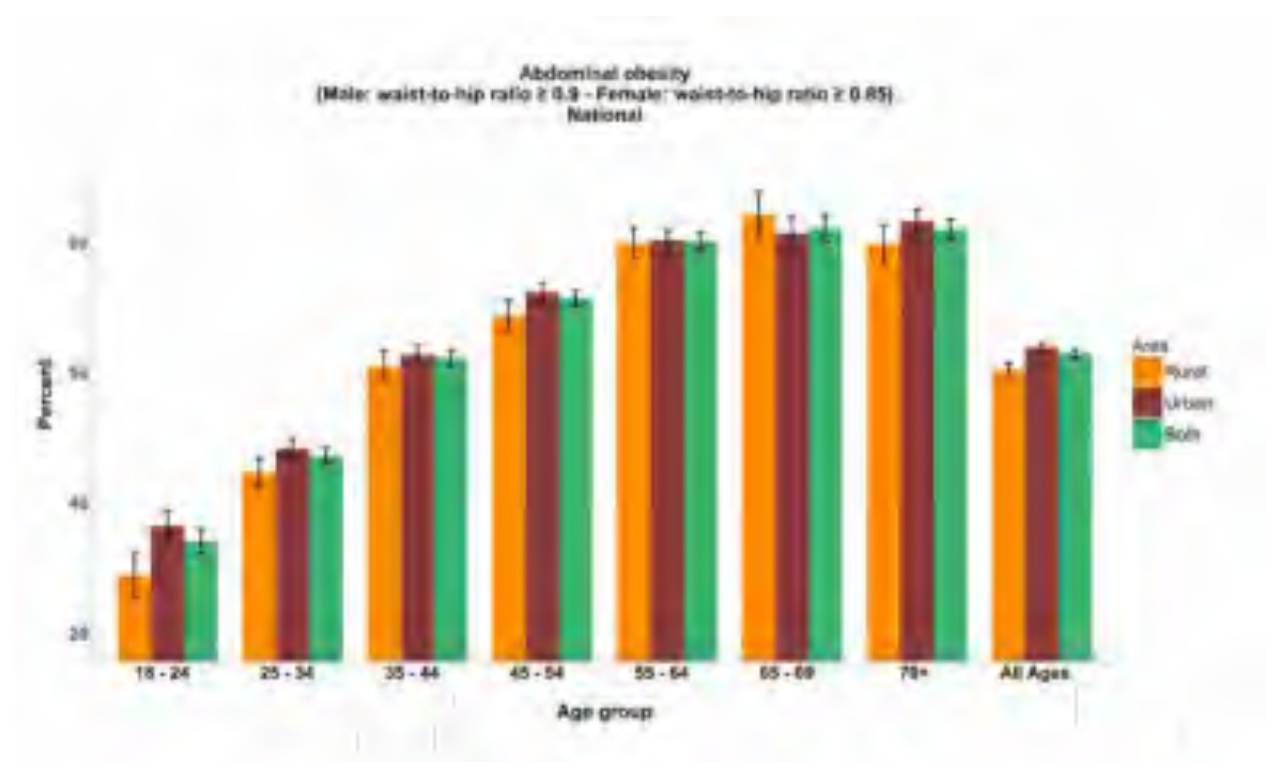


Figure 4.1.24. Prevalence of abdominal obesity based on waist-to-hip ratio by age and area of residency at national level

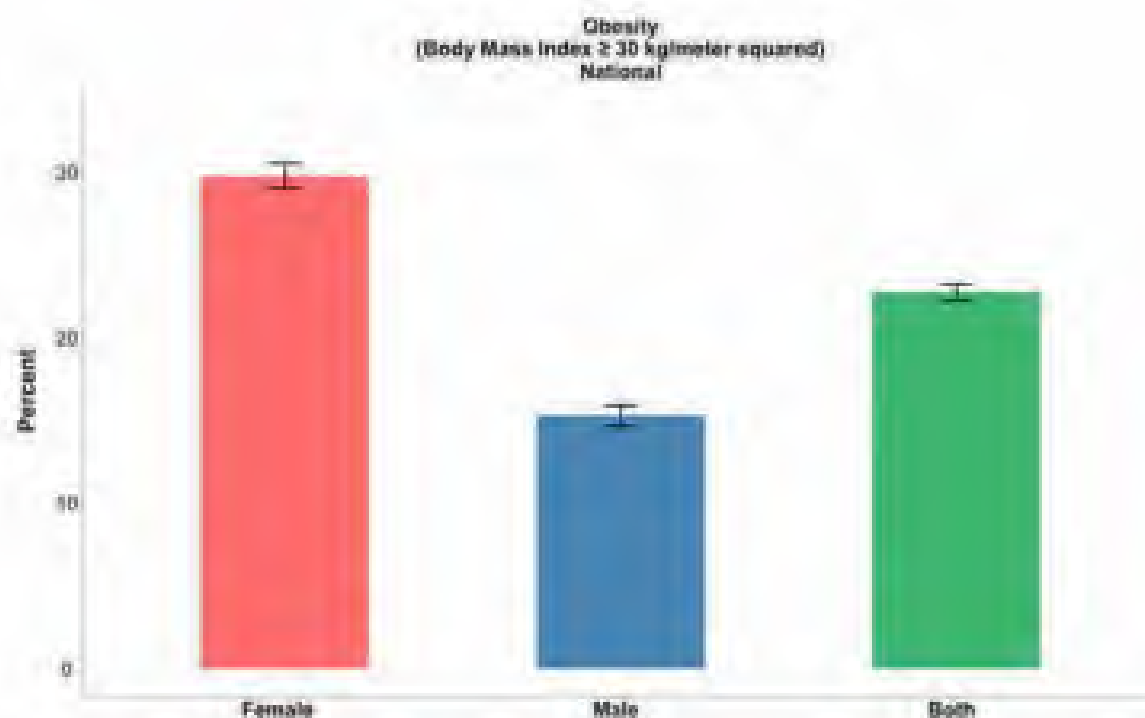


Figure 4.1.27. Prevalence of obesity by sex

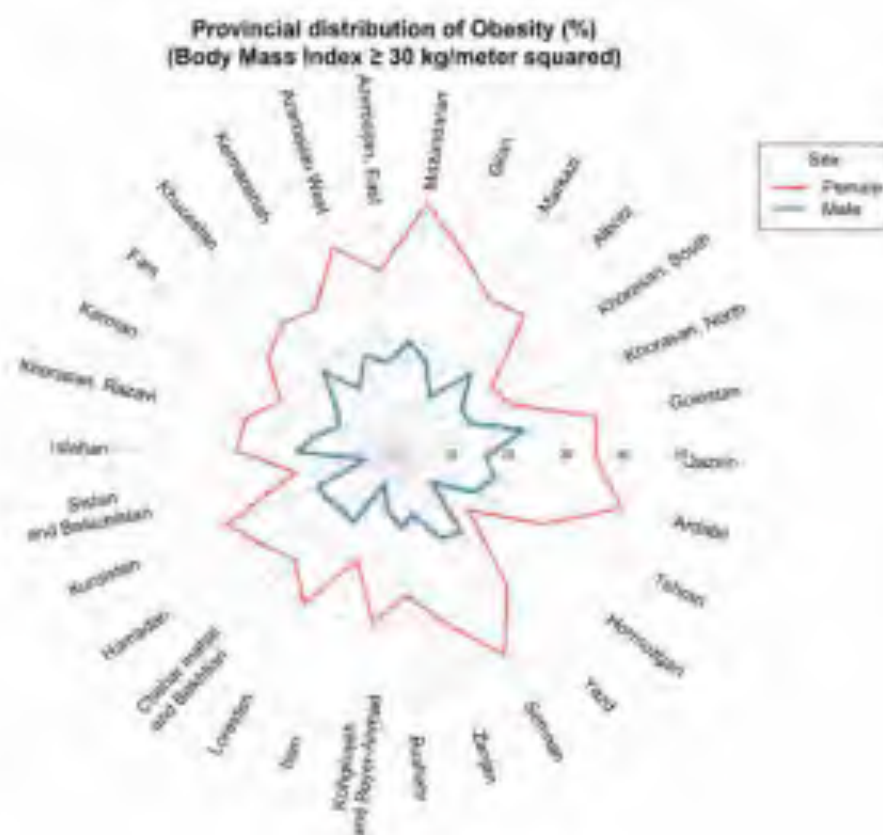


Figure 4.1.28. Provincial distribution of prevalence of obesity by sex at national level

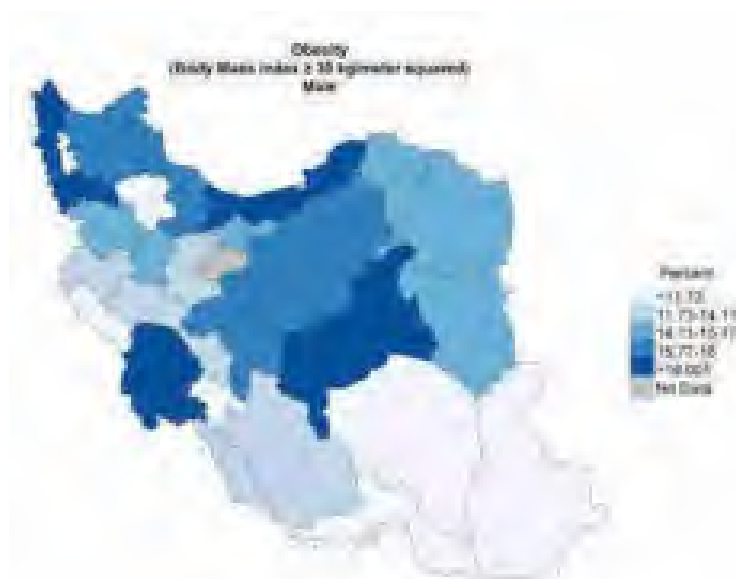


Figure 4.1.29. Geographical distribution of prevalence of obesity in males

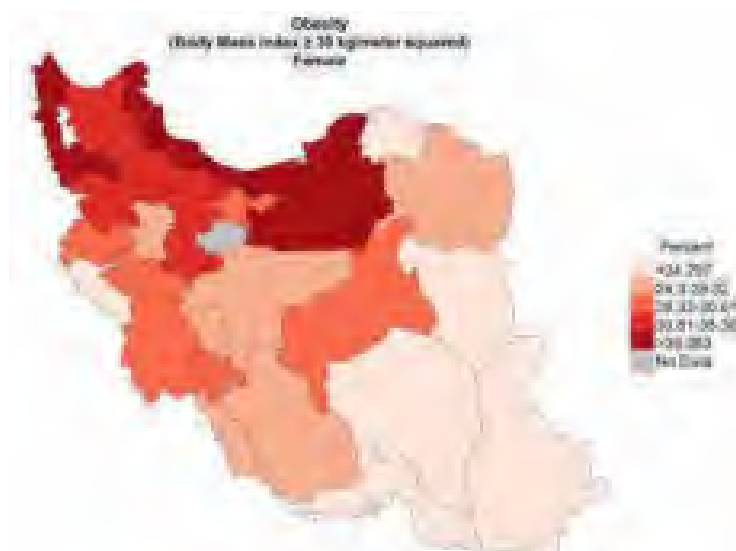


Figure 4.1.30. Geographical distribution of prevalence of obesity in females

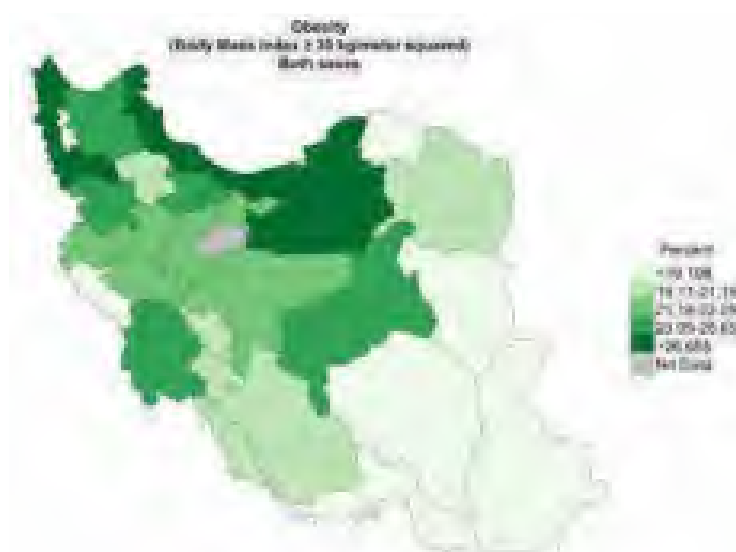


Figure 4.1.31. Geographical distribution of prevalence of obesity in both sexes

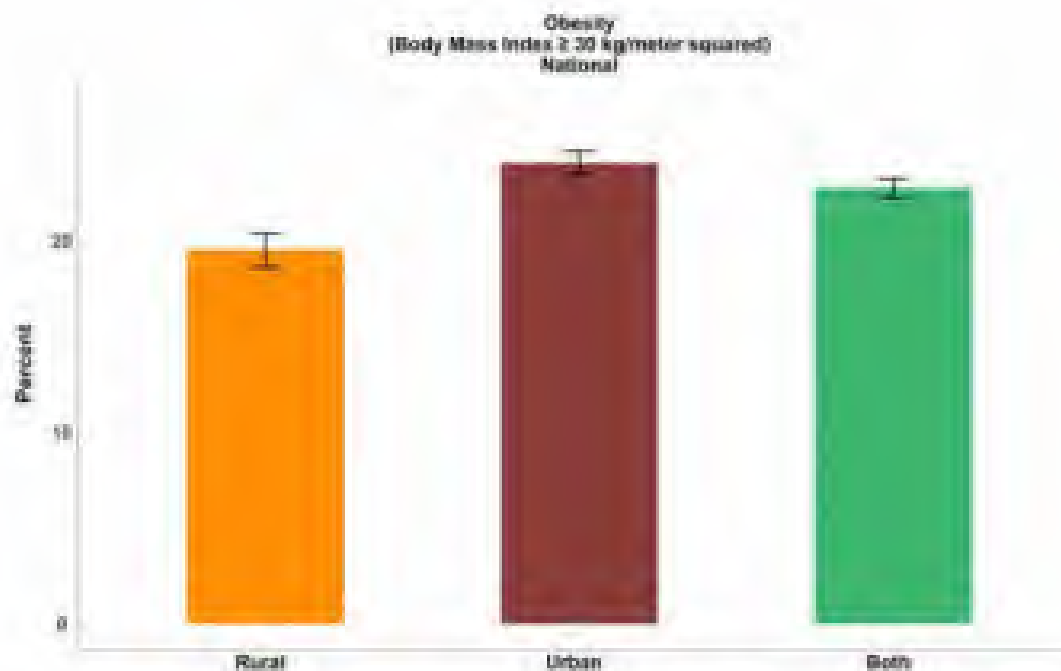


Figure 4.1.32. Prevalence of obesity by area of residency

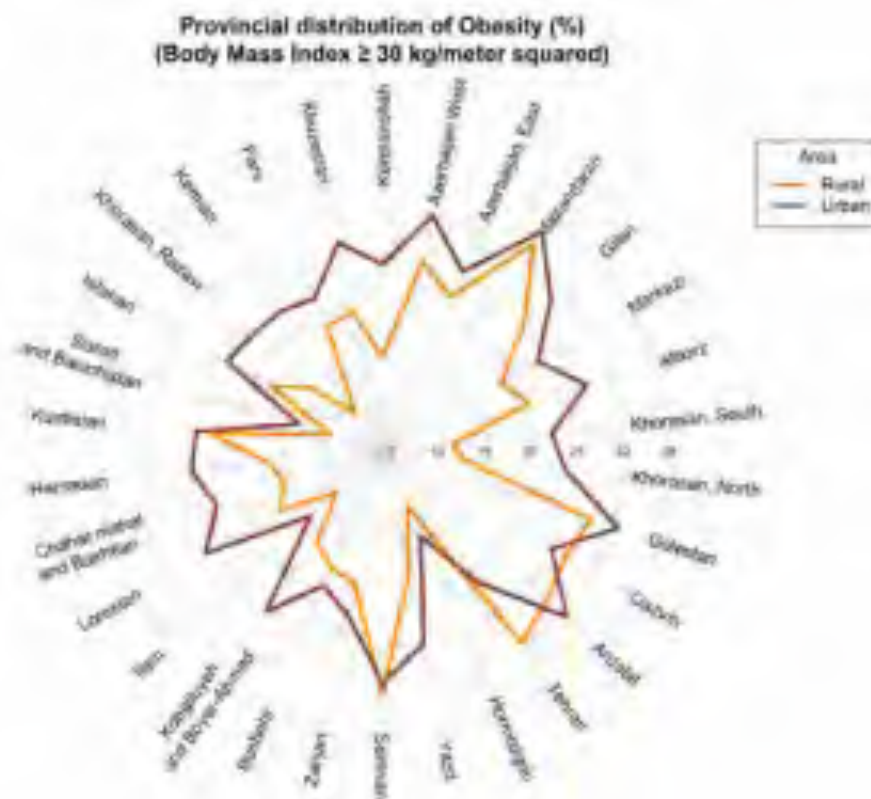


Figure 4.1.33. Provincial distribution of prevalence of obesity by area of residency at national level

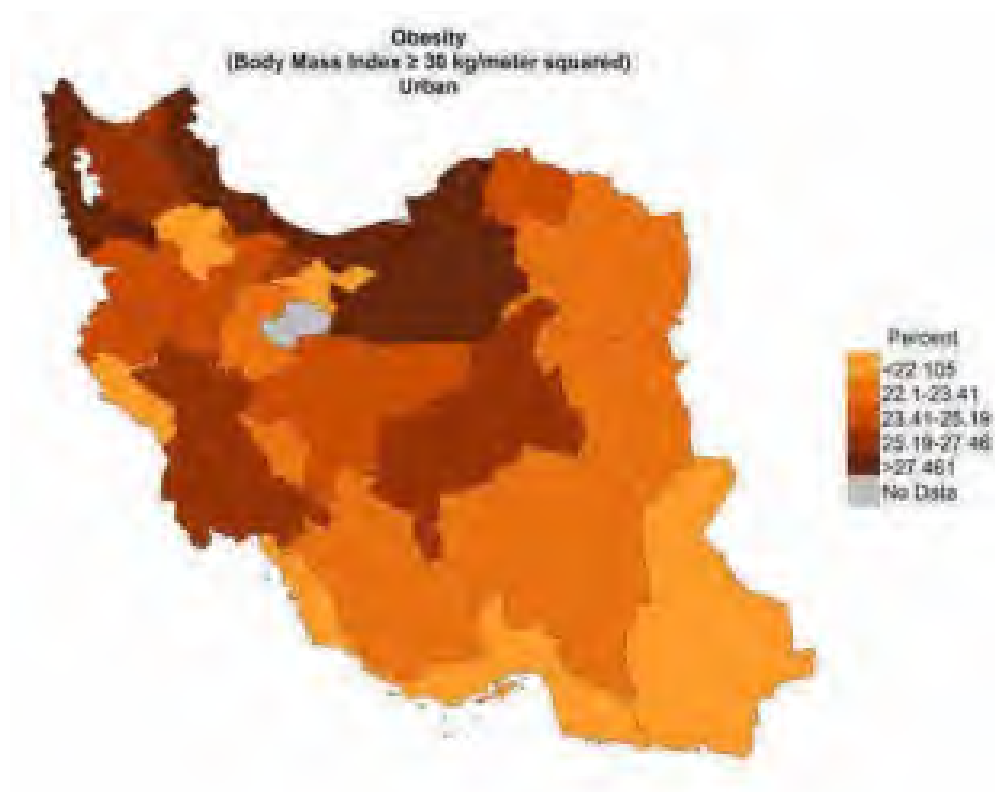


Figure 4.1.34. Geographical distribution of prevalence of obesity in urban area of residency

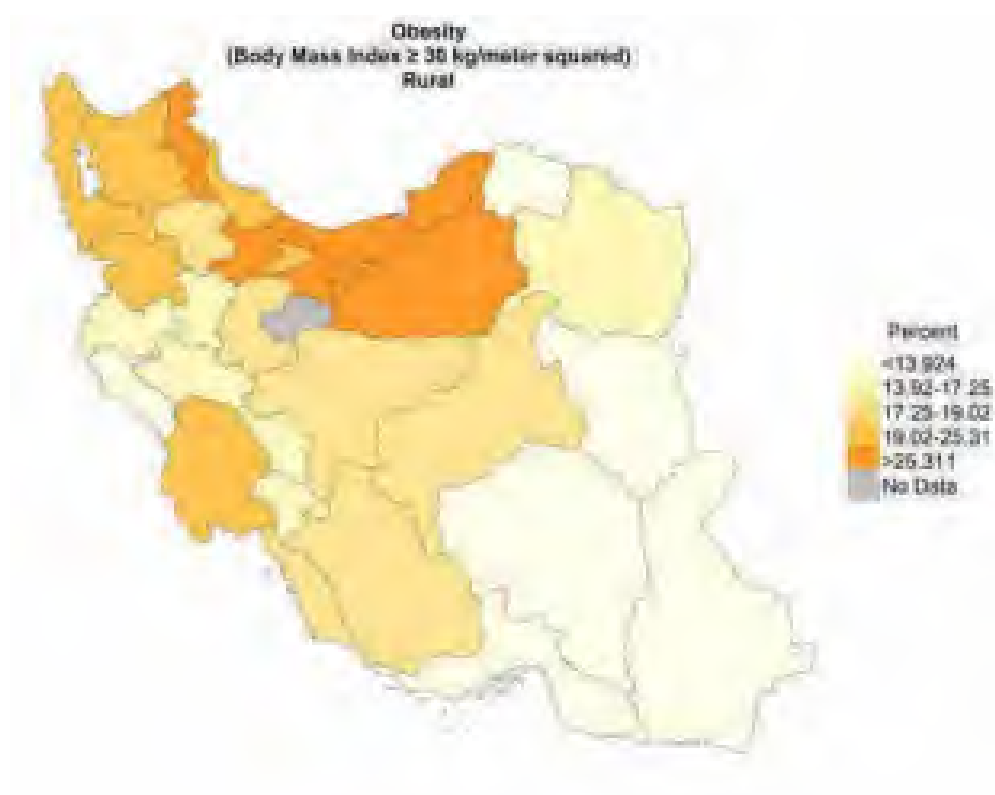


Figure 4.1.35. Geographical distribution of prevalence of obesity in rural area of residency

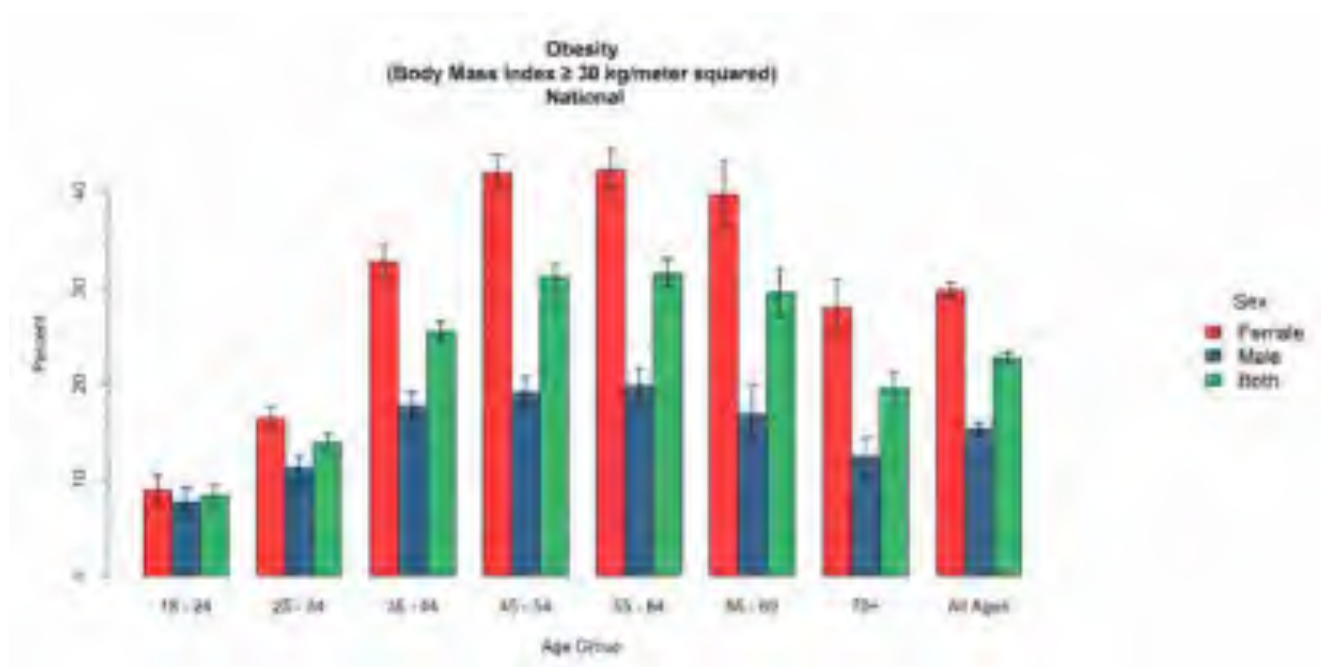


Figure 4.1.36. Prevalence of obesity by age and sex

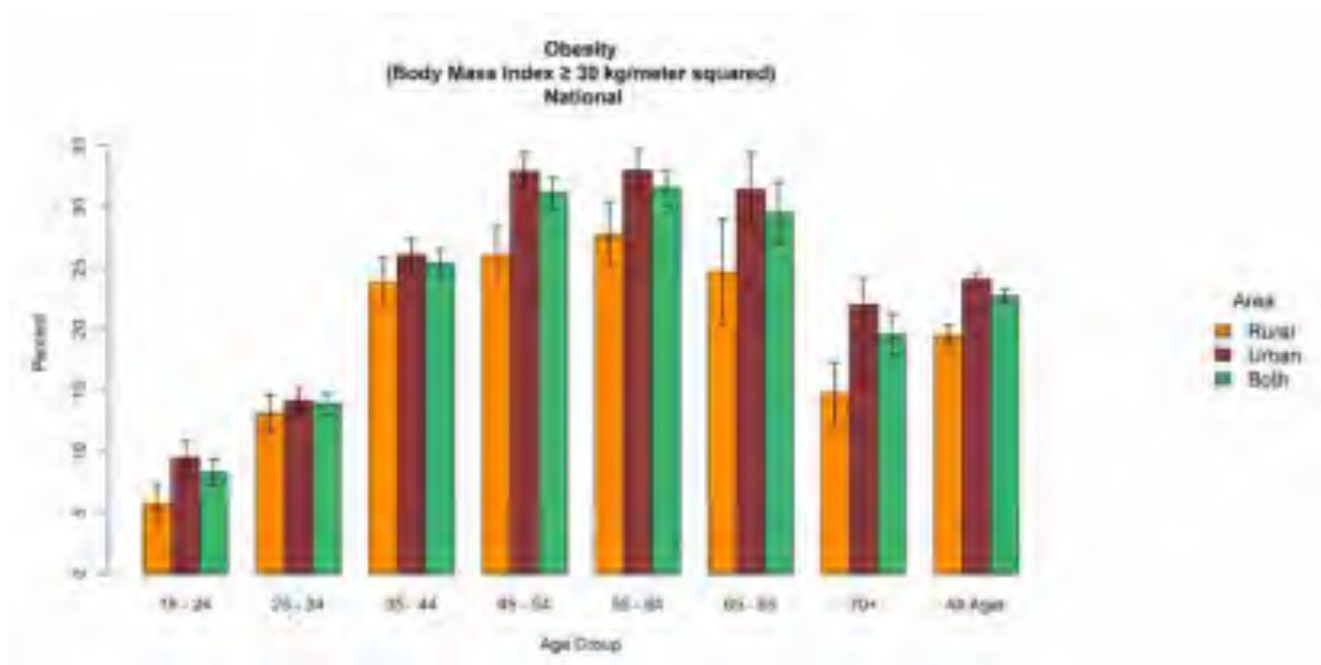


Figure 4.1.37. Prevalence of obesity by age and area of residency at national level

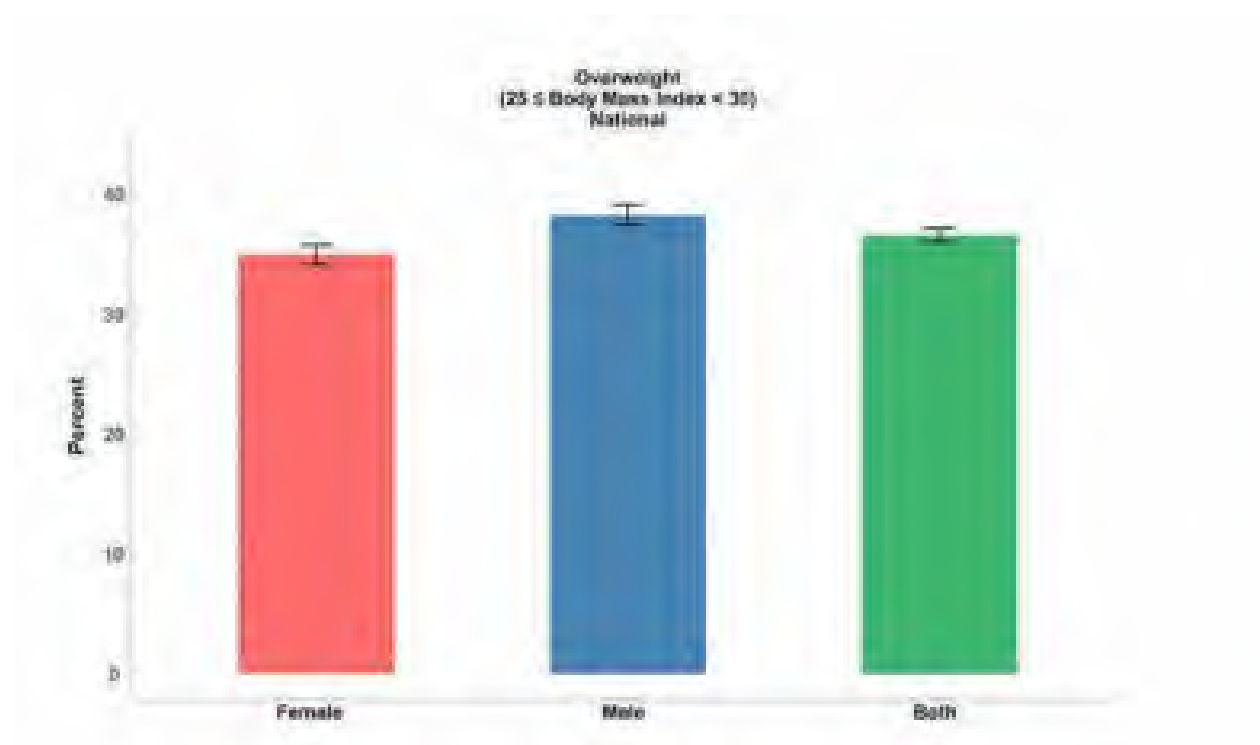


Figure 4.1.40. Prevalence of overweight by sex at national level

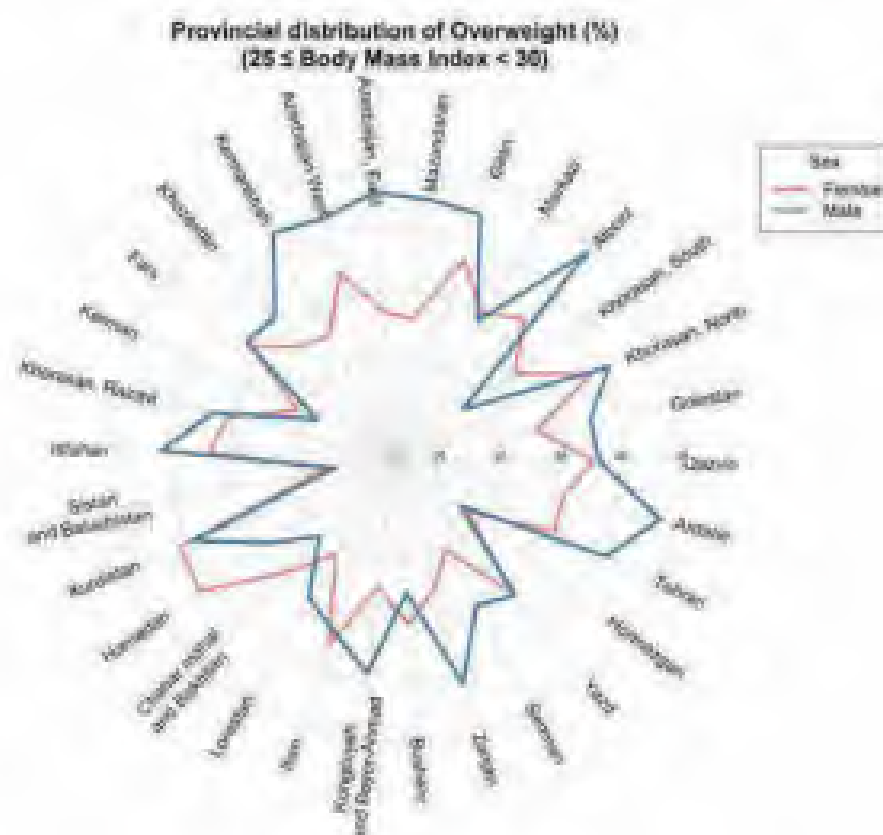


Figure 4.1.41. Provincial distribution of prevalence of overweight by sex

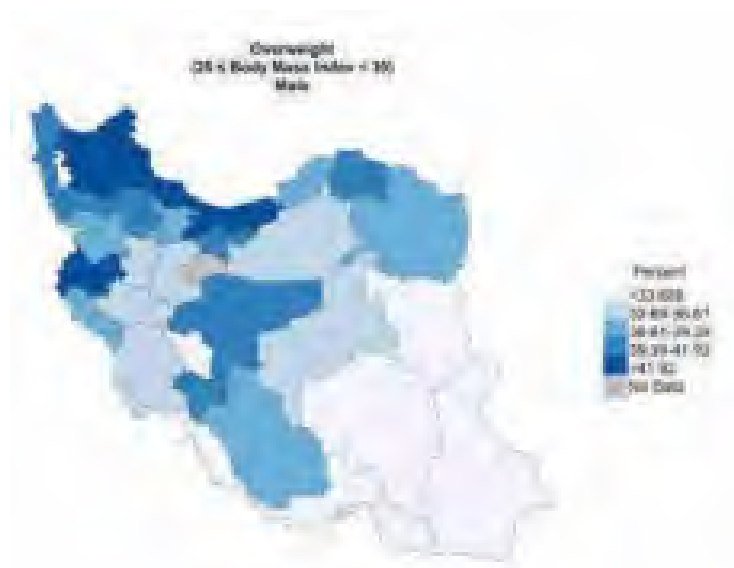


Figure 4.1.42. Geographical distribution of prevalence of overweight in males

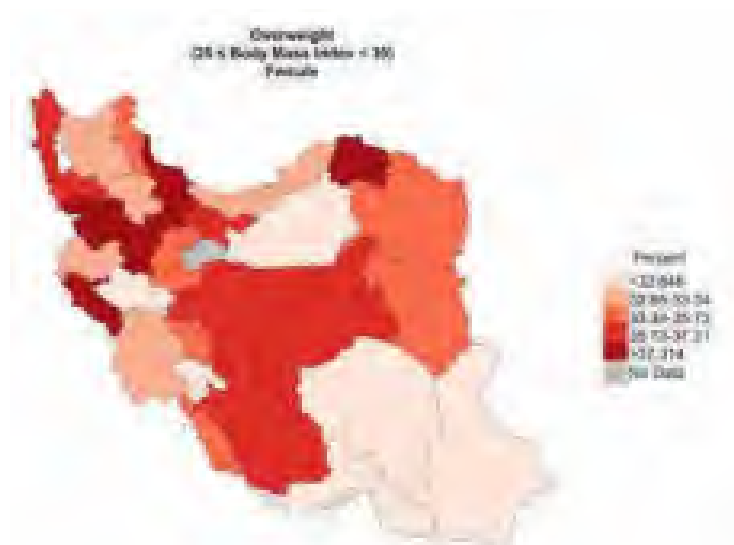


Figure 4.1.43. Geographical distribution of prevalence of overweight in females

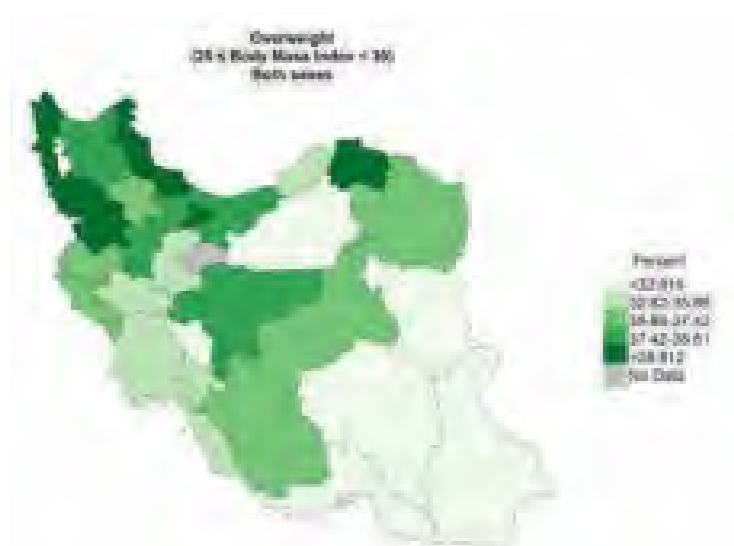


Figure 4.1.44. Geographical distribution of prevalence of overweight in both sexes

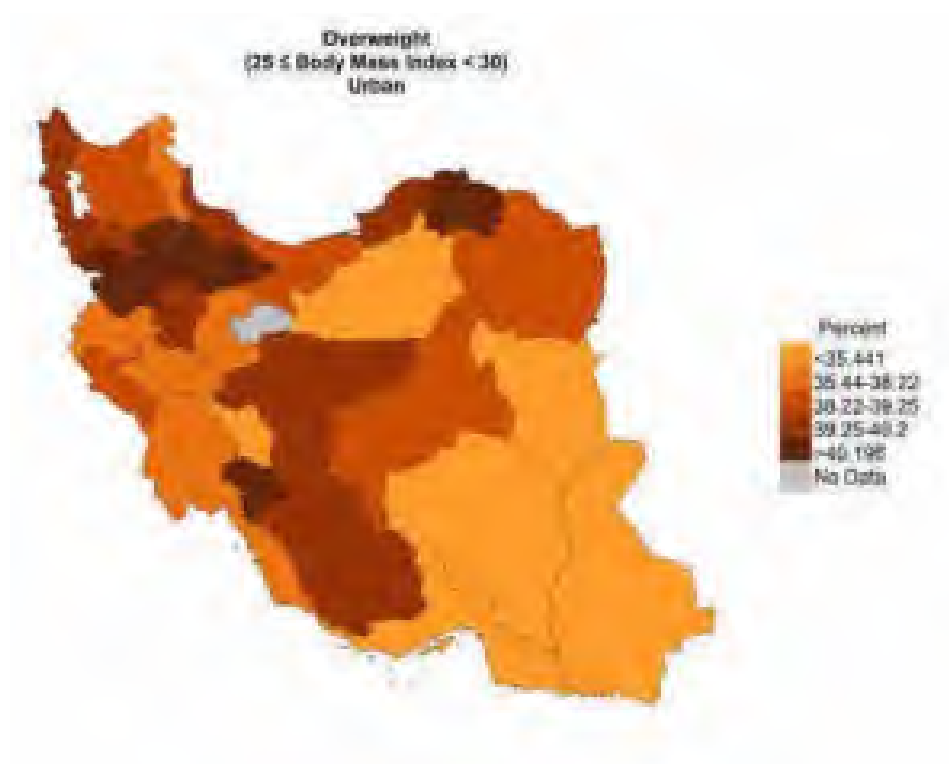


Figure 4.1.47. Geographical distribution of prevalence of overweight in urban area of residency

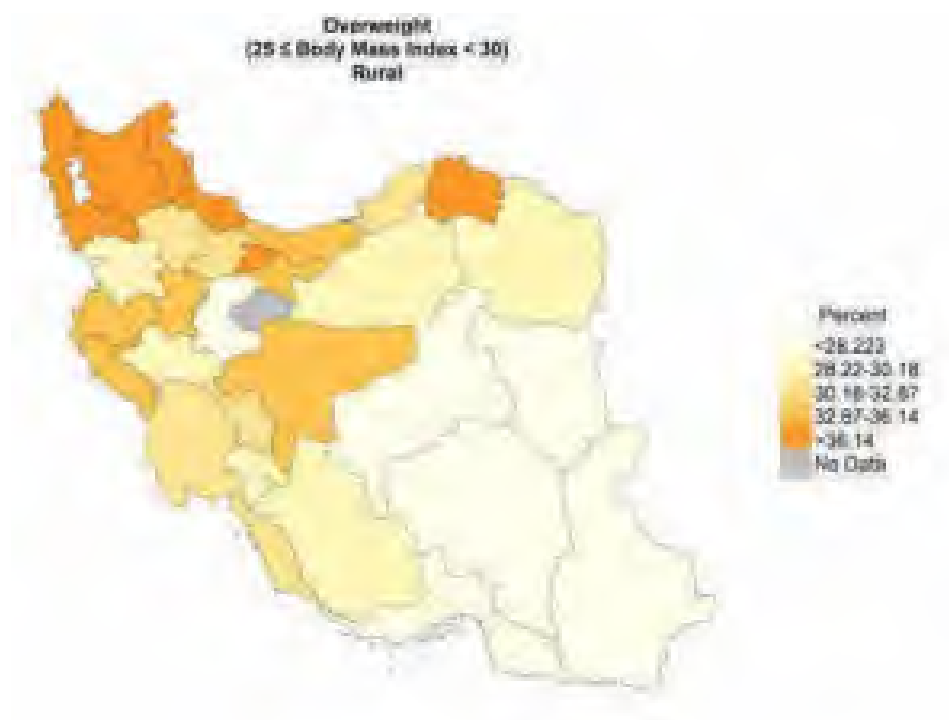


Figure 4.1.48. Geographical distribution of prevalence of overweight in rural area of residency

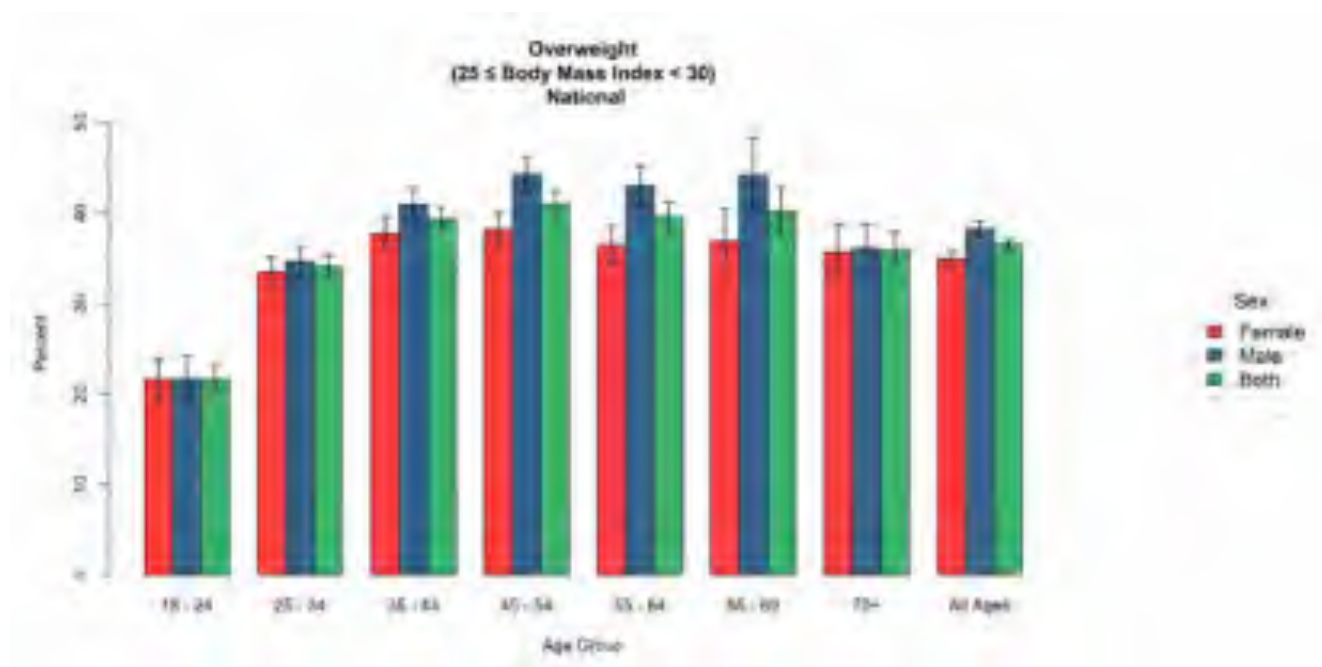


Figure 4.1.49. Prevalence of overweight by age and sex at national level

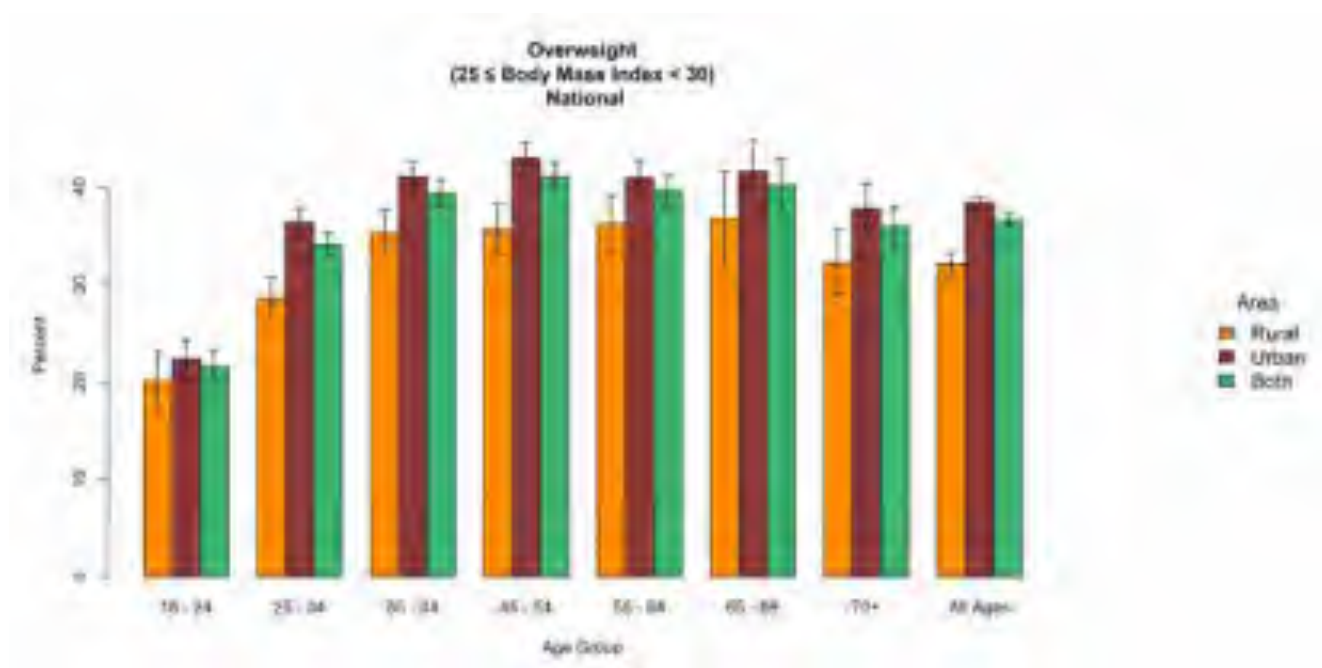


Figure 4.1.50. Prevalence of overweight by age and area of residency at national level

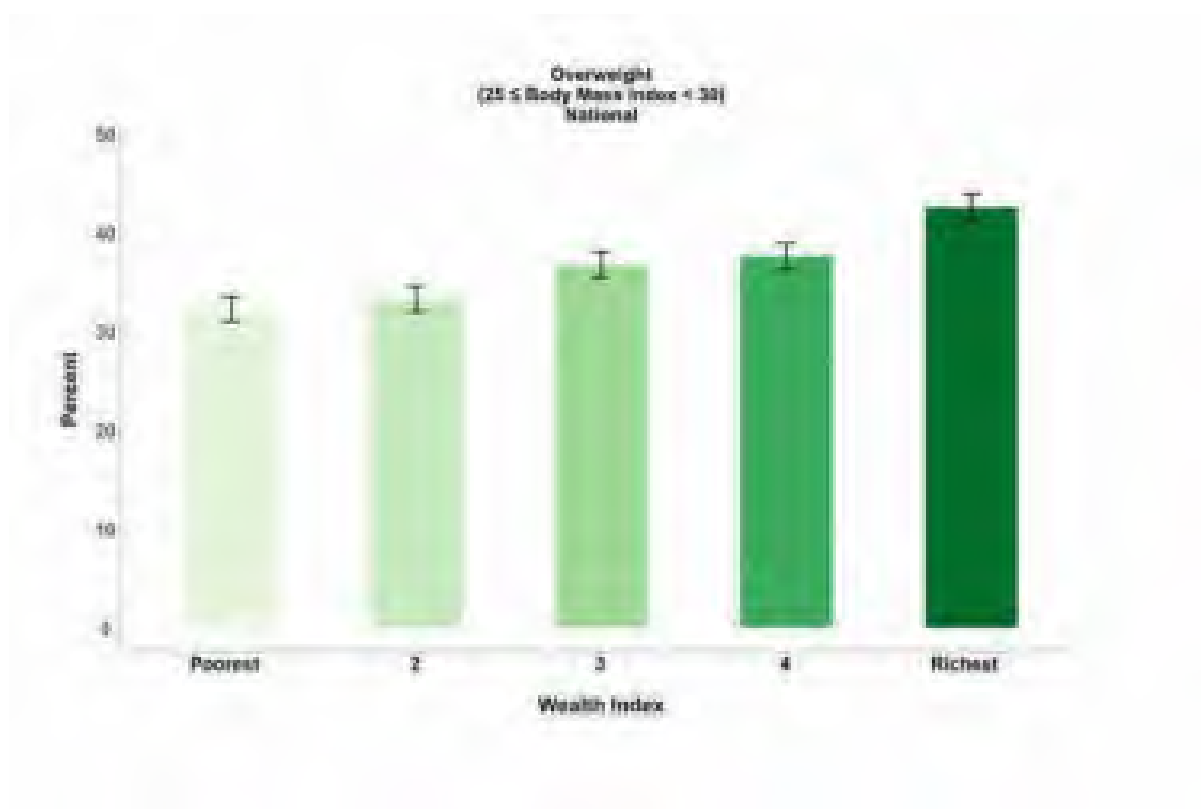


Figure 4.1.51. Prevalence of overweight by wealth index quantiles at national level

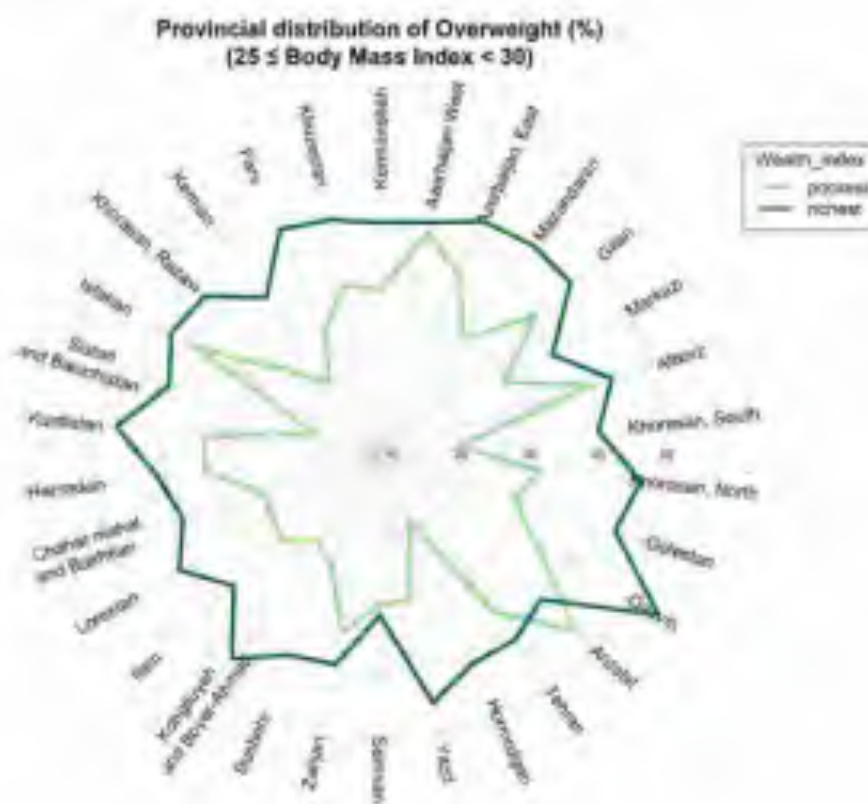


Figure 4.1.52. Provincial distribution of prevalence of overweight by wealth index

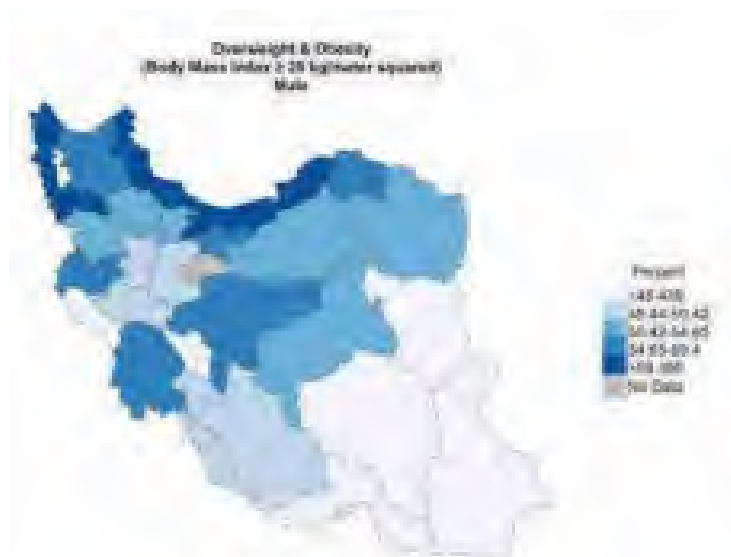


Figure 4.1.55. Geographical distribution of prevalence of overweight and obesity in males

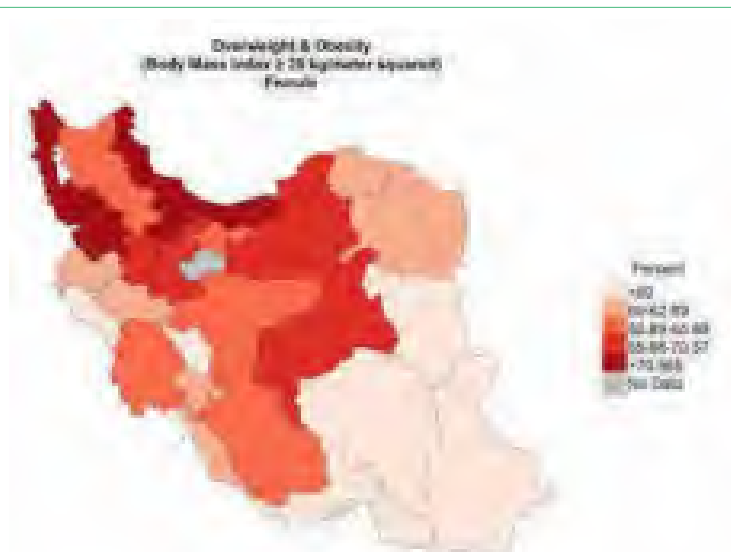


Figure 4.1.56. Geographical distribution of prevalence of overweight and obesity in females

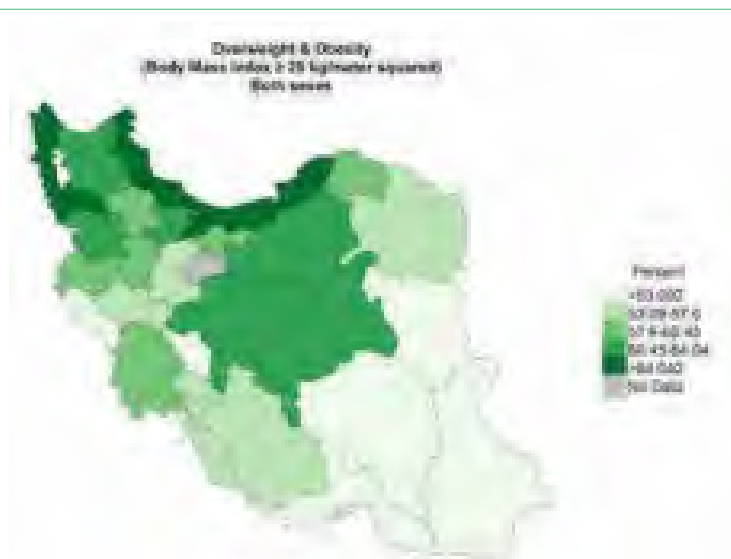


Figure 4.1.57. Geographical distribution of prevalence of overweight and obesity in both sexes

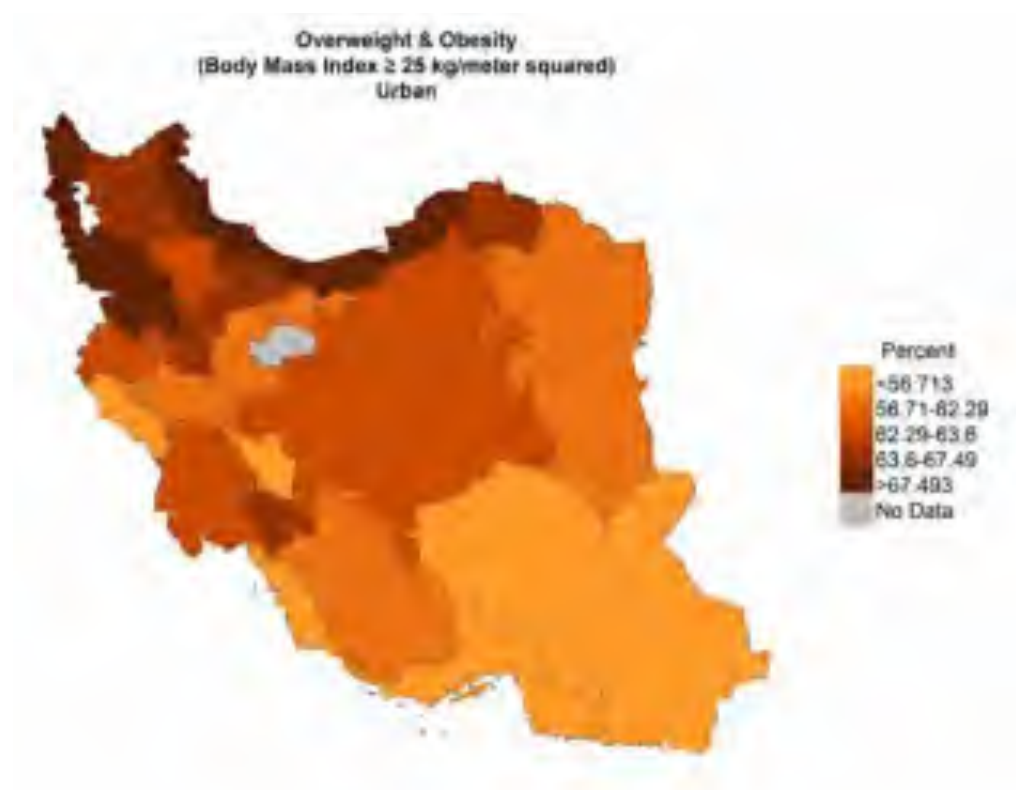


Figure 4.1.60. Geographical distribution of prevalence of overweight and obesity in urban area of residency

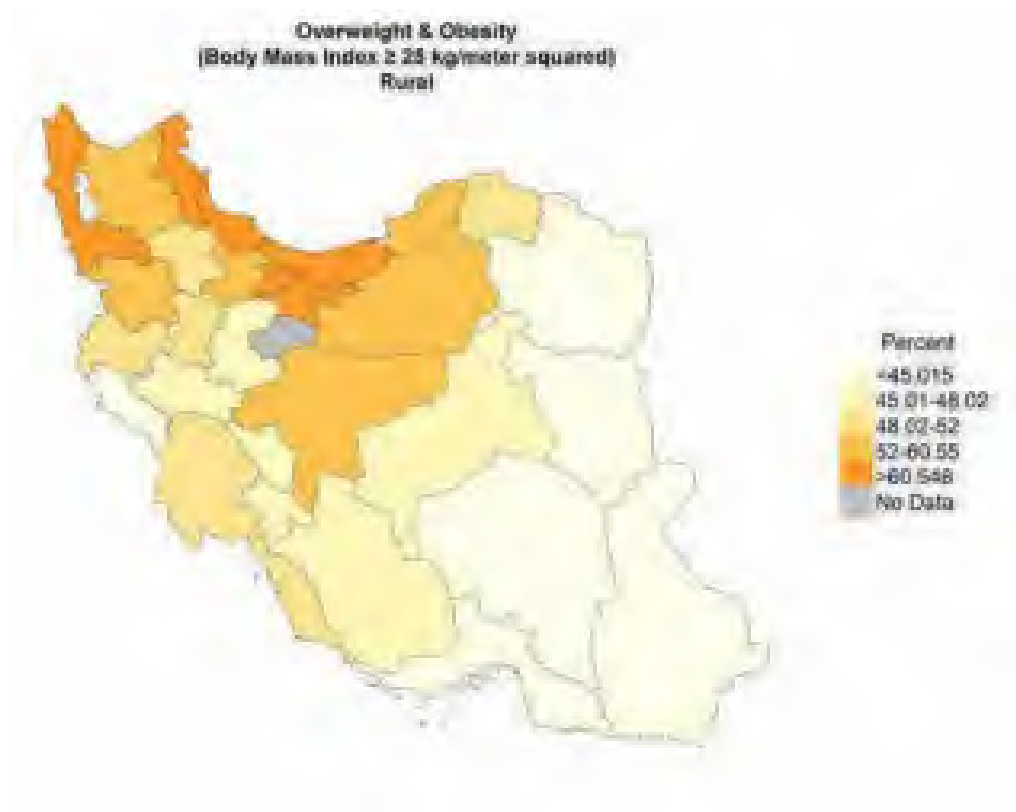


Figure 4.1.61. Geographical distribution of prevalence of overweight and obesity in rural area of residency

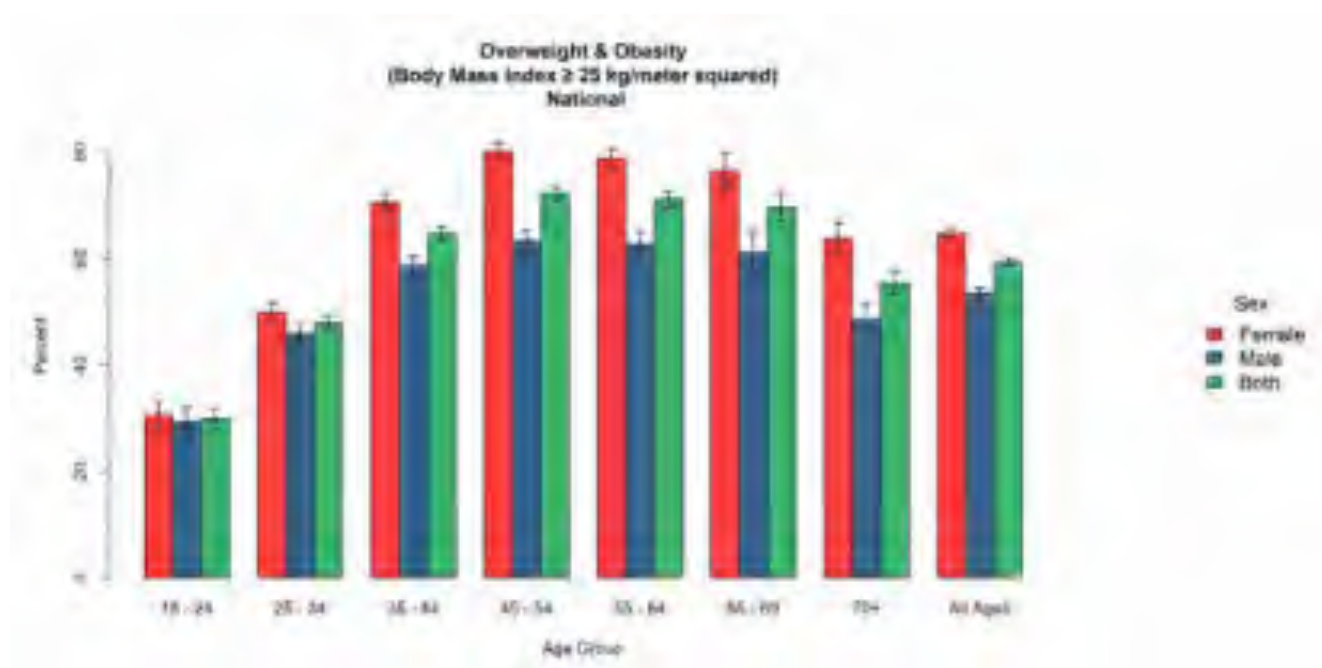


Figure 4.1.62. Prevalence of overweight and obesity by age and sex at national level

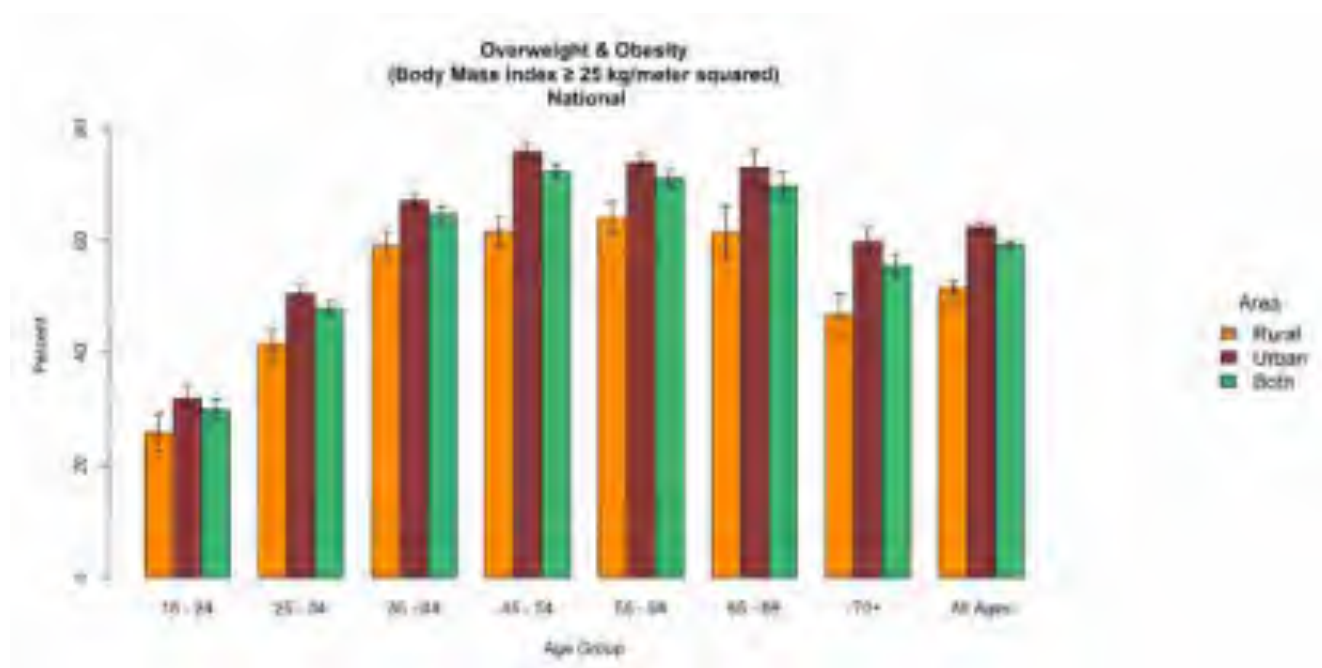


Figure 4.1.63. Prevalence of overweight and obesity by age and area of residency at national level

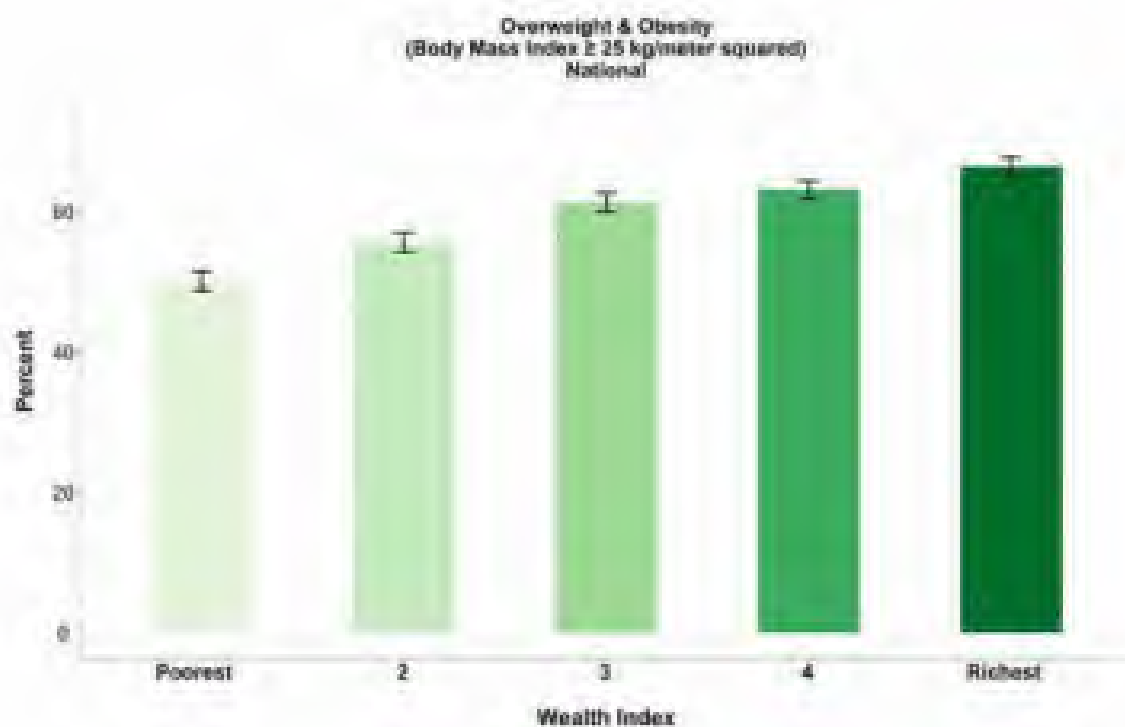


Figure 4.1.64. Prevalence of overweight and obesity by wealth index quantiles at national level



Figure 4.1.65. Provincial distribution of prevalence of overweight and obesity by wealth index

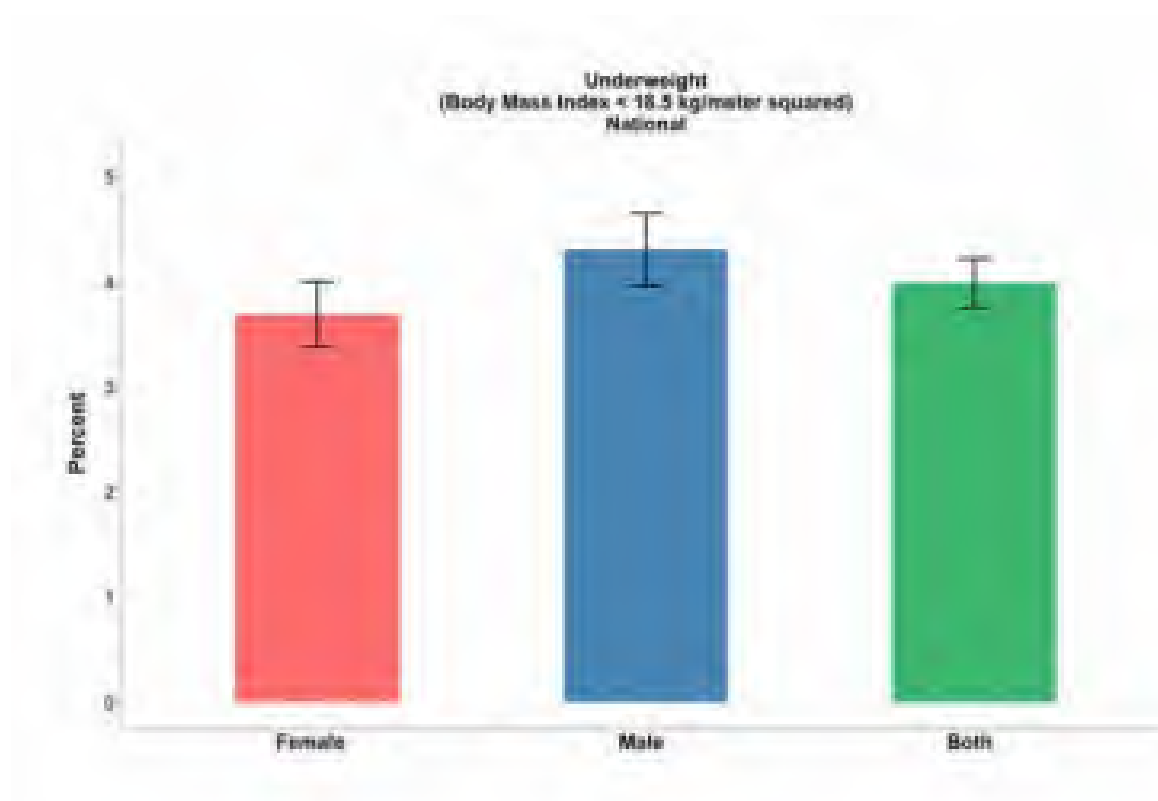


Figure 4.1.66. Prevalence of underweight by sex at national level

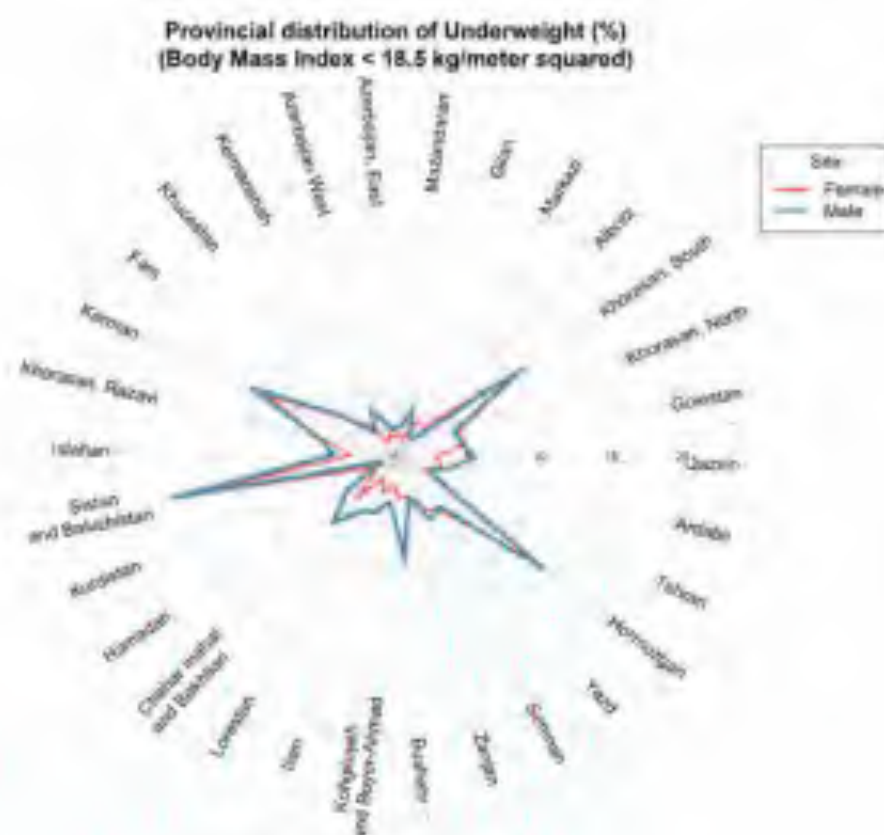


Figure 4.1.67. Provincial distribution of prevalence of underweight by sex

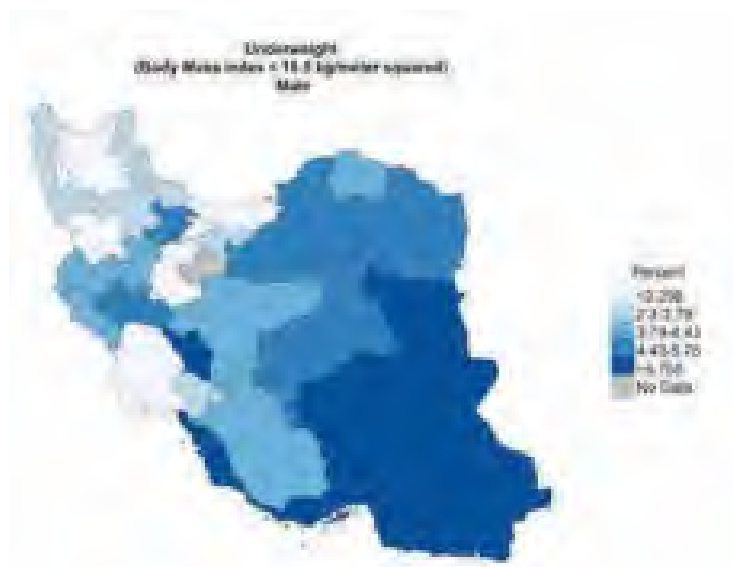


Figure 4.1.68. Geographical distribution of prevalence of underweight in males

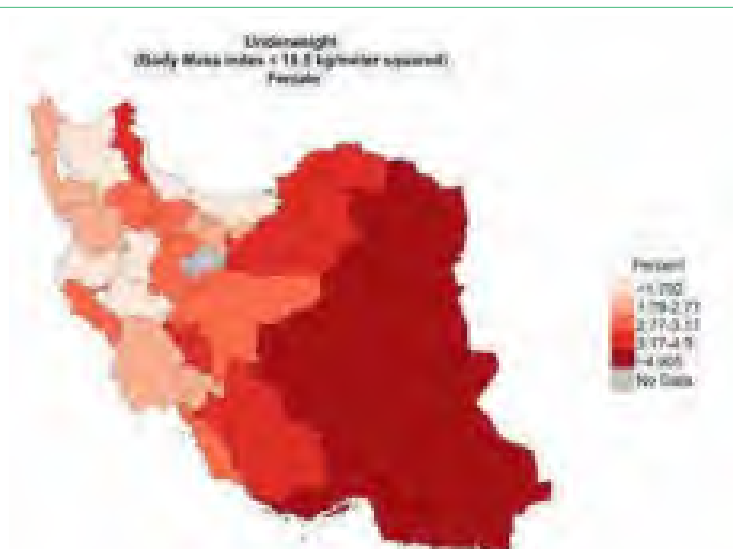


Figure 4.1.69. Geographical distribution of prevalence of underweight in females

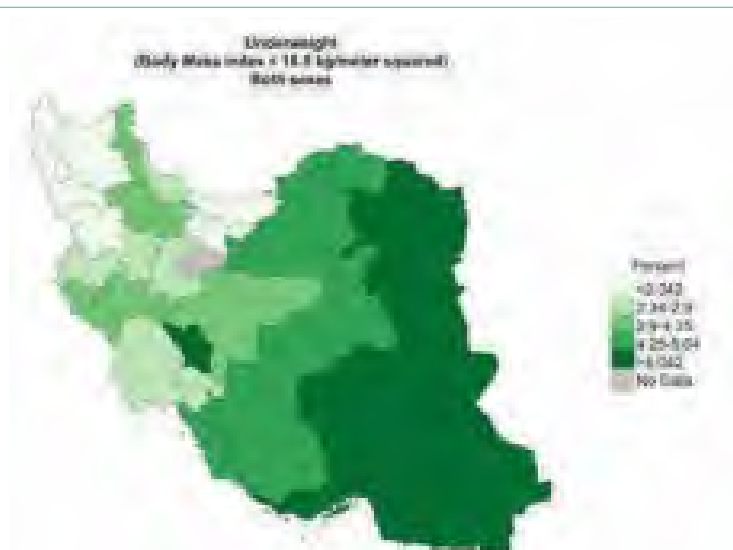


Figure 4.1.70. Geographical distribution of prevalence of underweight in both sexes

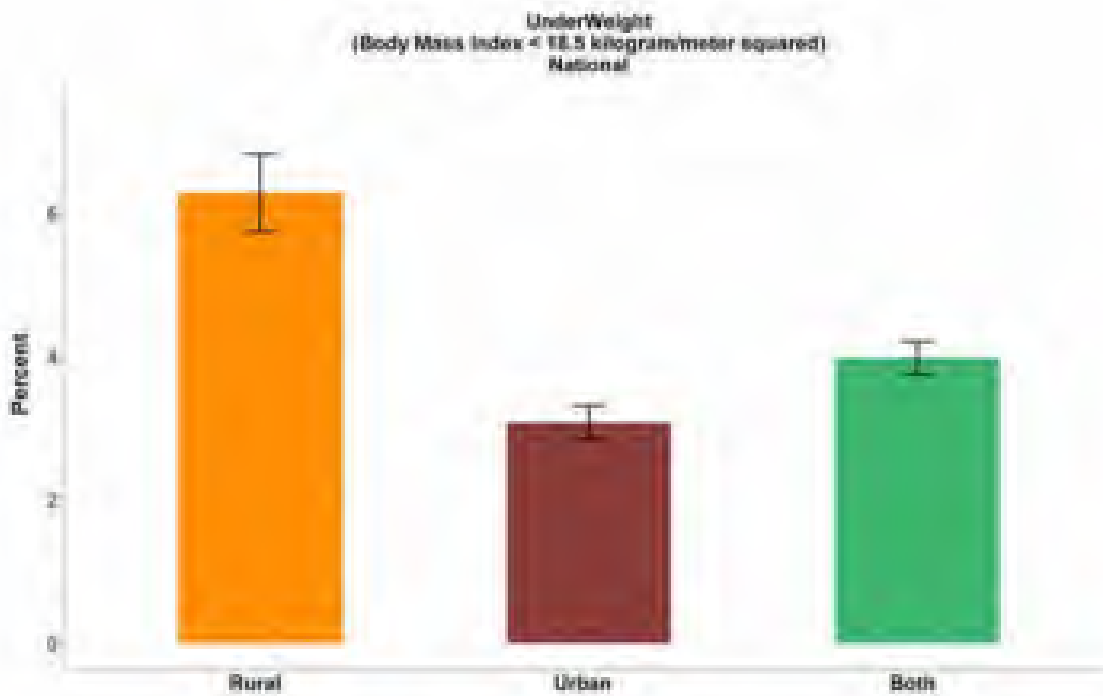


Figure 4.1.71. Prevalence of underweight by area of residency at national level

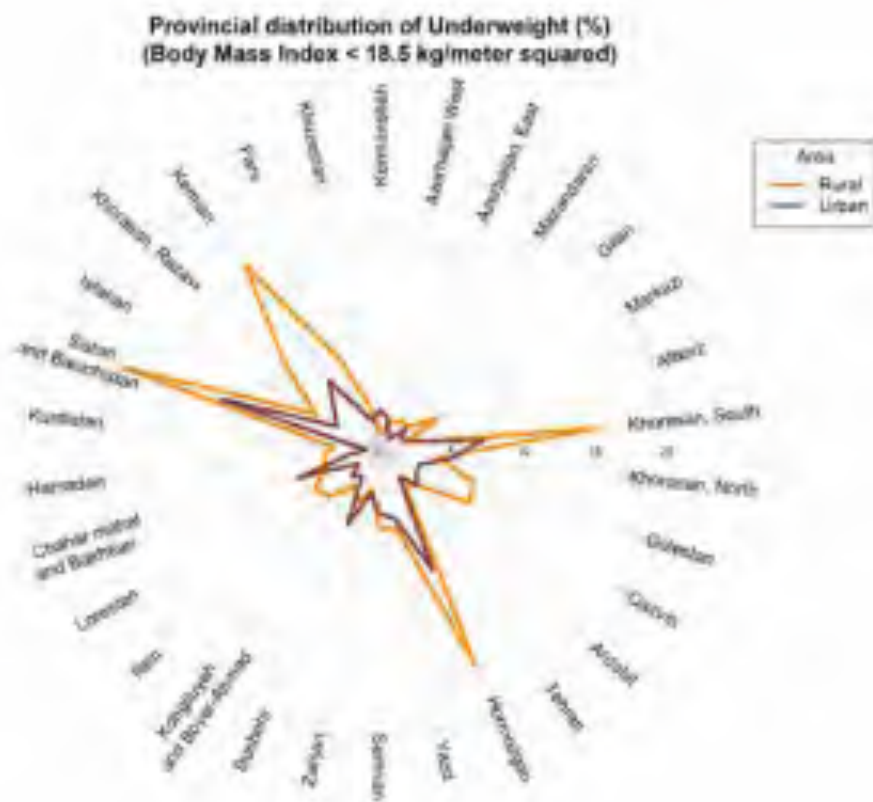


Figure 4.1.72. Provincial distribution of prevalence of underweight by area of residency

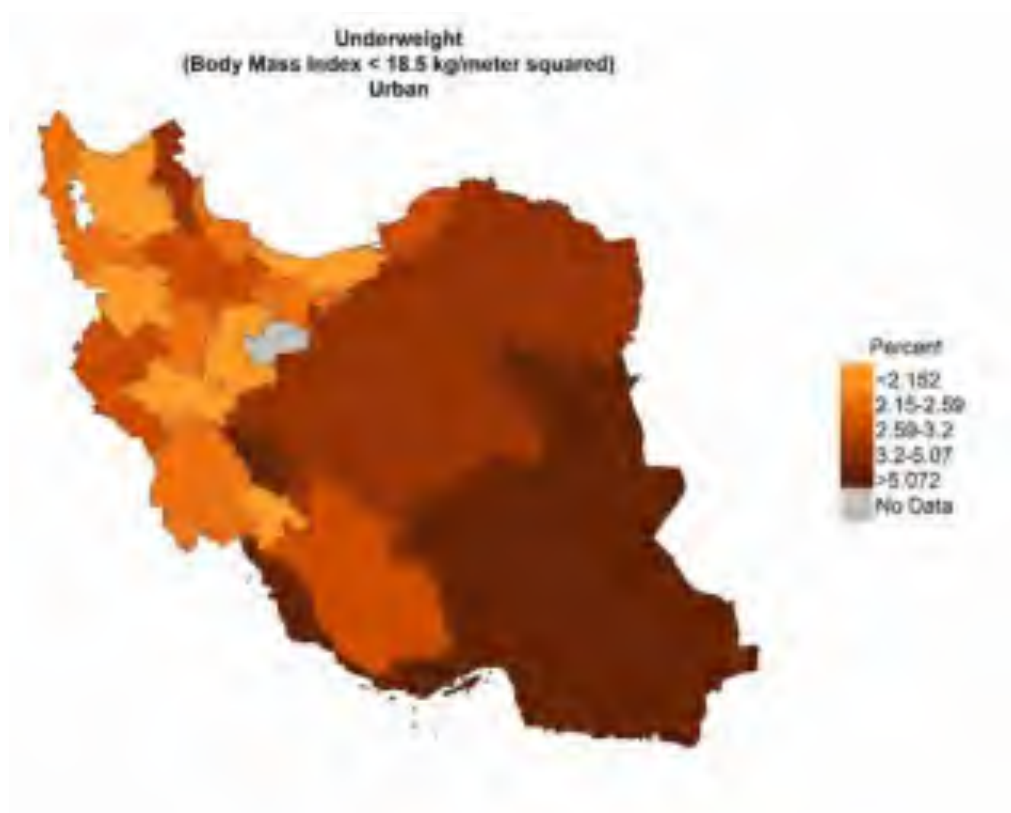


Figure 4.1.73. Geographical distribution of prevalence of underweight in urban area of residency

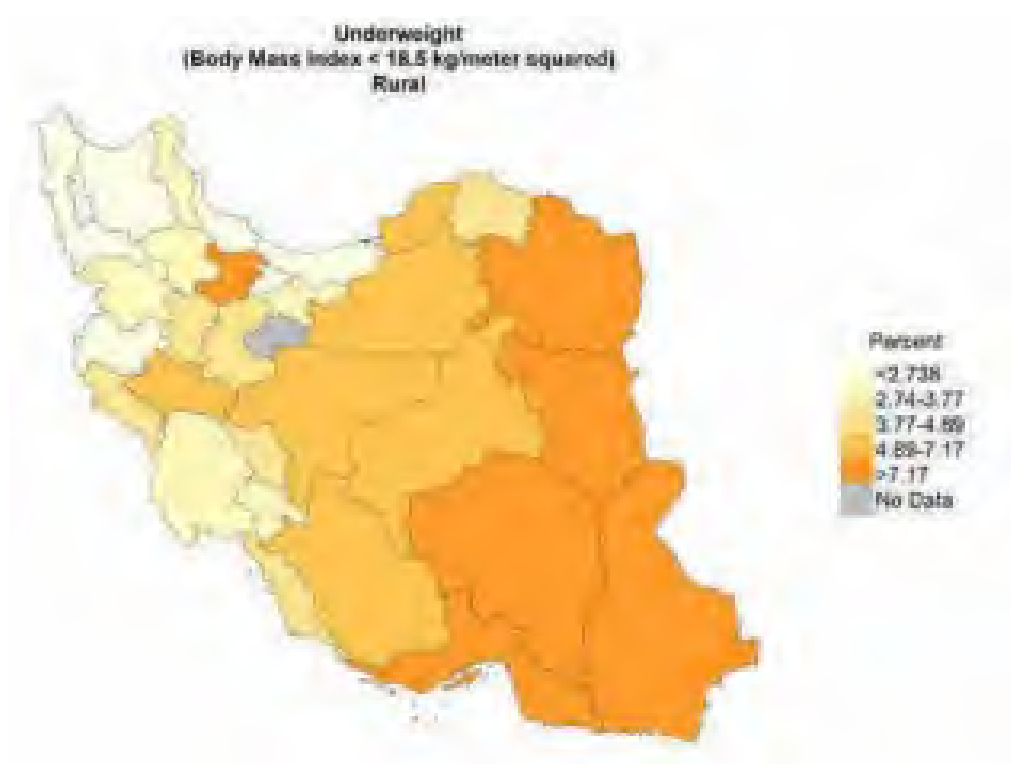


Figure 4.1.74. Geographical distribution of prevalence of underweight in rural area of residency

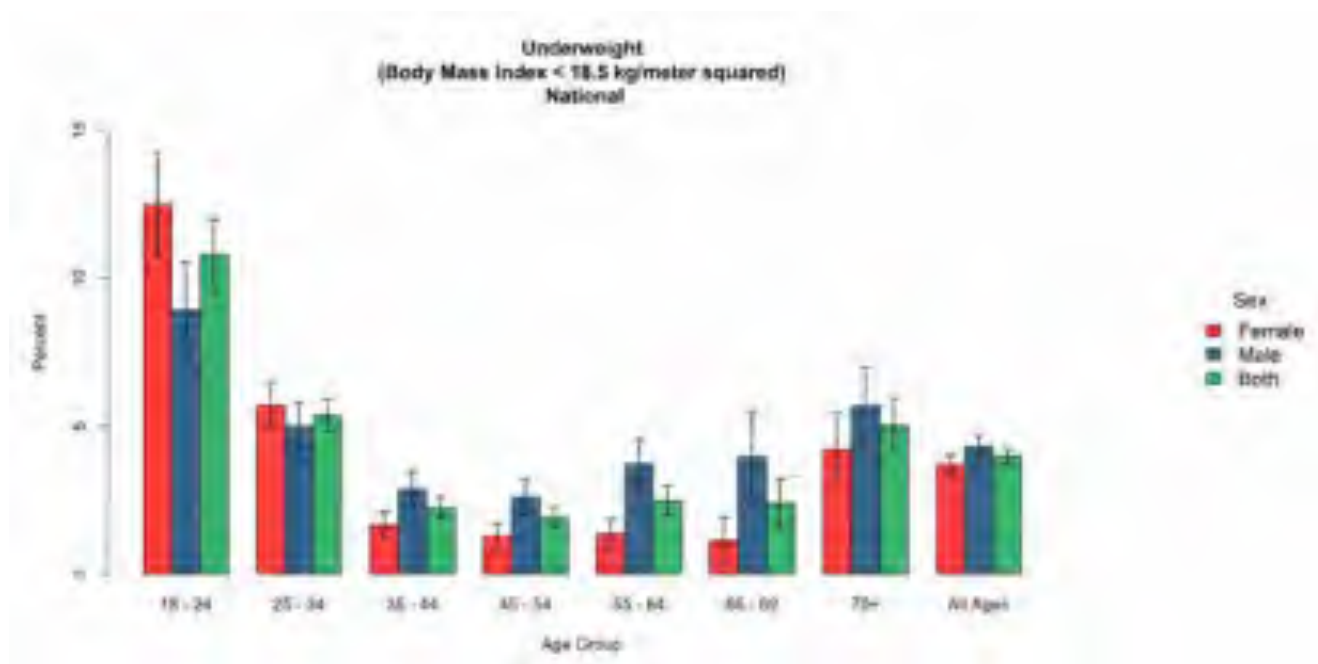


Figure 4.1.75. Prevalence of underweight by age and sex at national level

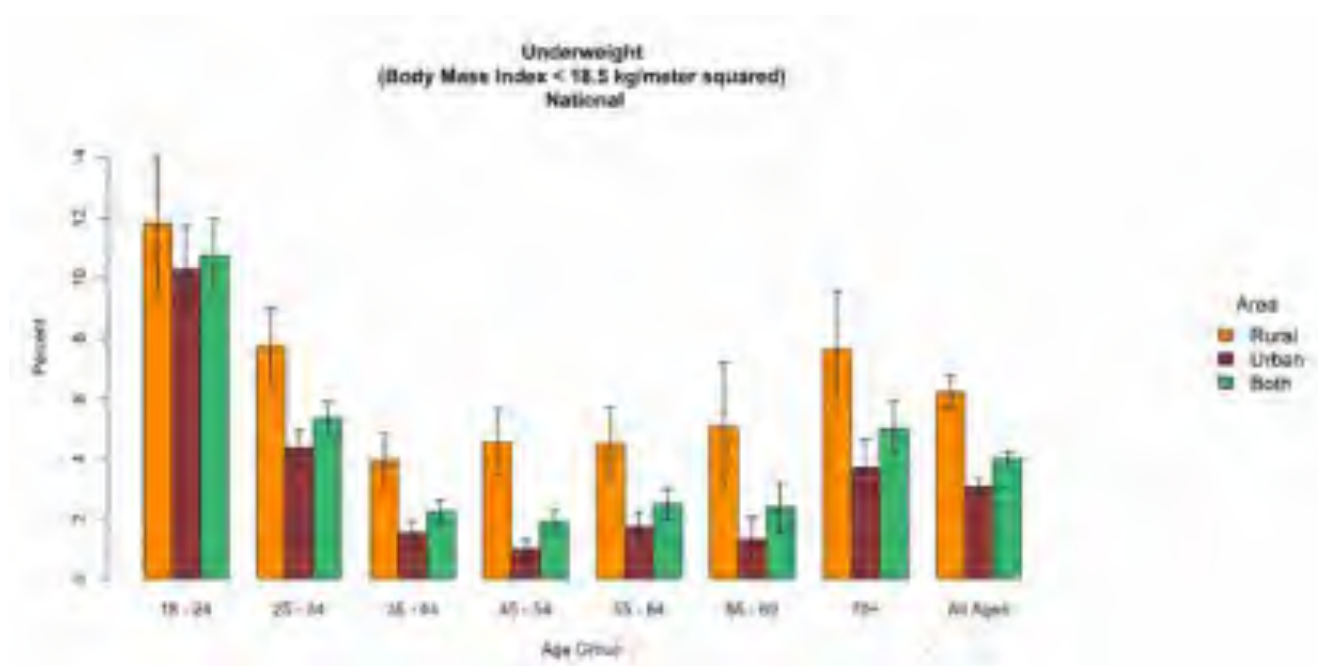


Figure 4.1.76. Prevalence of underweight by age and area of residency at national level

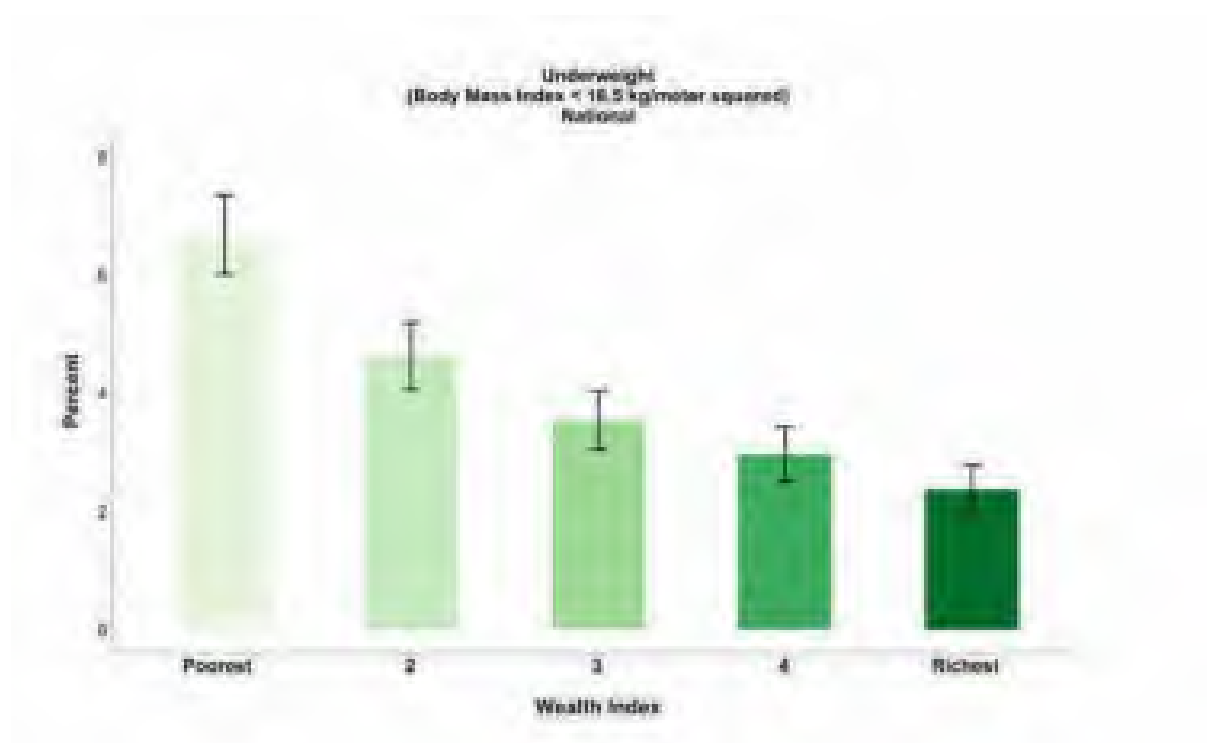


Figure 4.1.77. Prevalence of underweight by wealth index quantiles at national level

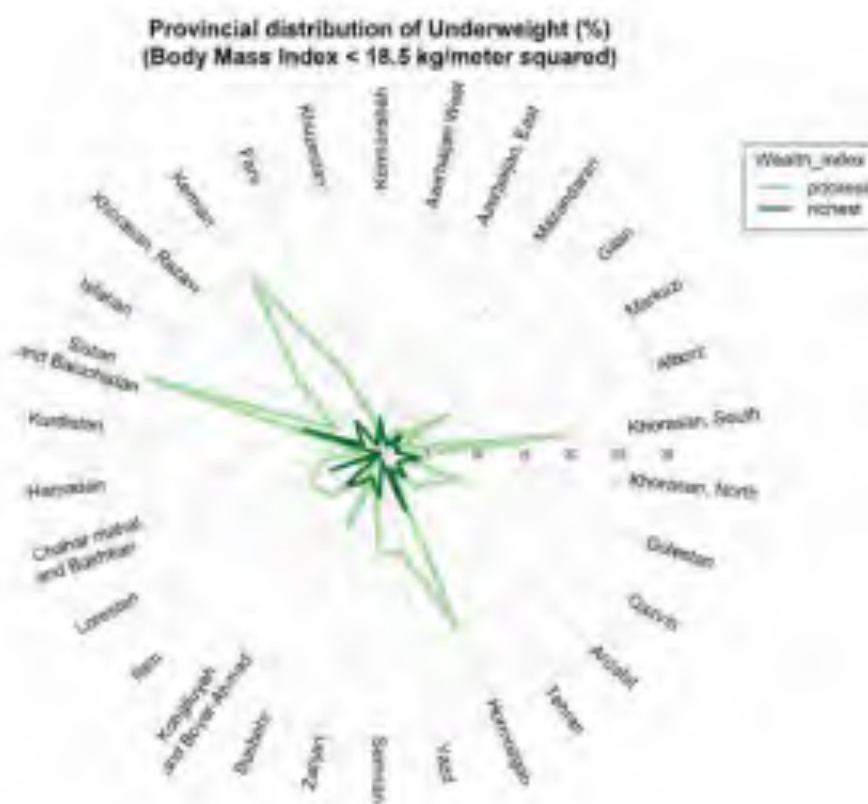


Figure 4.1.78. Provincial distribution of prevalence of underweight by wealth index

CHAPTER 2

Results

Section 4.2

Metabolic Risk Factors: Blood Pressure-related

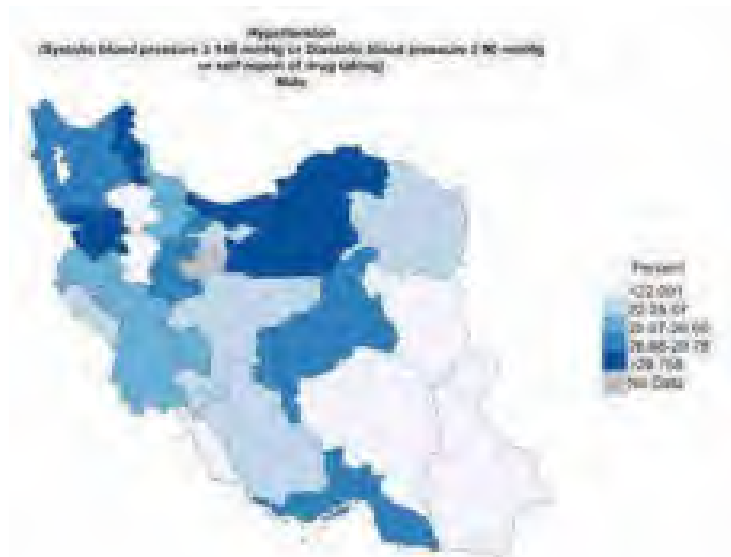


Figure 4.2.3. Geographical distribution of prevalence of hypertension in males

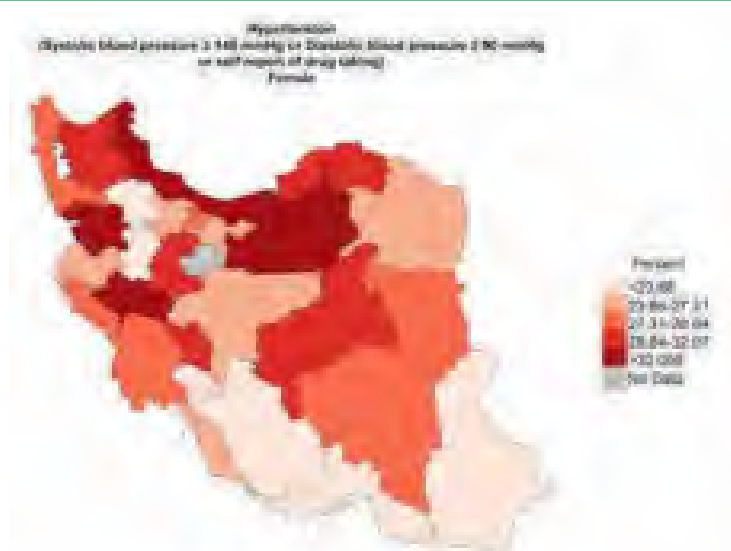


Figure 4.2.4. Geographical distribution of prevalence of hypertension in females

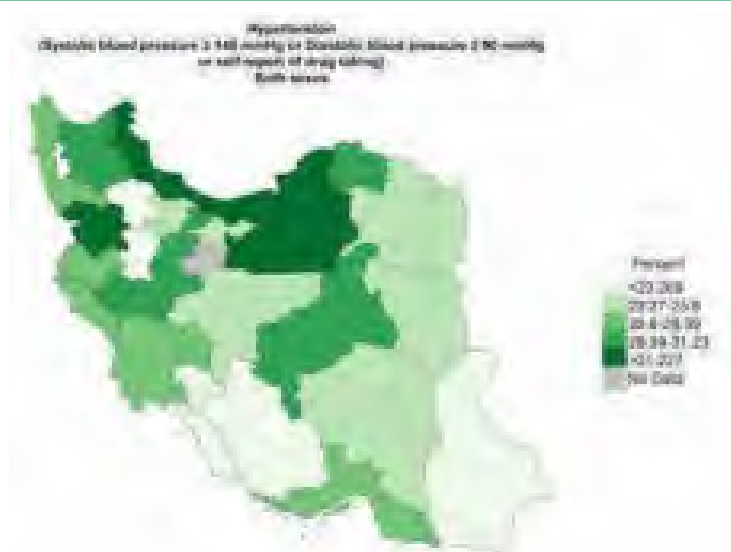


Figure 4.2.5. Geographical distribution of prevalence of hypertension in both sexes

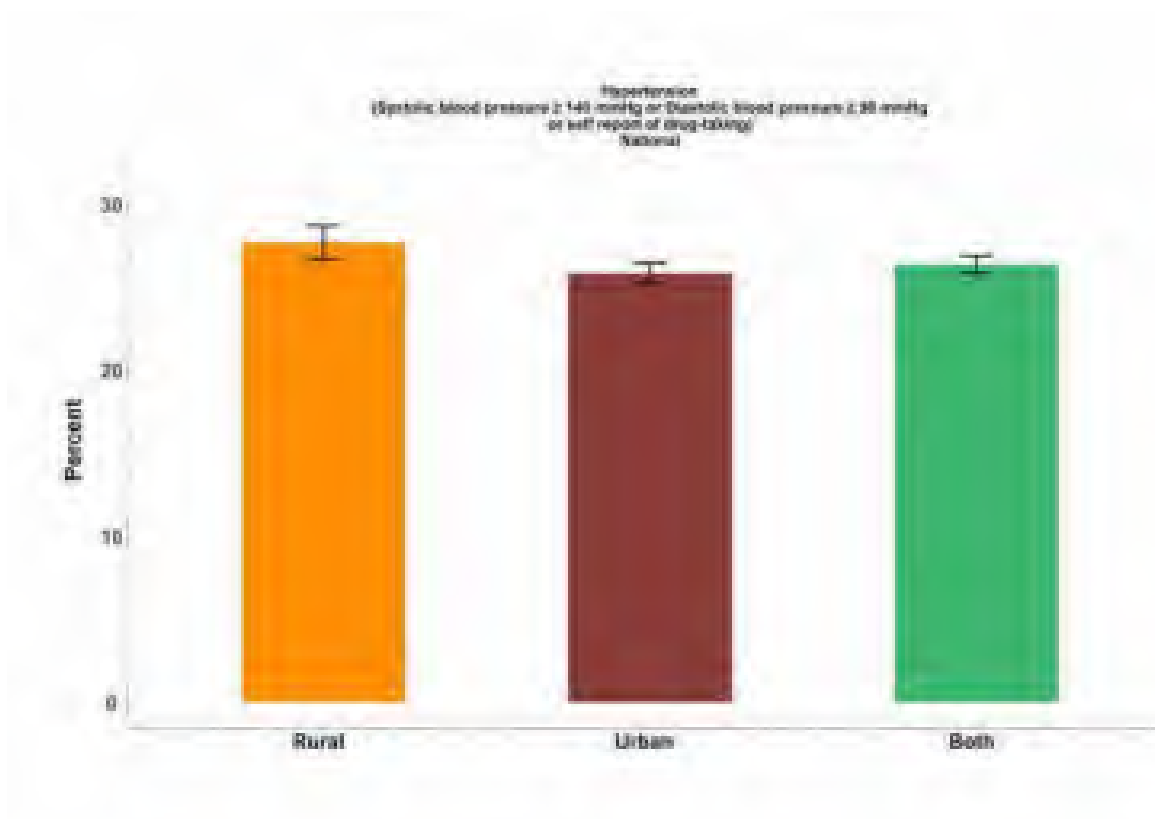


Figure 4.2.6. Prevalence of hypertension by area of residency at national level

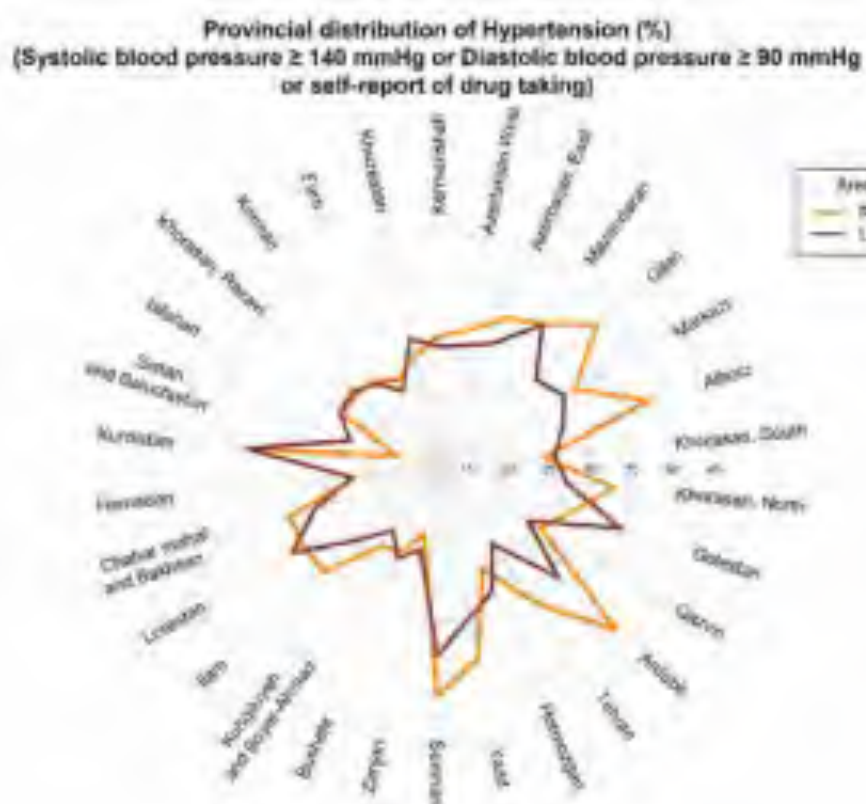


Figure 4.2.7. Provincial distribution of prevalence of hypertension by area of residency

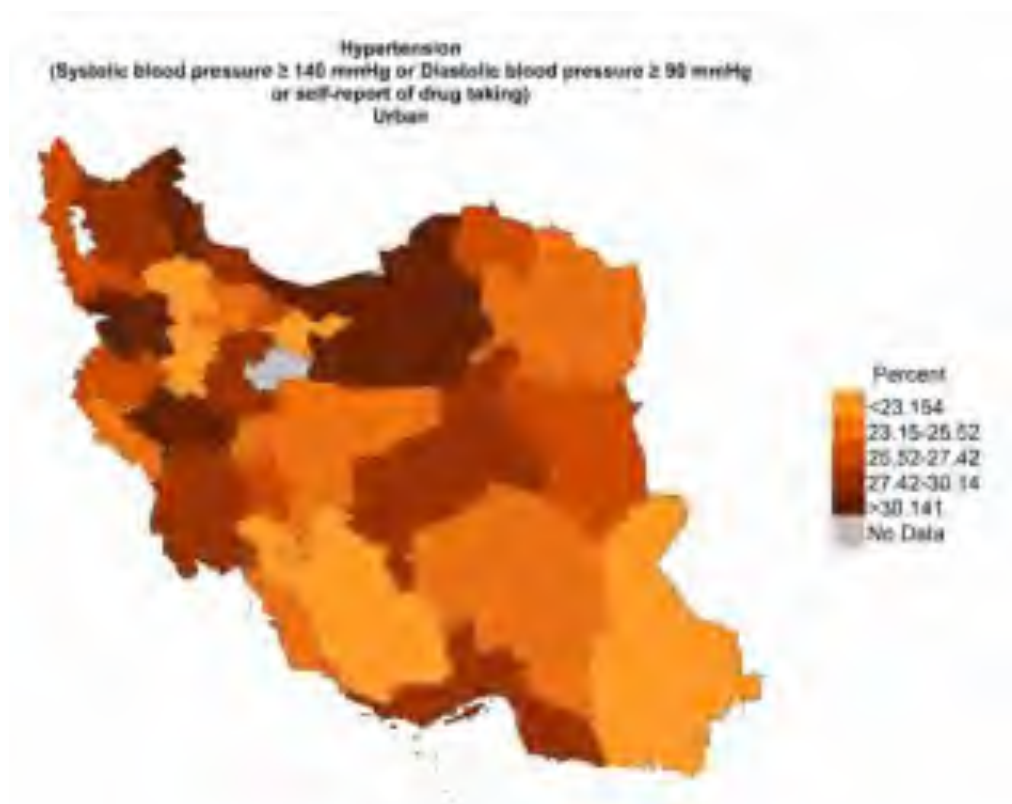


Figure 4.2.8. Geographical distribution of prevalence of hypertension in urban area of residency

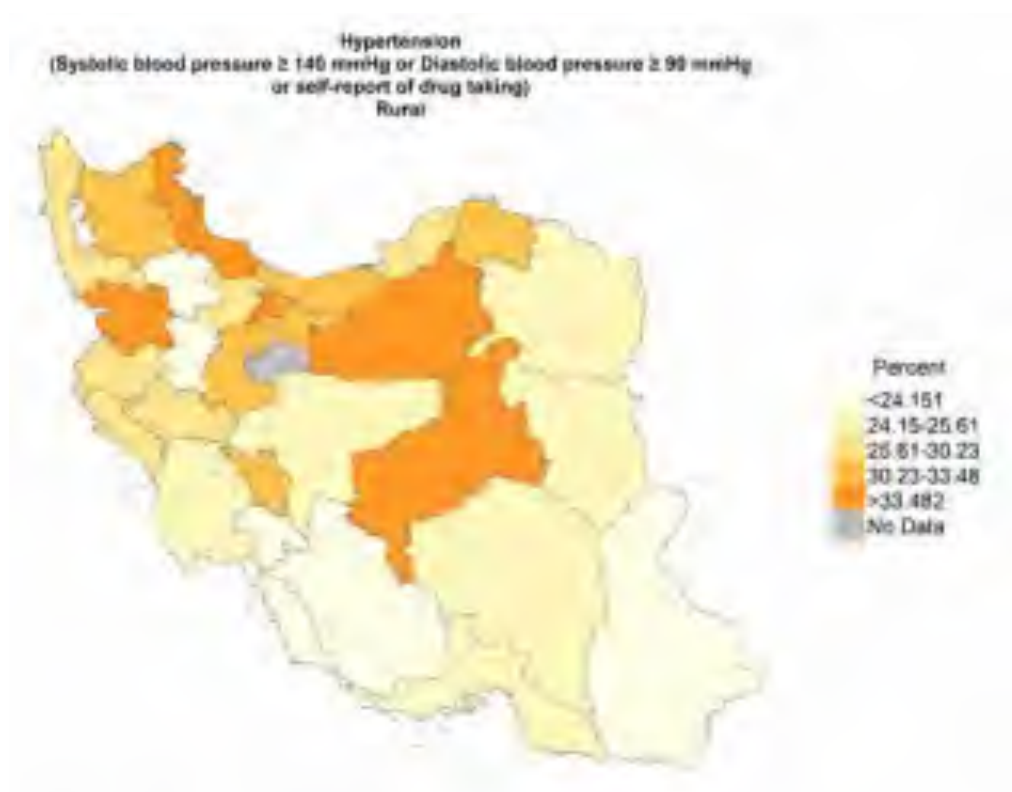


Figure 4.2.9. Geographical distribution of prevalence of hypertension in rural area of residency

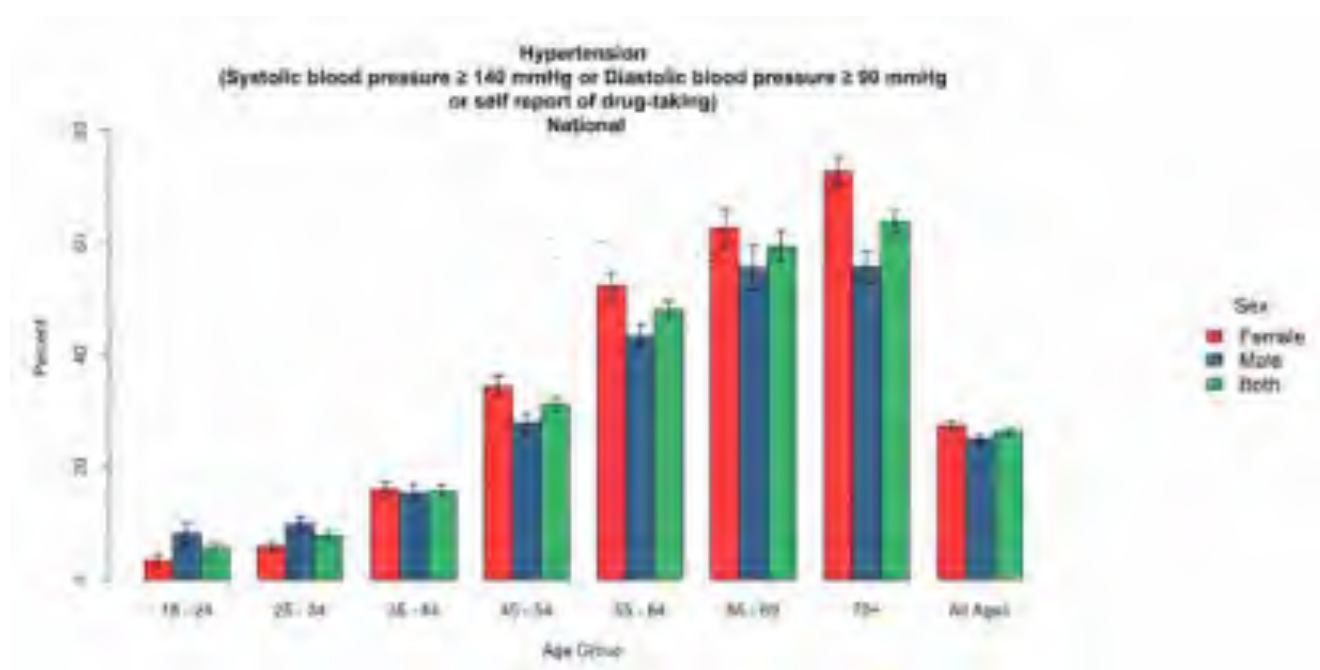


Figure 4.2.10. Prevalence of hypertension by age and sex at national level

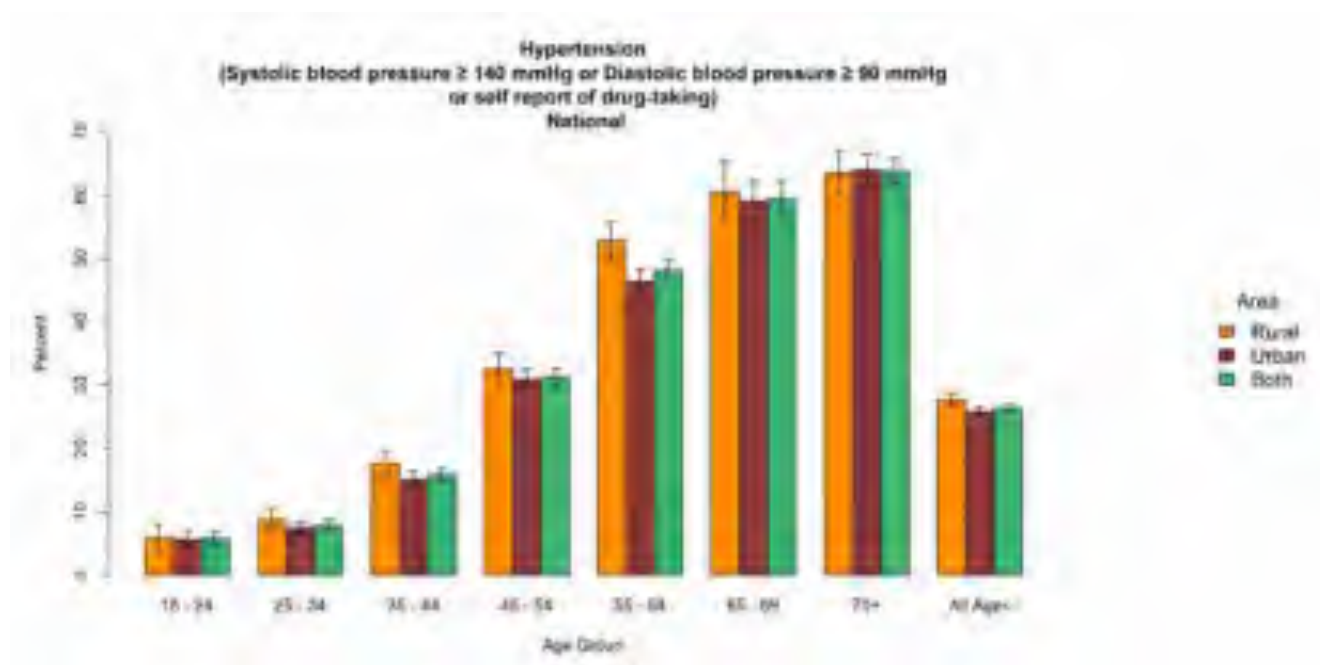


Figure 4.2.11. Prevalence of hypertension by age and area of residency at national level

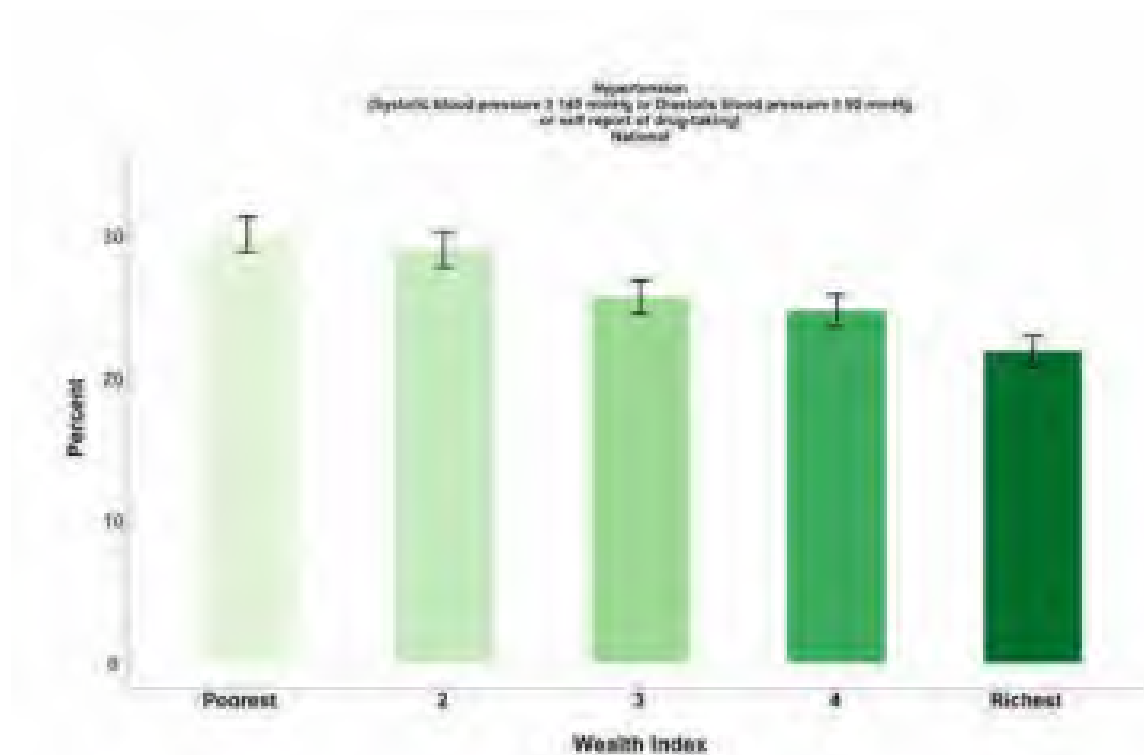


Figure 4.2.12. Prevalence of hypertension by wealth index quantiles at national level

Provincial distribution of Hypertension (%)
(Systolic blood pressure ≥ 140 mmHg or Diastolic blood pressure ≥ 90 mmHg or self-report of drug taking)

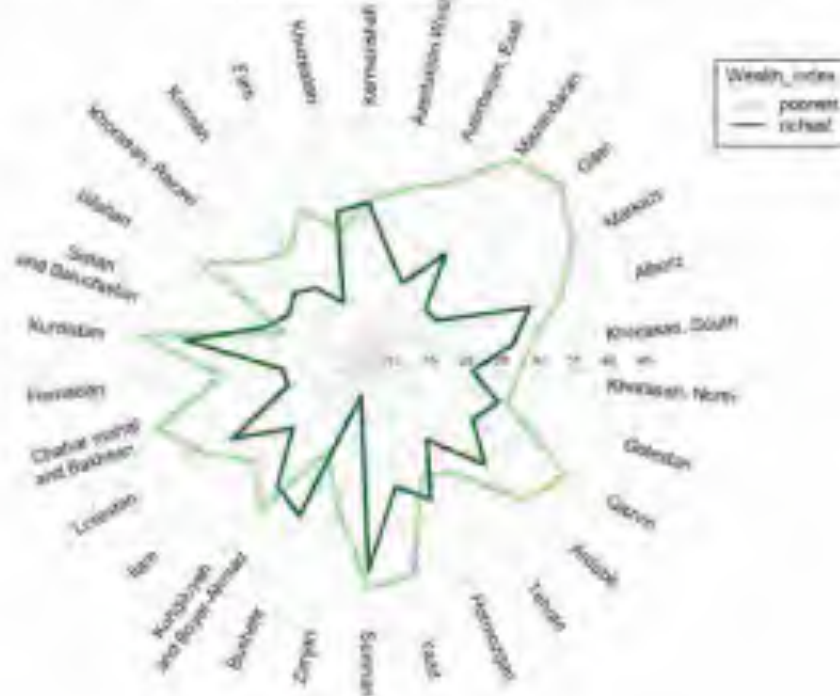


Figure 4.2.13. Provincial distribution of prevalence of hypertension by wealth index

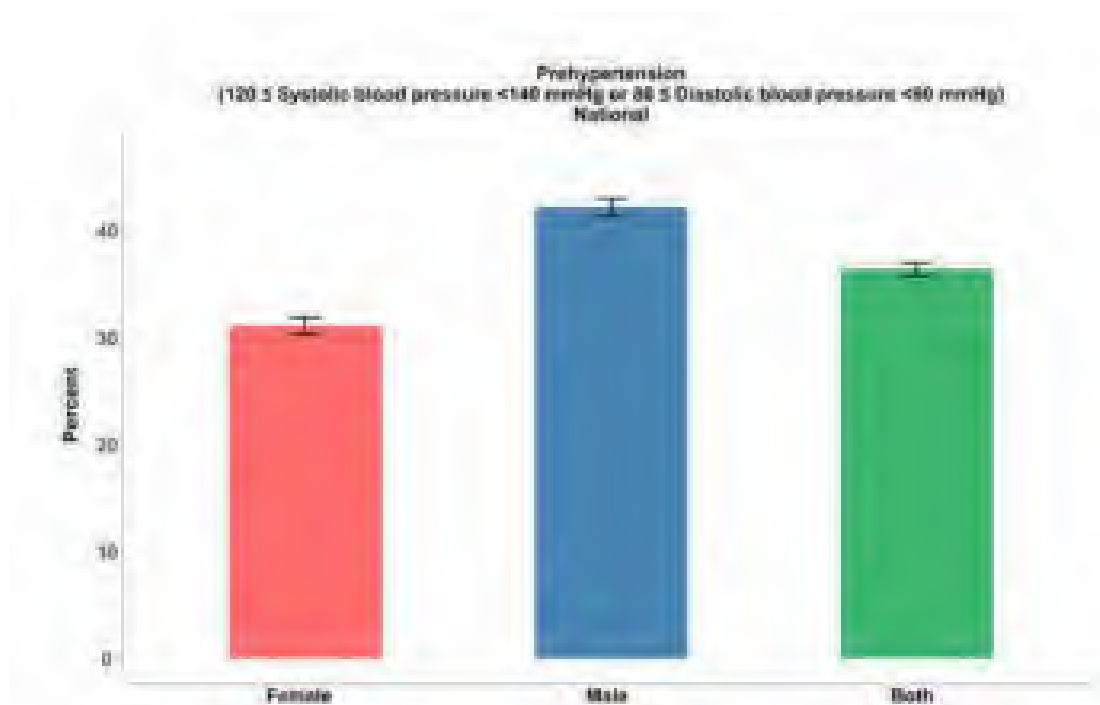


Figure 4.2.14. Prevalence of prehypertension by sex at national level

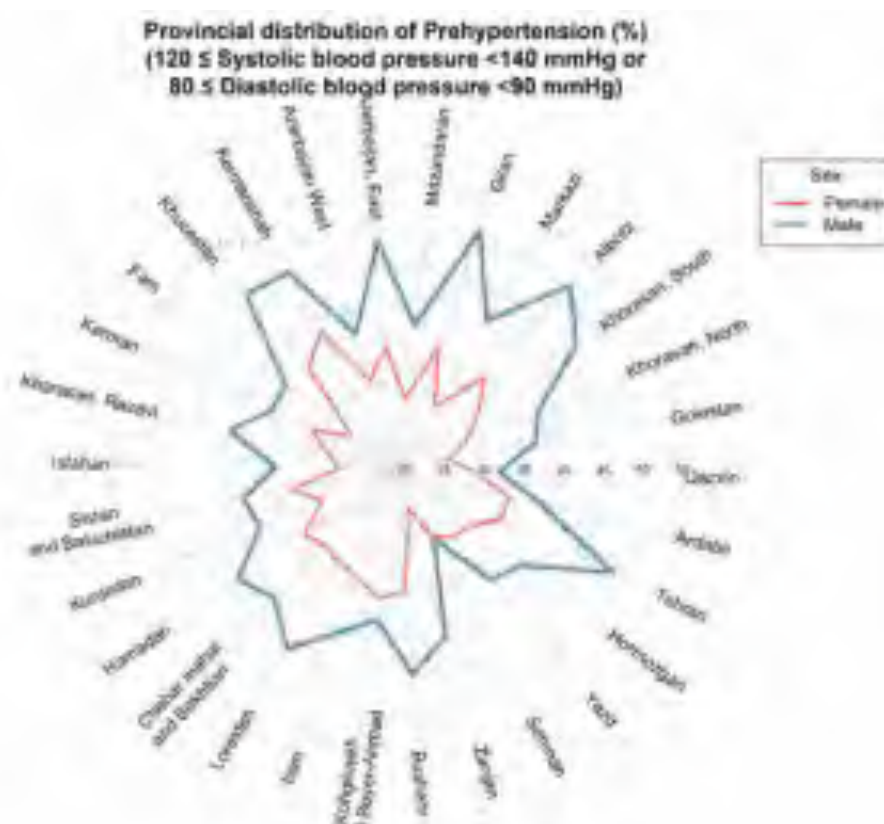


Figure 4.2.15. Provincial distribution of prevalence of prehypertension by sex

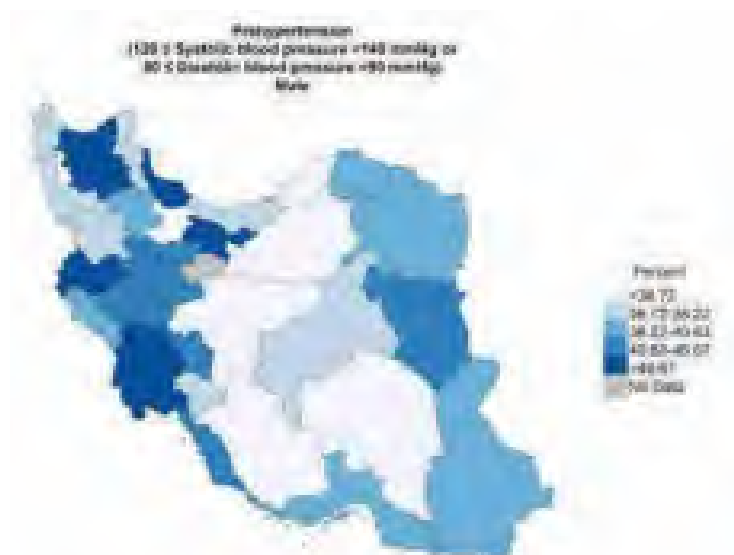


Figure 4.2.16. Geographical distribution of prevalence of prehypertension in males

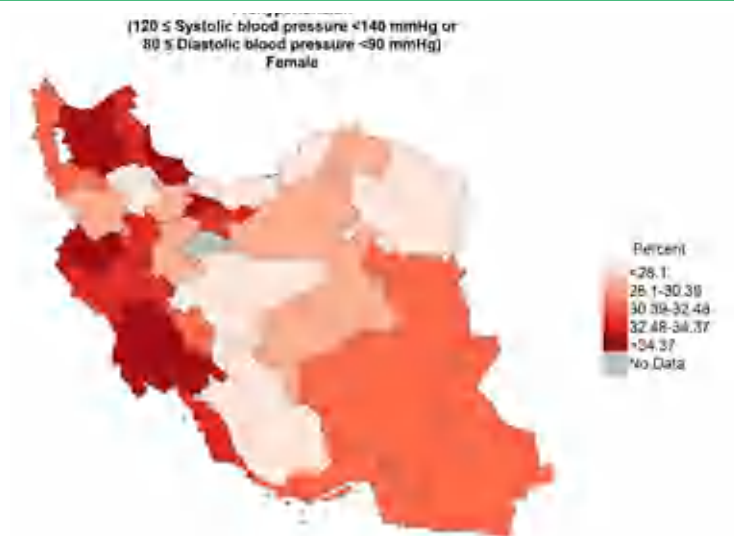


Figure 4.2.17. Geographical distribution of prevalence of prehypertension in females

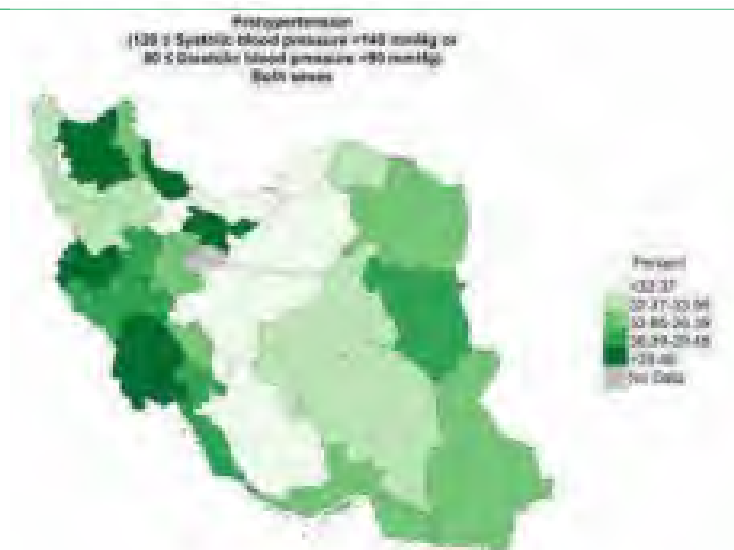


Figure 4.2.18. Geographical distribution of prevalence of prehypertension in both sexes

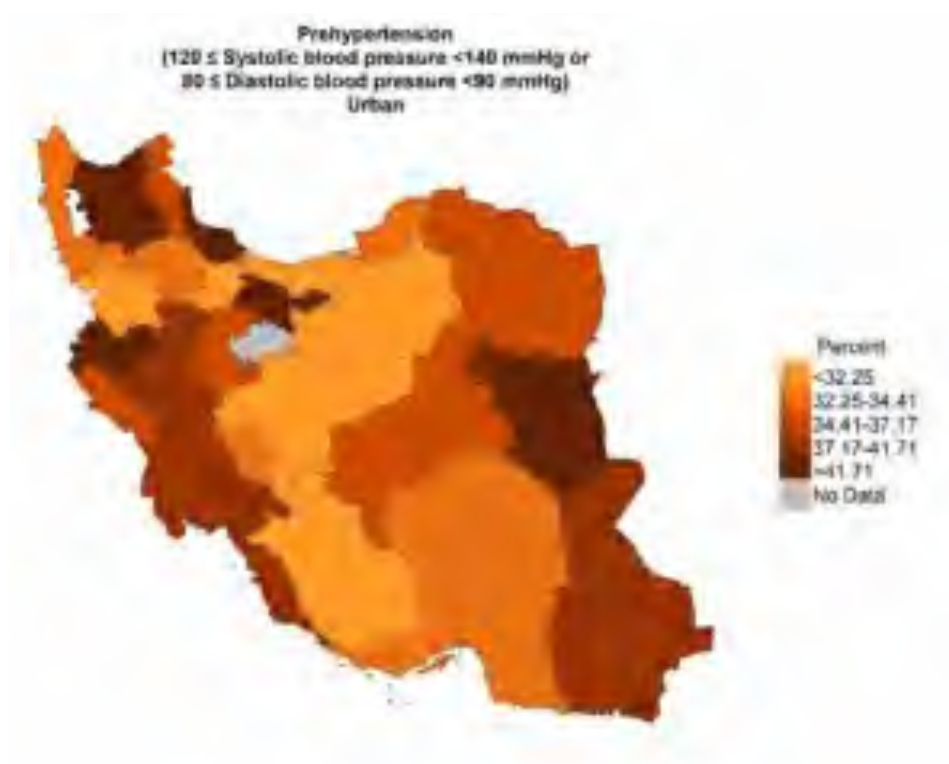


Figure 4.2.21. Geographical distribution of prevalence of prehypertension in urban area of residency

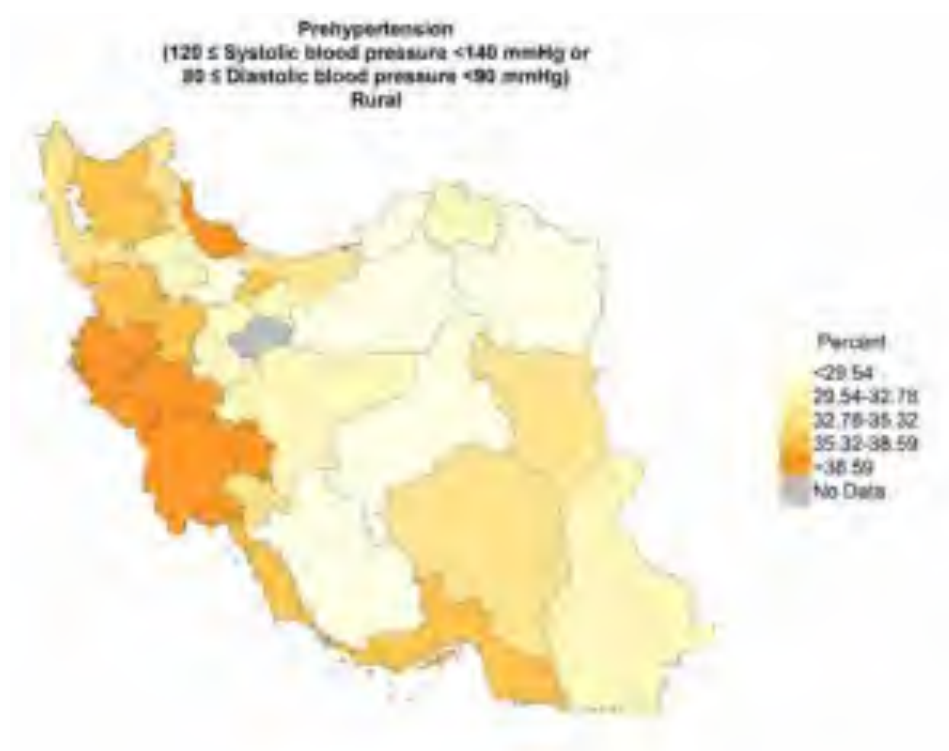


Figure 4.2.22. Geographical distribution of prevalence of prehypertension in rural area of residency

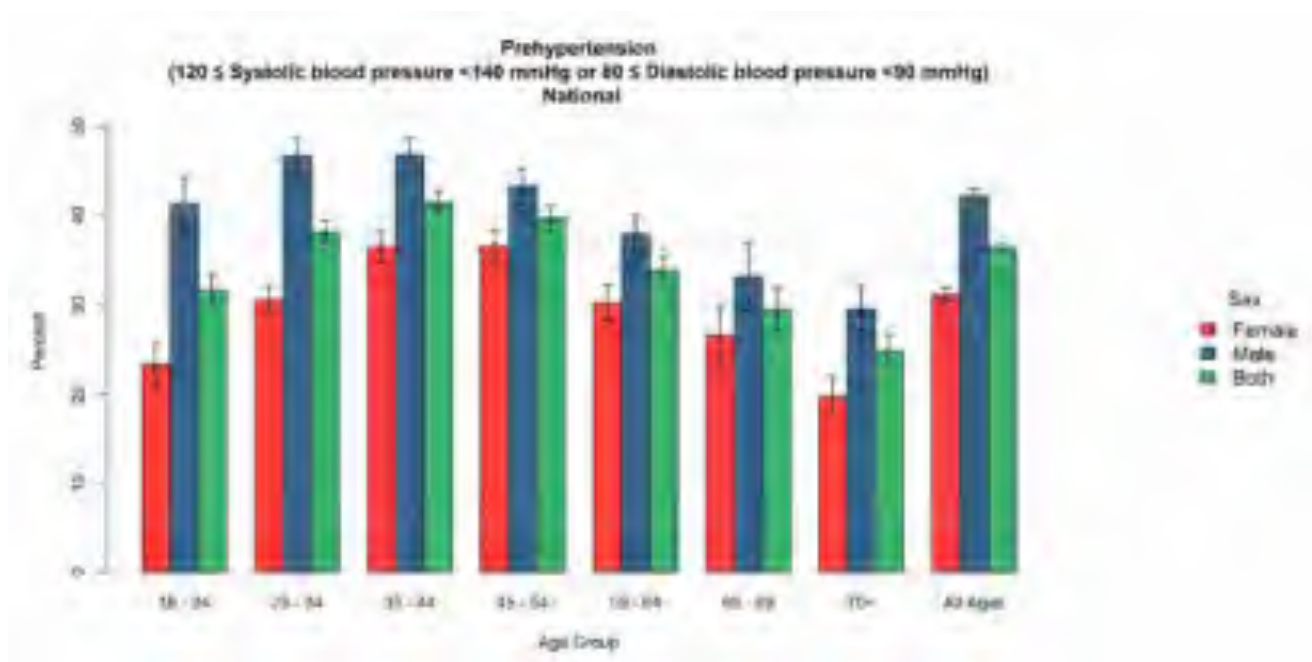


Figure 4.2.23. Prevalence of prehypertension by age and sex at national level

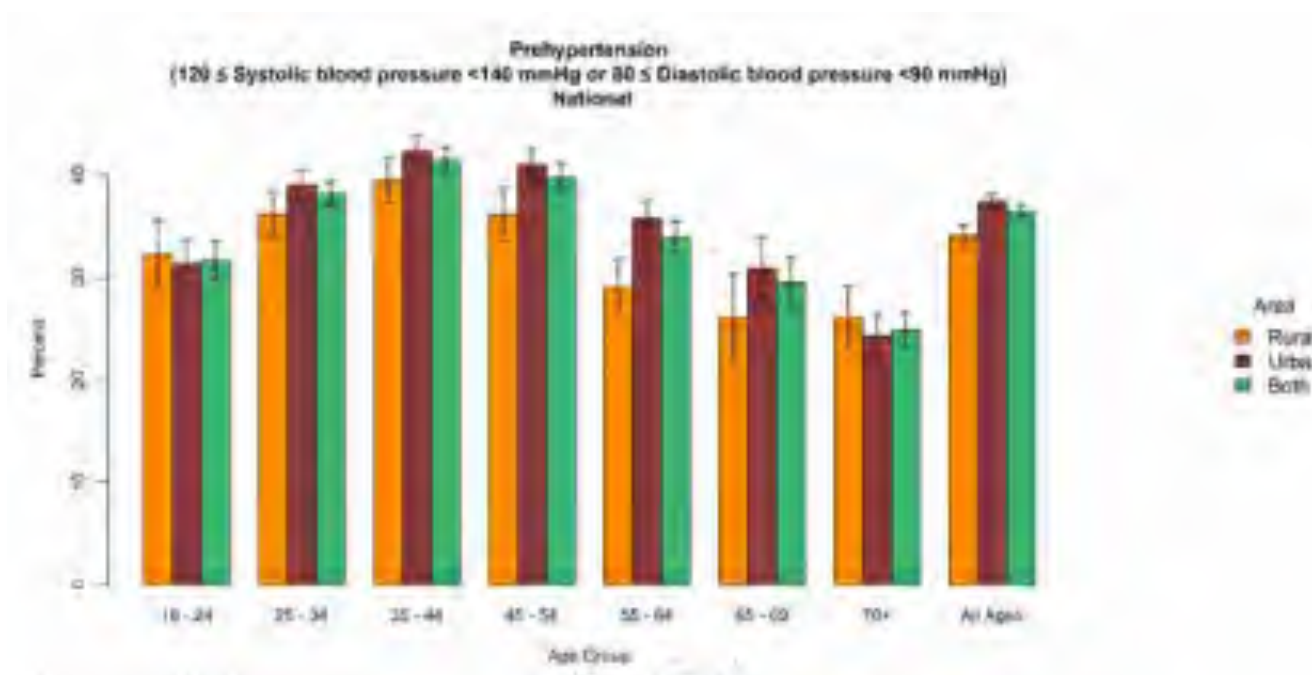


Figure 4.2.24. Prevalence of prehypertension by age and area of residency at national level

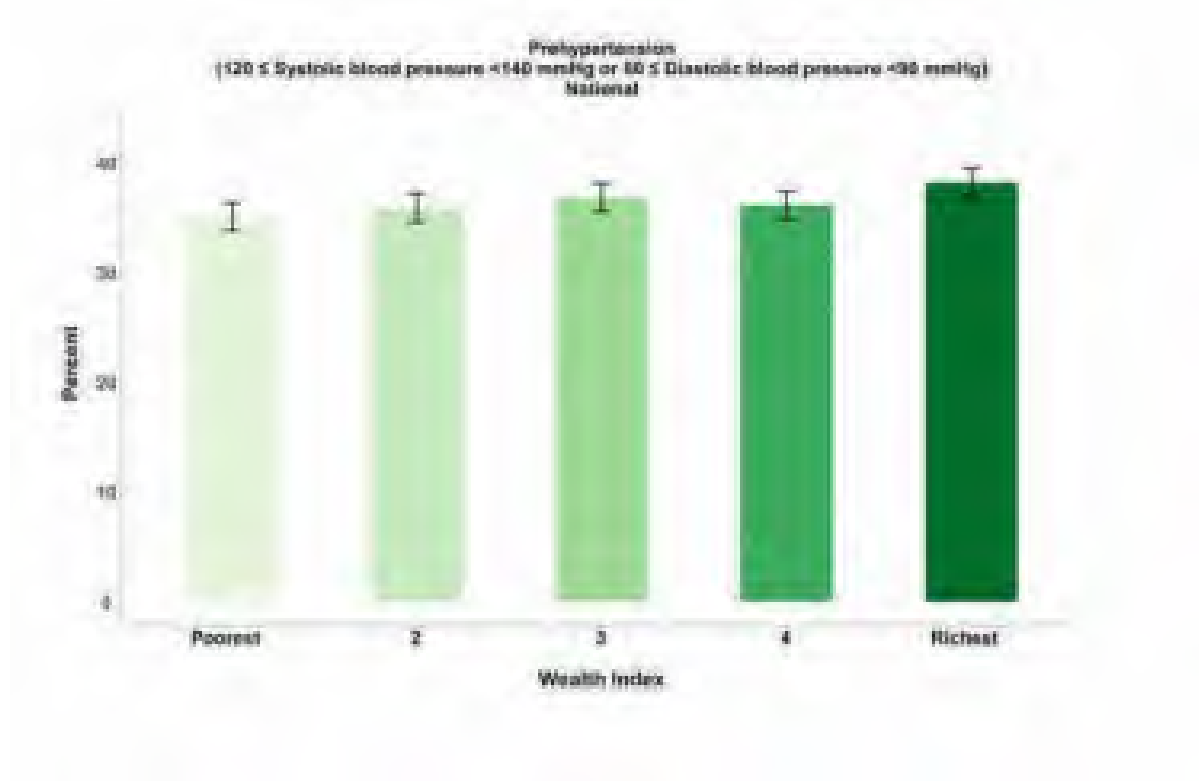


Figure 4.2.25. Prevalence of prehypertension by wealth index quantiles at national level

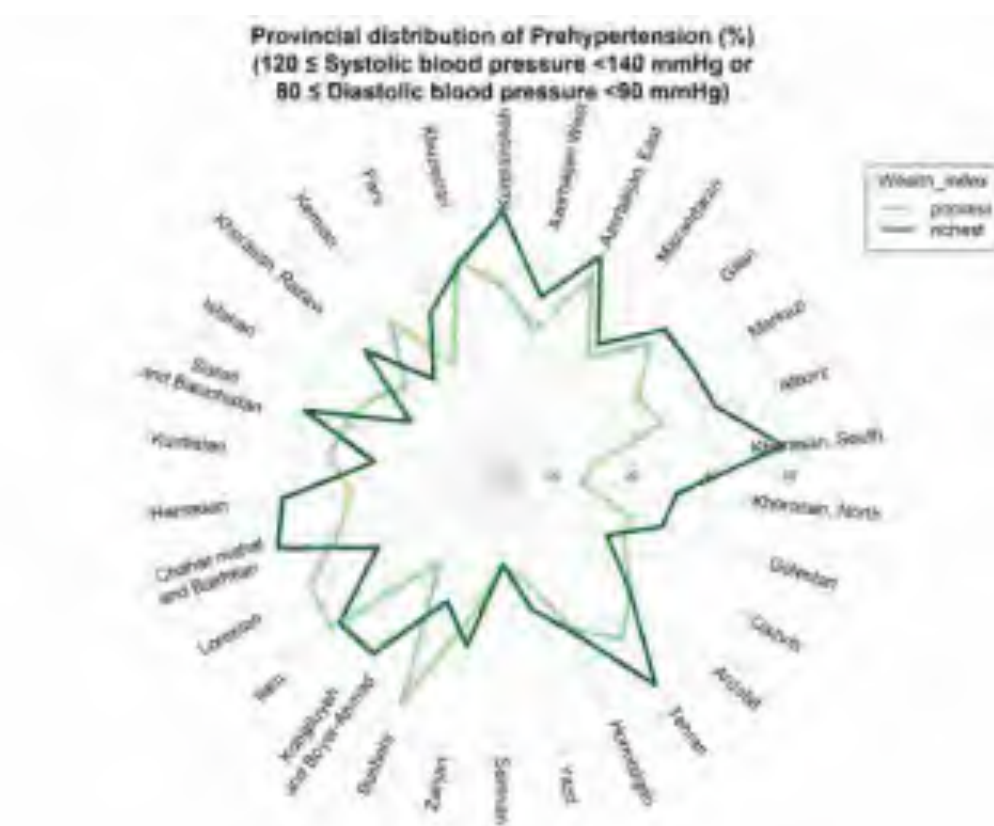


Figure 4.2.26. Provincial distribution of prevalence of prehypertension by wealth index

CHAPTER 2

Results

Section 4.3

Metabolic Risk Factors: Blood Sugar-related

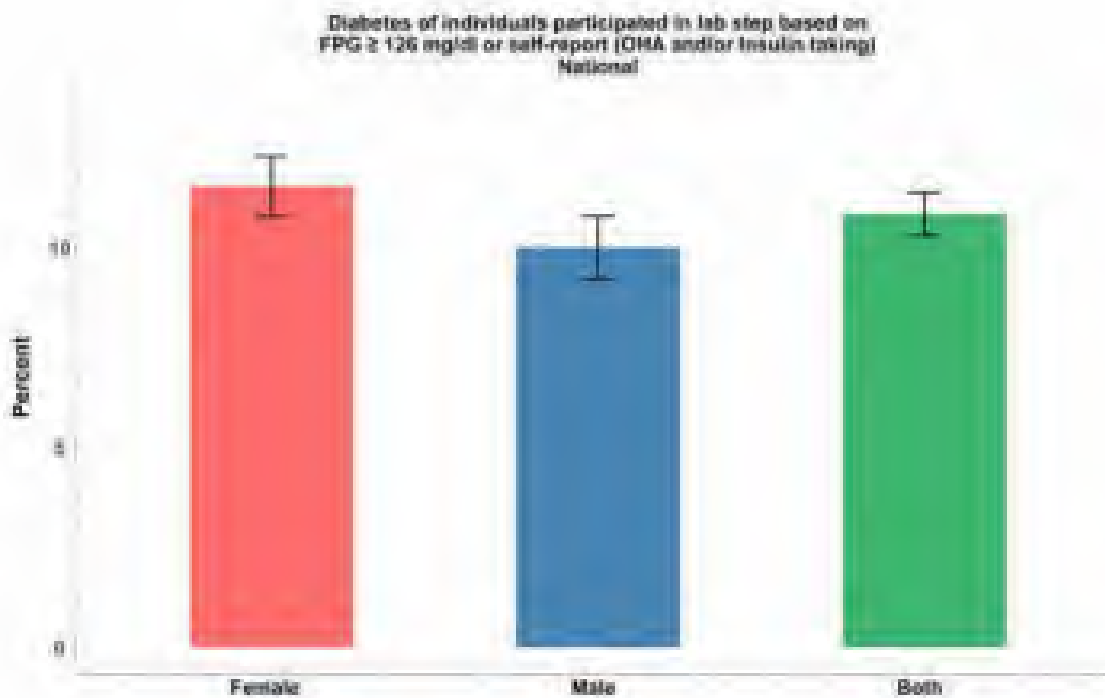


Figure 4.3.1. Prevalence of diabetes based on FPG by sex at national level

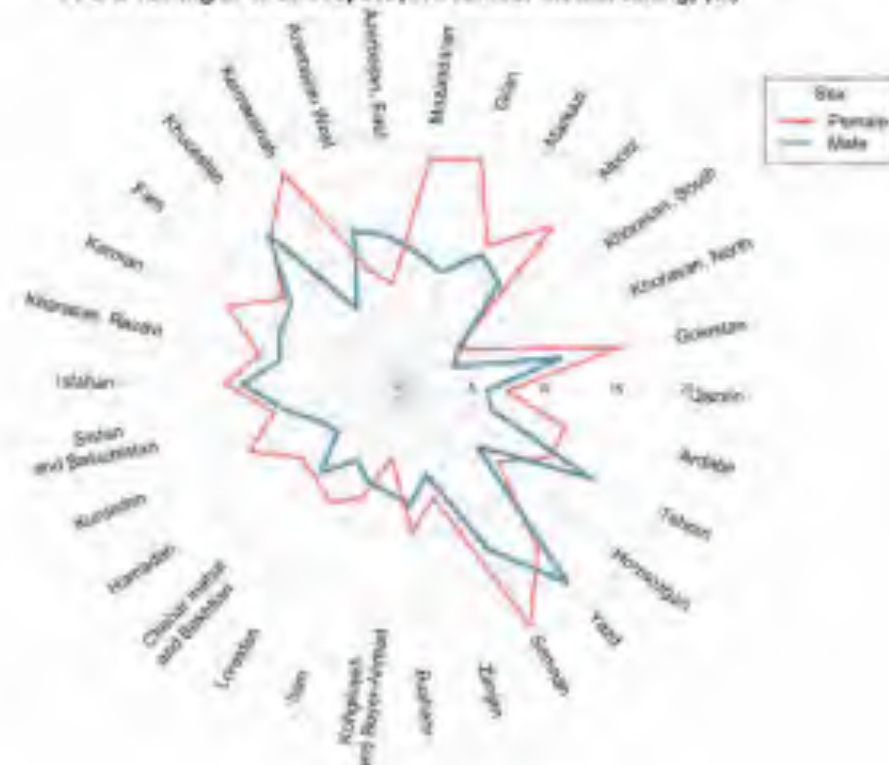
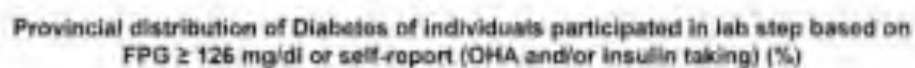


Figure 4.3.2. Provincial distribution of prevalence of diabetes based on FPG by sex

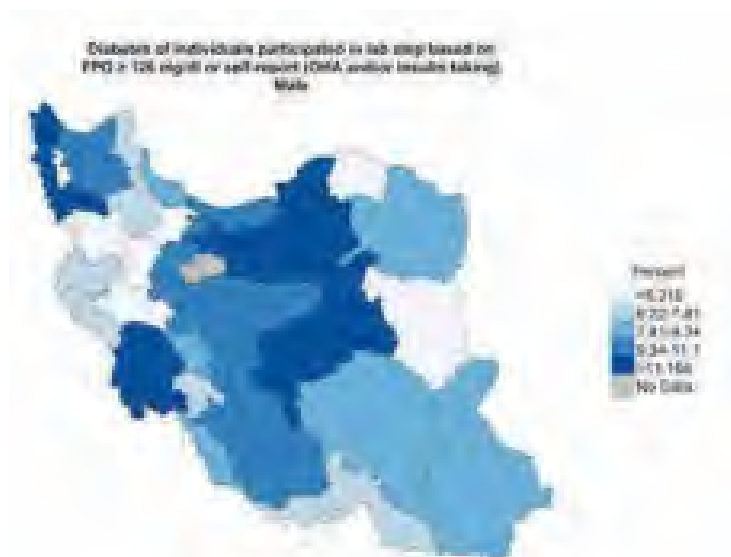


Figure 4.3.3. Geographical distribution of prevalence of diabetes based on FPG in males

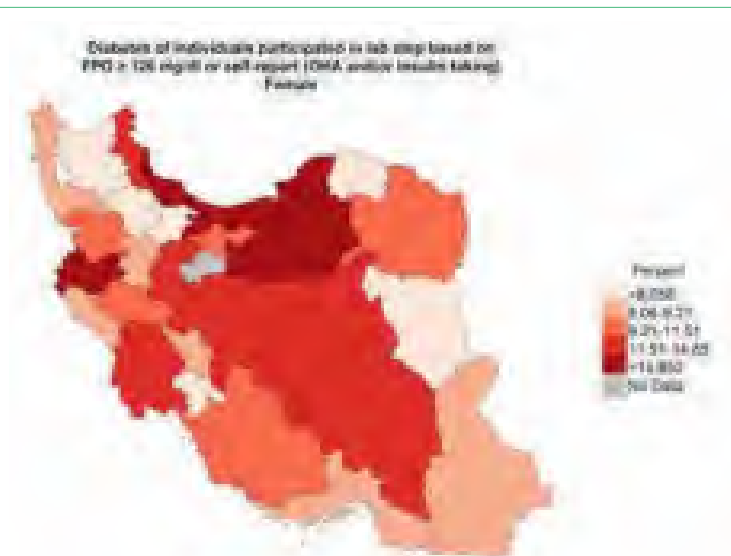


Figure 4.3.4. Geographical distribution of prevalence of diabetes based on FPG in females

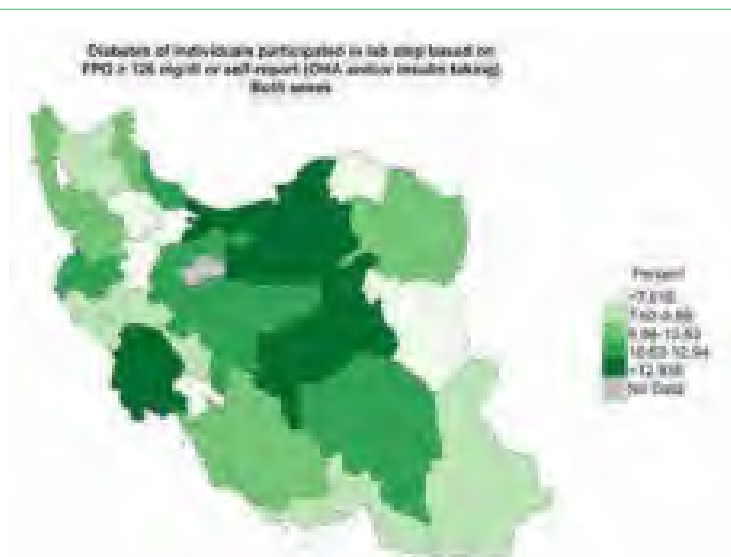


Figure 4.3.5. Geographical distribution of prevalence of diabetes based on FPG in both sexes

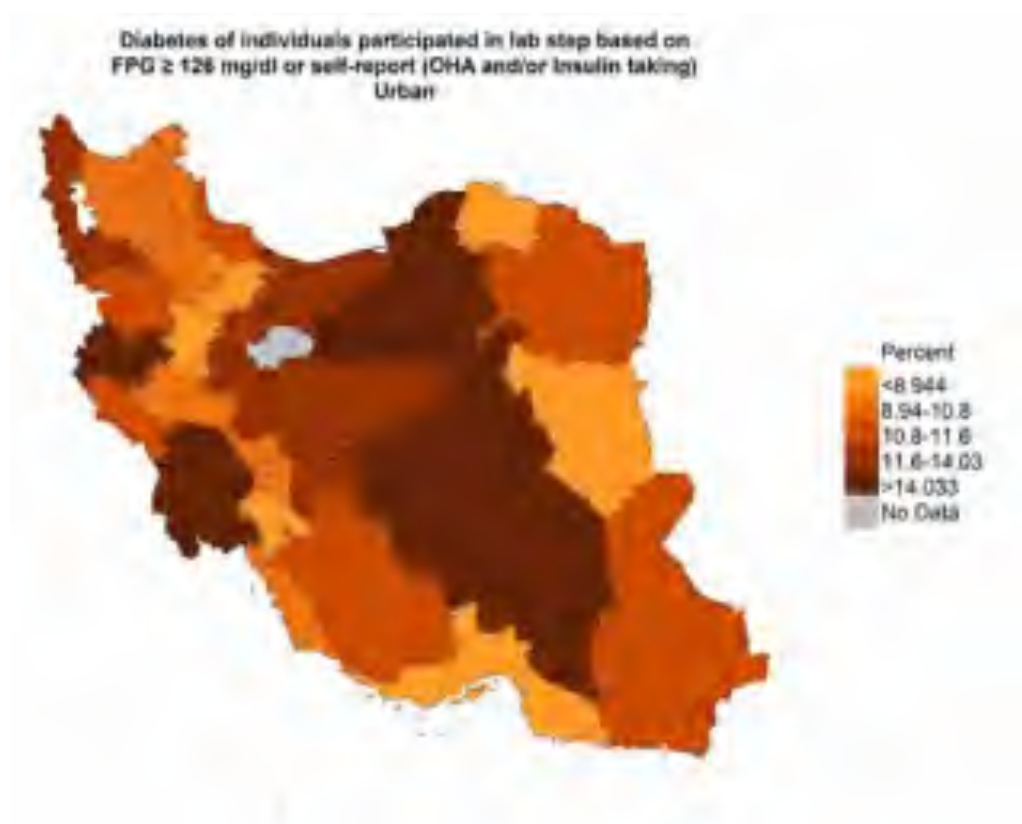


Figure 4.3.8. Geographical distribution of prevalence of diabetes based on FPG in urban area of residency

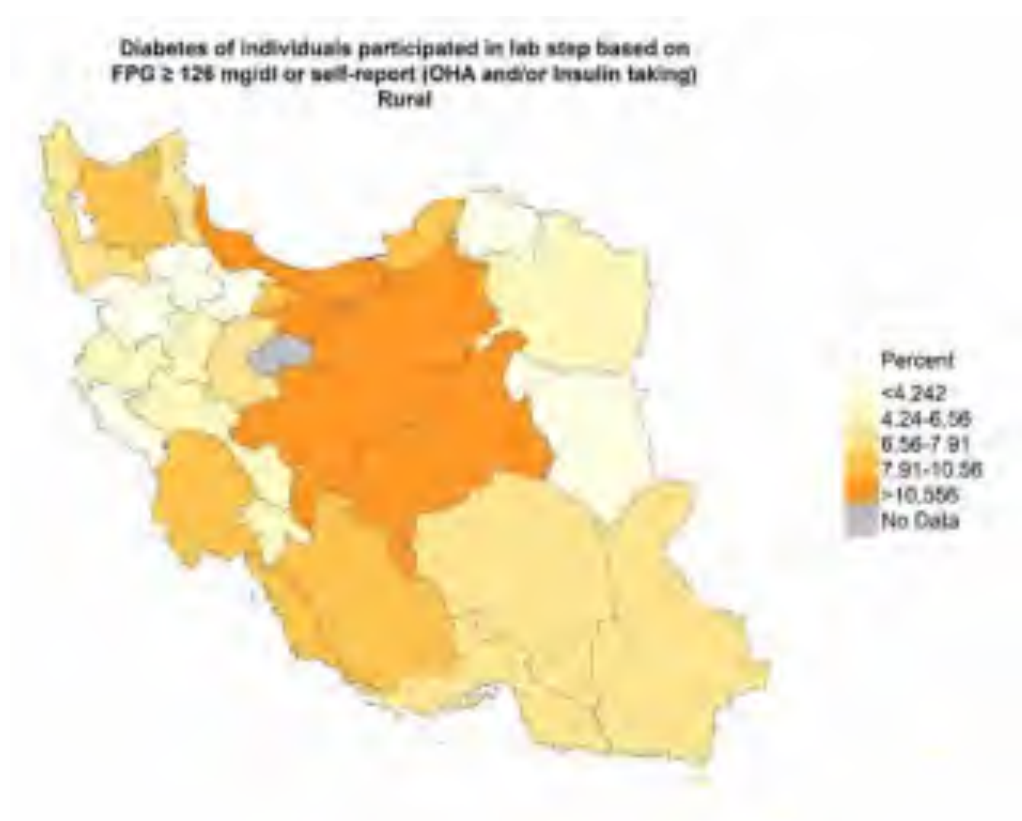


Figure 4.3.9. Geographical distribution of prevalence of diabetes based on FPG in rural area of residency

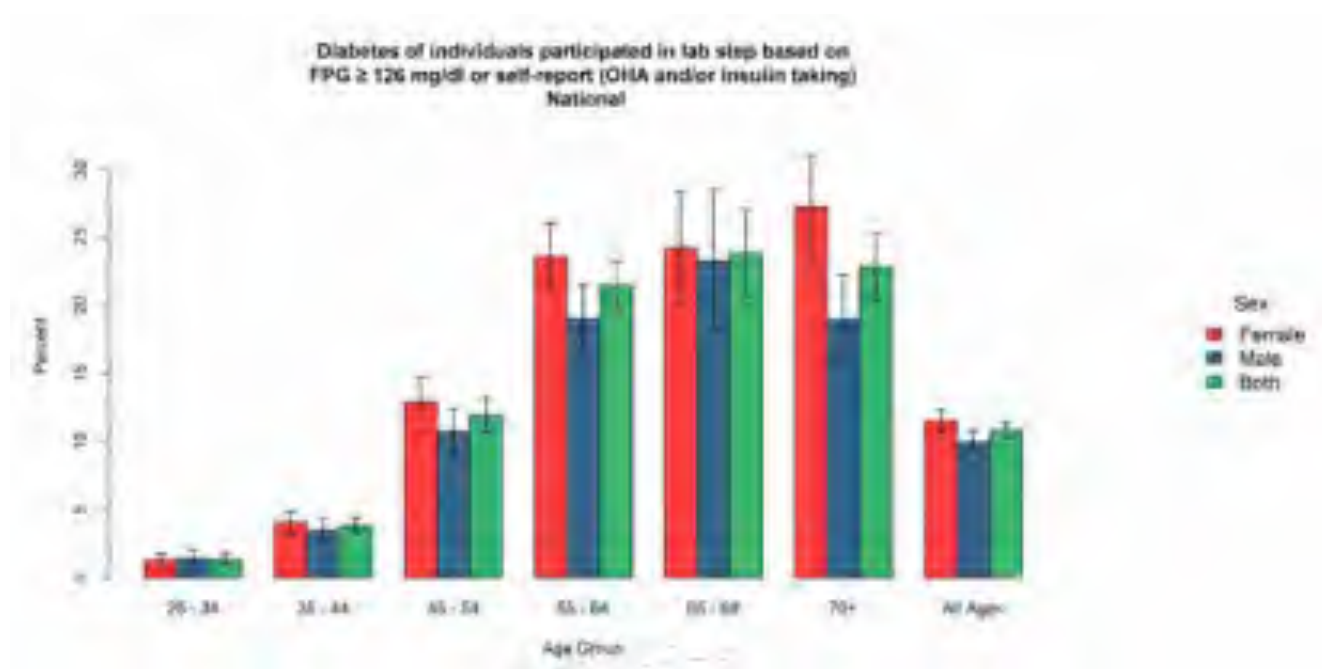


Figure 4.3.10. Prevalence of diabetes based on FPG by age and sex at national level

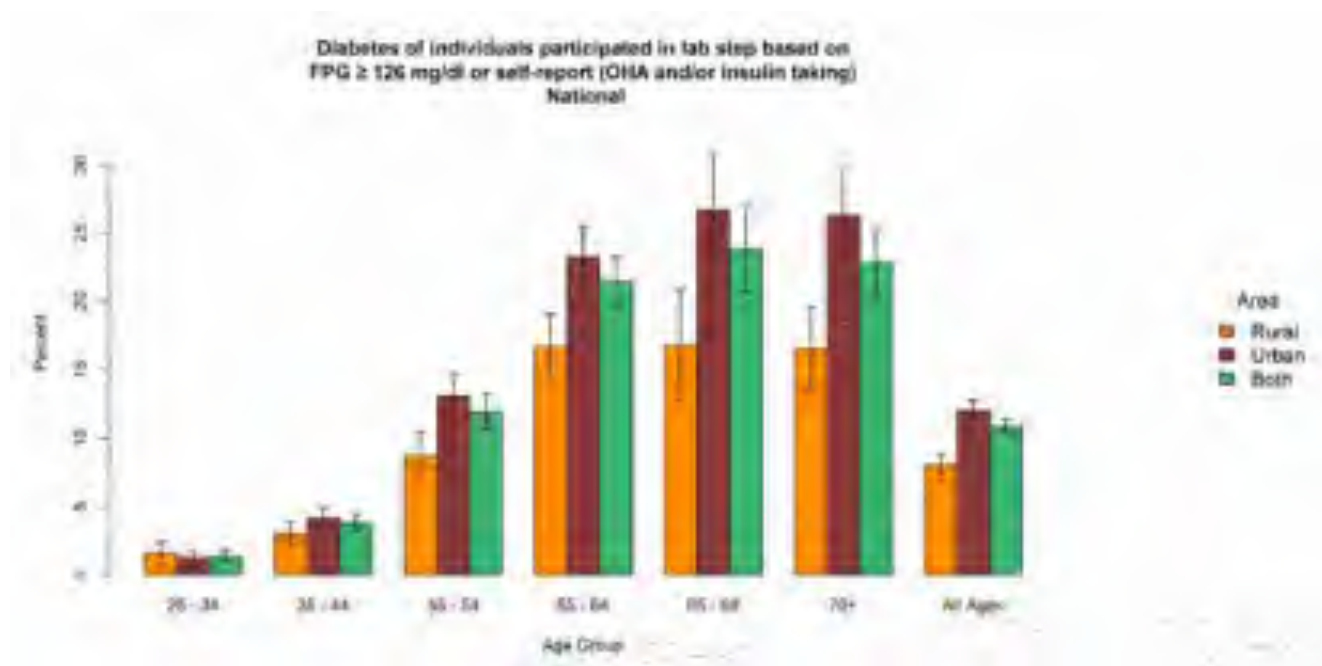


Figure 4.3.11. Prevalence of diabetes based on FPG by age and area of residency at national level

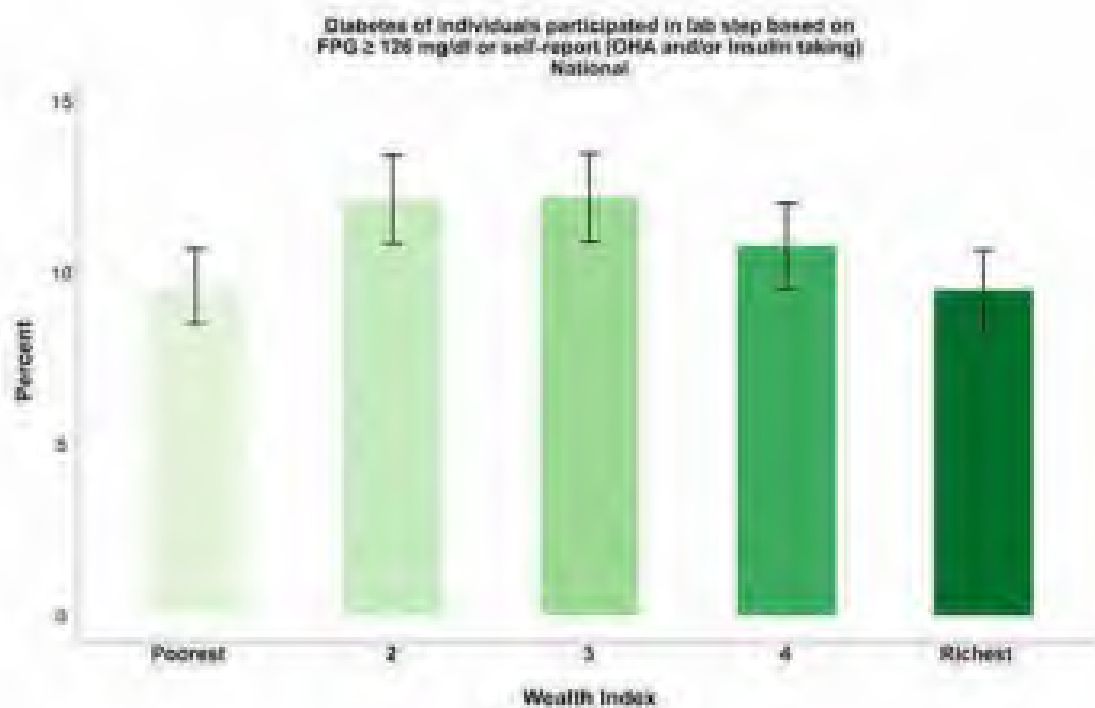


Figure 4.3.12. Prevalence of diabetes based on FPG by wealth index quantiles at national level

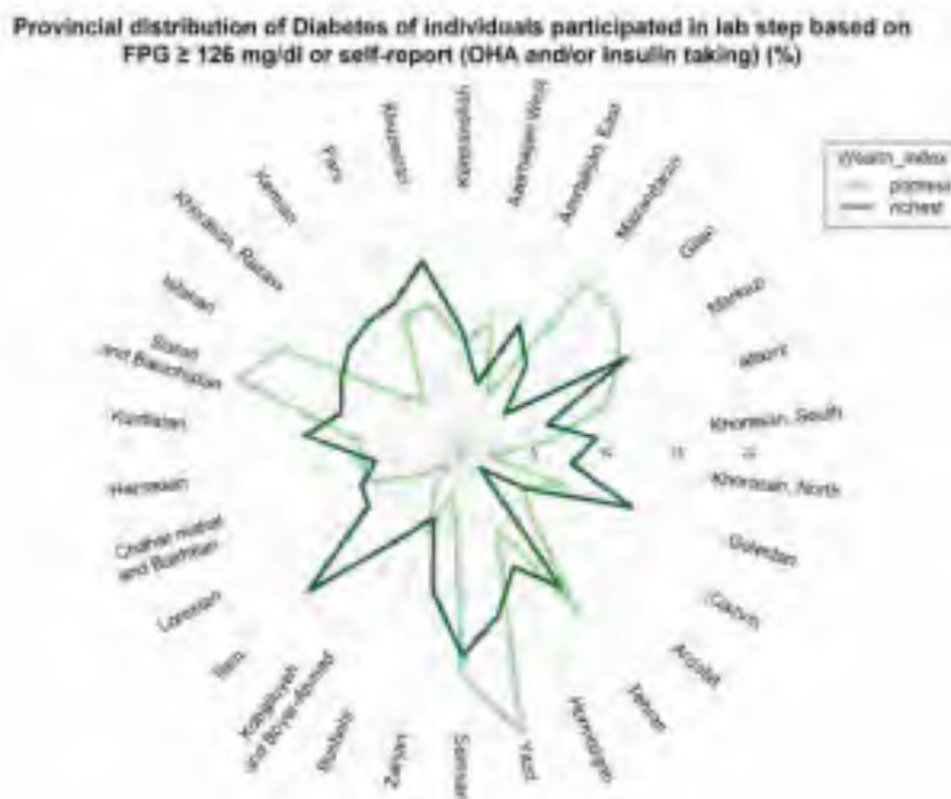


Figure 4.3.13. Provincial distribution of prevalence of diabetes based on FPG by wealth index

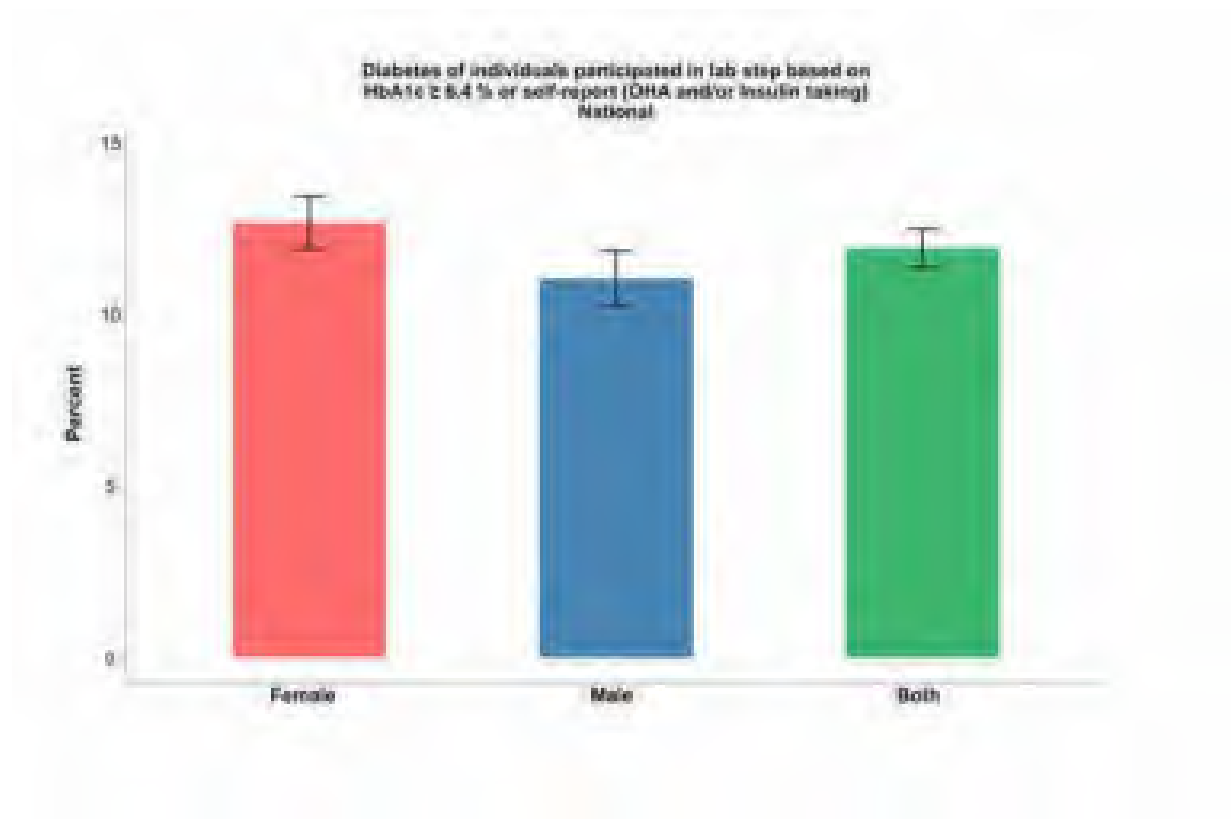


Figure 4.3.14. Prevalence of diabetes based on HbA1c by sex at national level

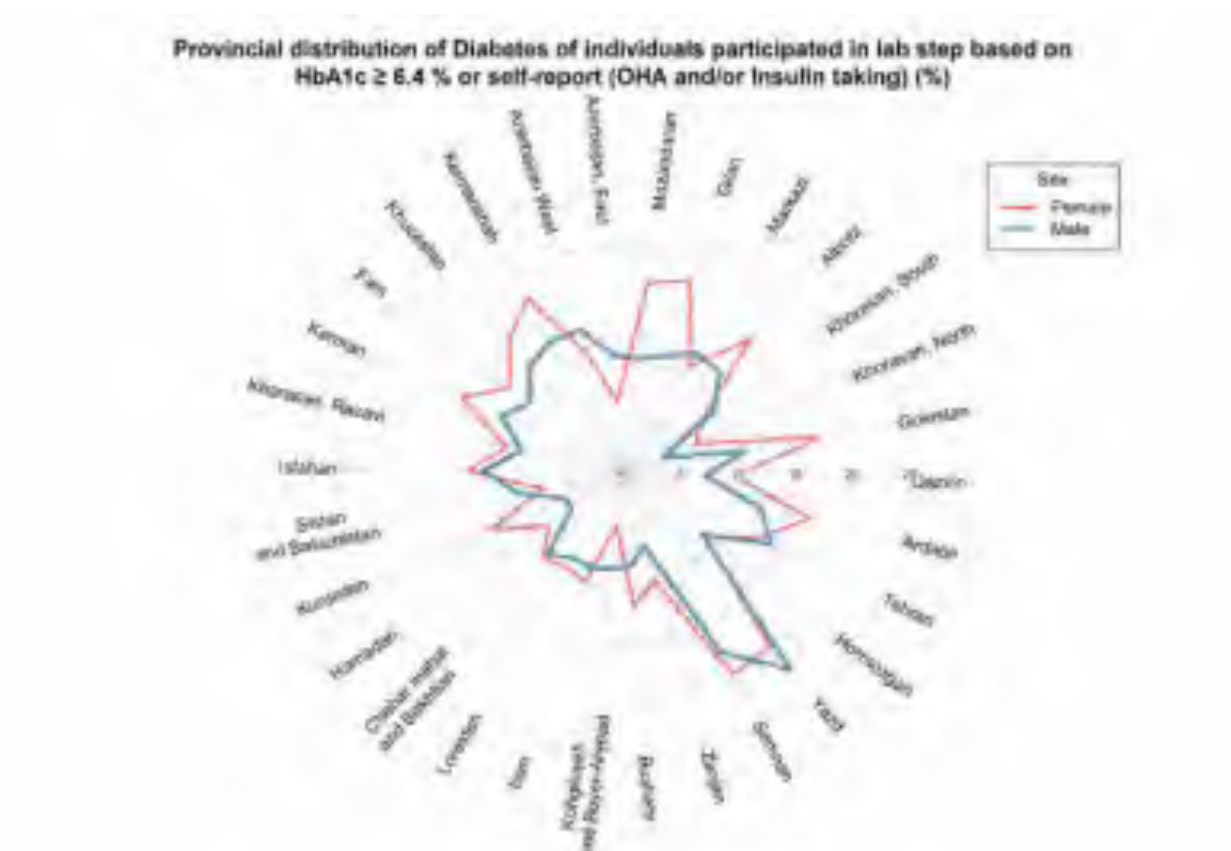


Figure 4.3.15. Provincial distribution of prevalence of diabetes based on HbA1c by sex

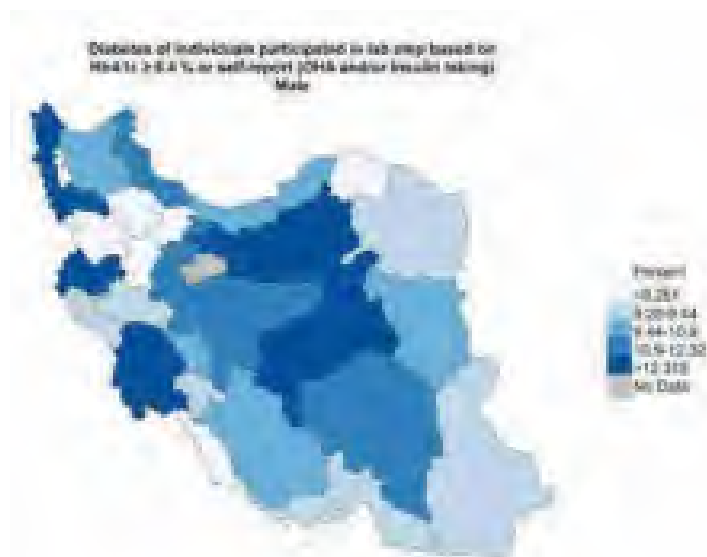


Figure 4.3.16. Geographical distribution of prevalence of diabetes based on HbA1c in males

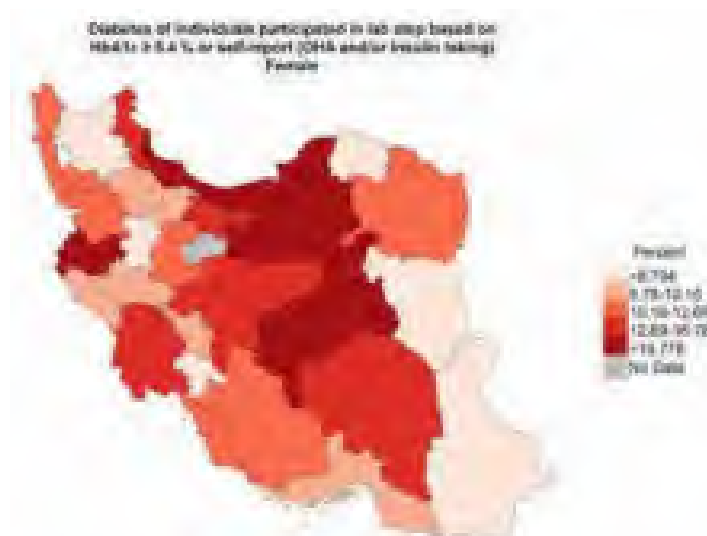


Figure 4.3.17. Geographical distribution of prevalence of diabetes based on HbA1c in females

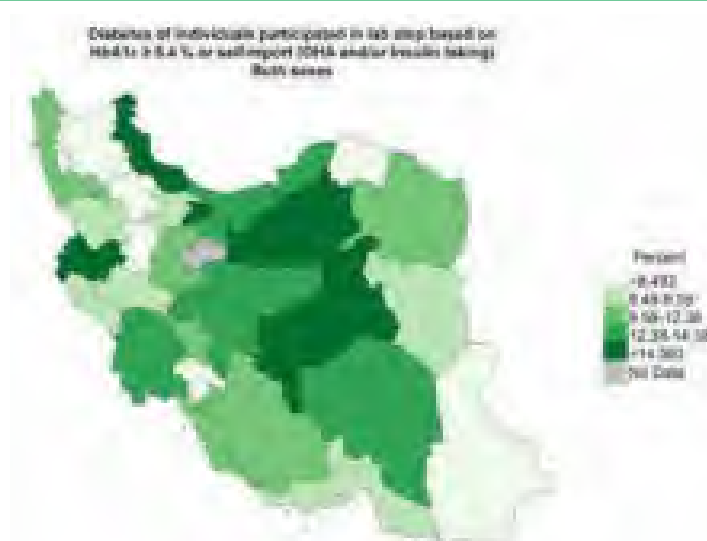


Figure 4.3.18. Geographical distribution of prevalence of diabetes based on HbA1c in both sexes

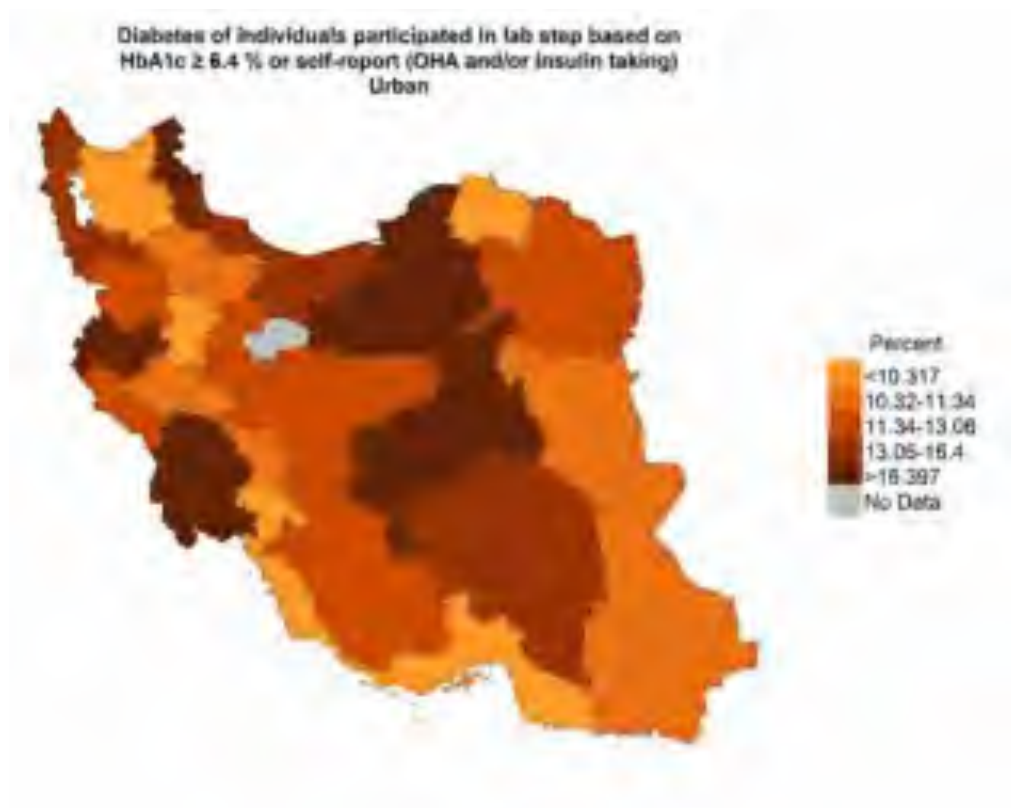


Figure 4.3.21. Geographical distribution of prevalence of diabetes based on HbA1c in urban area of residency

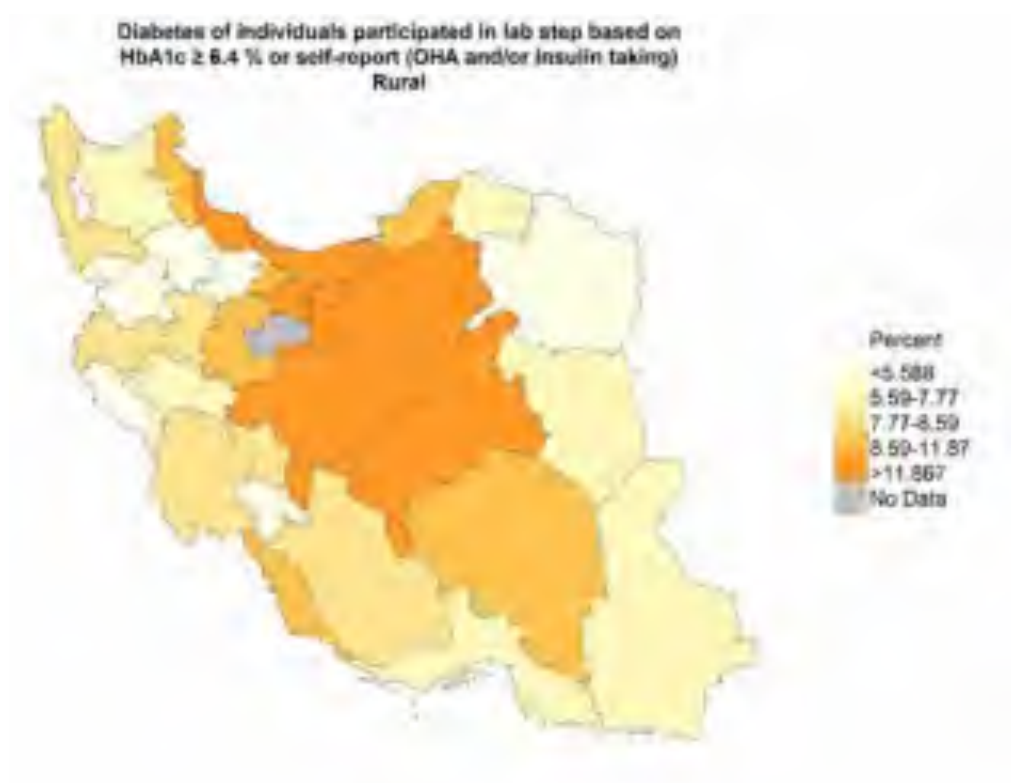


Figure 4.3.22. Geographical distribution of prevalence of diabetes based on HbA1c in rural area of residency

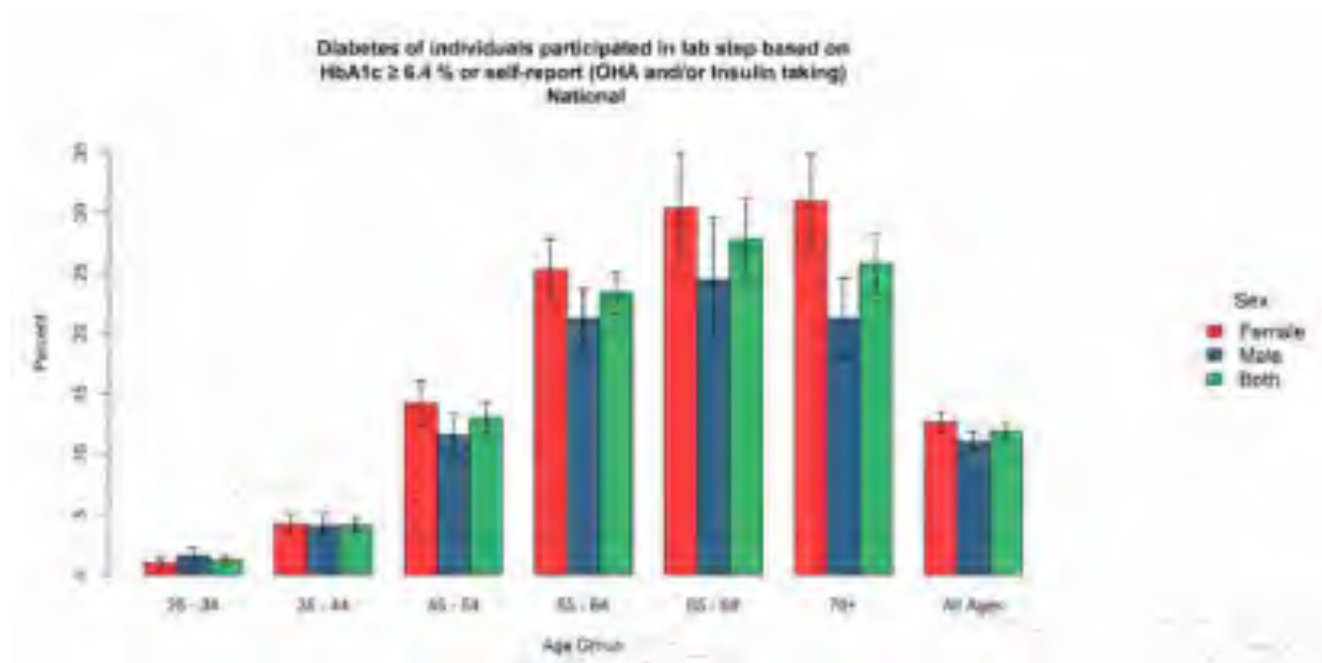


Figure 4.3.23. Prevalence of diabetes based on HbA1c by age and sex at national level

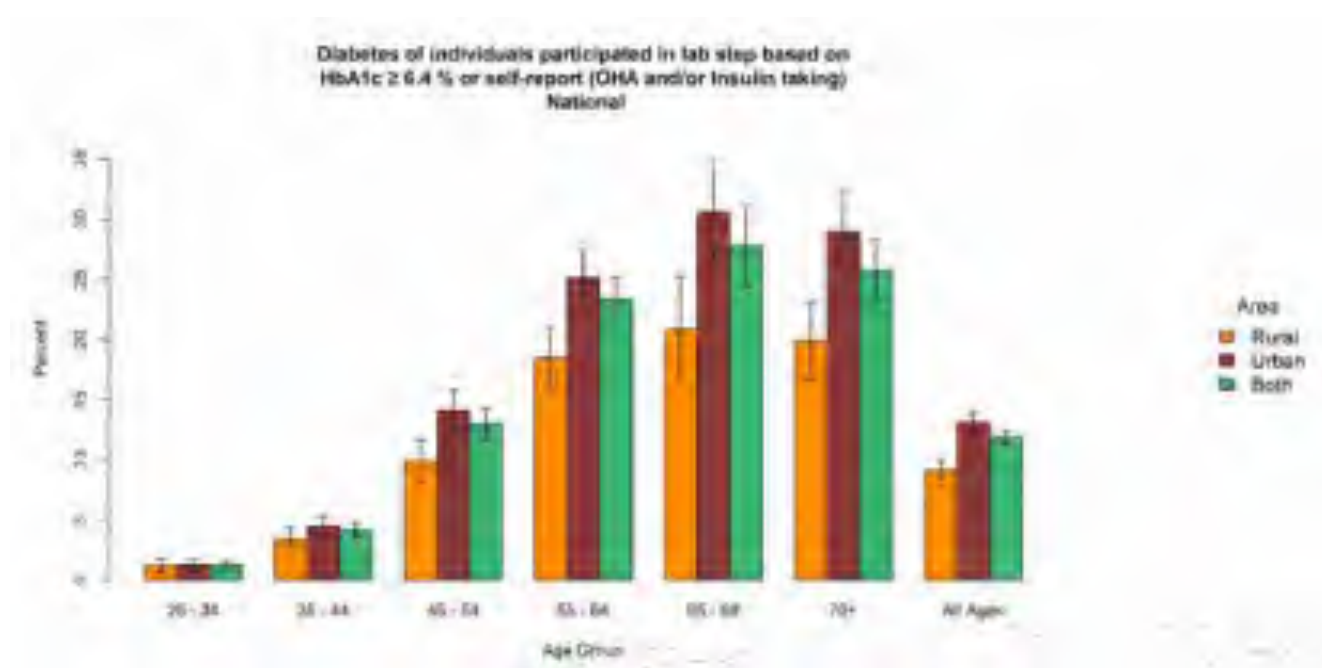


Figure 4.3.24. Prevalence of diabetes based on HbA1c by age and area of residency at national level

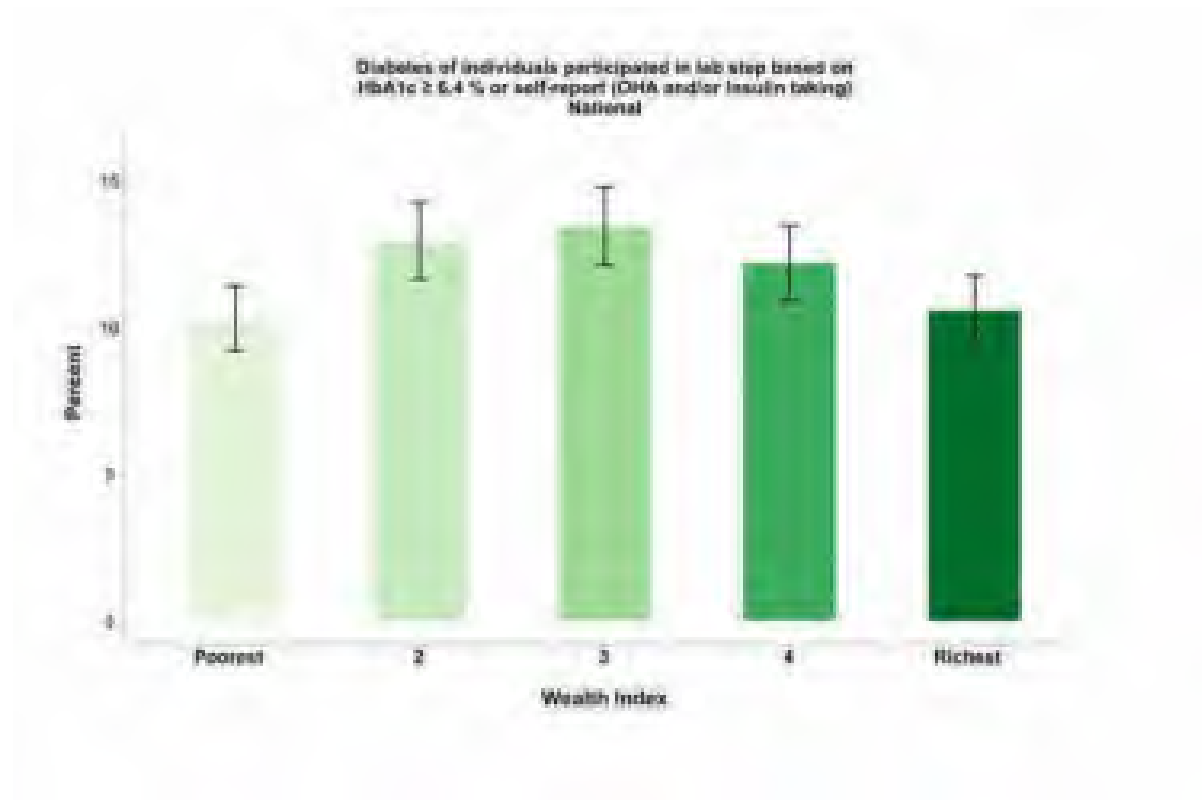


Figure 4.3.25. Prevalence of diabetes based on HbA1c by wealth index quantiles at national level

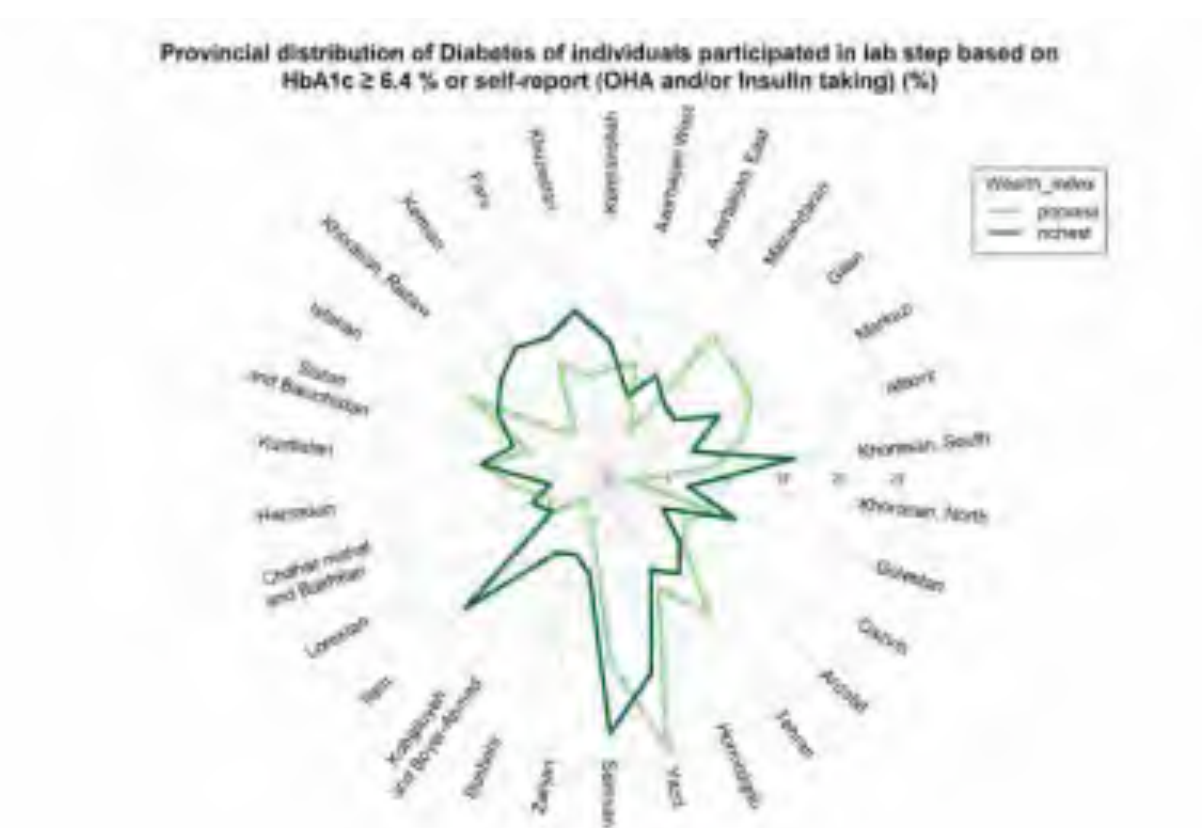


Figure 4.3.26. Provincial distribution of prevalence of diabetes based on HbA1c by wealth index

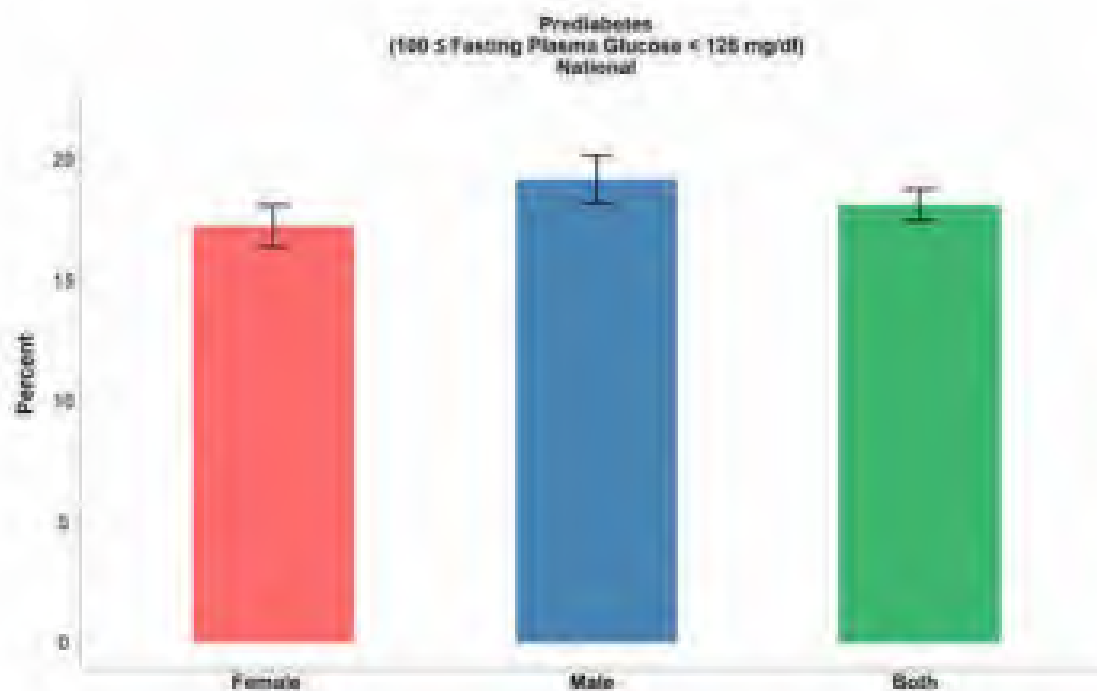


Figure 4.3.27. Prevalence of prediabetes based on FPG by sex at national level

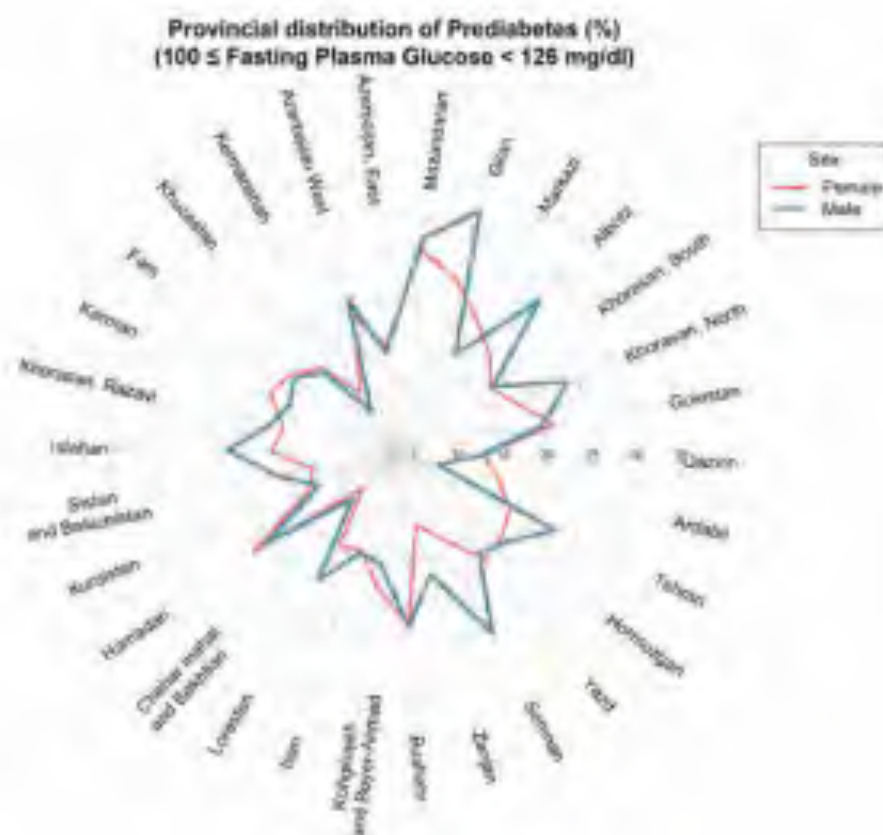


Figure 4.3.28. Provincial distribution of prevalence of prediabetes based on FPG by sex

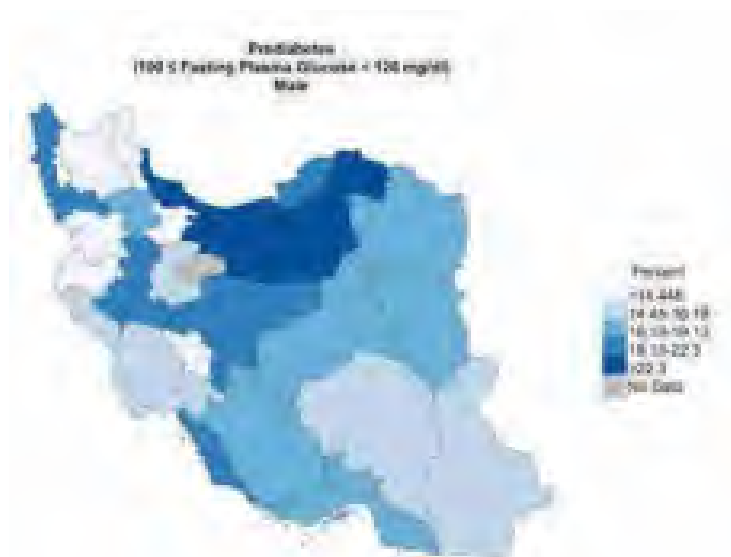


Figure 4.3.29. Geographical distribution of prevalence of prediabetes based on FPG in males

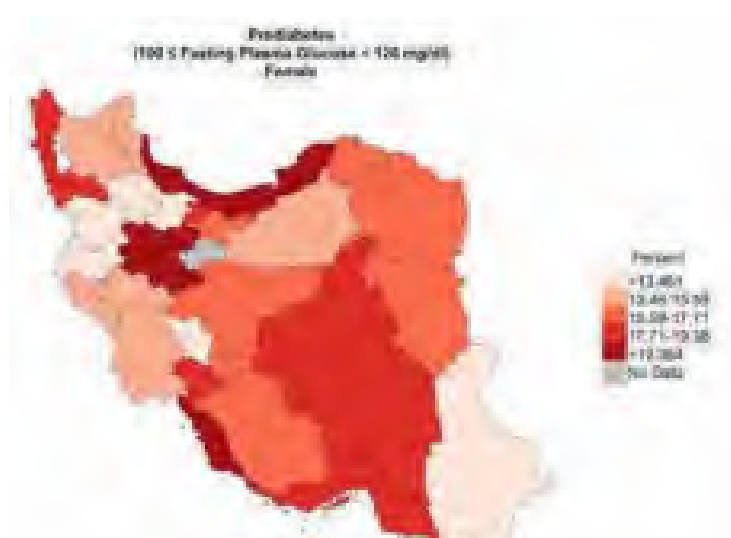


Figure 4.3.30. Geographical distribution of prevalence of prediabetes based on FPG in females

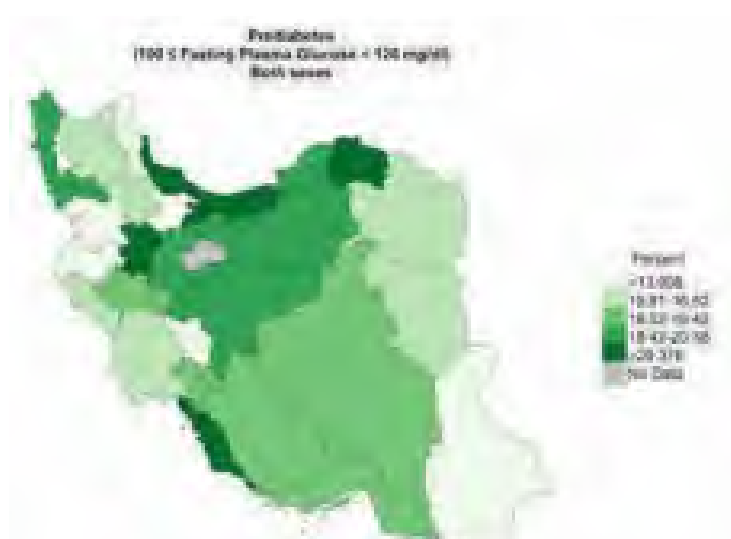


Figure 4.3.31. Geographical distribution of prevalence of prediabetes based on FPG in both sexes

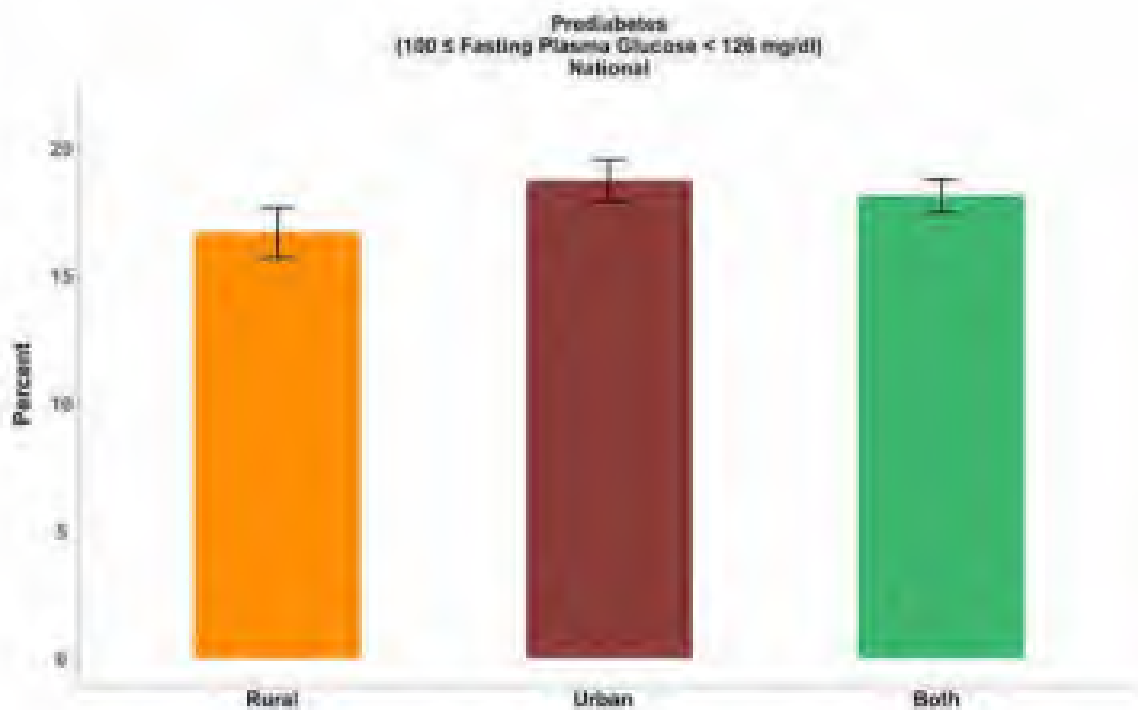


Figure 4.3.32. Prevalence of prediabetes based on FPG by area of residency at national level

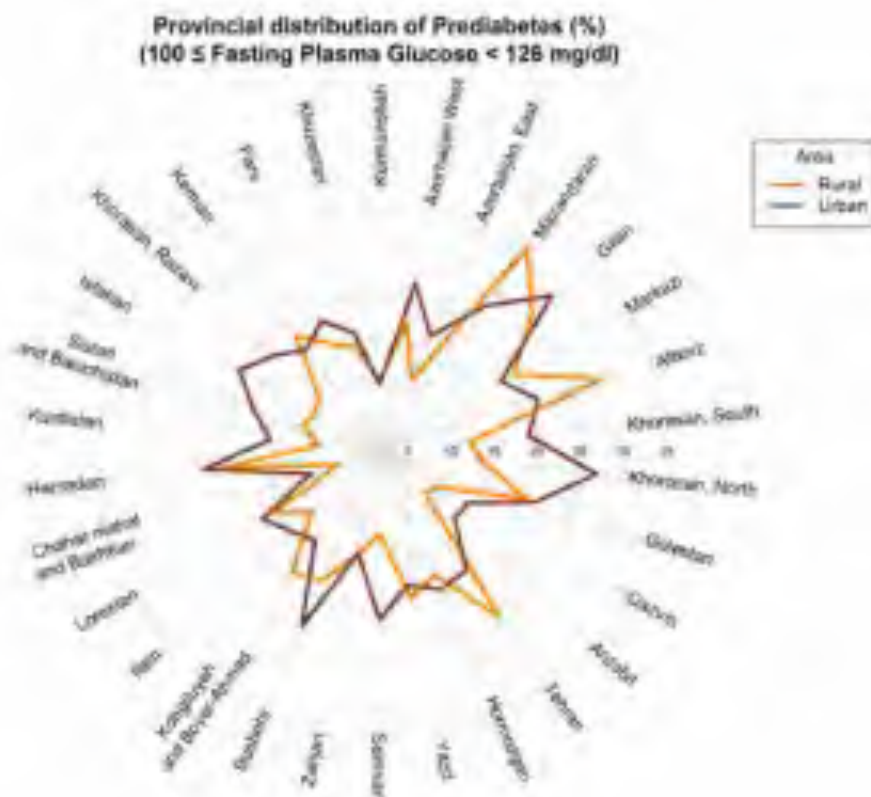


Figure 4.3.33. Provincial distribution of prevalence of prediabetes based on FPG by area of residency

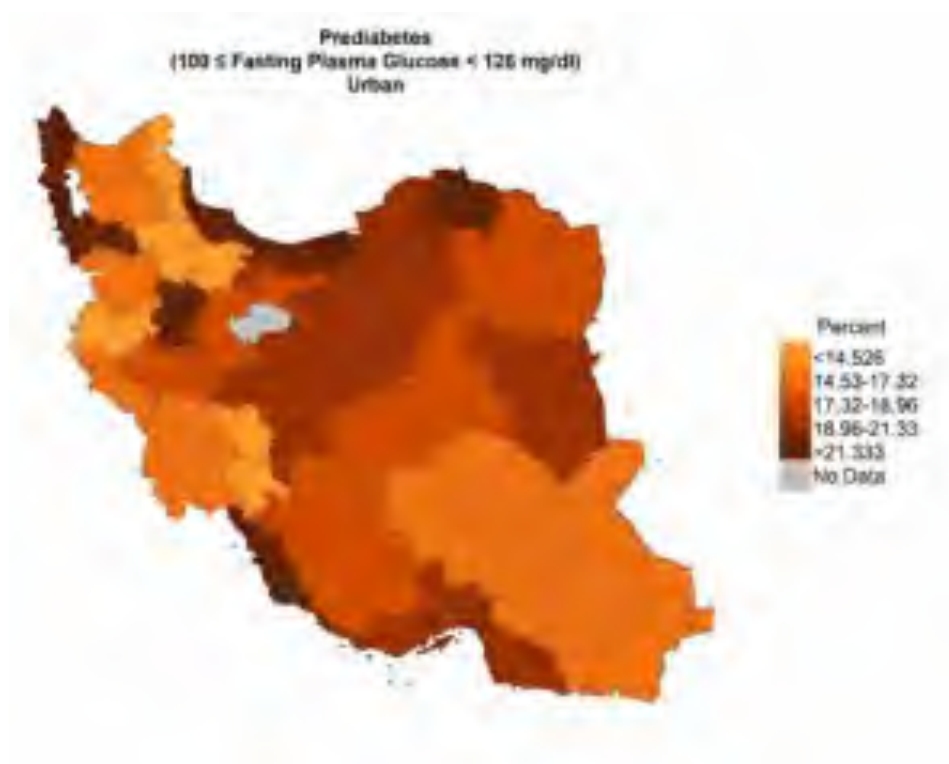


Figure 4.3.34. Geographical distribution of prevalence of prediabetes based on FPG in urban area of residency

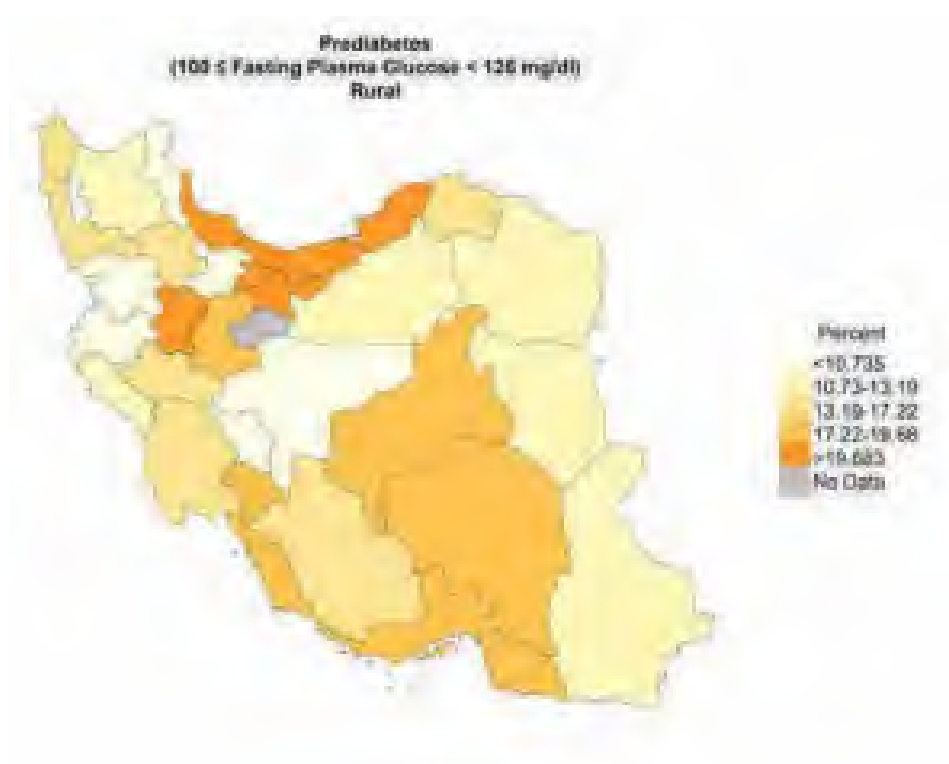


Figure 4.3.35. Geographical distribution of prevalence of prediabetes based on FPG in rural area of residency

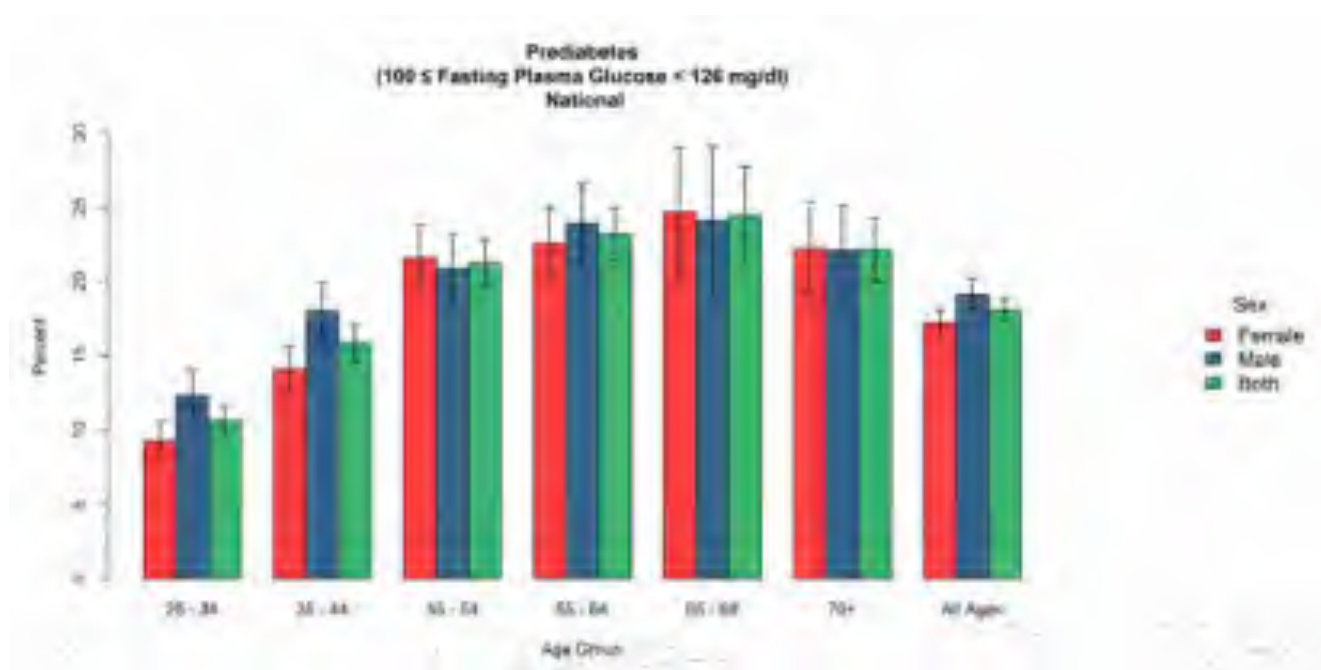


Figure 4.3.36. Prevalence of prediabetes based on FPG by age and sex at national level

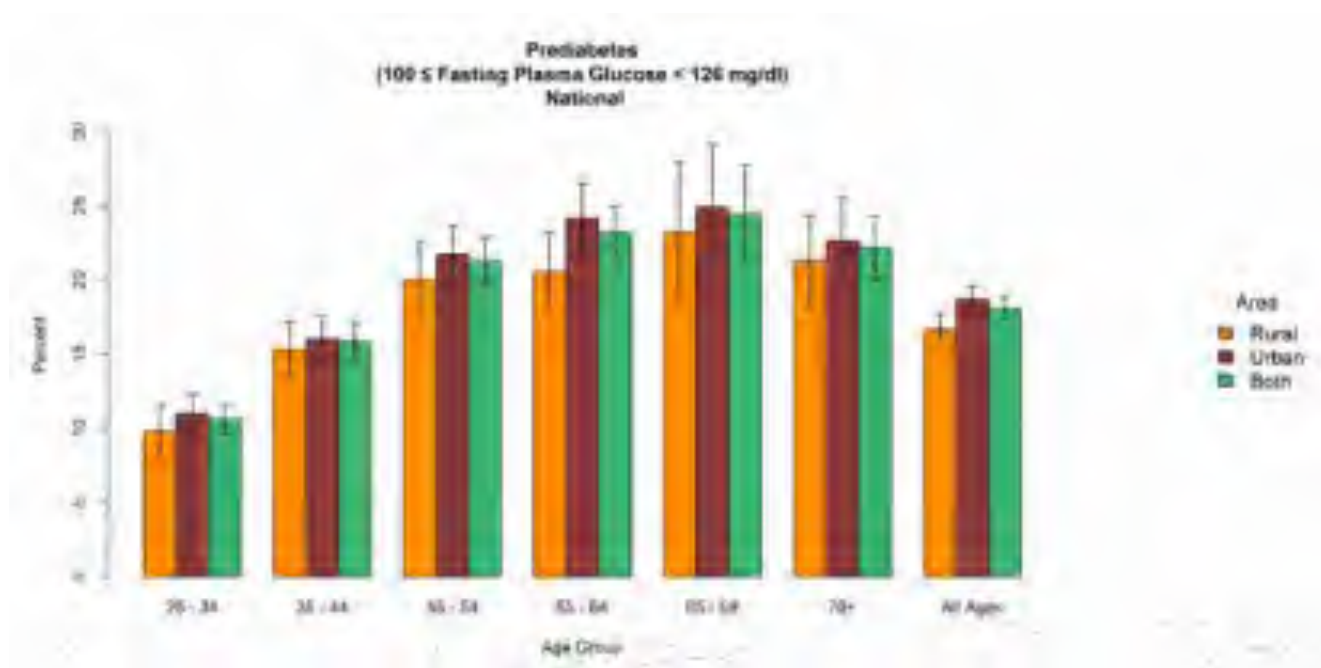


Figure 4.3.37. Prevalence of prediabetes based on FPG by age and area of residency at national level

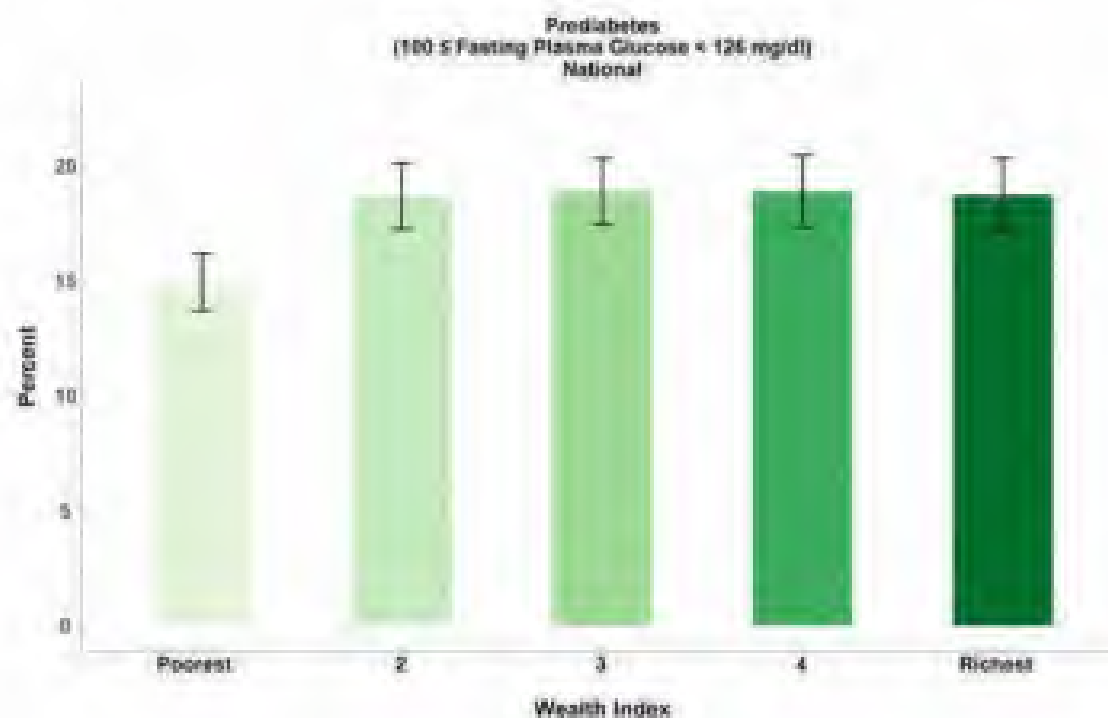


Figure 4.3.38. Prevalence of prediabetes based on FPG by wealth index quantiles at national level

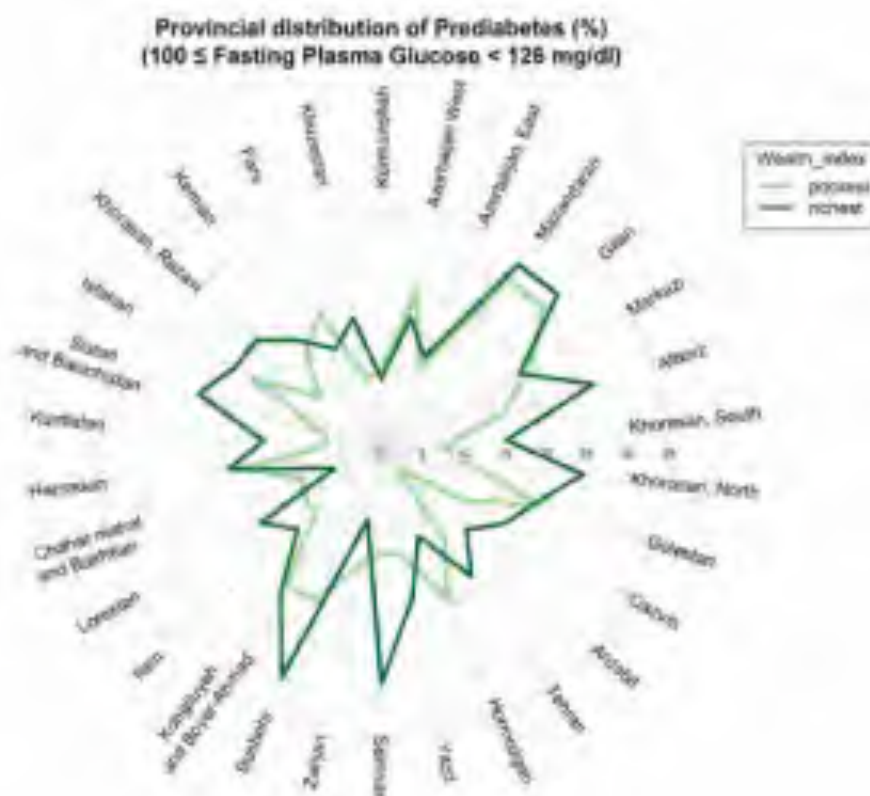


Figure 4.3.39. Provincial distribution of prevalence of prediabetes based on FPG by wealth index

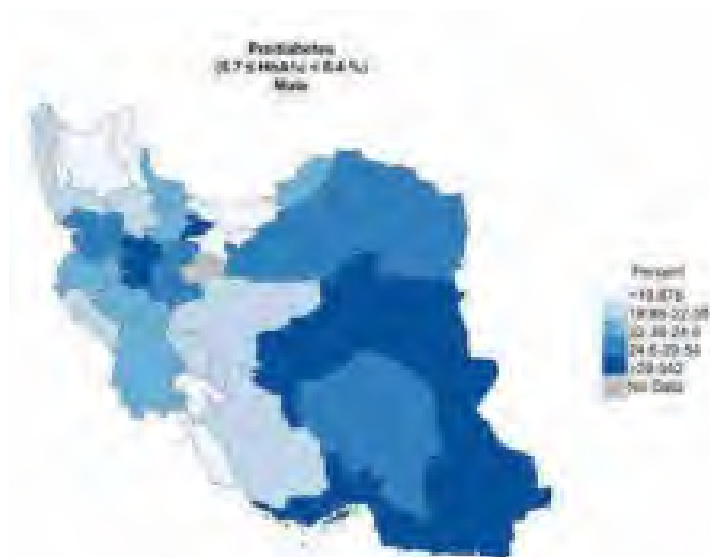


Figure 4.3.42. Geographical distribution of prevalence of prediabetes based on HbA1c in males

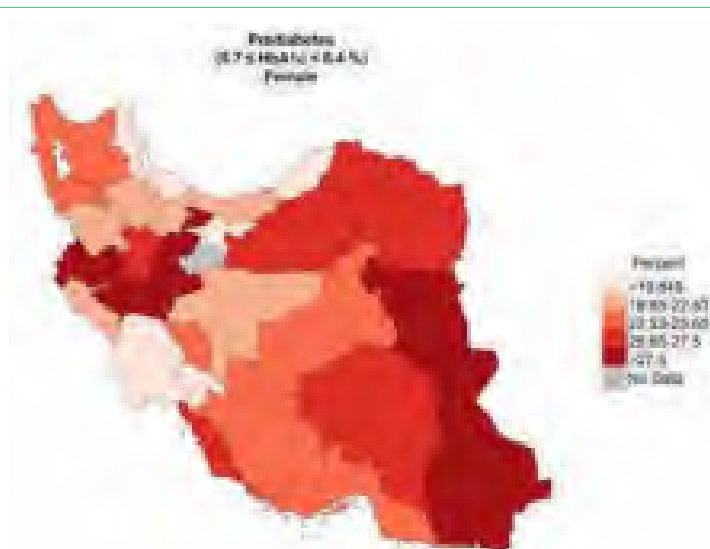


Figure 4.3.43. Geographical distribution of prevalence of prediabetes based on HbA1c in females

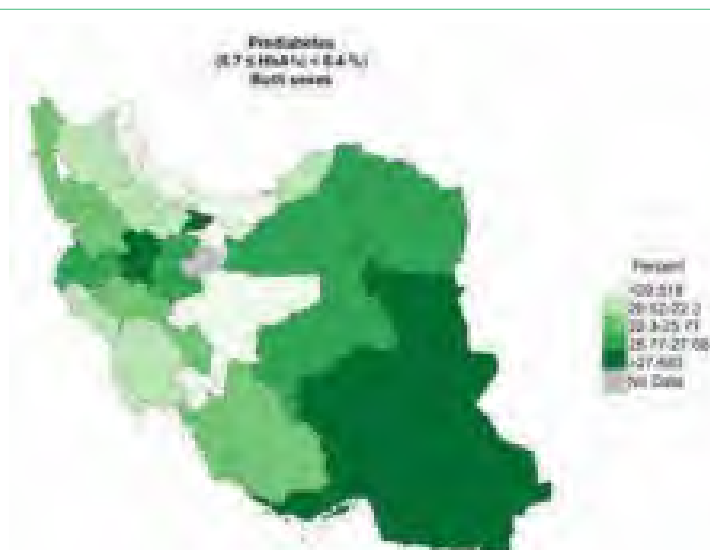


Figure 4.3.44. Geographical distribution of prevalence of prediabetes based on HbA1c in both sexes

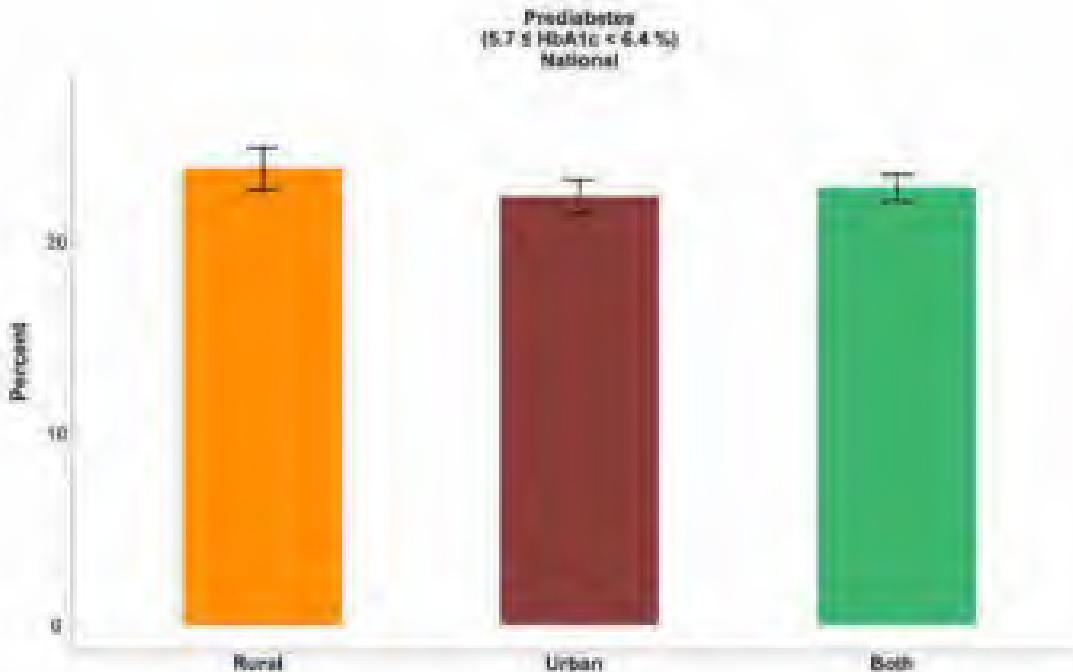


Figure 4.3.45. Prevalence of prediabetes based on HbA1c by area of residency at national level

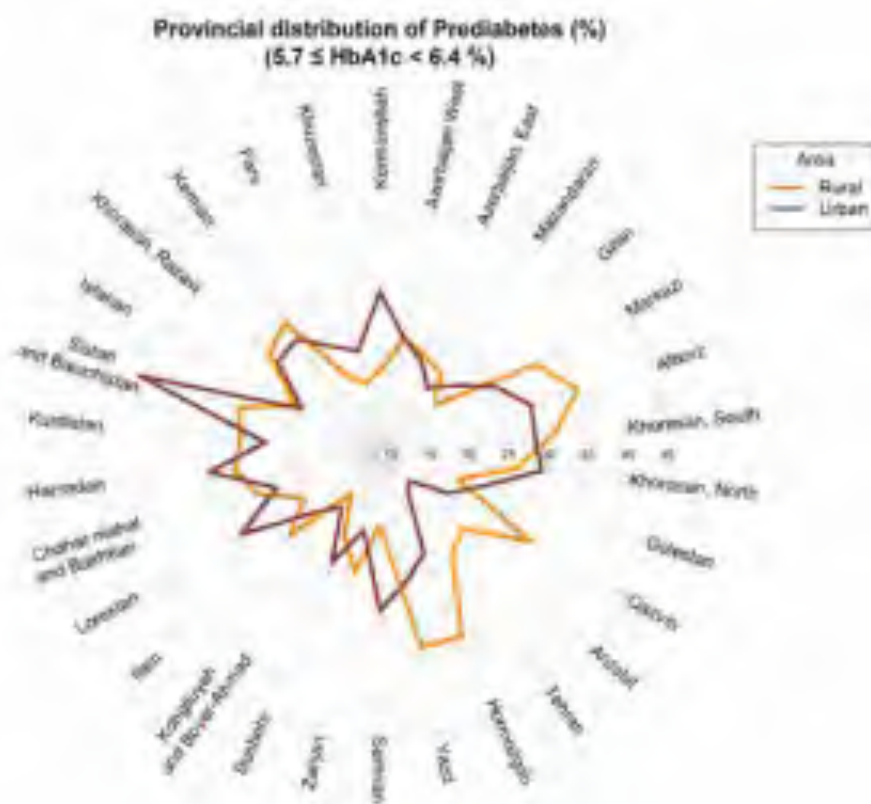


Figure 4.3.46. Provincial distribution of prevalence of prediabetes based on HbA1c by area of residency

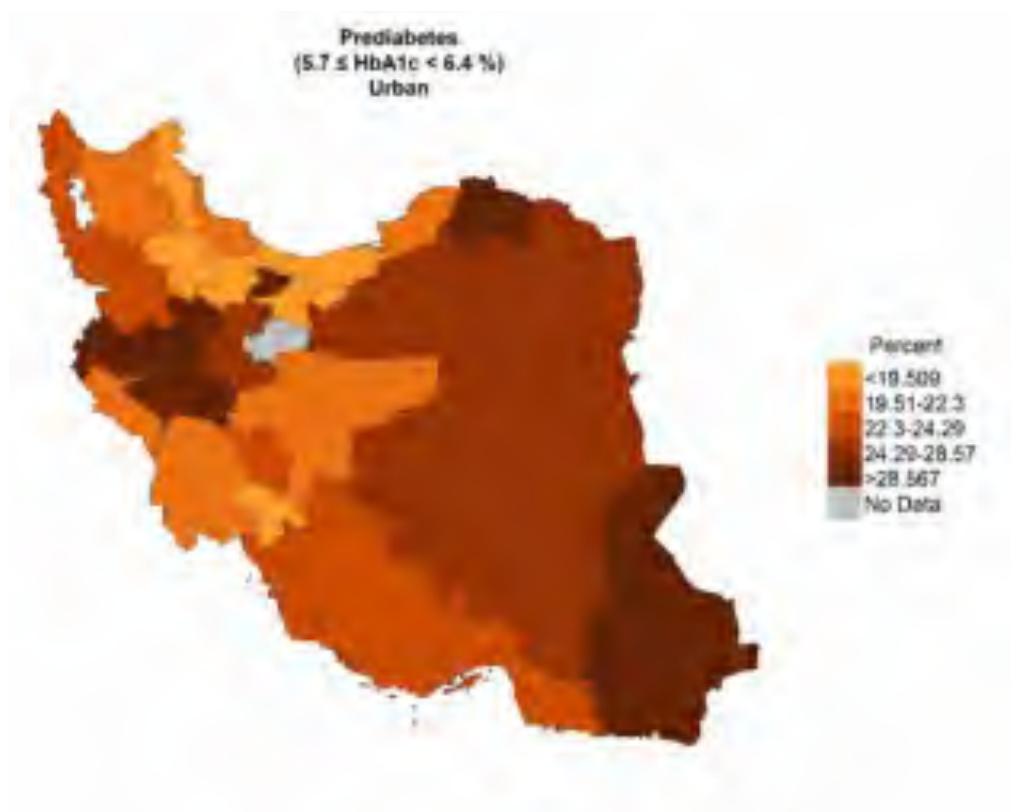


Figure 4.3.47. Geographical distribution of prevalence of prediabetes based on HbA1c in urban area of residency

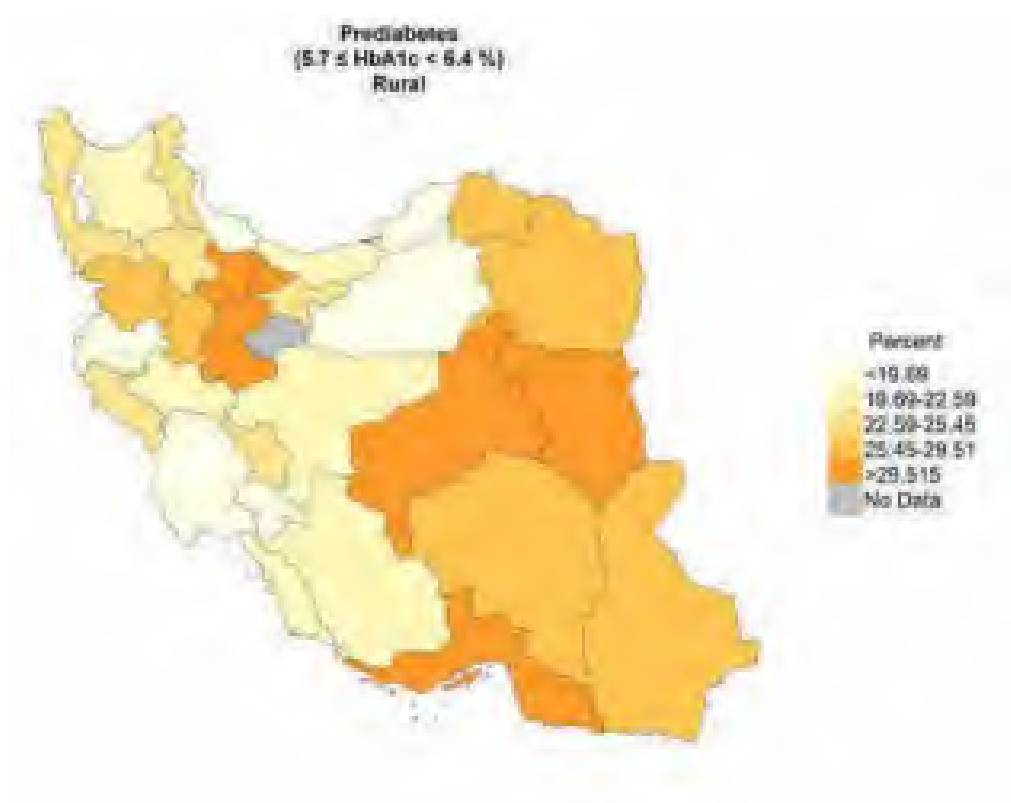


Figure 4.3.48. Geographical distribution of prevalence of prediabetes based on HbA1c in rural area of residency

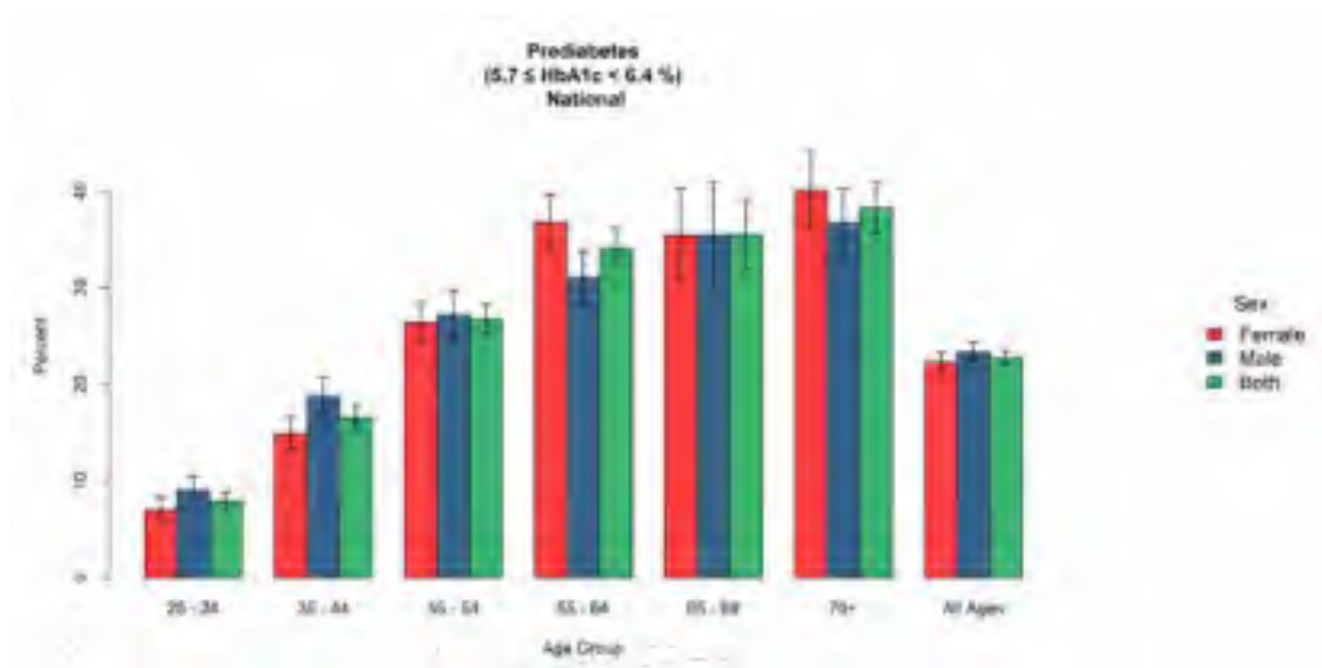


Figure 4.3.49. Prevalence of prediabetes based on HbA1c by age and sex at national level

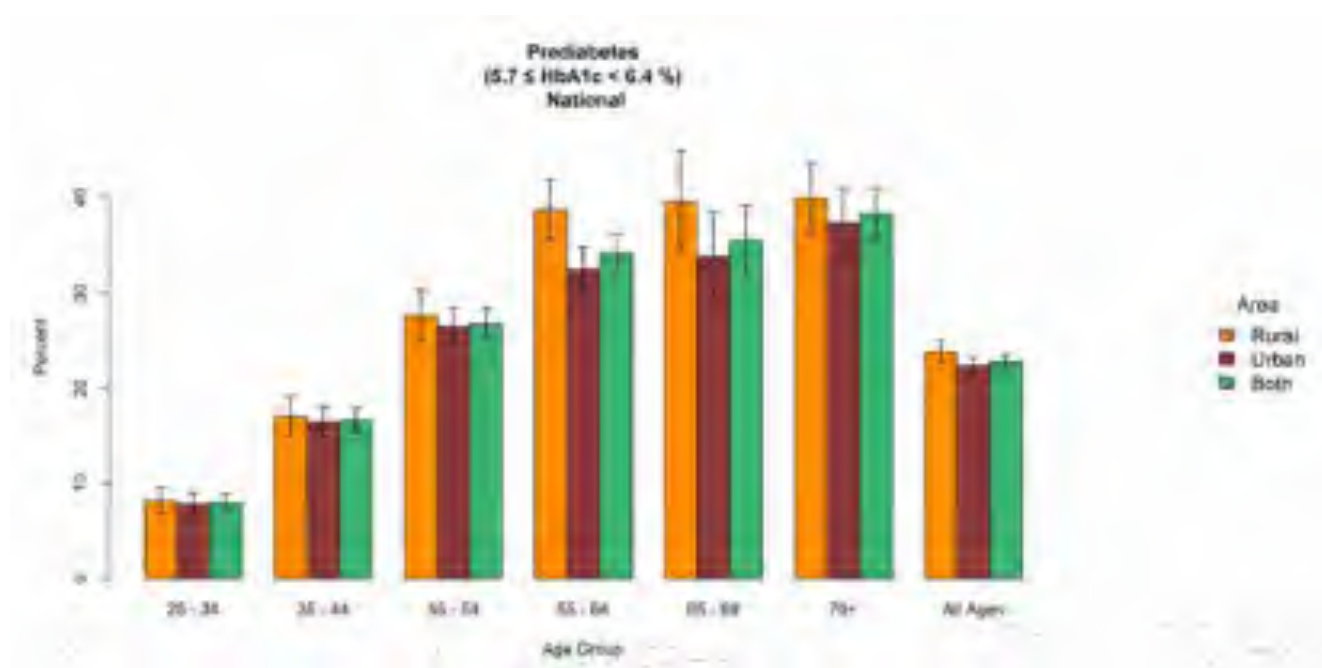


Figure 4.3.50. Prevalence of prediabetes based on HbA1c by age and area of residency at national level

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Section 4.4

Metabolic Risk Factors: Blood Fat-related

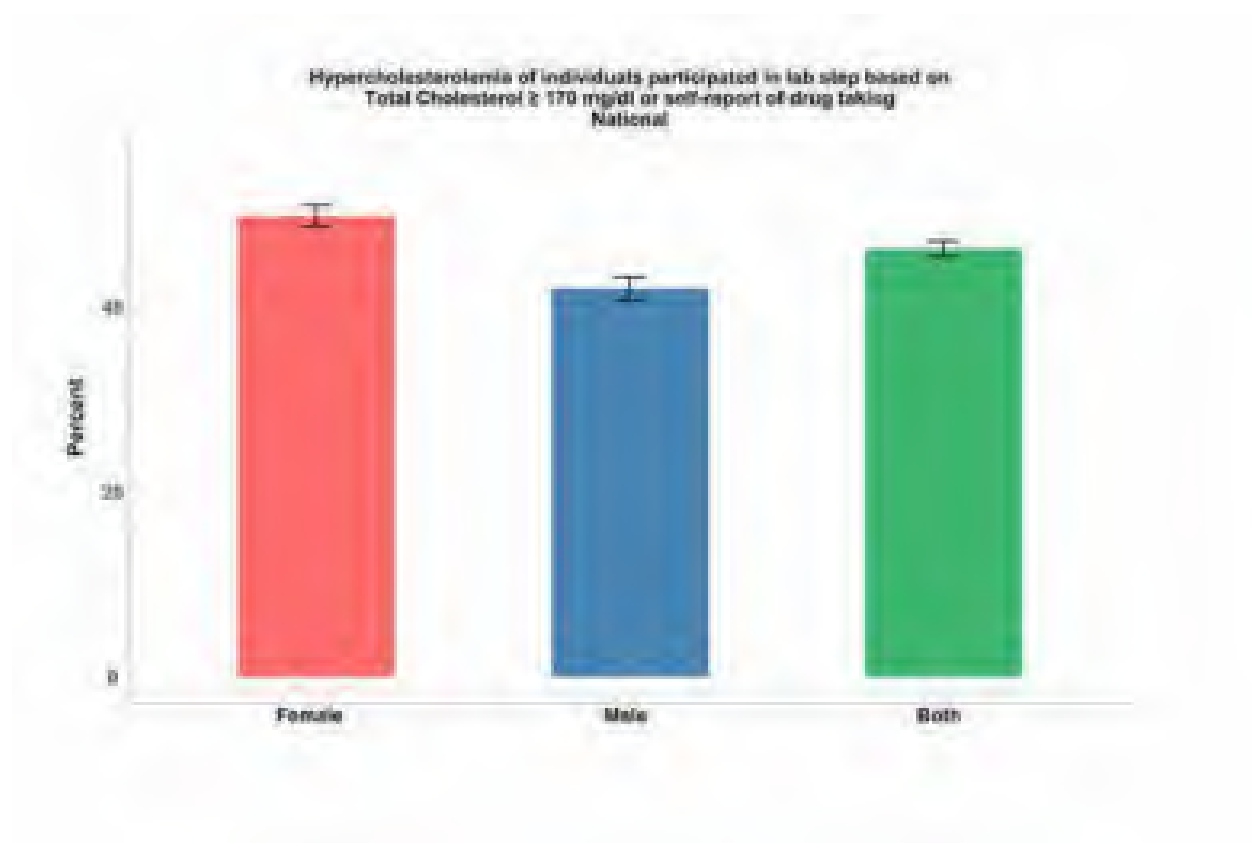


Figure 4.4.1. Prevalence of hypercholesterolemia based on total cholesterol \geq 170 mg/dl by sex at national level

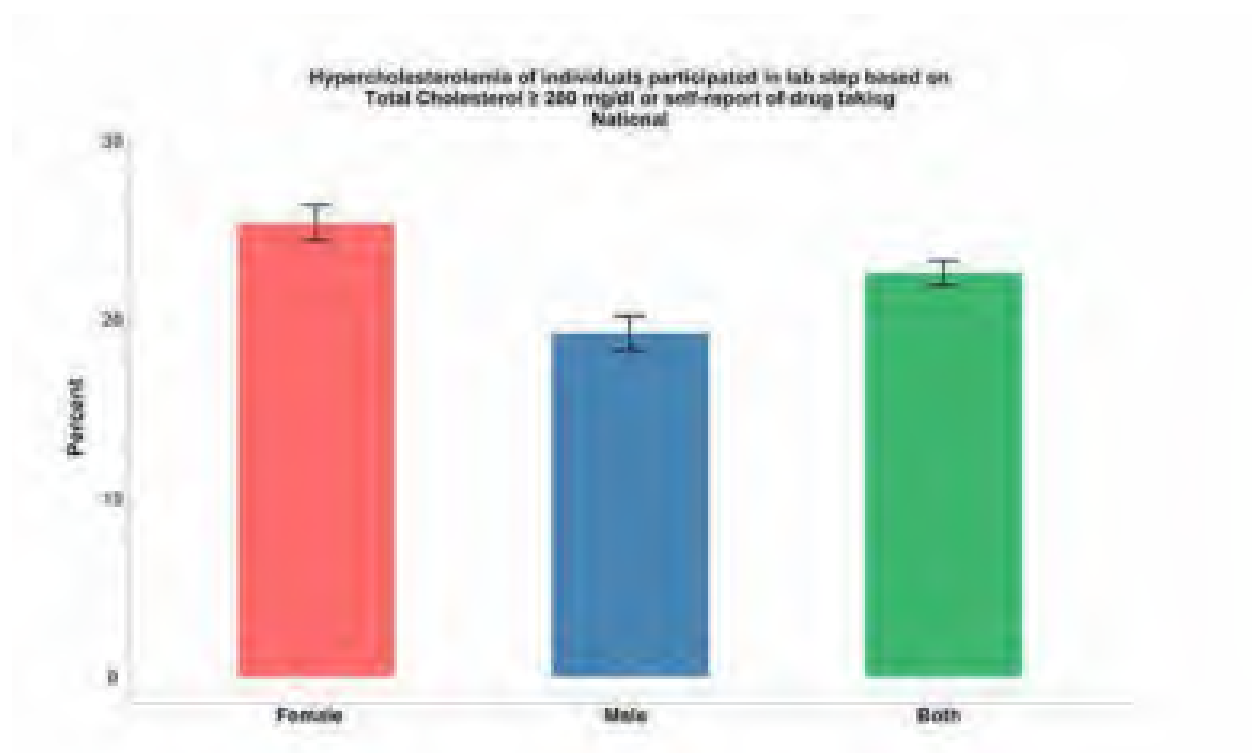
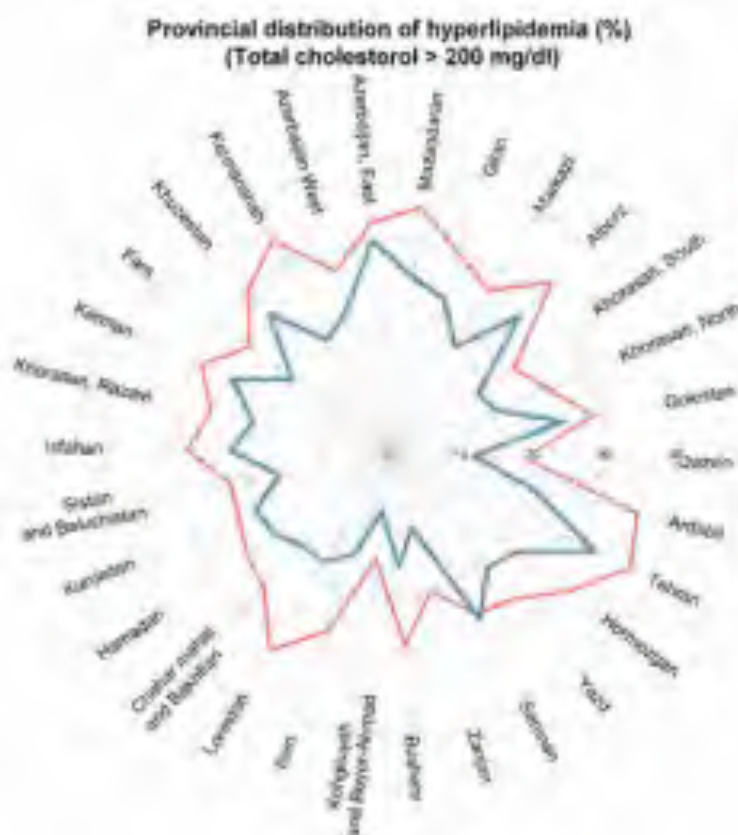
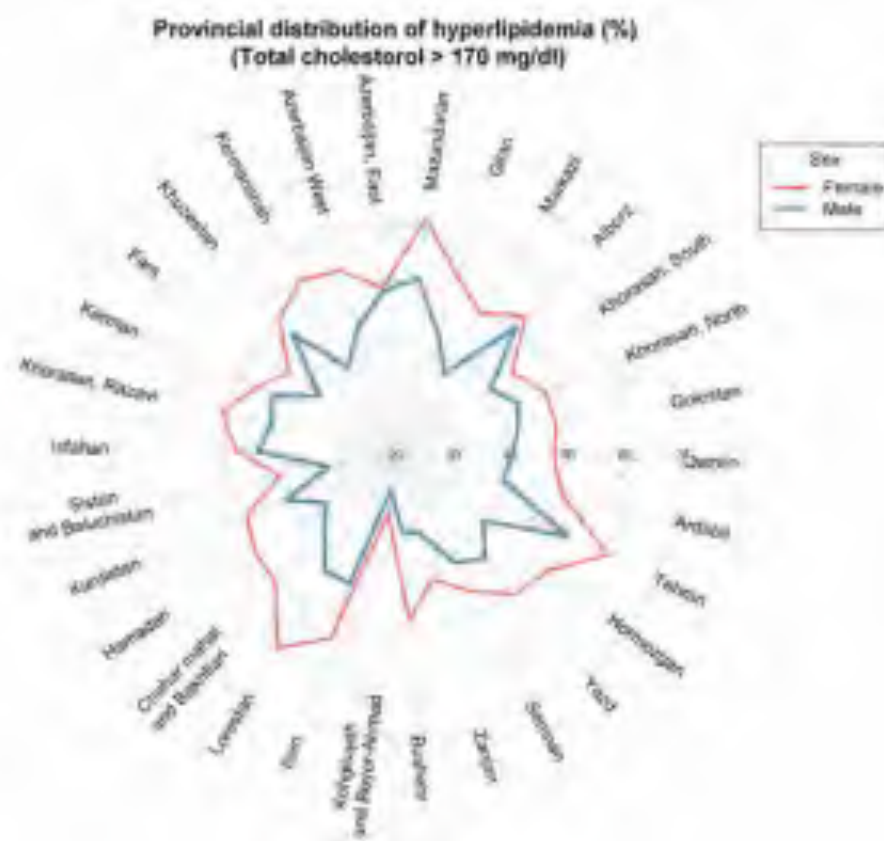


Figure 4.4.2. Prevalence of hypercholesterolemia based on total cholesterol \geq 200 mg/dl by sex at national level



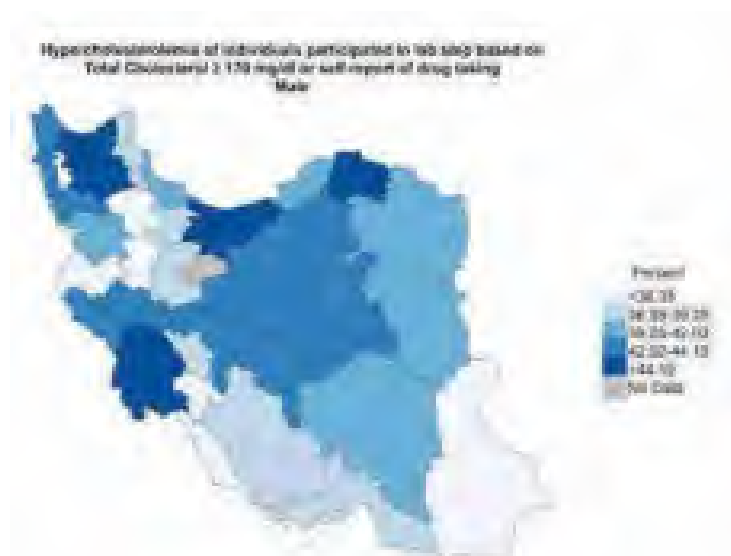


Figure 4.4.5. Geographical distribution of prevalence of hypercholesterolemia based on total cholesterol ≥ 170 mg/dl in males

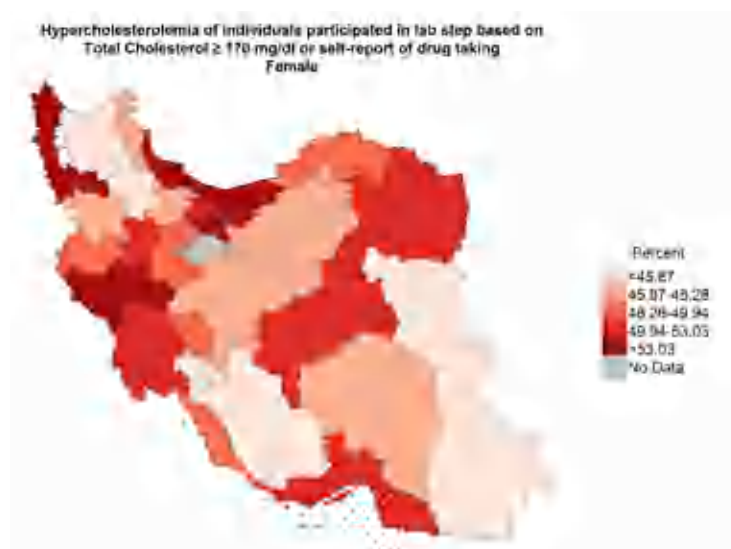


Figure 4.4.6. Geographical distribution of prevalence of hypercholesterolemia based on total cholesterol ≥ 170 mg/dl in females

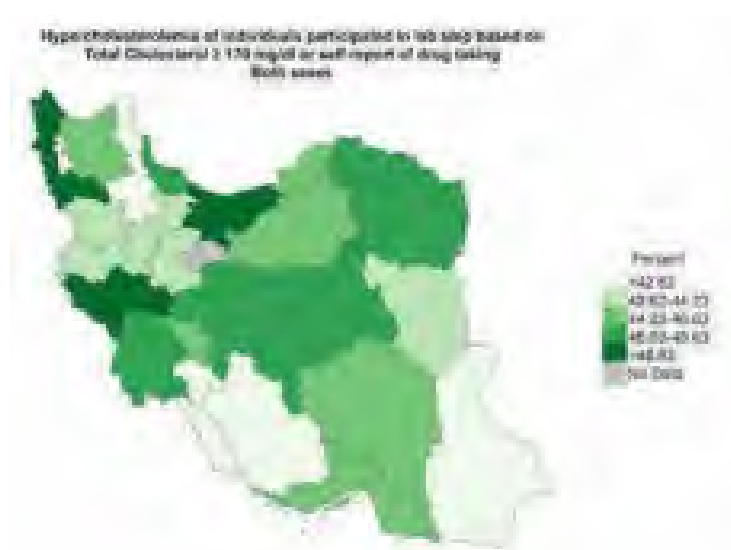


Figure 4.4.7. Geographical distribution of prevalence of hypercholesterolemia based on total cholesterol ≥ 170 mg/dl in both sexes

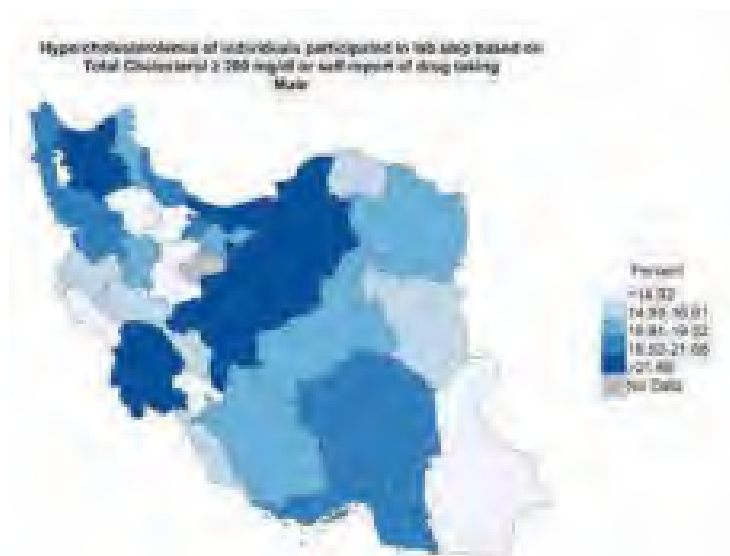


Figure 4.4.8. Geographical distribution of prevalence of hypercholesterolemia based on total cholesterol ≥ 200 mg/dl in males

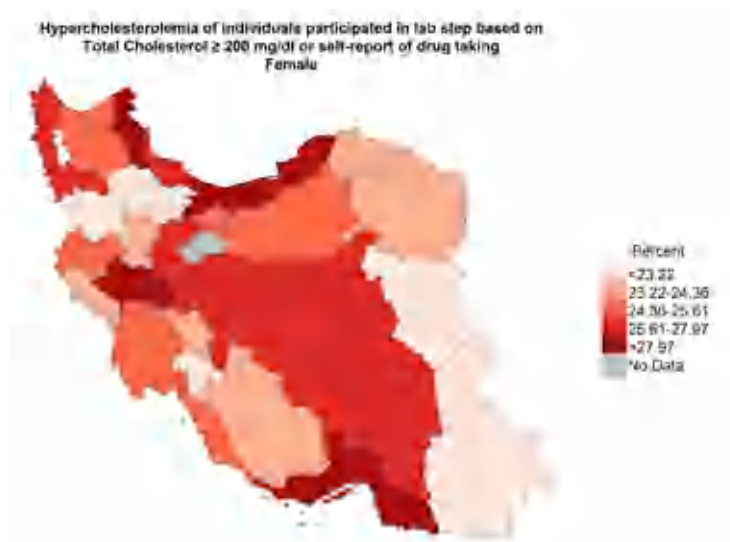


Figure 4.4.9. Geographical distribution of prevalence of hypercholesterolemia based on total cholesterol ≥ 200 mg/dl in females

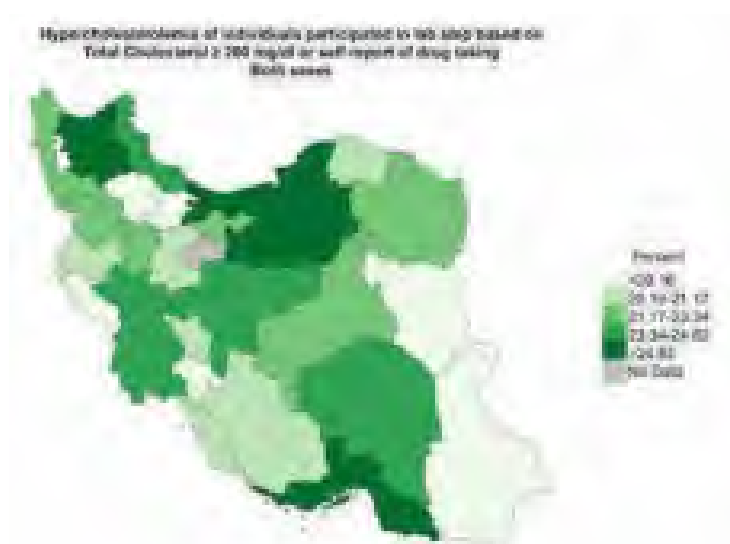


Figure 4.4.10. Geographical distribution of prevalence of hypercholesterolemia based on total cholesterol ≥ 200 mg/dl in both sexes

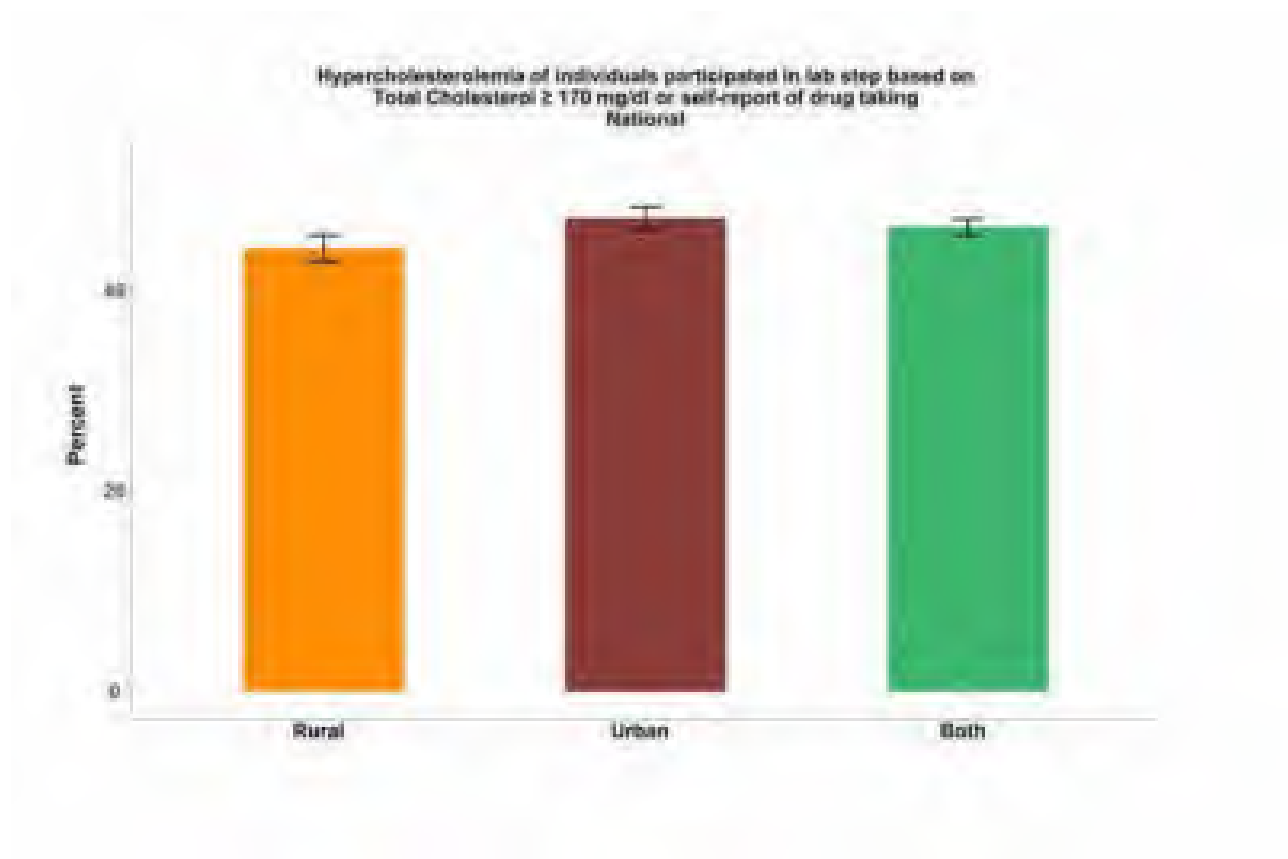


Figure 4.4.11. Prevalence of hypercholesterolemia based on total cholesterol \geq 170 mg/dl by area of residency at national level

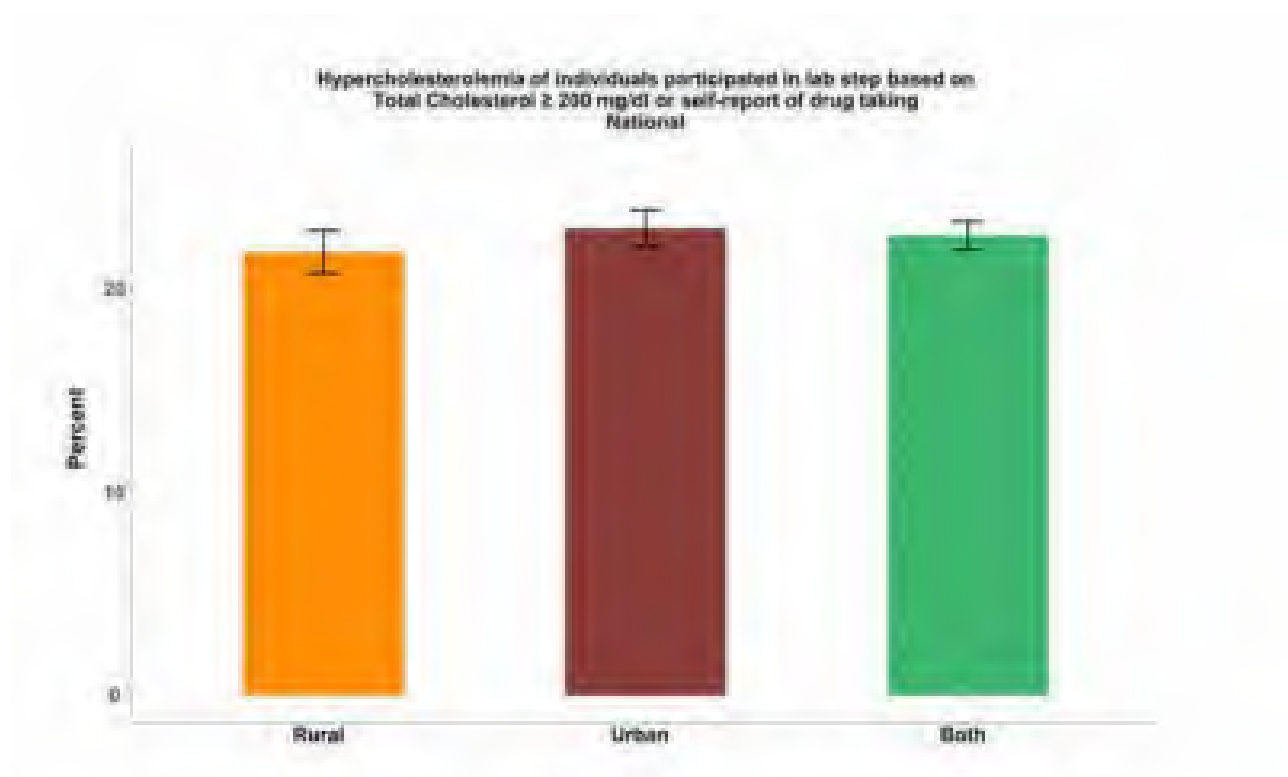


Figure 4.4.12. Prevalence of hypercholesterolemia based on total cholesterol \geq 200 mg/dl by area of residency at national level

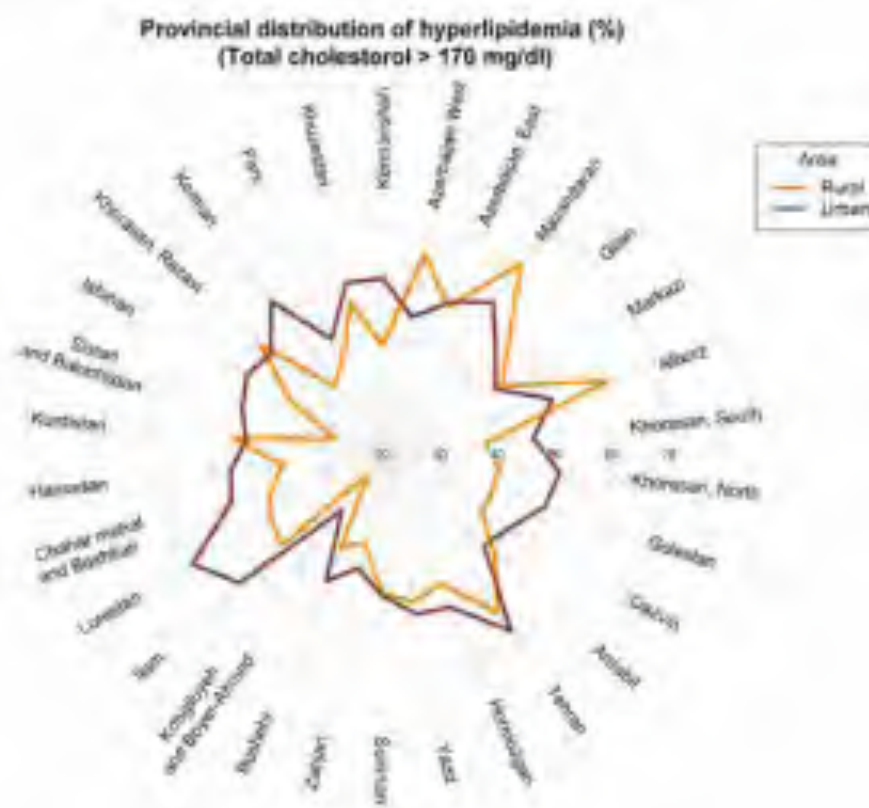


Figure 4.4.13. Provincial distribution of prevalence of hypercholesterolemia based on total cholesterol ≥ 170 mg/dl by area of residency

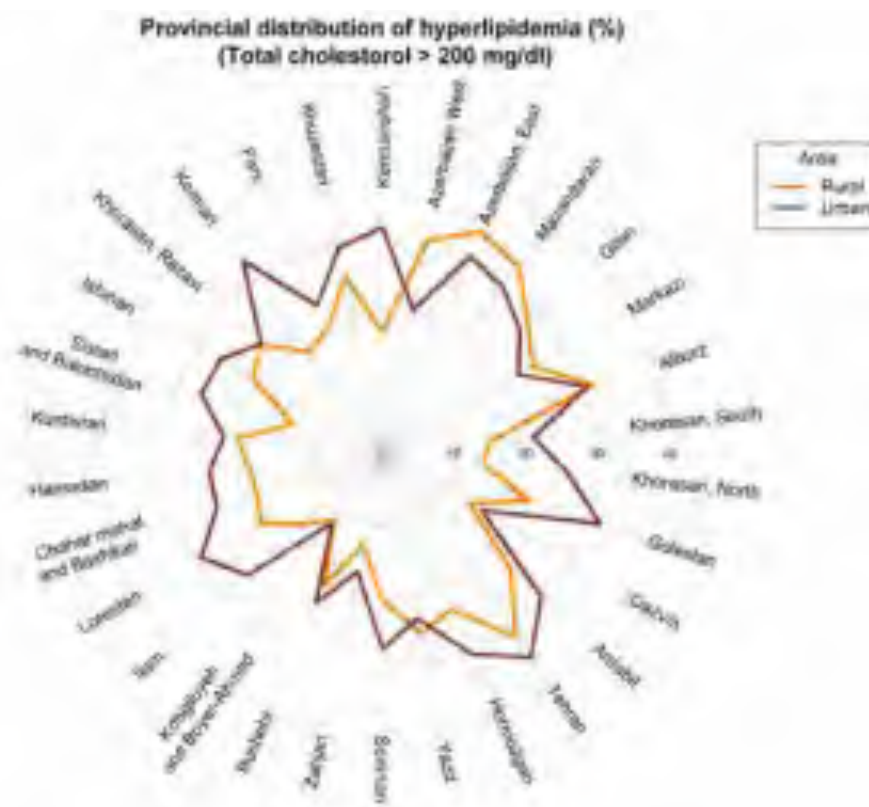


Figure 4.4.14. Provincial distribution of prevalence of hypercholesterolemia based on total cholesterol ≥ 200 mg/dl by area of residency

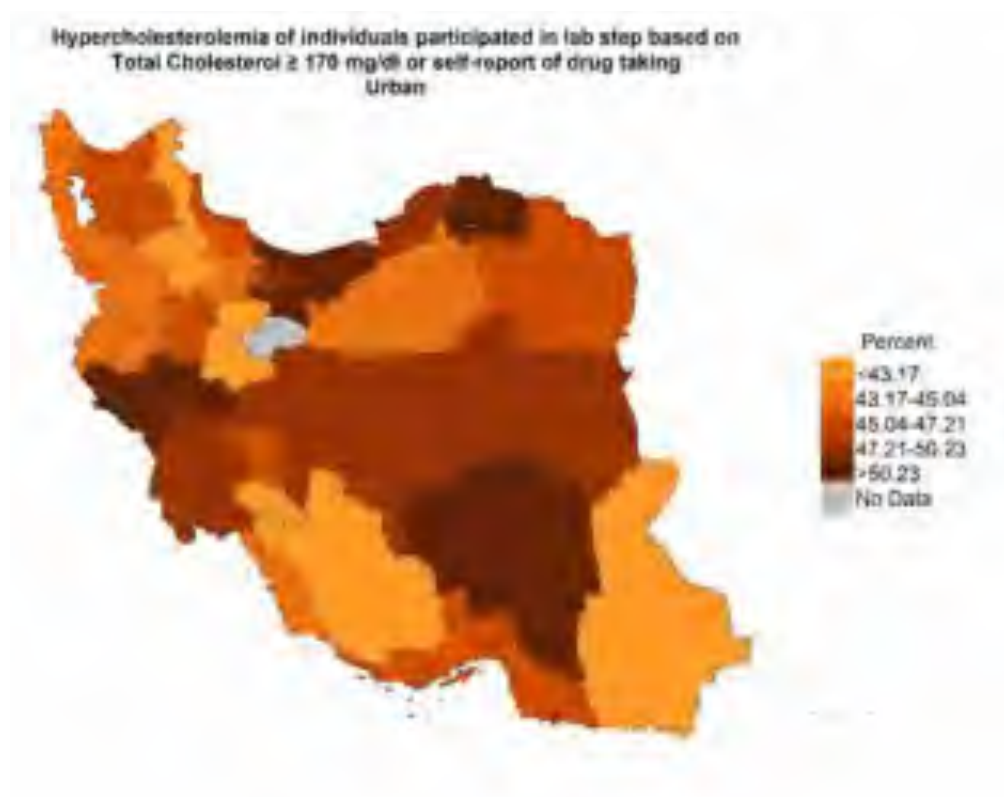


Figure 4.4.15. Geographical distribution of prevalence of hypercholesterolemia based on total cholesterol \geq 170 mg/dl in urban area of residency

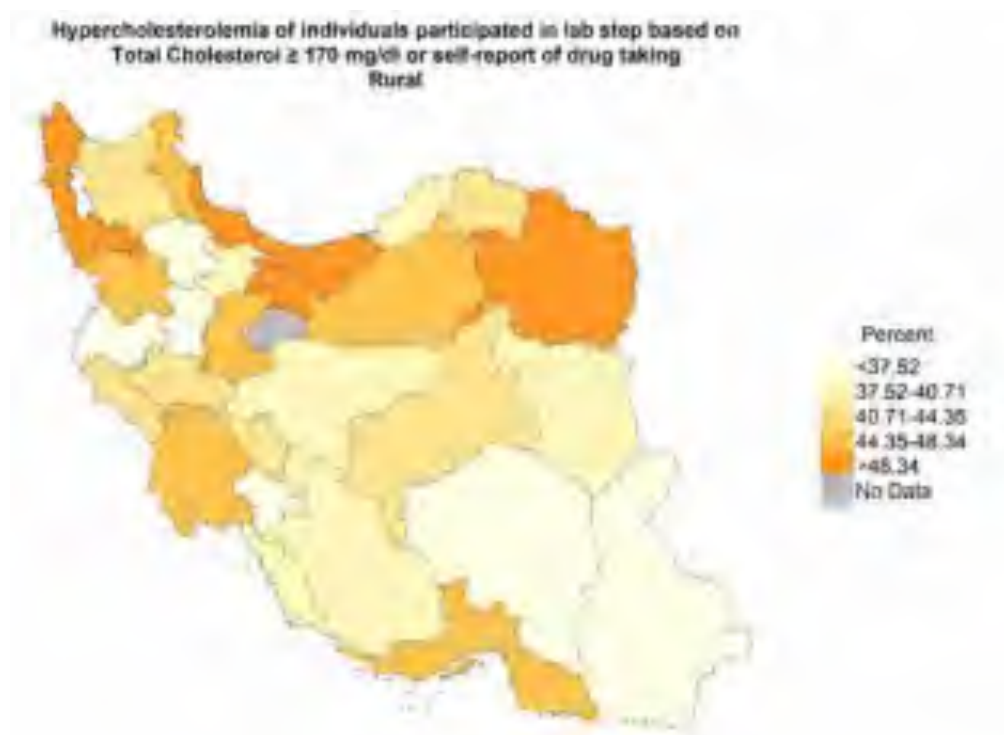


Figure 4.4.16. Geographical distribution of prevalence of hypercholesterolemia based on total cholesterol \geq 170 mg/dl in rural area of residency

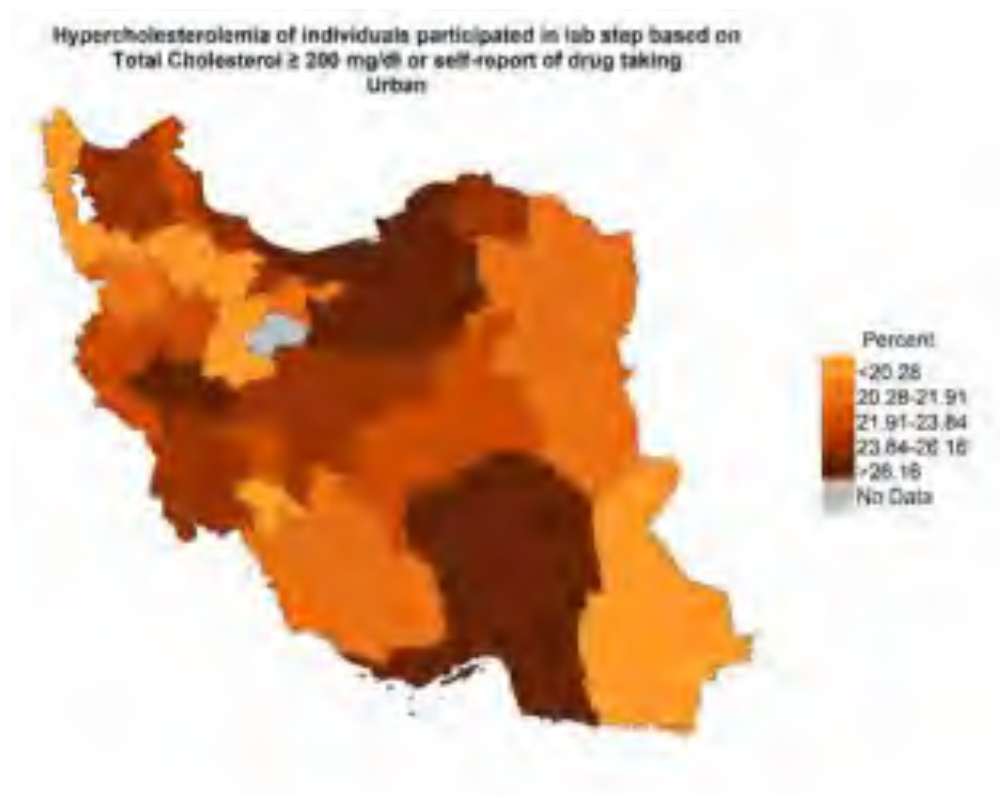


Figure 4.4.17. Geographical distribution of prevalence of hypercholesterolemia based on total cholesterol \geq 200 mg/dl in urban area of residency

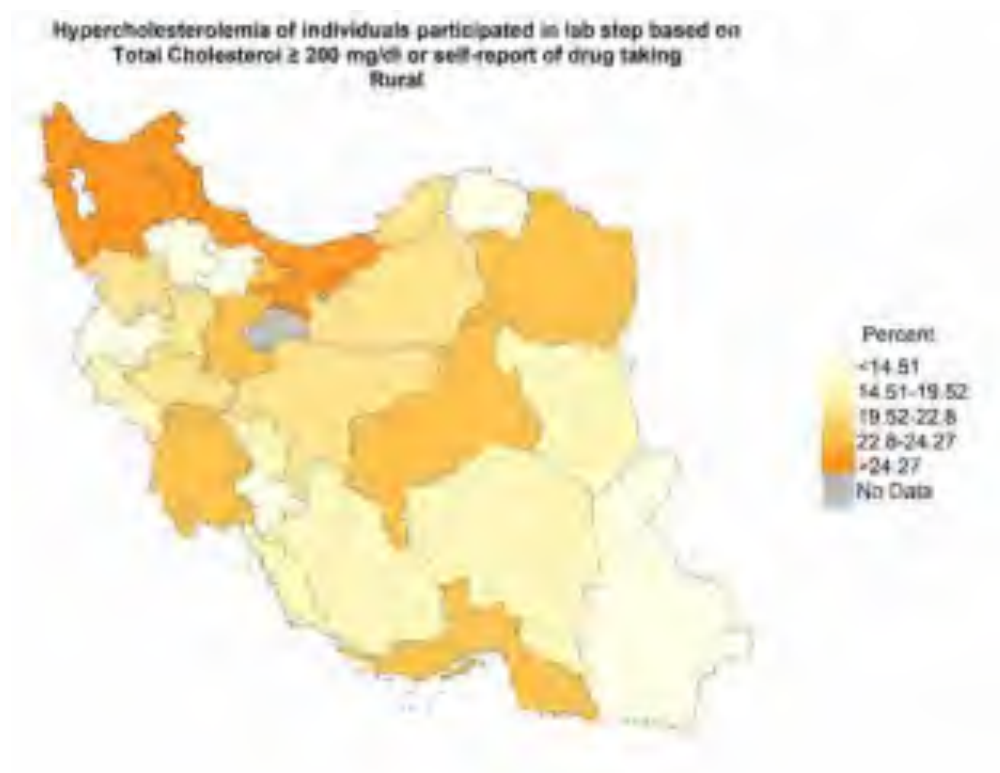


Figure 4.4.18. Geographical distribution of prevalence of hypercholesterolemia based on total cholesterol \geq 200 mg/dl in rural area of residency

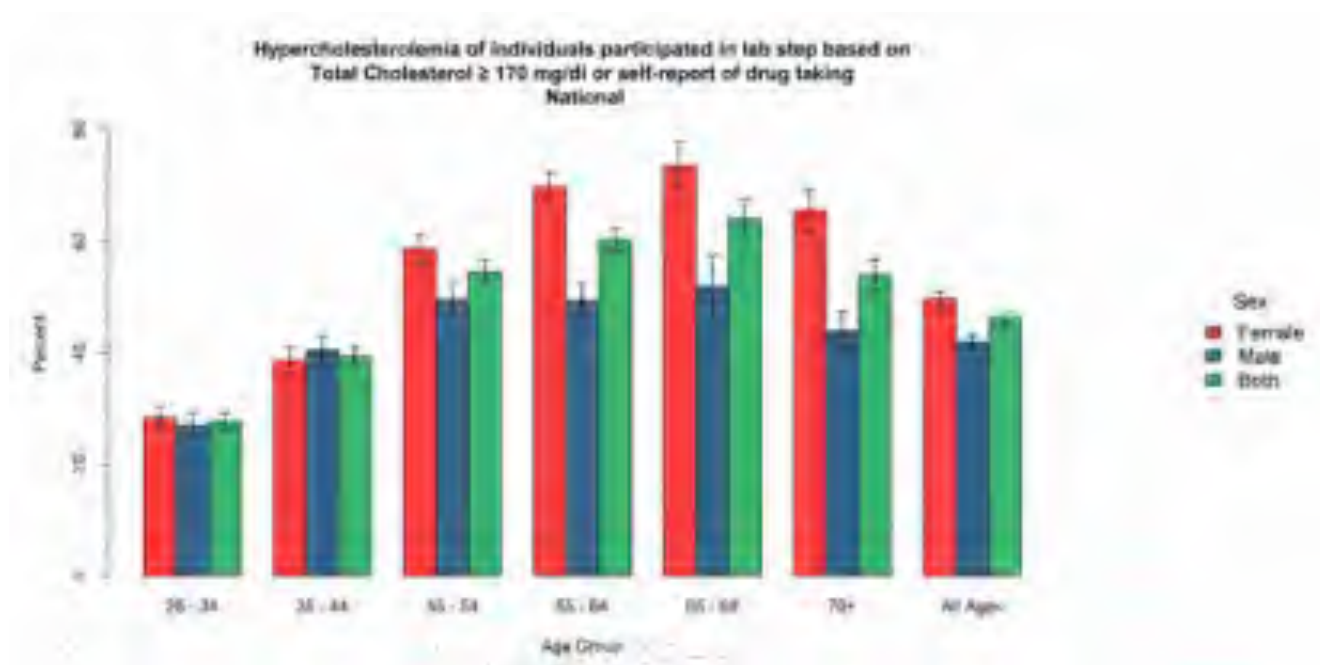


Figure 4.4.19. Prevalence of hypercholesterolemia based on total cholesterol \geq 170 mg/dl by age and sex at national level

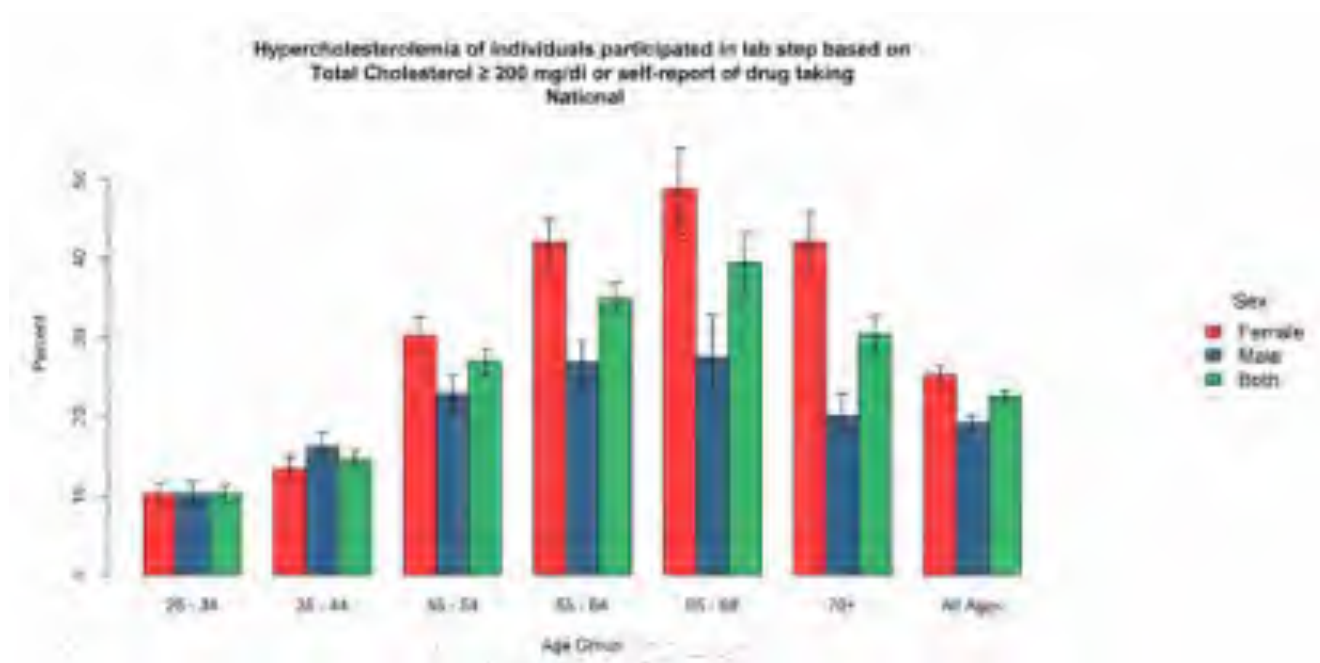


Figure 4.4.20. Prevalence of hypercholesterolemia based on total cholesterol \geq 200 mg/dl by age and sex at national level

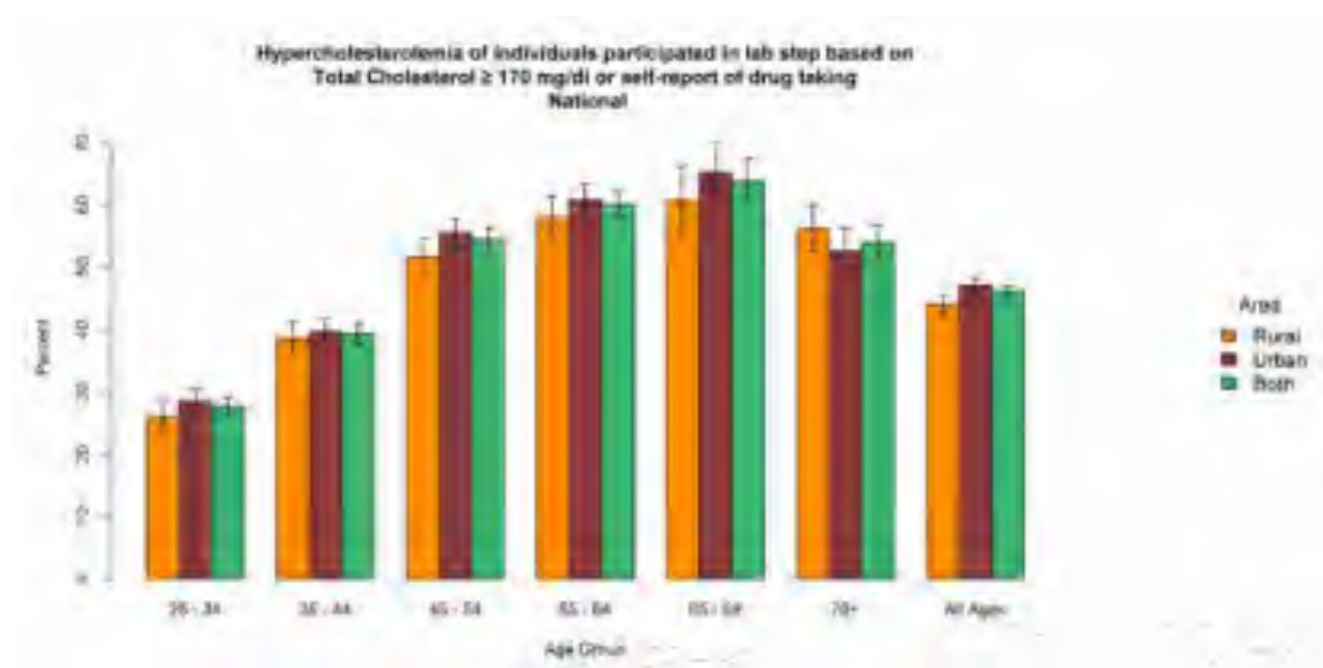


Figure 4.4.21. Prevalence of hypercholesterolemia based on total cholesterol \geq 170 mg/dl by age and area of residency at national level

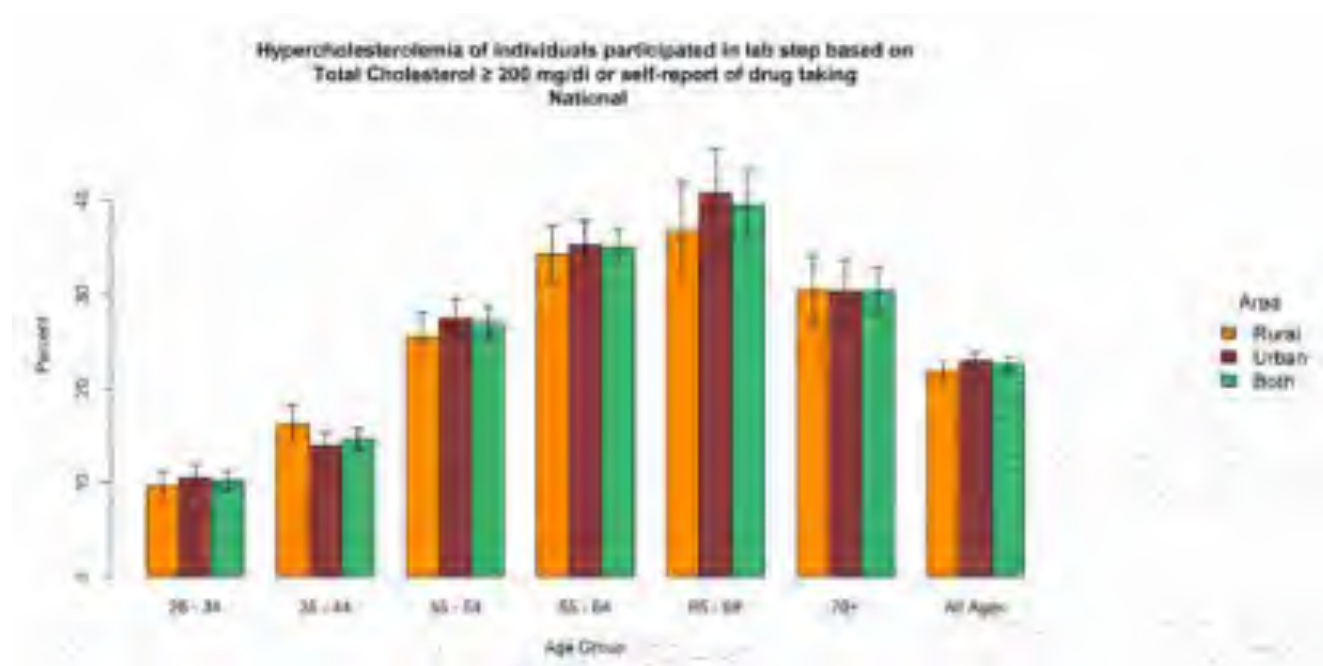


Figure 4.4.22. Prevalence of hypercholesterolemia based on total cholesterol \geq 200 mg/dl by age and area of residency at national level

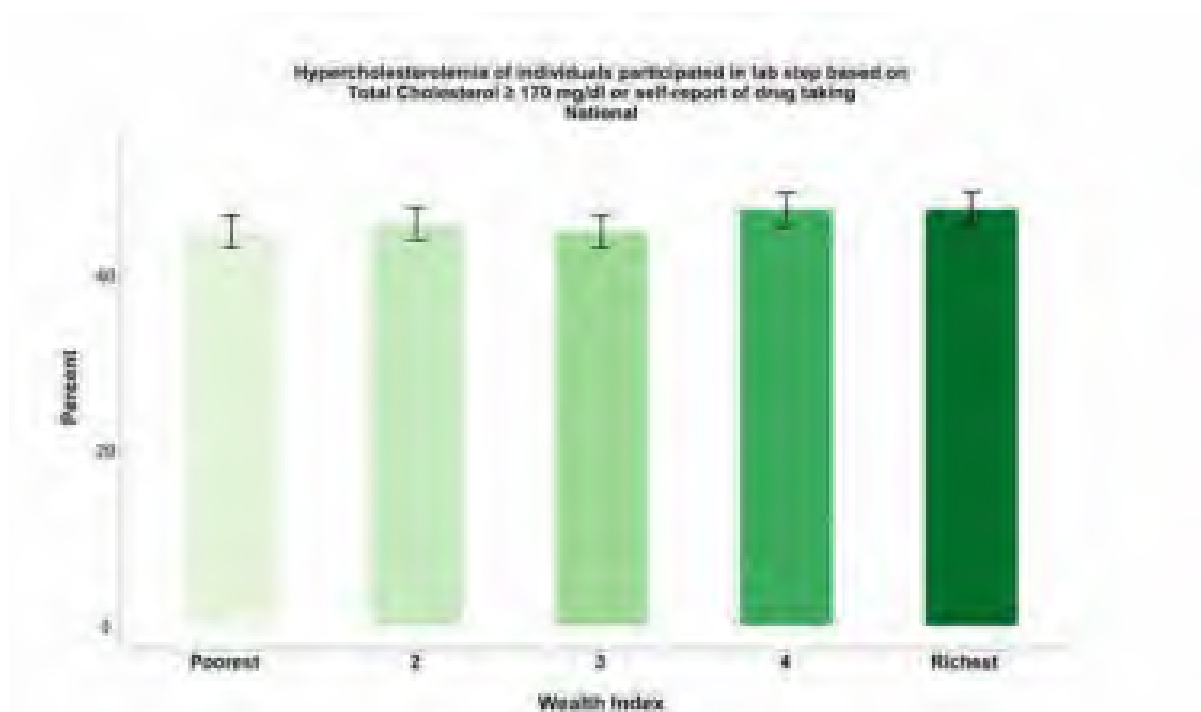


Figure 4.4.23. Prevalence of hypercholesterolemia based on total cholesterol \geq 170 mg/dl by wealth index quantiles at national level

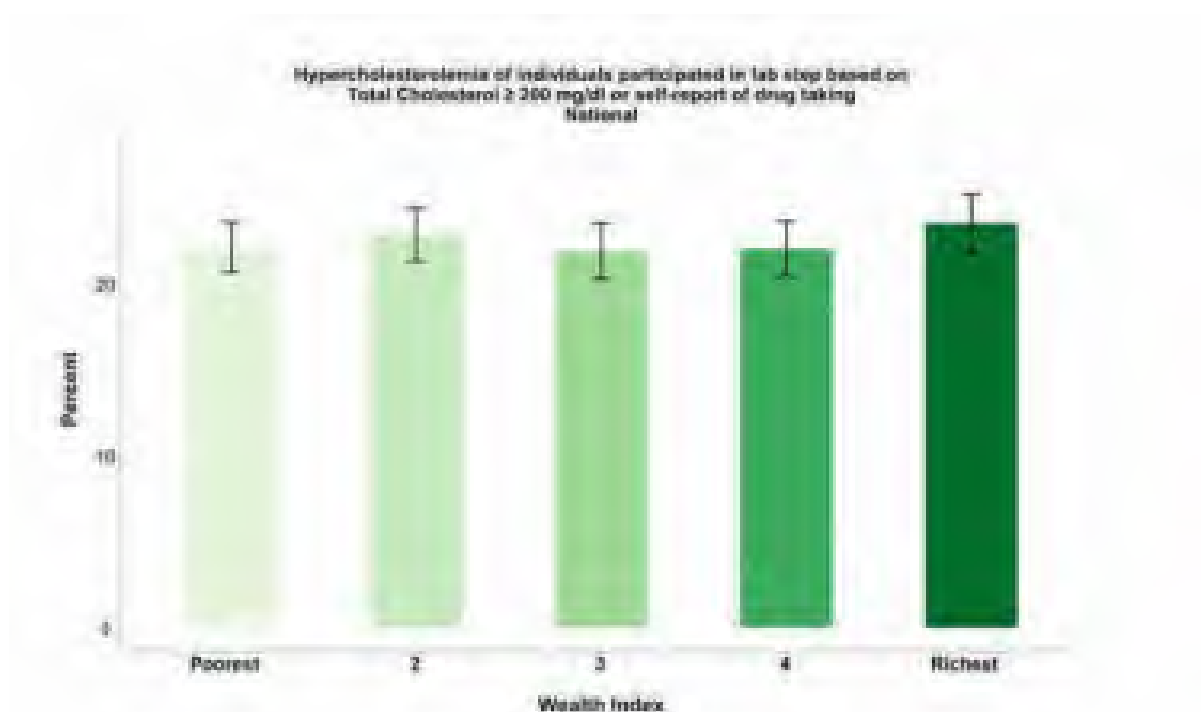


Figure 4.4.24. Prevalence of hypercholesterolemia based on total cholesterol \geq 200 mg/dl by wealth index quantiles at national level

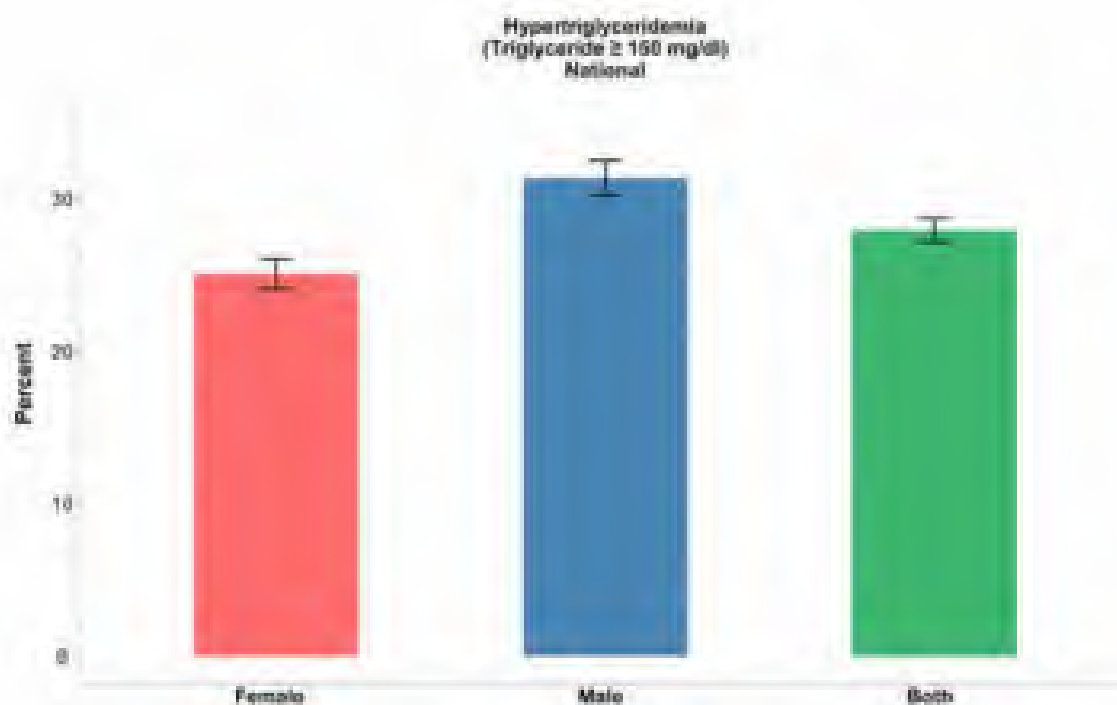


Figure 4.4.27. Prevalence of hypertriglyceridemia by sex at national level

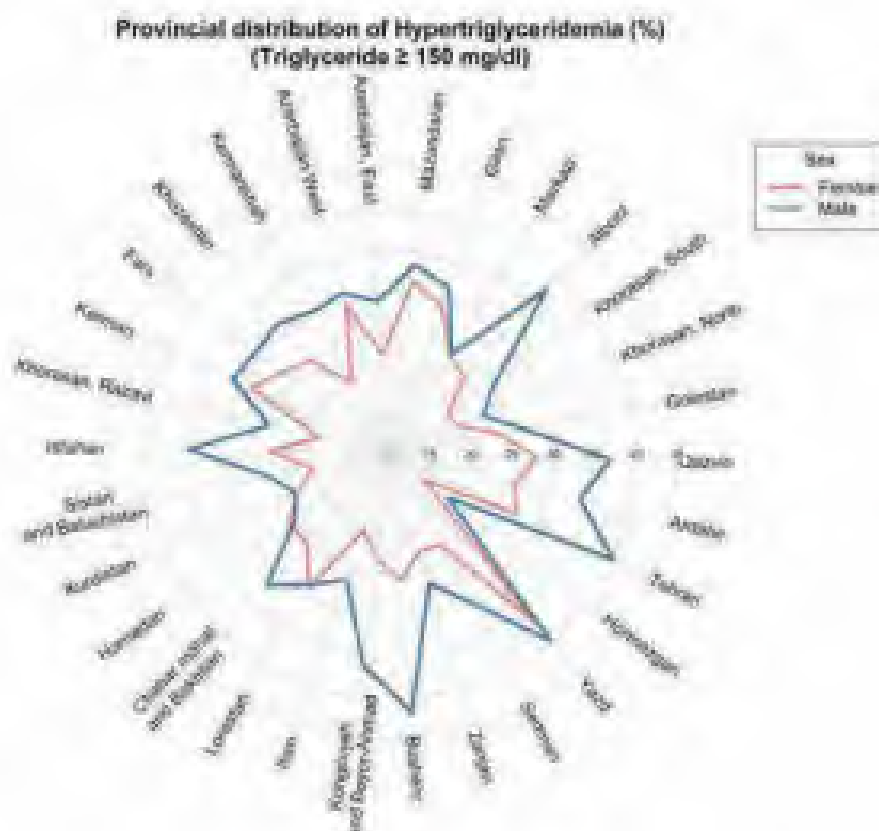


Figure 4.4.28. Provincial distribution of prevalence of hypertriglyceridemia by sex

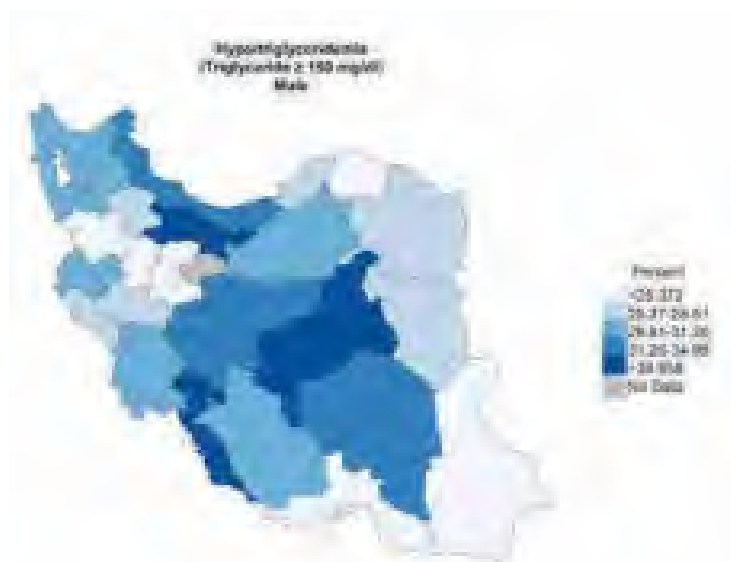


Figure 4.4.29. Geographical distribution of prevalence of hypertriglyceridemia in males

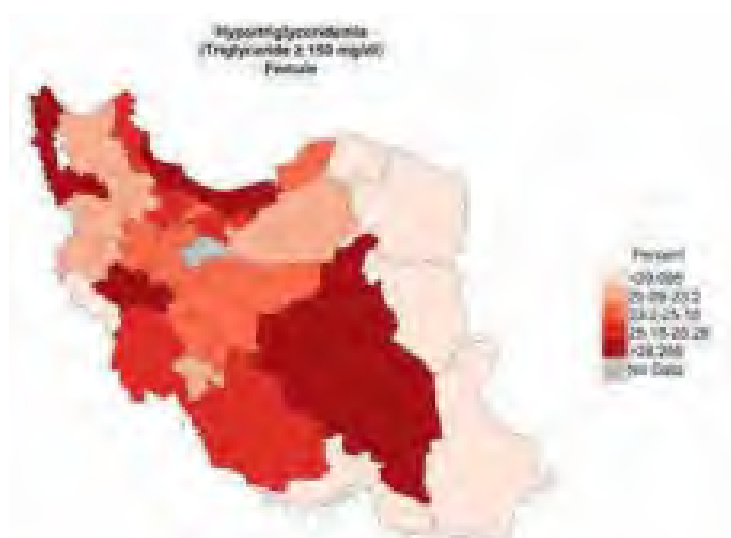


Figure 4.4.30. Geographical distribution of prevalence of hypertriglyceridemia in females

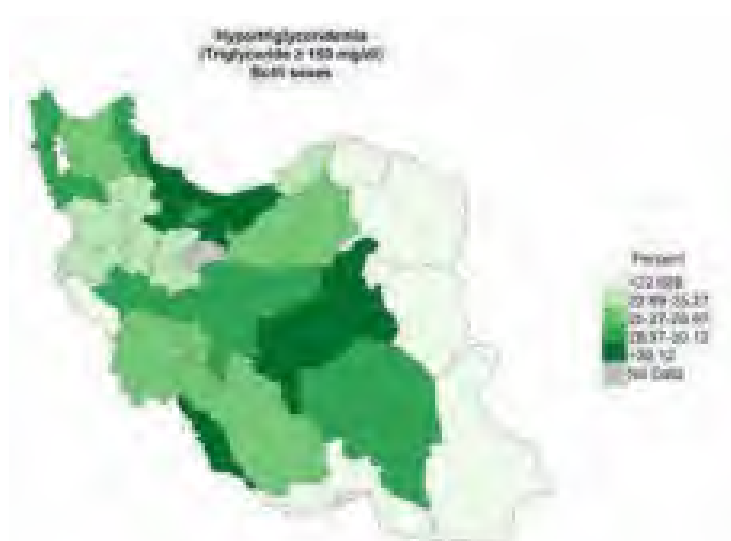


Figure 4.4.31. Geographical distribution of prevalence of hypertriglyceridemia in both sexes

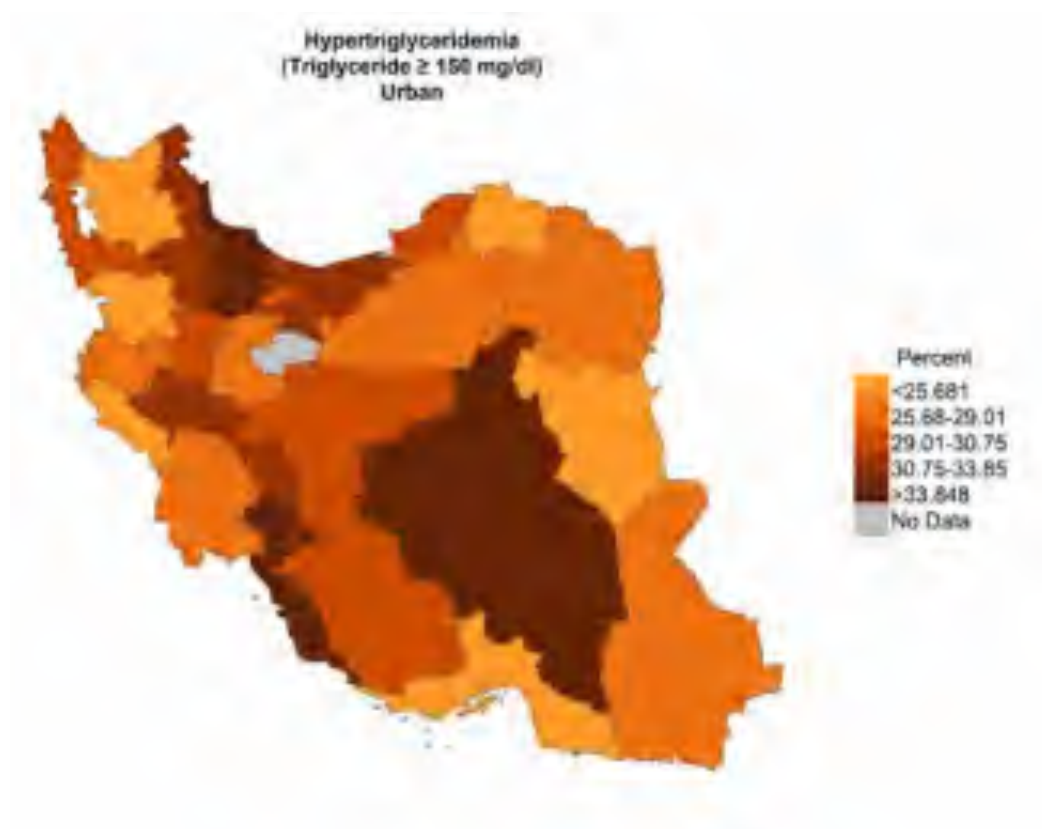


Figure 4.4.34. Geographical distribution of prevalence of hypertriglyceridemia in urban area of residency

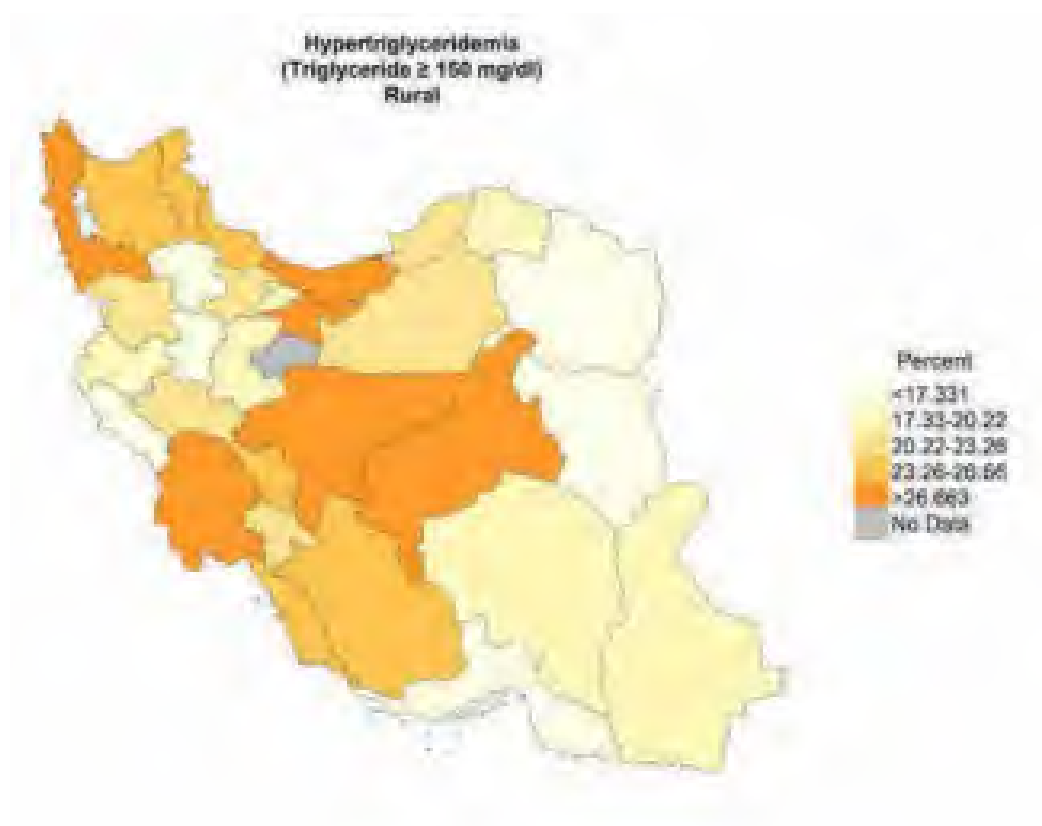


Figure 4.4.35. Geographical distribution of prevalence of hypertriglyceridemia in rural area of residency

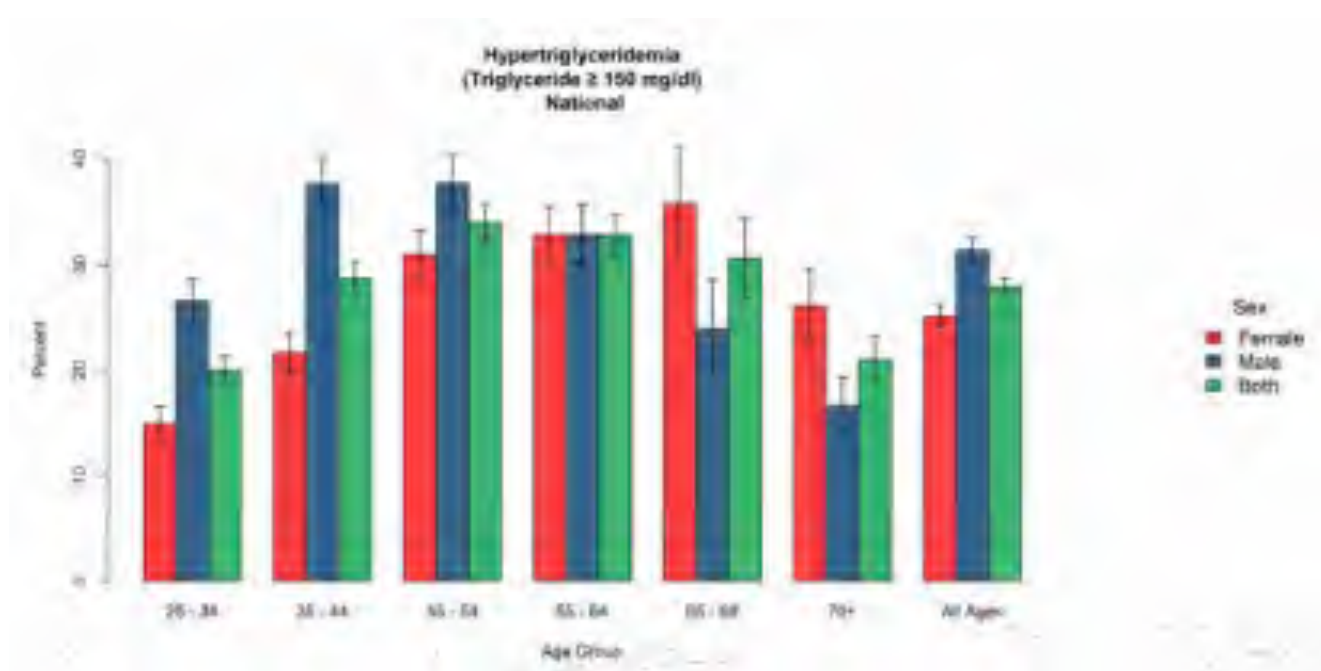


Figure 4.4.36. Prevalence of hypertriglyceridemia by age and sex at national level

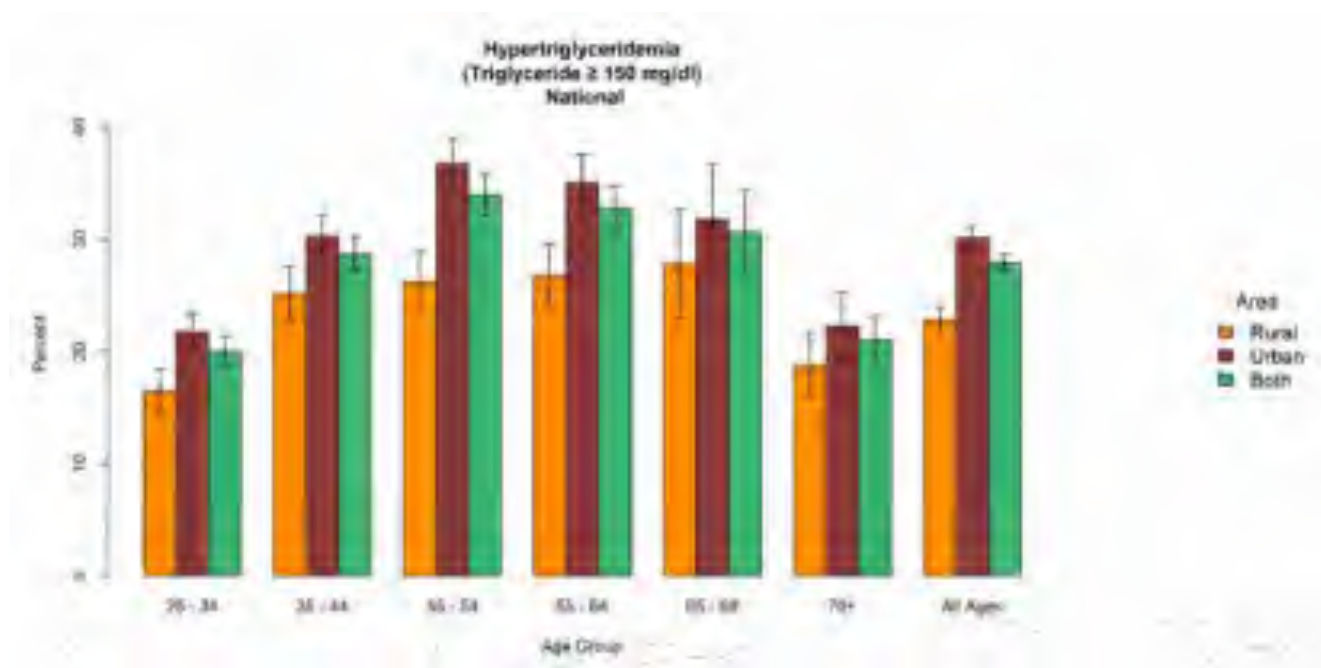


Figure 4.4.37. Prevalence of hypertriglyceridemia by age and area of residency at national level

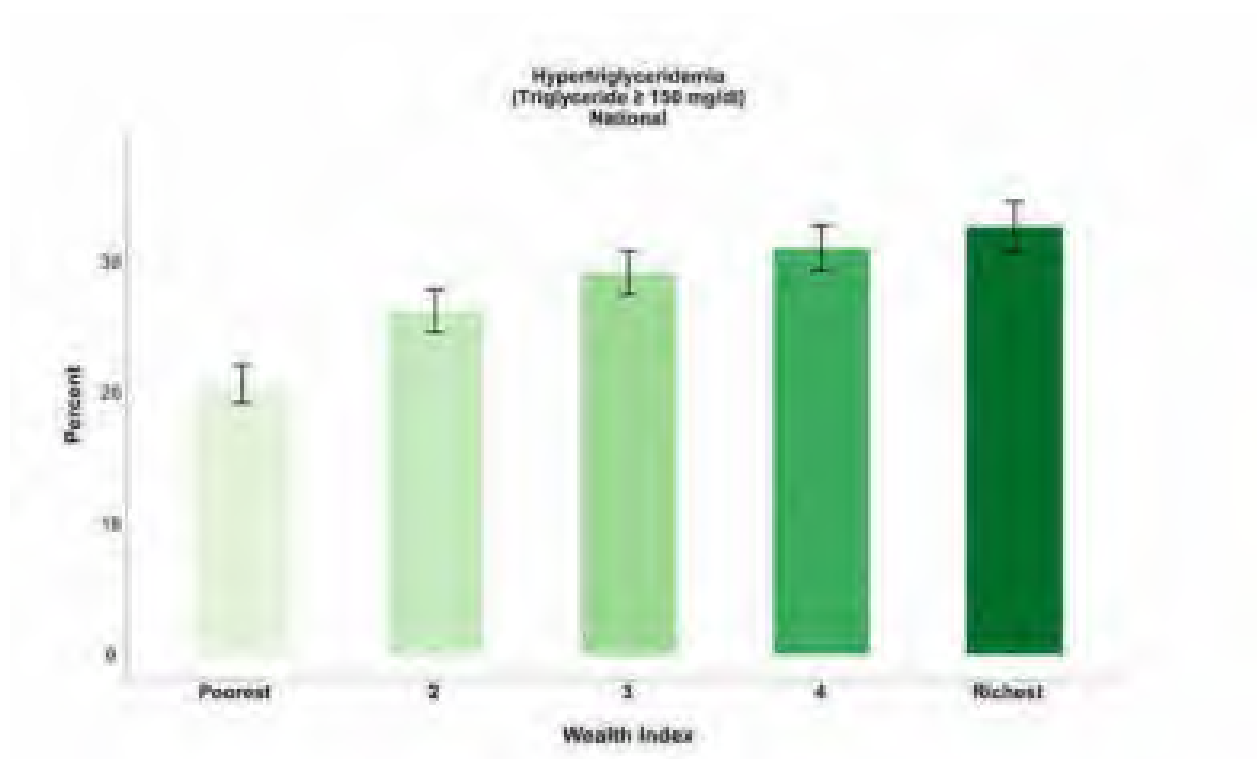


Figure 4.4.38. Prevalence of hypertriglyceridemia by wealth index quantiles at national level

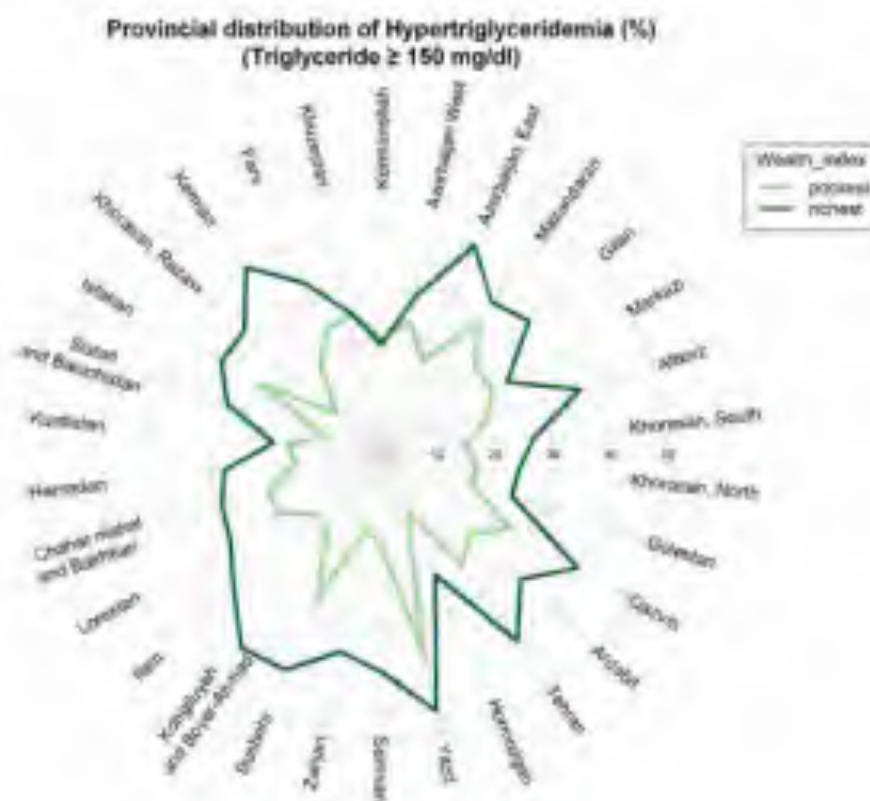


Figure 4.4.39. Provincial distribution of prevalence of hypertriglyceridemia by wealth index

CHAPTER 2

Results

Section 5

Risk Factors related to Accidents and Injuries

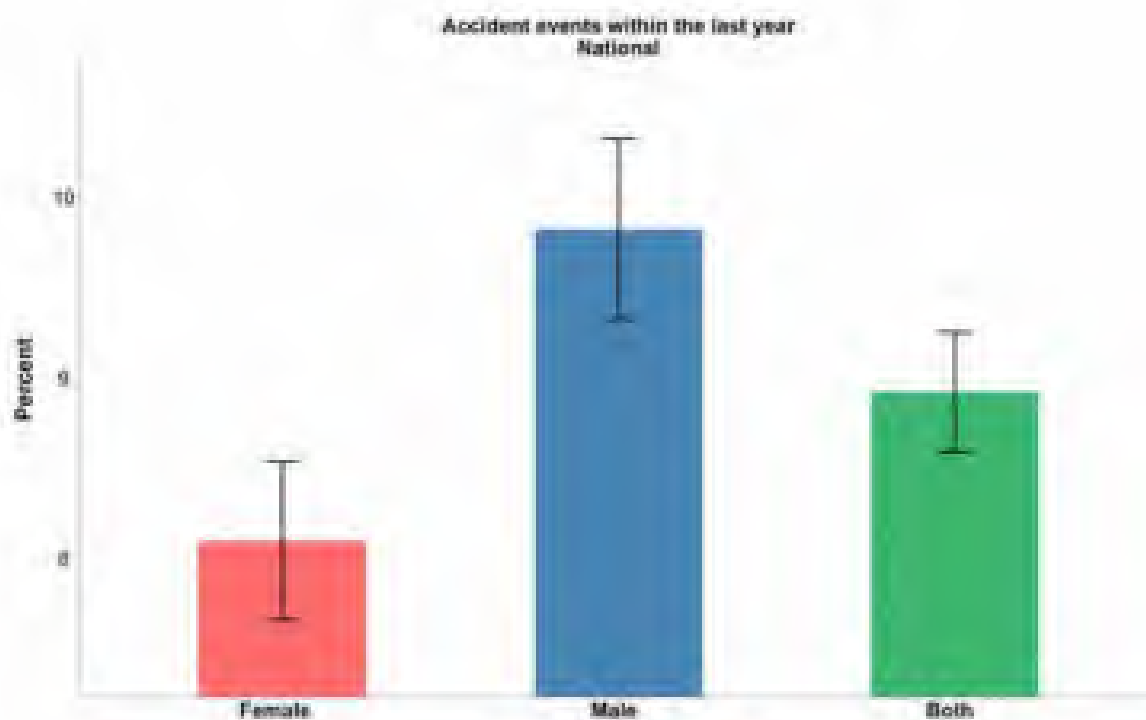


Figure 5.1. Prevalence of accident events within the last year by sex at national level

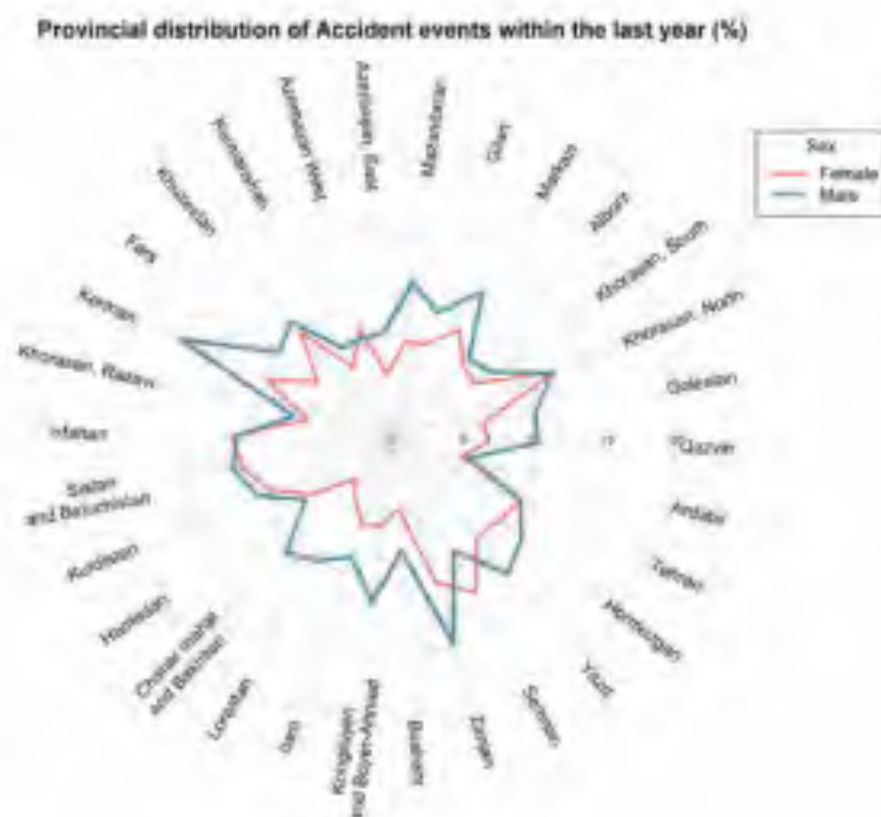


Figure 5.2. Provincial distribution of prevalence of accident events within the last year by sex

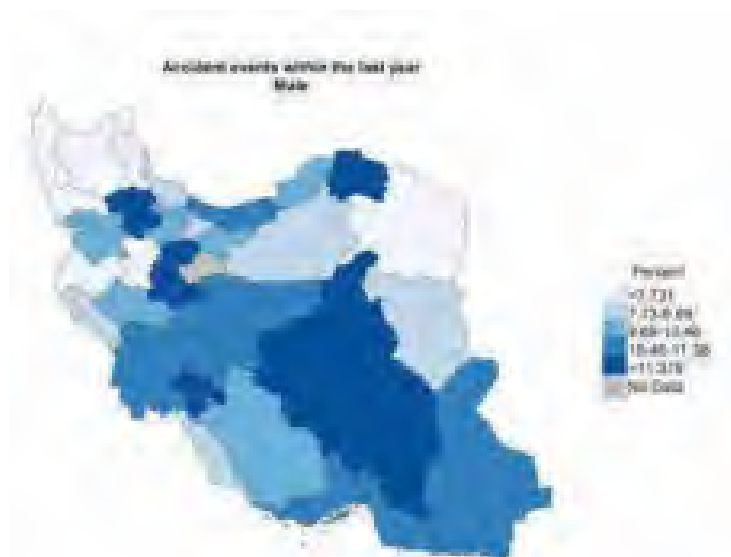


Figure 5.3. Geographical distribution of prevalence of accident events within the last year in males

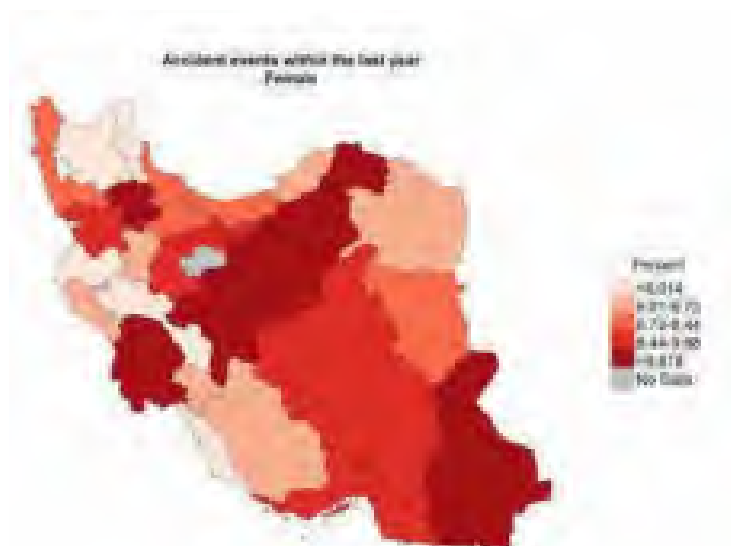


Figure 5.4. Geographical distribution of prevalence of accident events within the last year in females

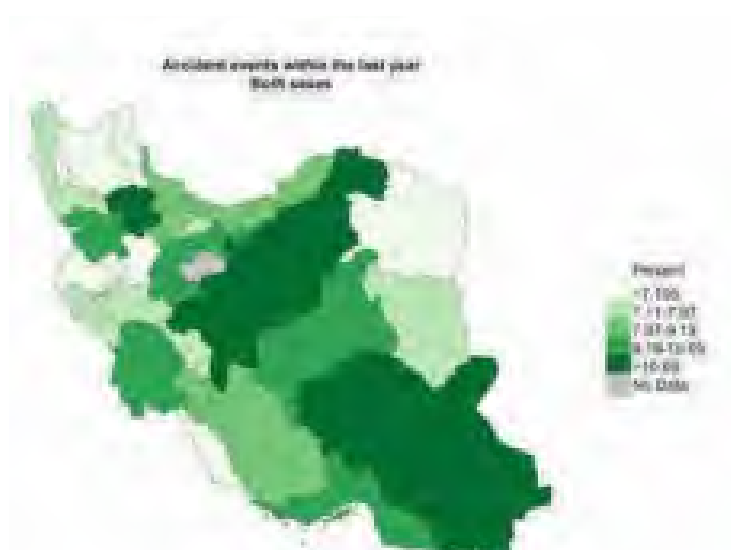


Figure 5.5. Geographical distribution of prevalence of accident events within the last year in both sexes

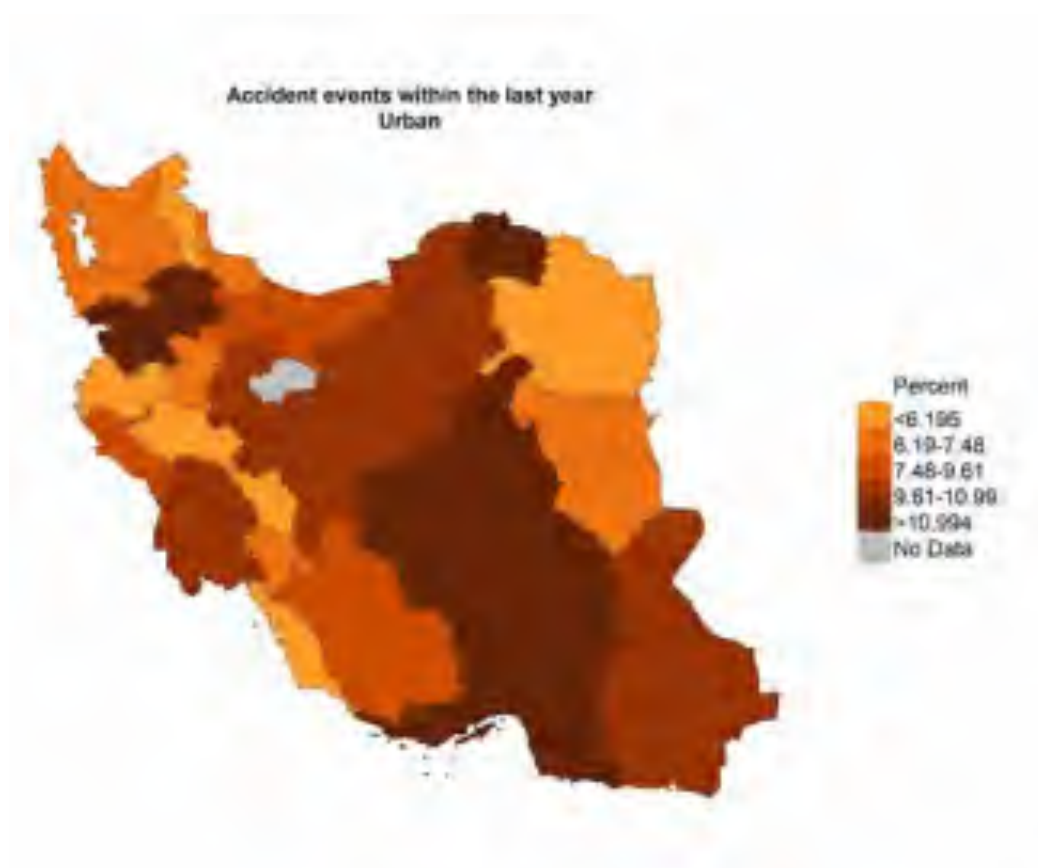


Figure 5.8. Geographical distribution of prevalence of accident events within the last year in urban area of residency

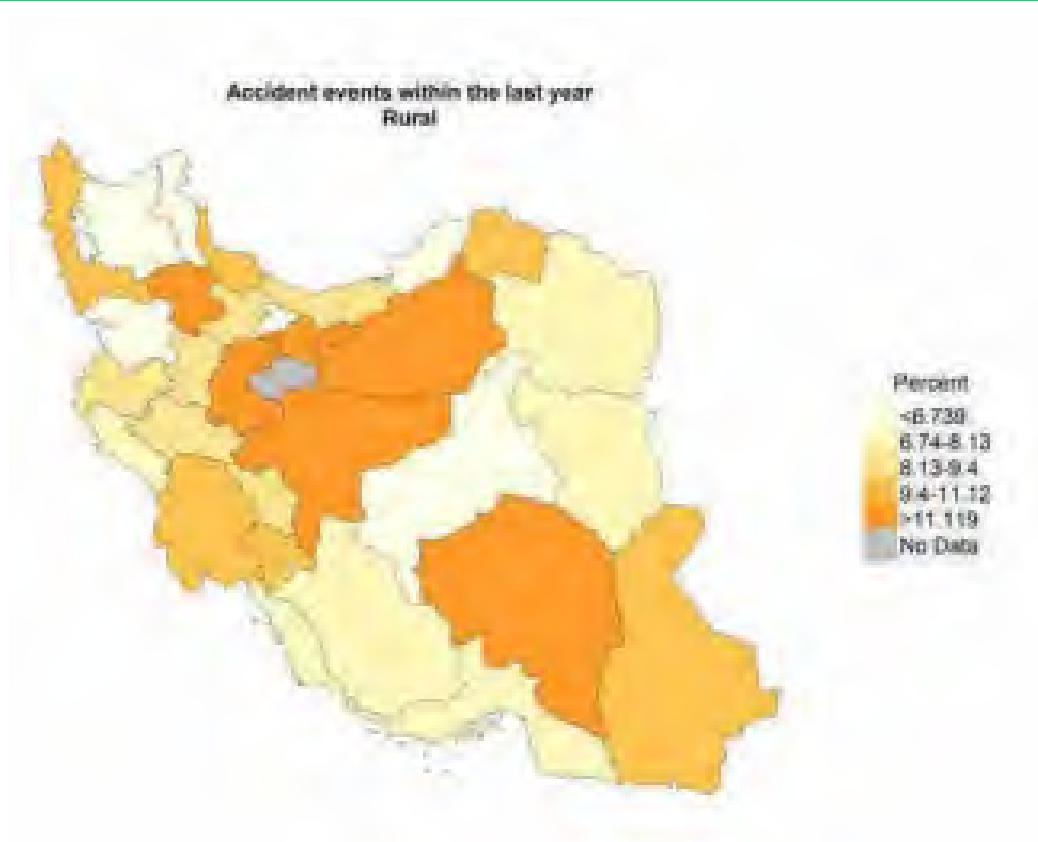


Figure 5.9. Geographical distribution of prevalence of accident events within the last year in rural area of residency

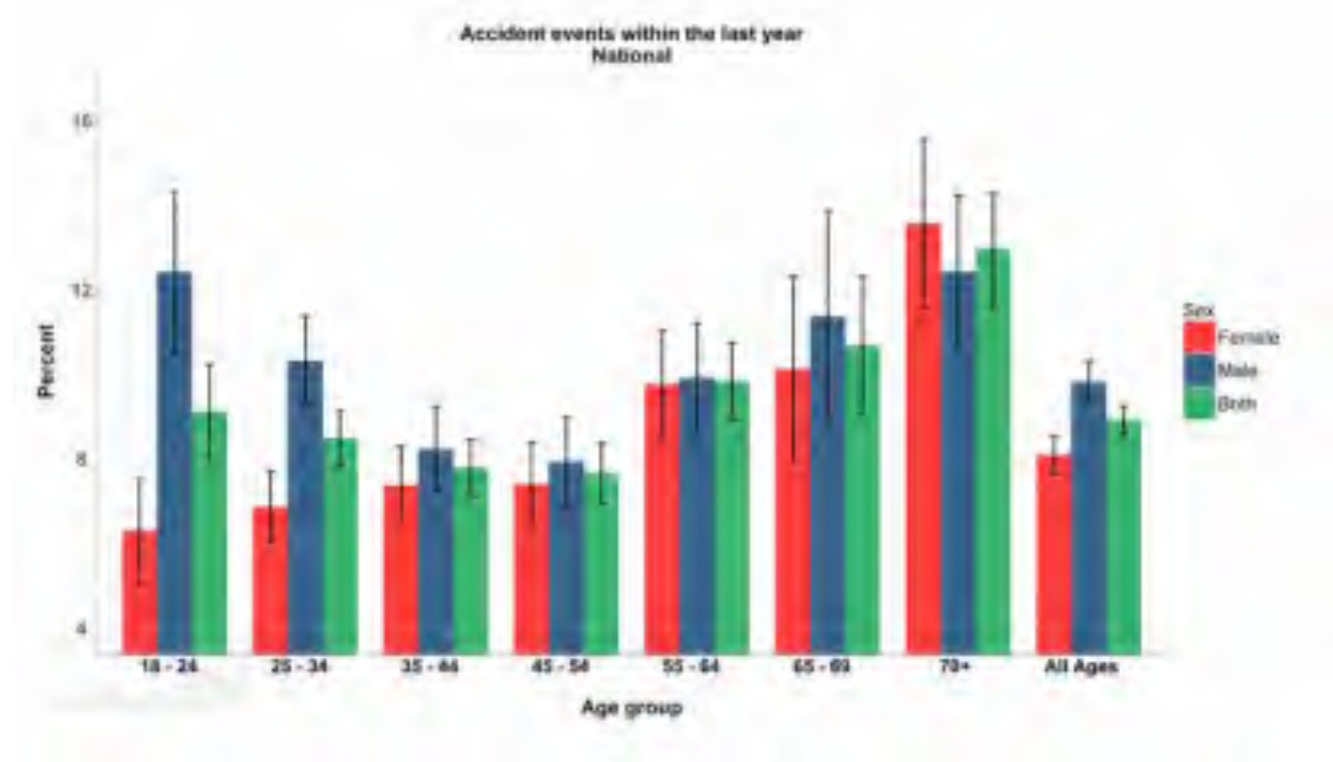


Figure 5.10. Prevalence of accident events within the last year by age and sex at national level

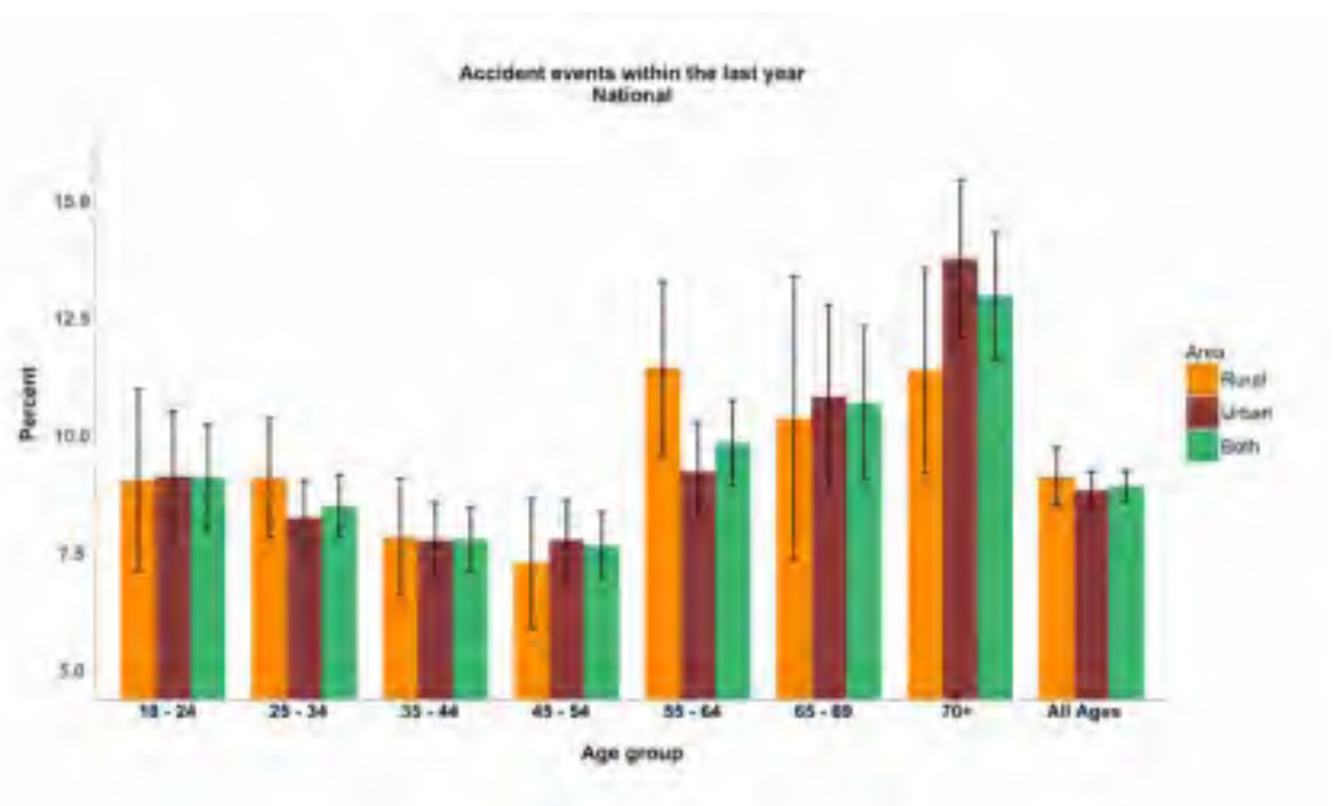


Figure 5.11. Prevalence of accident events within the last year by age and area of residency at national level

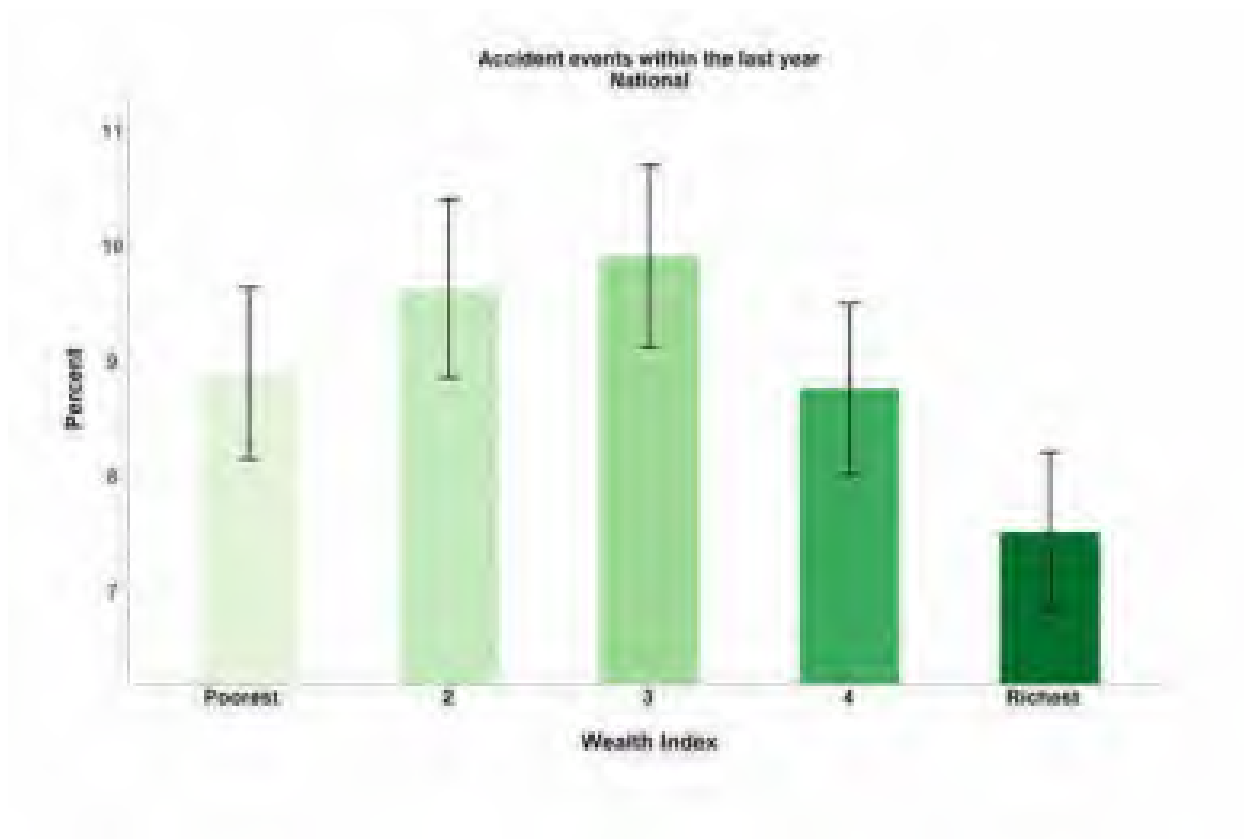


Figure 5.12. Prevalence of accident events within the last year by wealth index quantiles at national level

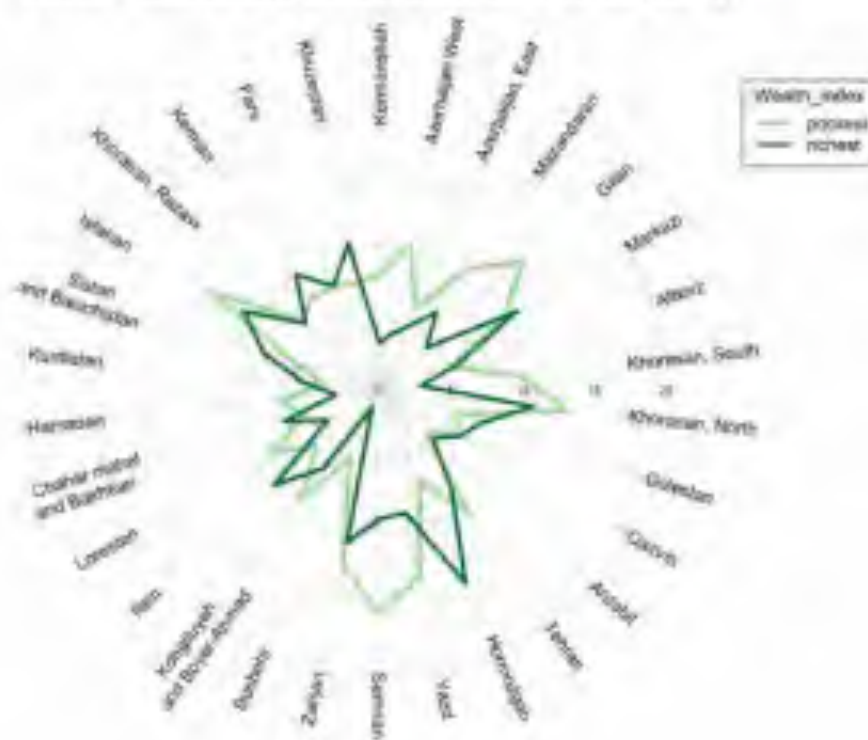


Figure 5.13. Provincial distribution of prevalence of accident events within the last year by wealth index

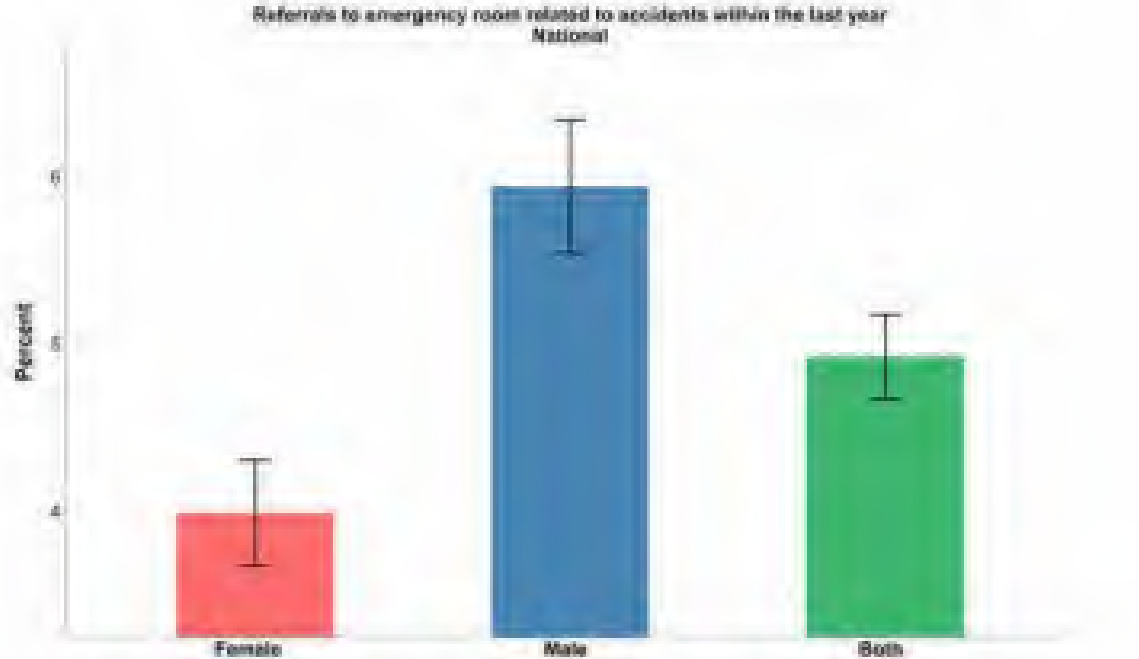


Figure 5.14. Prevalence of referrals to emergency room related to accidents within the last year by sex at national level

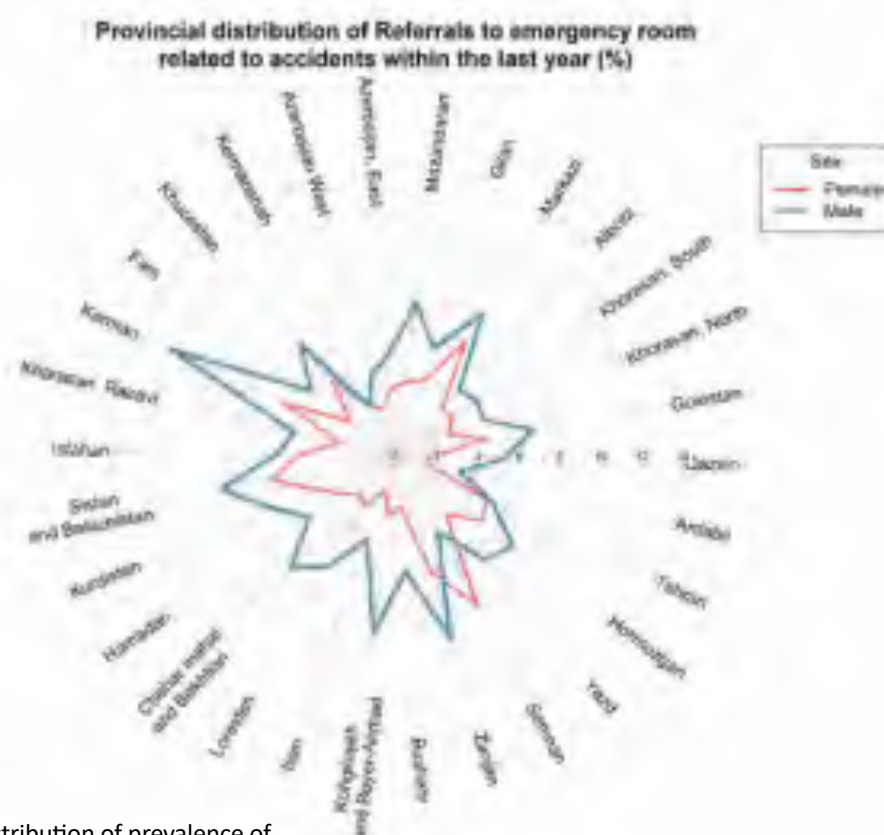


Figure 5.15. Provincial distribution of prevalence of referrals to emergency room related to accidents within the last year by sex

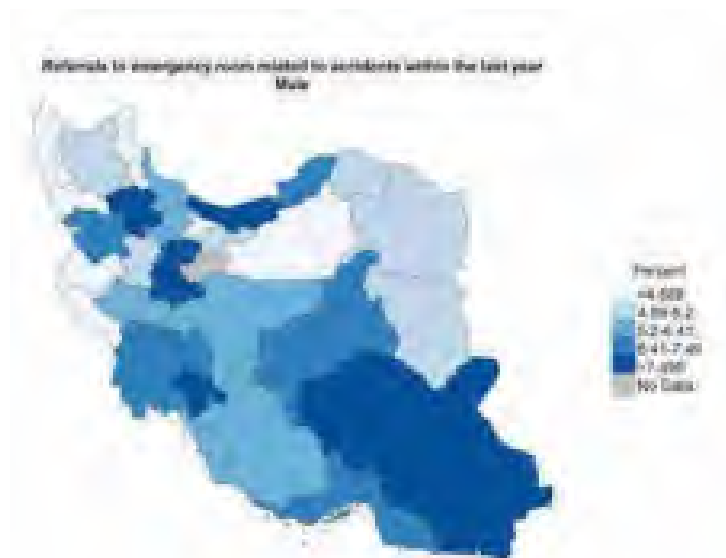


Figure 5.16. Geographical distribution of prevalence of referrals to emergency room related to accidents within the last year in males

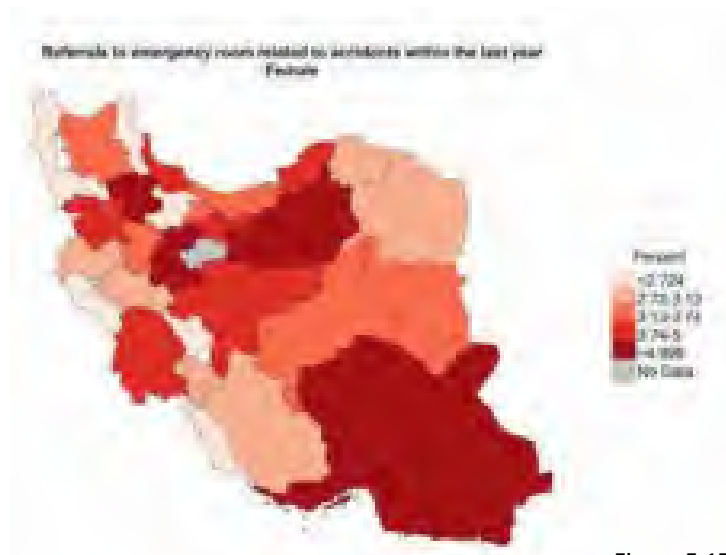


Figure 5.17. Geographical distribution of prevalence of referrals to emergency room related to accidents within the last year in females

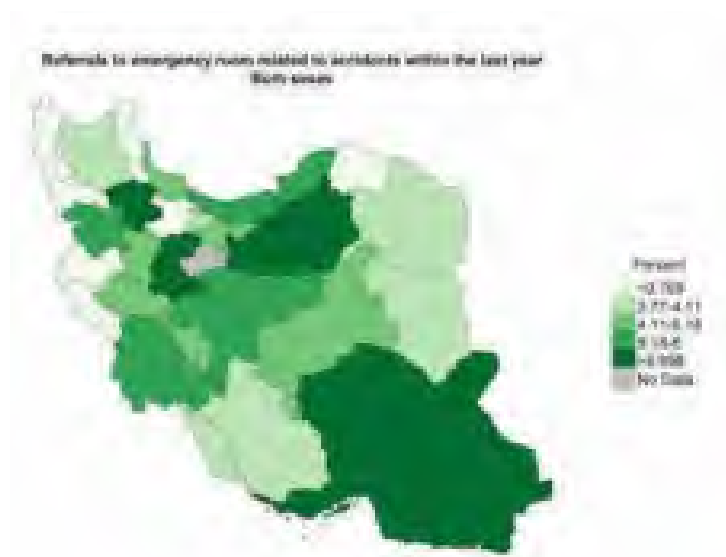


Figure 5.18. Geographical distribution of prevalence of referrals to emergency room related to accidents within the last year in both sexes

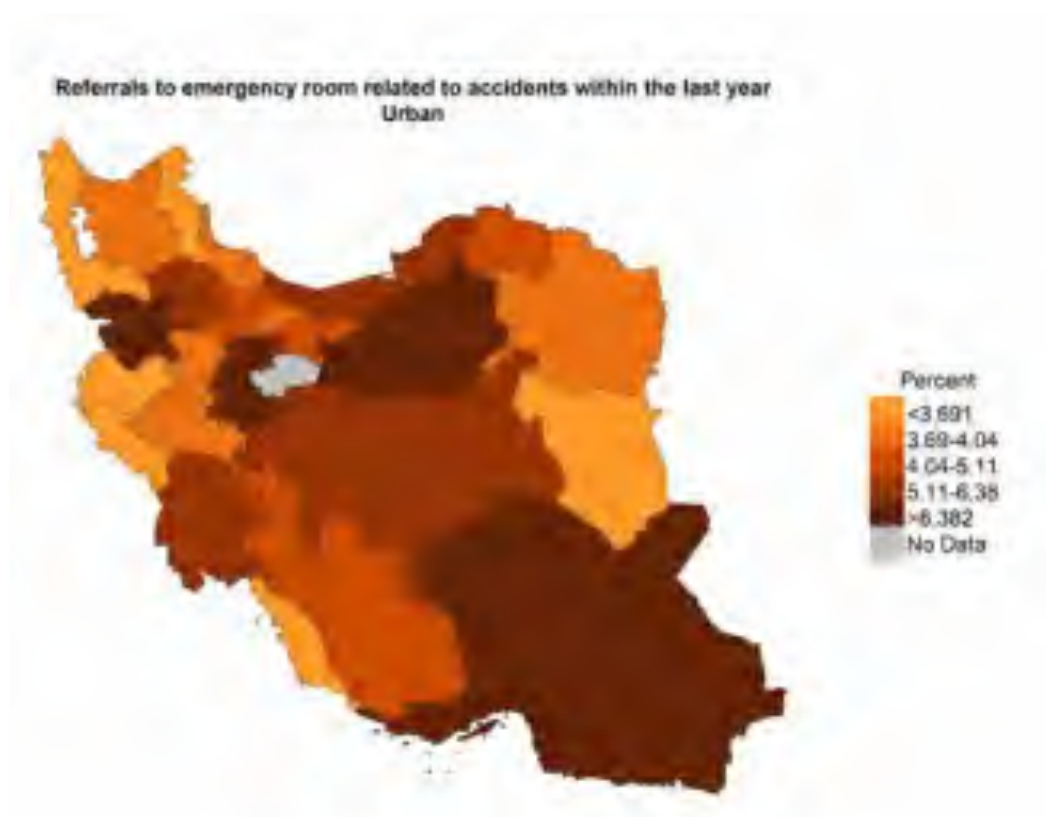


Figure 5.21. Geographical distribution of prevalence of referrals to emergency room related to accidents within the last year in urban area of residency

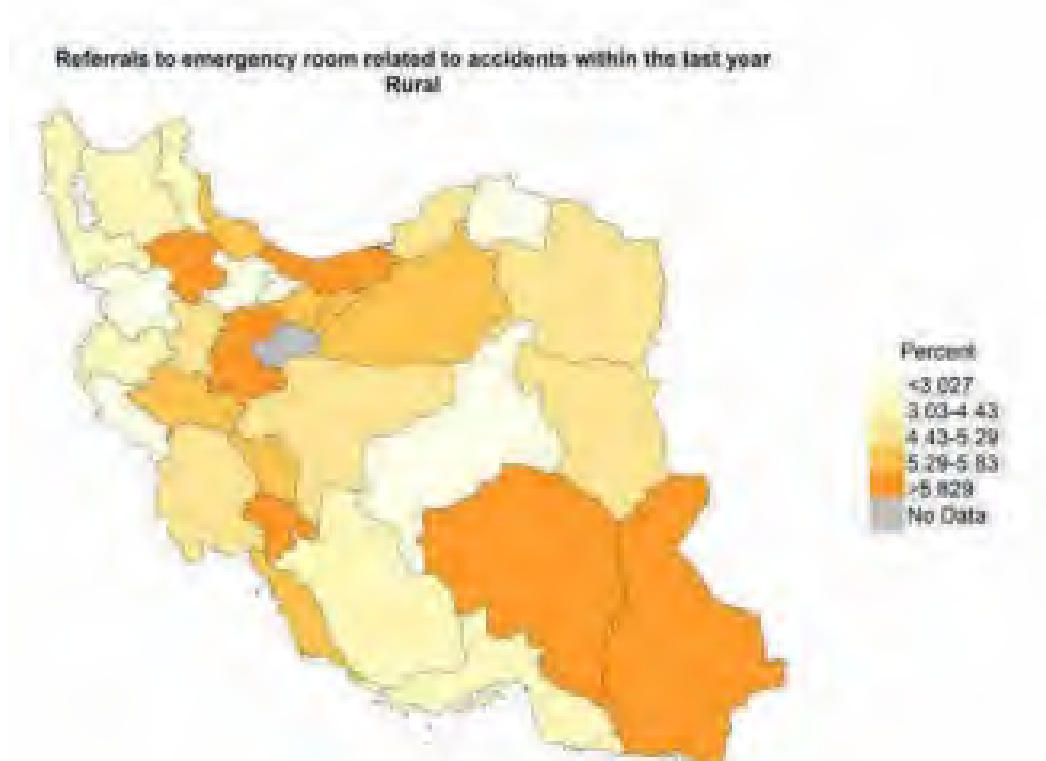


Figure 5.22. Geographical distribution of prevalence of referrals to emergency room related to accidents within the last year in rural area of residency

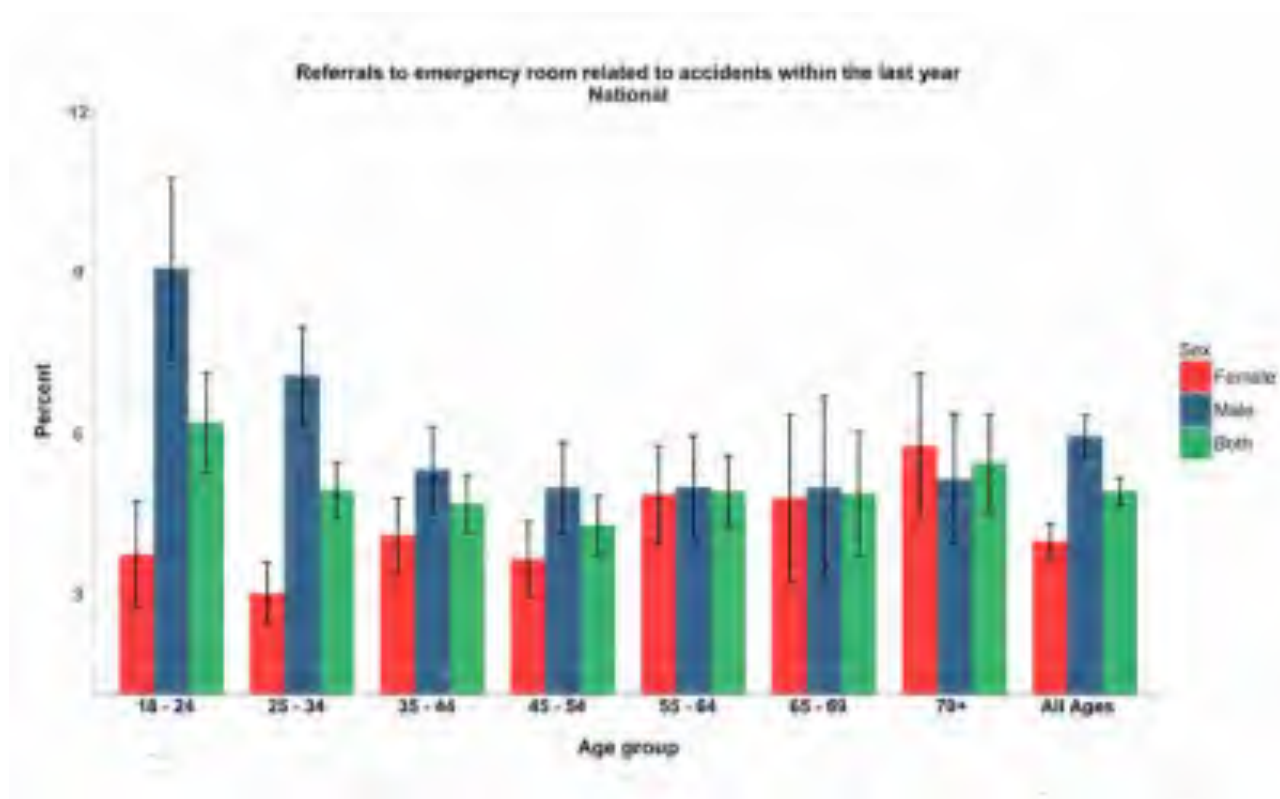


Figure 5.23. Prevalence of referrals to emergency room related to accidents within the last year by age and sex at national level

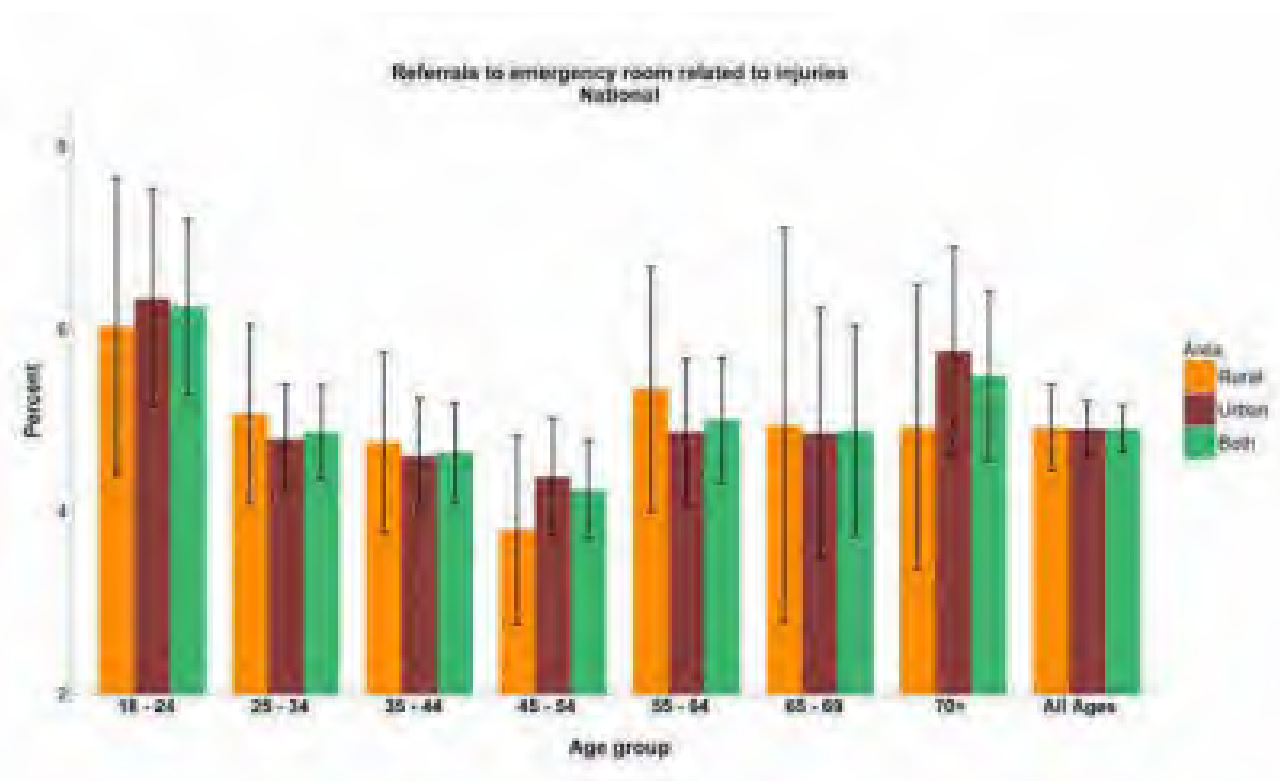


Figure 5.24. Prevalence of referrals to emergency room related to accidents within the last year by age and area of residency at national level

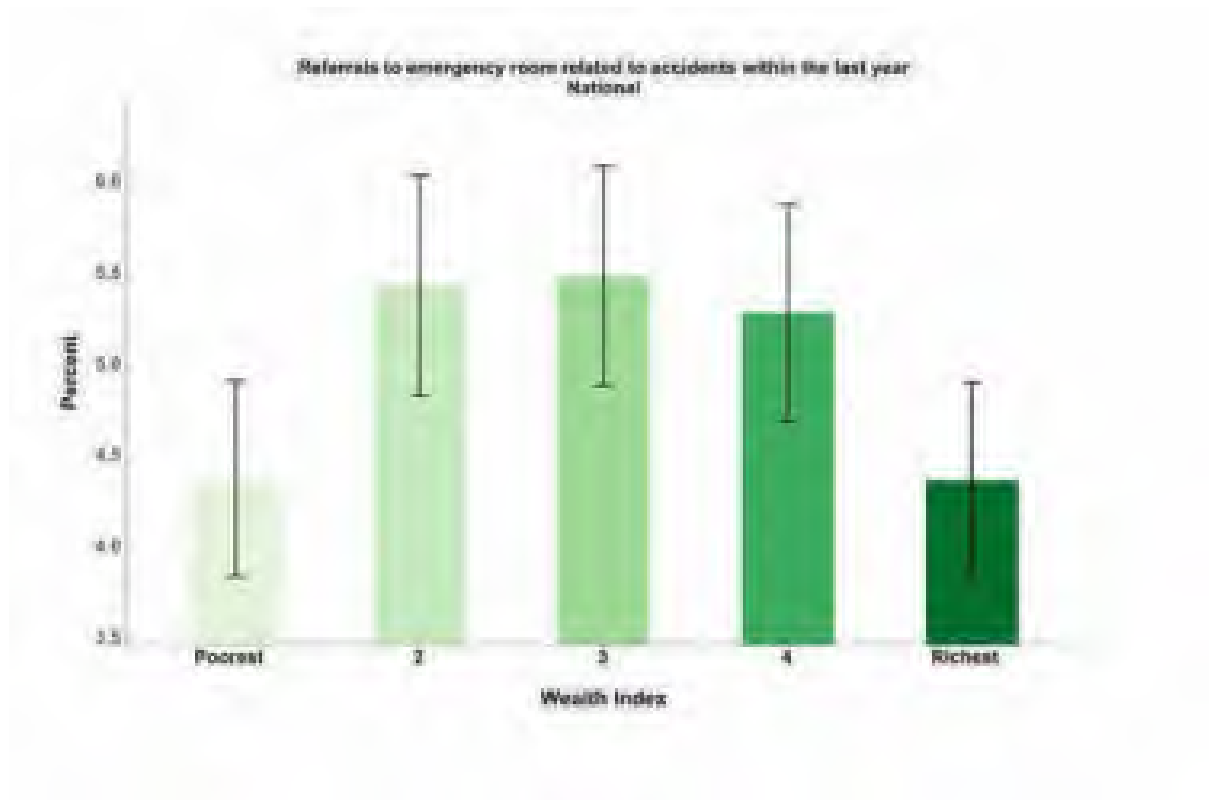


Figure 5.25. Prevalence of referrals to emergency room related to accidents within the last year by wealth index quantiles at national level

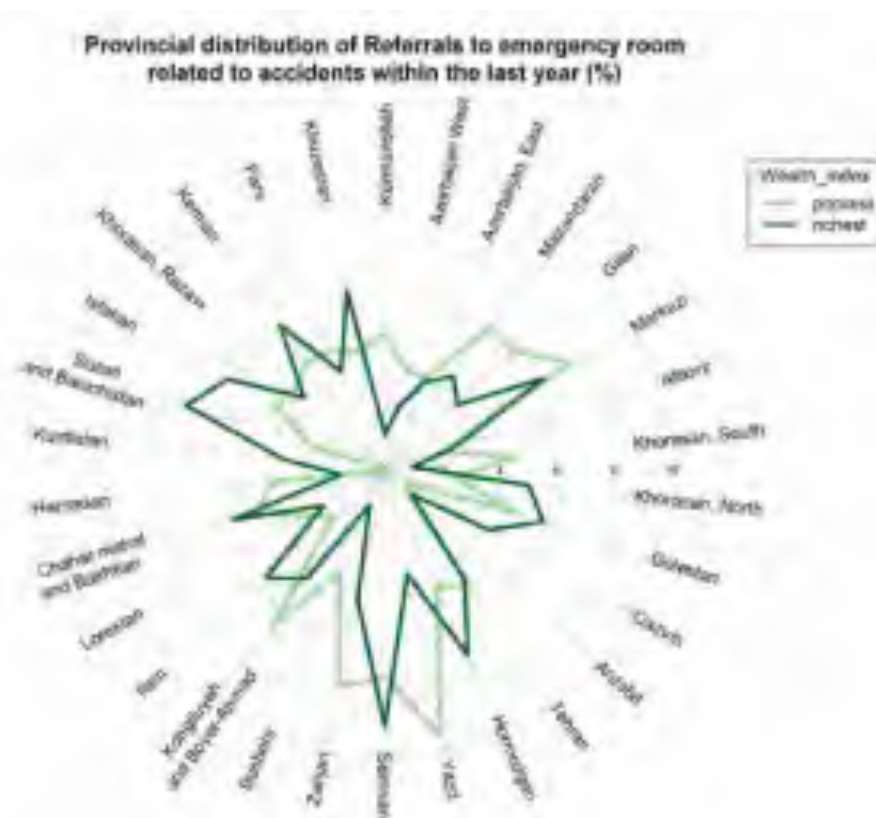


Figure 5.26. Provincial distribution of prevalence of referrals to emergency room related to accidents within the last year by wealth index

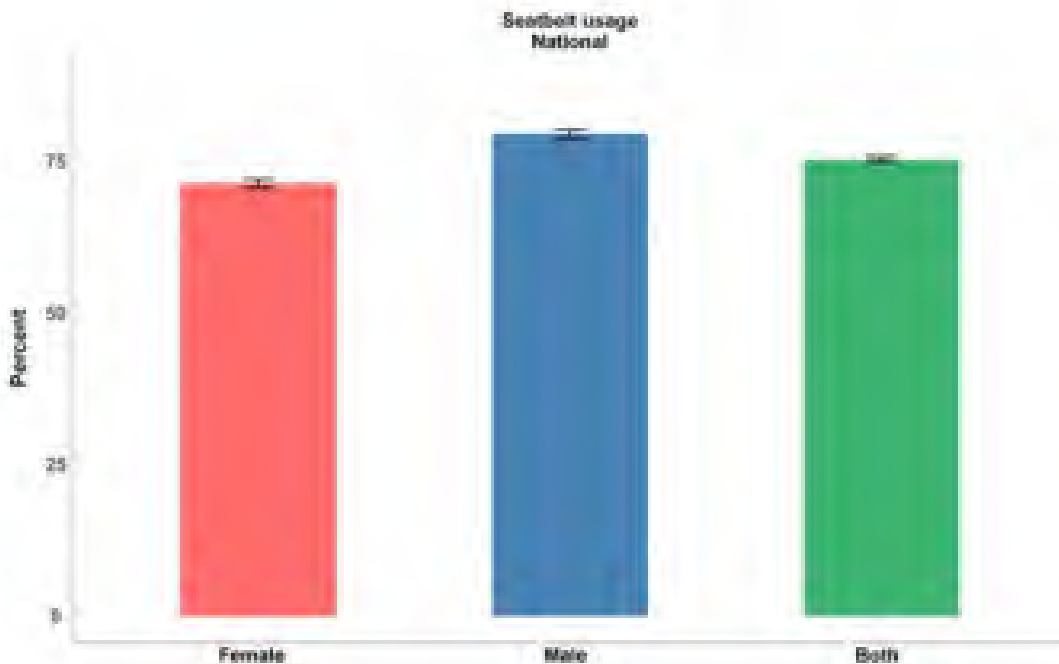


Figure 5.27. Prevalence of seatbelt usage by sex at national level

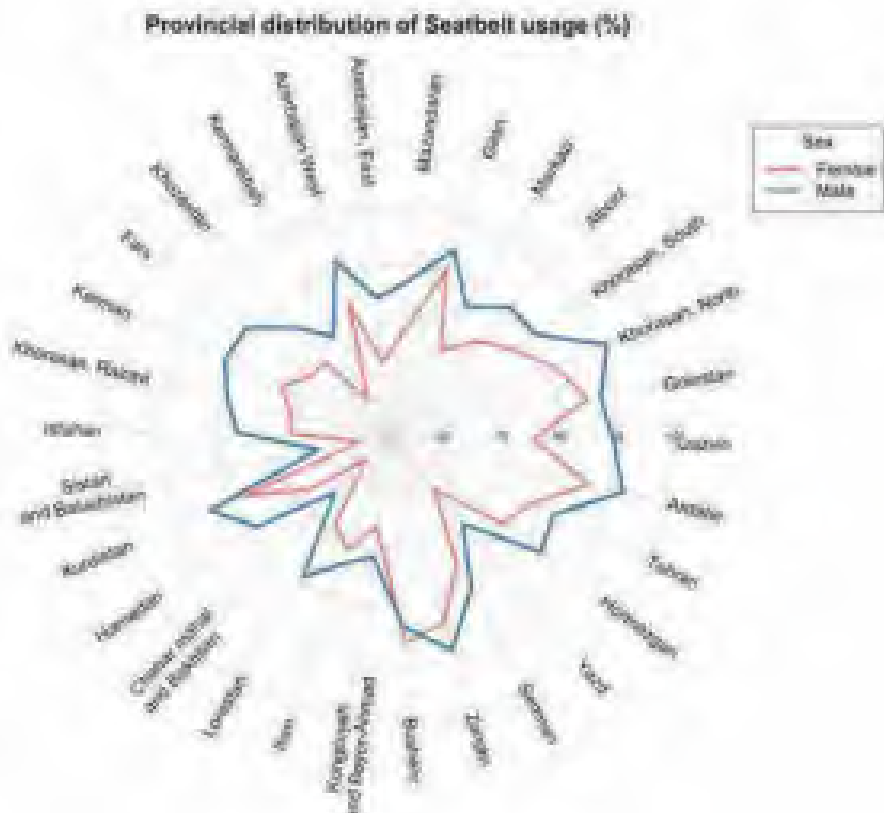


Figure 5.28. Provincial distribution of prevalence of seatbelt usage by sex

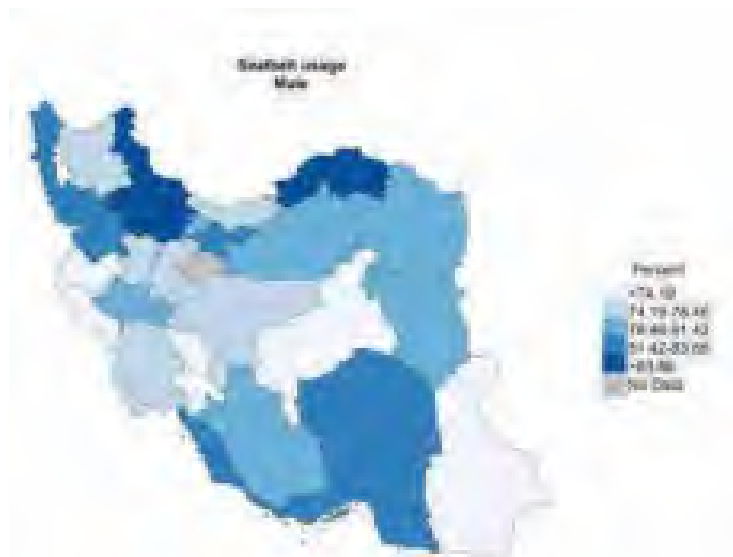


Figure 5.29. Geographical distribution of prevalence of seatbelt usage in males

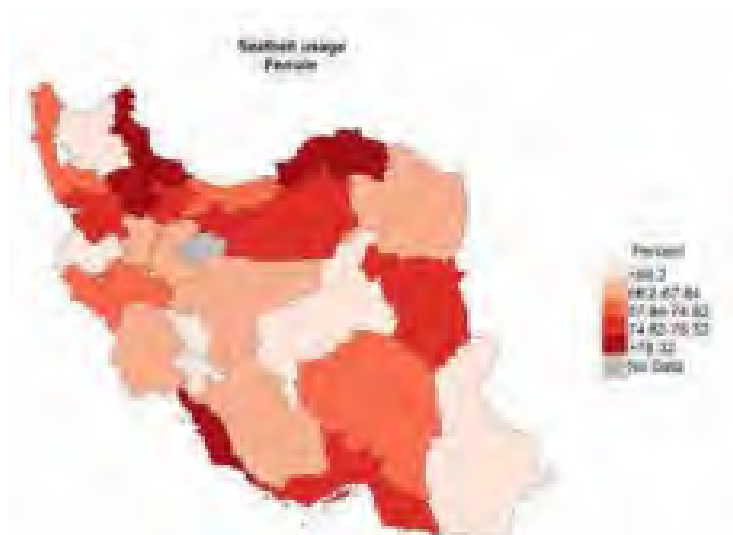


Figure 5.30. Geographical distribution of prevalence of seatbelt usage in females

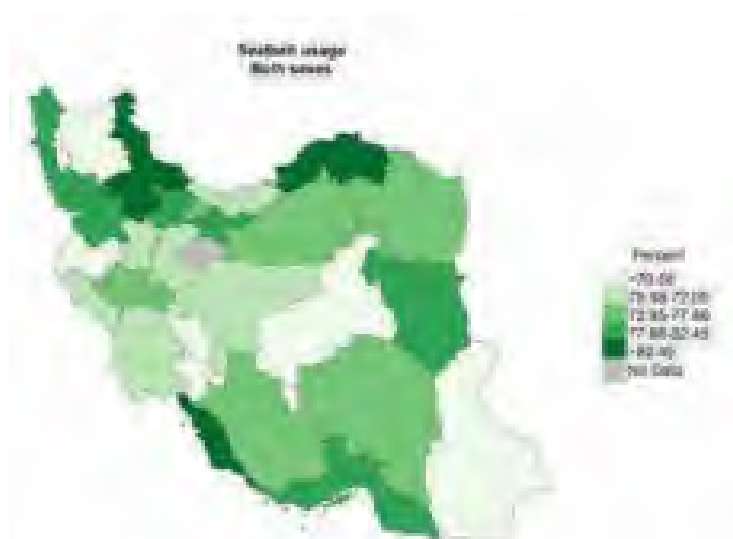


Figure 5.31. Geographical distribution of prevalence of seatbelt usage in both sexes

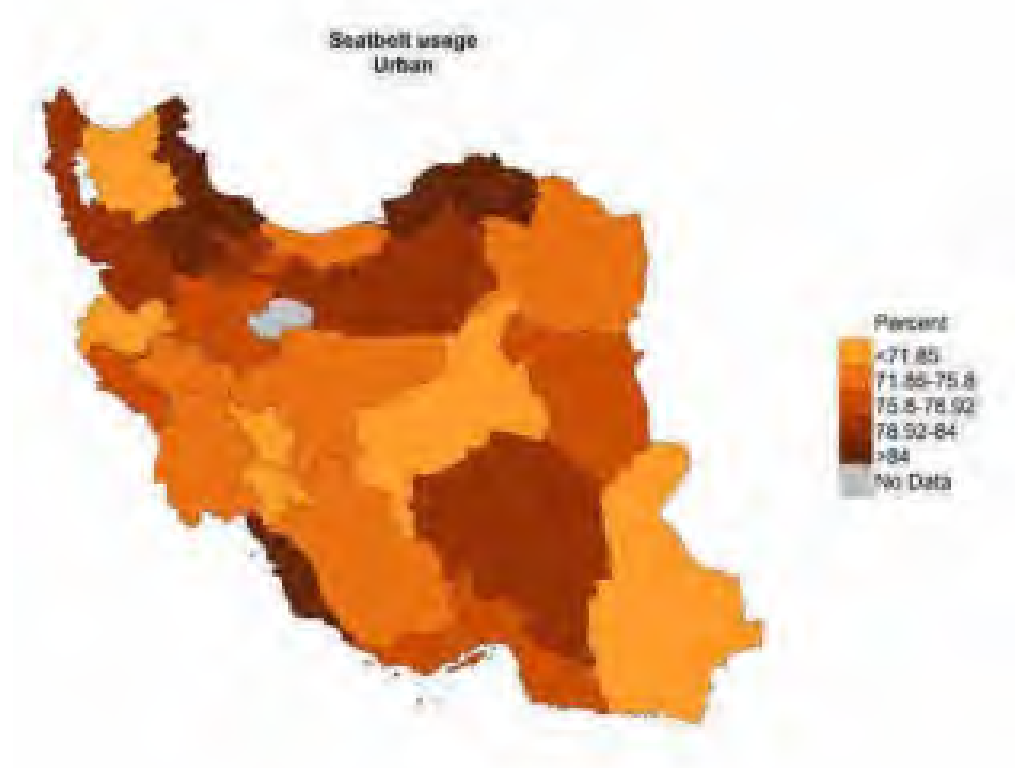


Figure 5.34. Geographical distribution of prevalence of seatbelt usage in urban area of residency

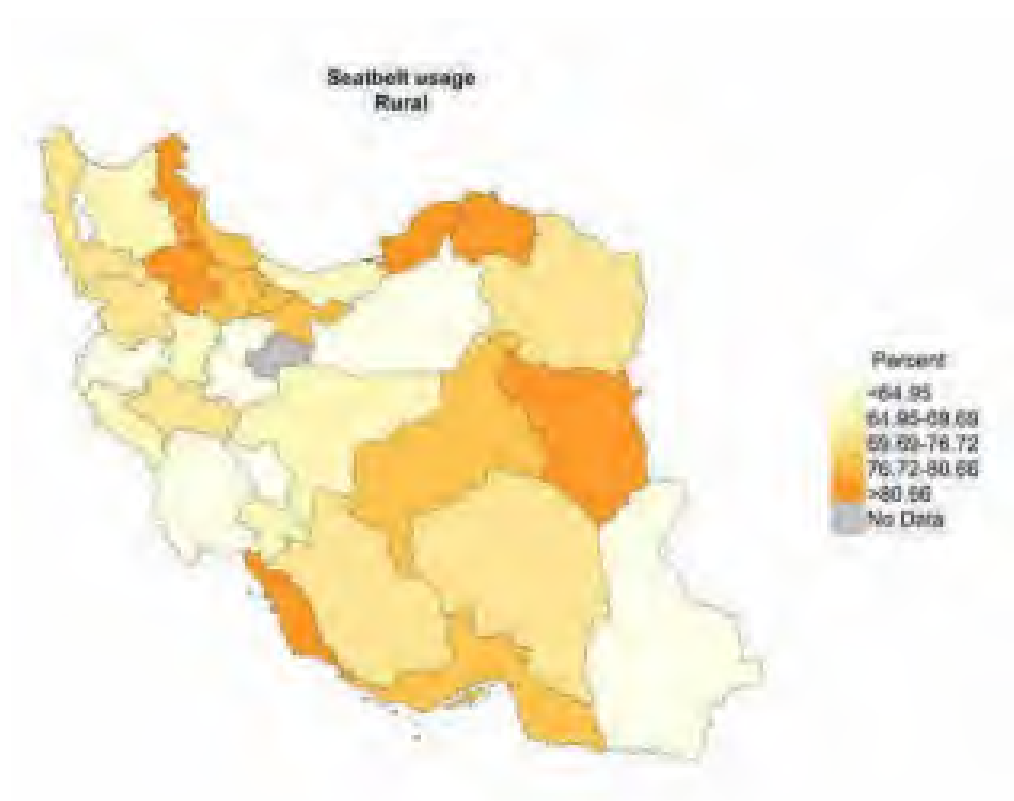


Figure 5.35. Geographical distribution of prevalence of seatbelt usage in rural area of residency

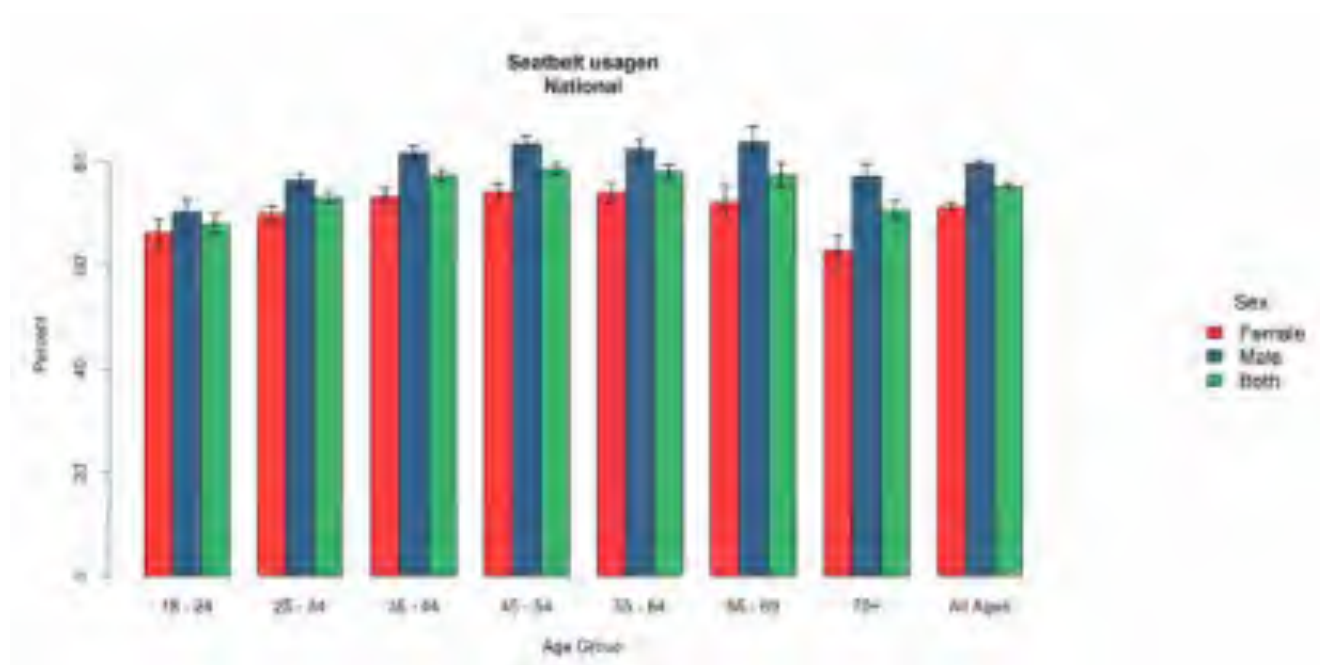


Figure 5.36. Prevalence of seatbelt usage by age and sex at national level

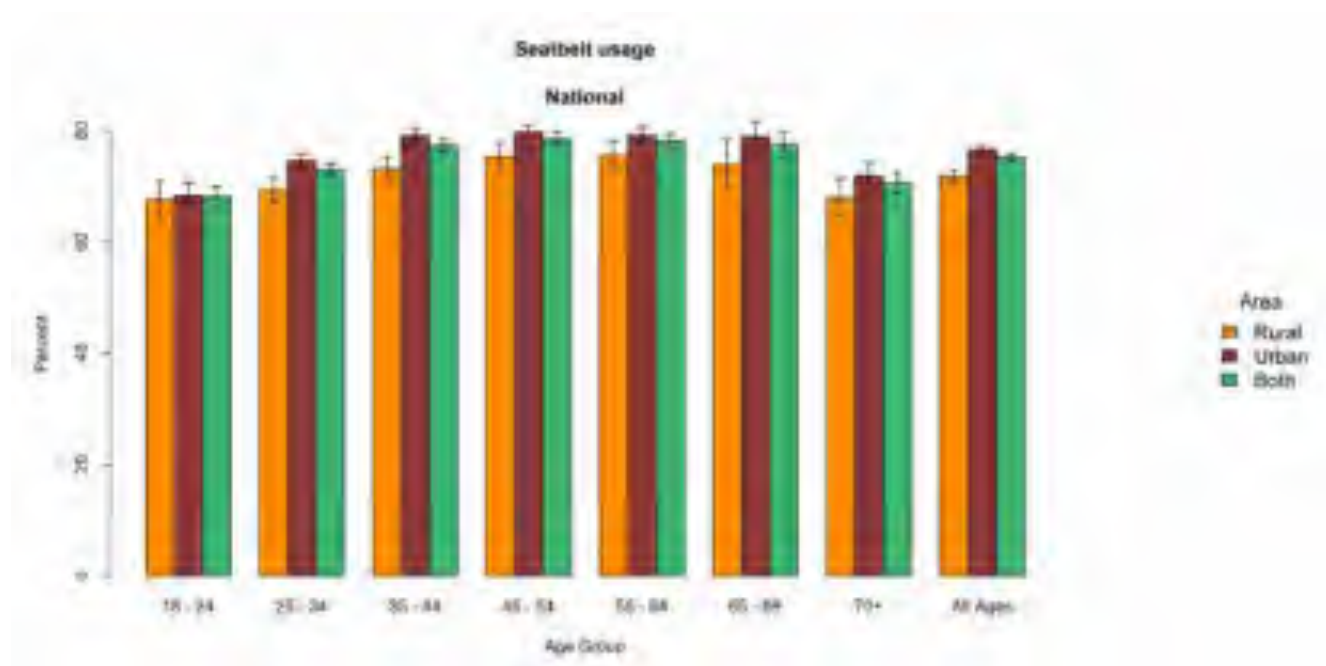


Figure 5.37. Prevalence of seatbelt usage by age and area of residency at national level

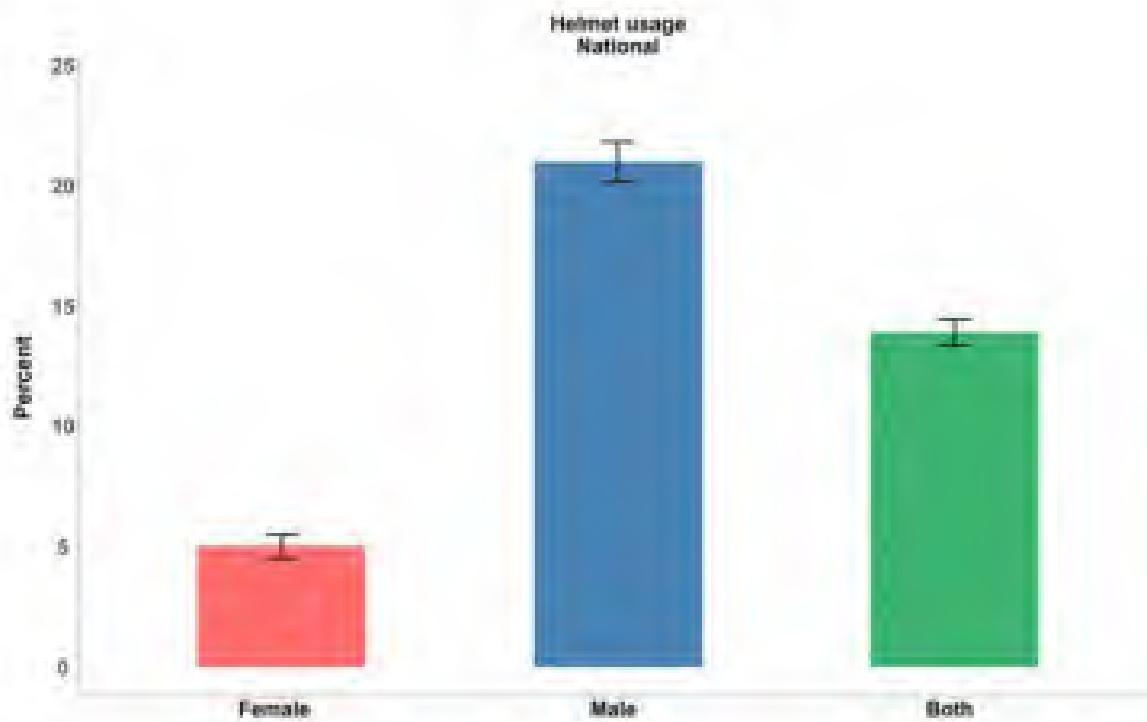


Figure 5.40. Prevalence of helmet usage by sex at national level

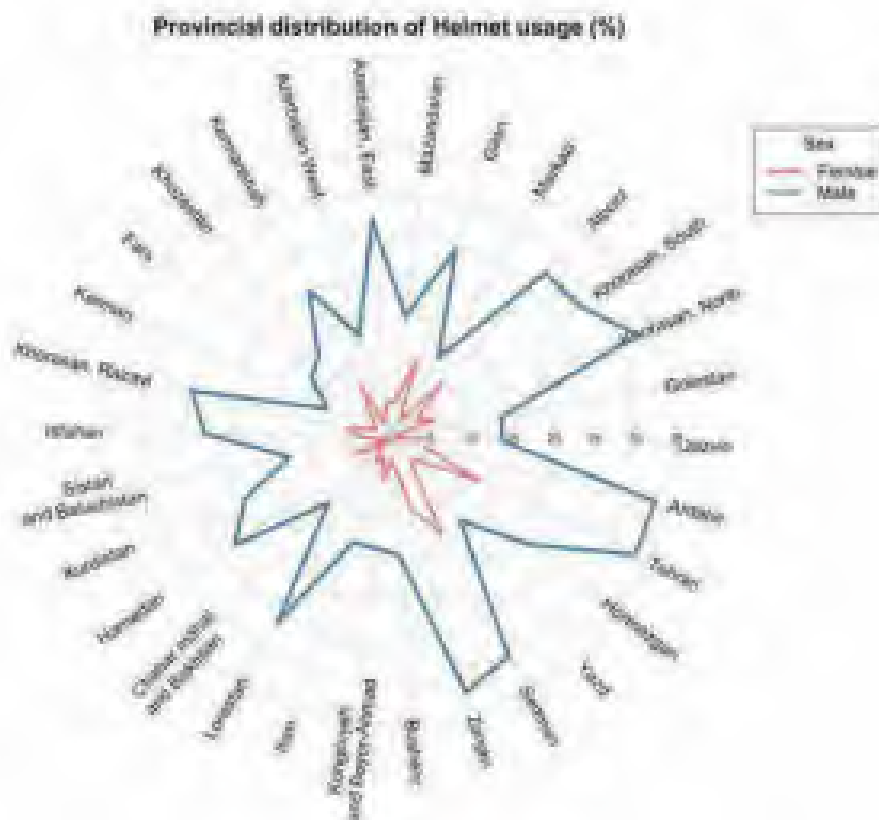


Figure 5.41. Provincial distribution of prevalence of helmet usage by sex

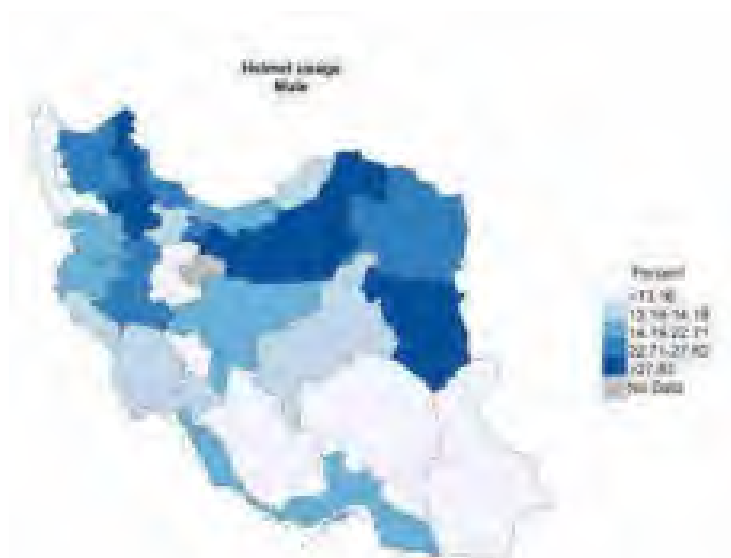


Figure 5.42. Geographical distribution of prevalence of helmet usage in males

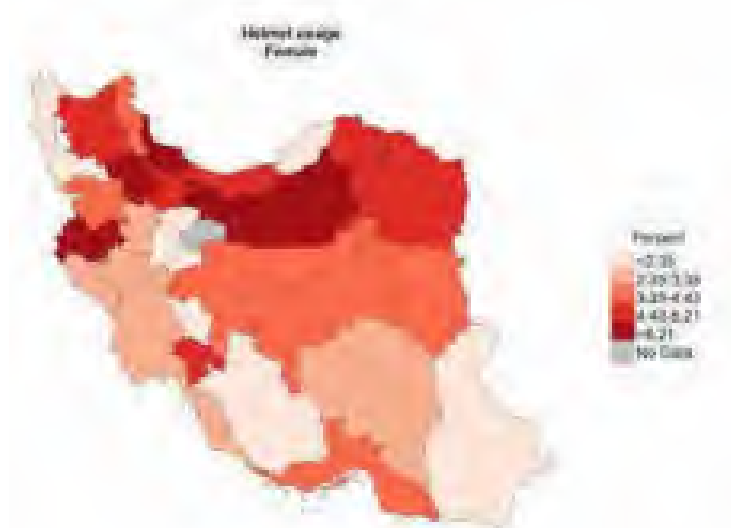


Figure 5.43. Geographical distribution of prevalence of helmet usage in females

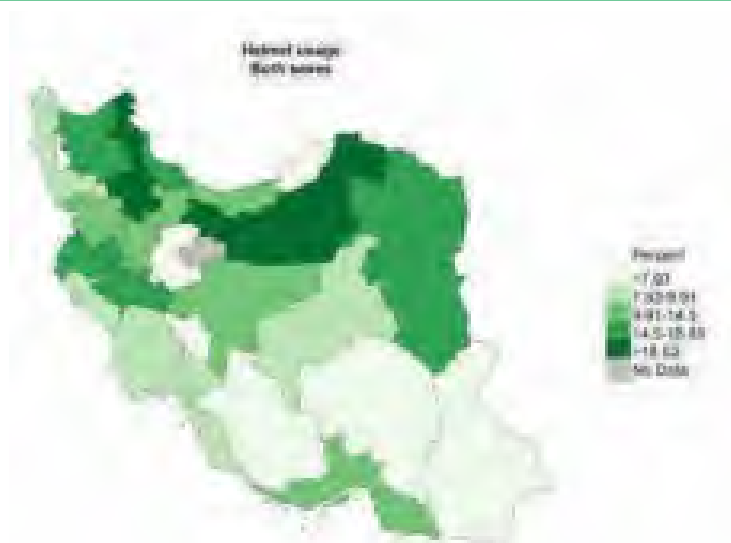


Figure 5.44. Geographical distribution of prevalence of helmet usage in both sexes

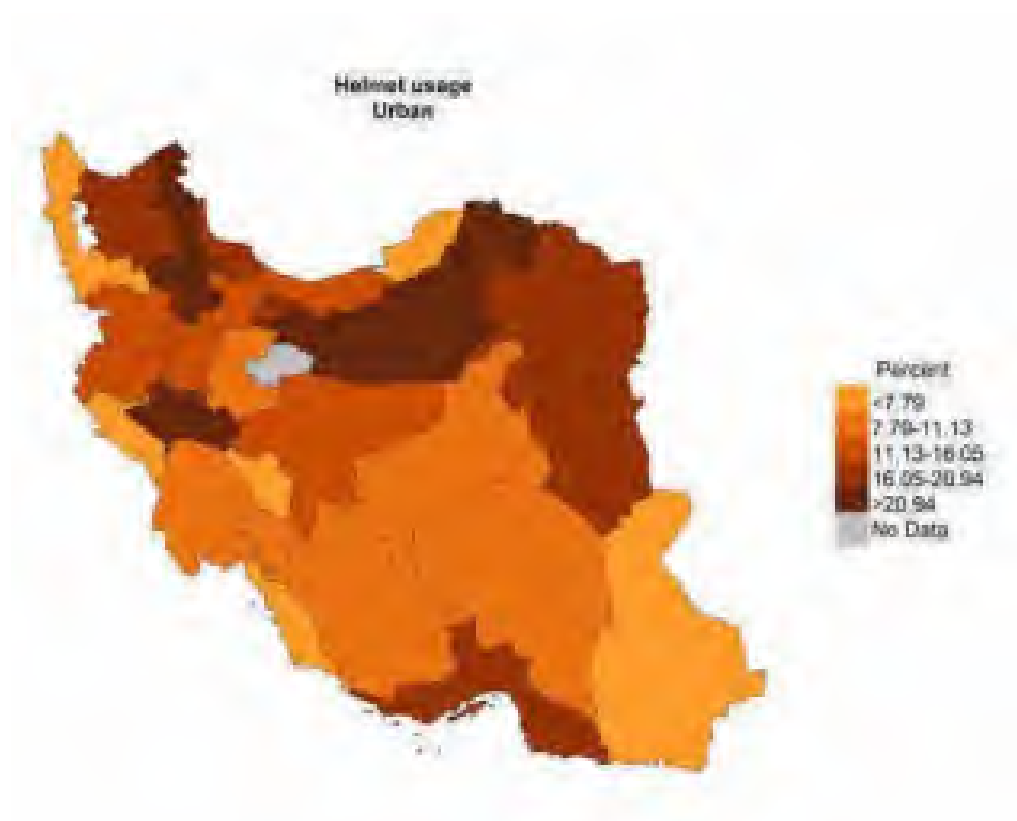


Figure 5.47. Geographical distribution of prevalence of helmet usage in urban area of residency

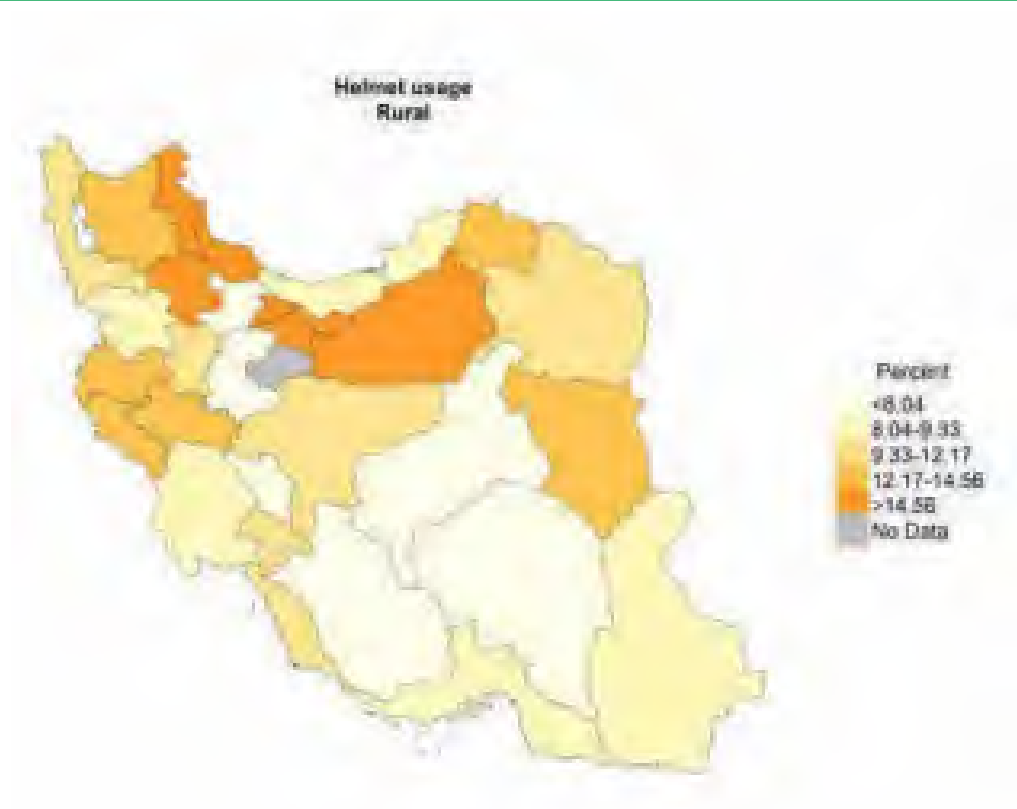


Figure 5.48. Geographical distribution of prevalence of helmet usage in rural area of residency

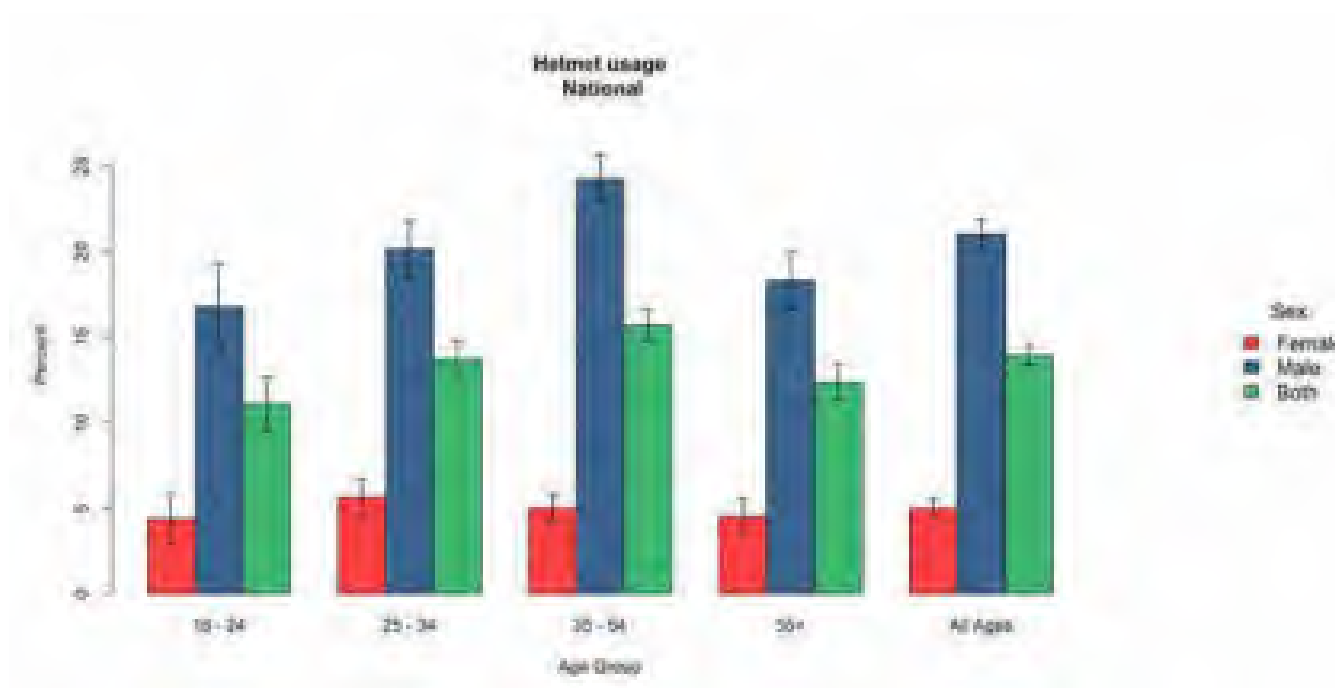


Figure 5.49. Prevalence of helmet usage by age and sex at national level

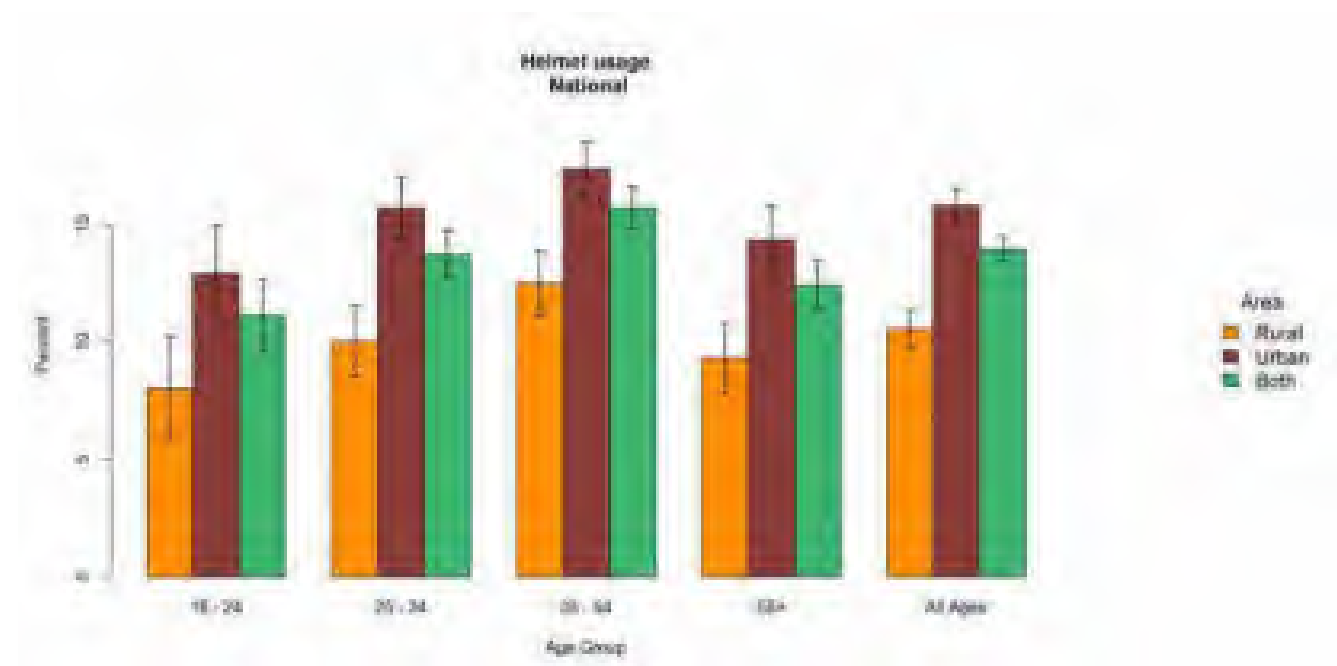


Figure 5.50. Prevalence of helmet usage by age and area of residency at national level

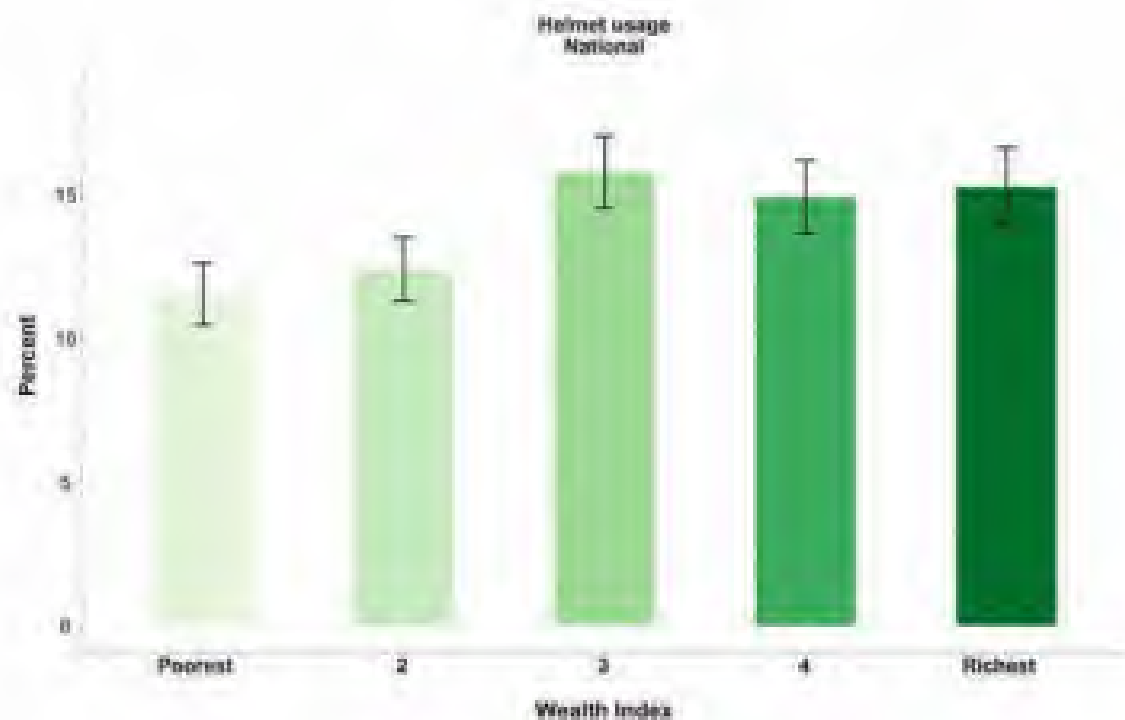


Figure 5.51. Prevalence of helmet usage by wealth index quantiles at national level

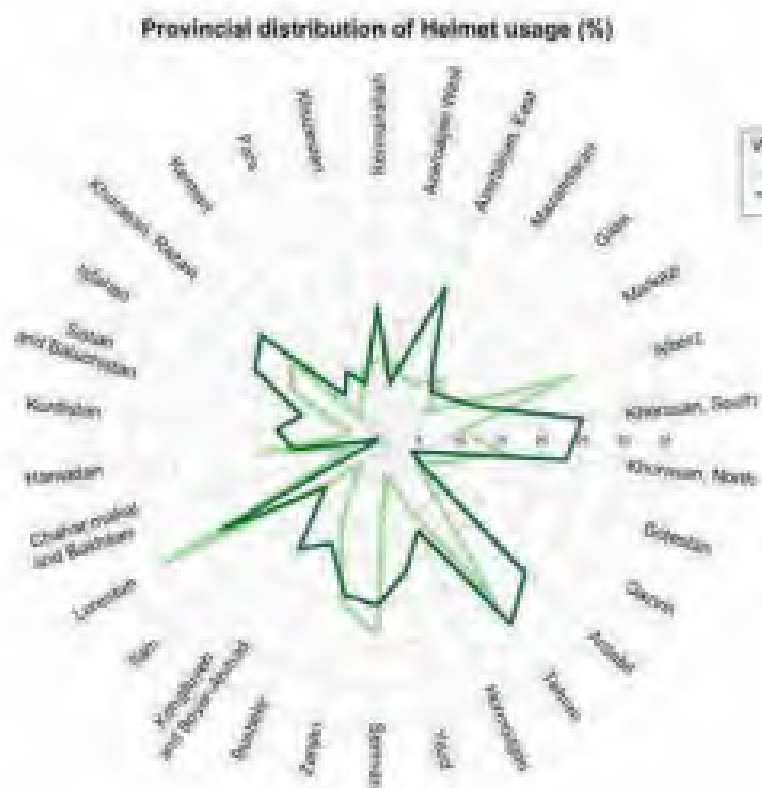


Figure 5.52. Provincial distribution of prevalence of helmet usage by wealth index

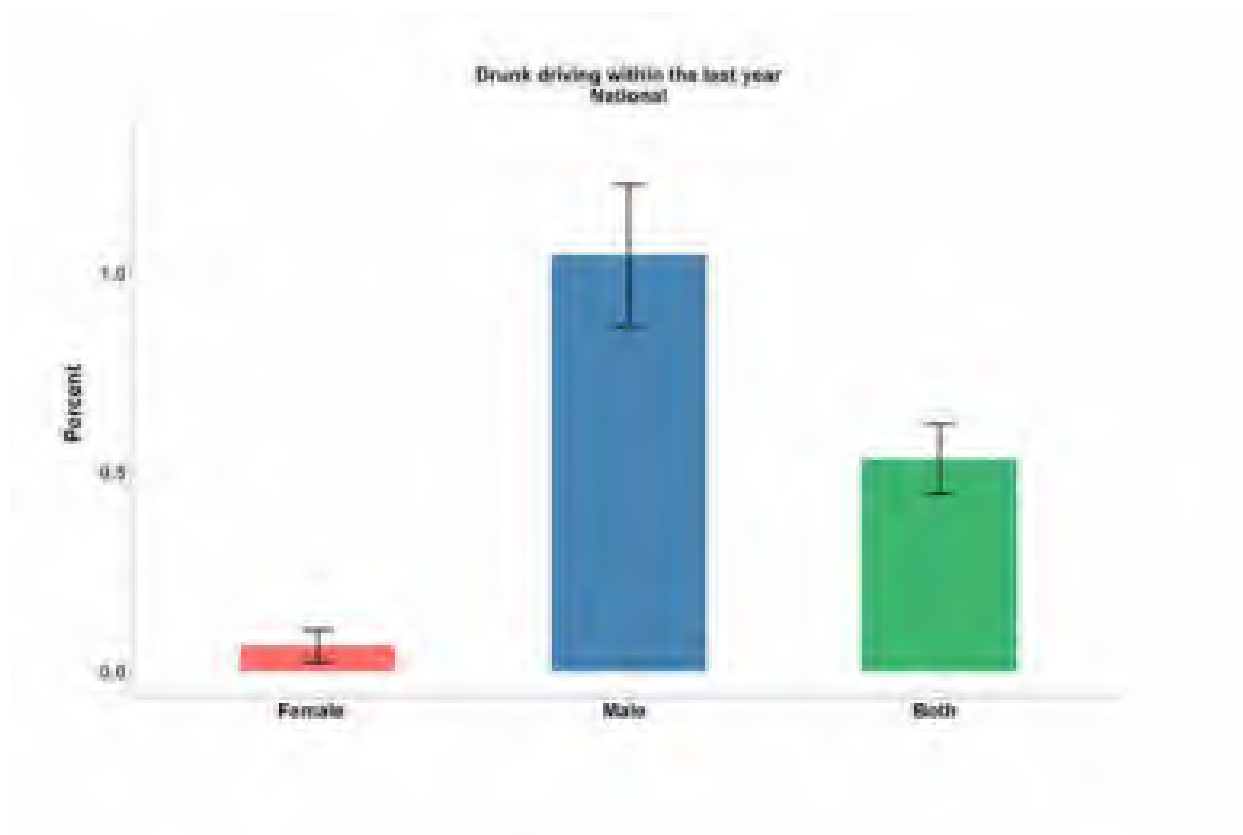


Figure 5.53. Prevalence of drunk driving within the last year by sex at national level

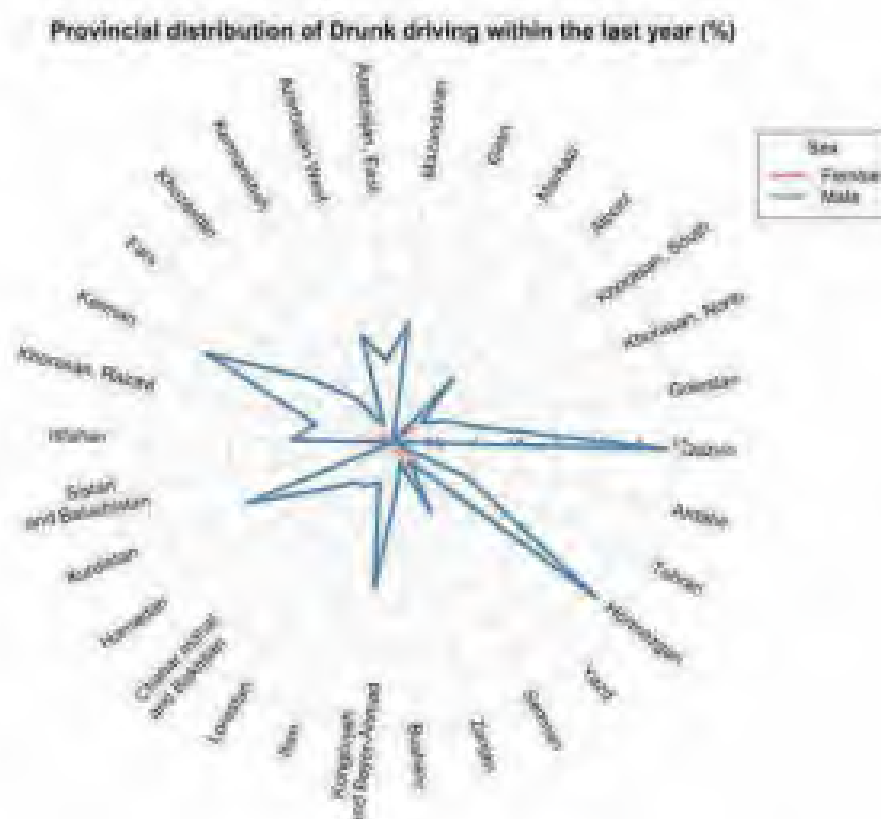


Figure 5.54. Provincial distribution of prevalence of drunk driving within the last year by sex

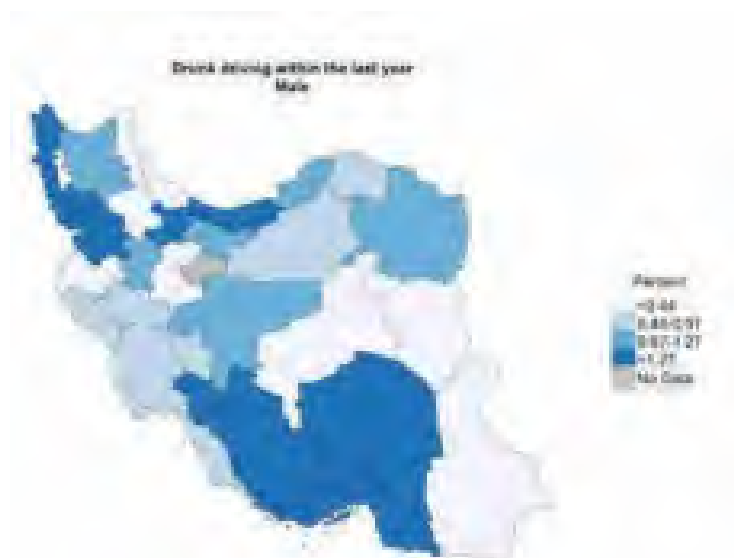


Figure 5.55. Geographical distribution of prevalence of drunk driving within the last year in males

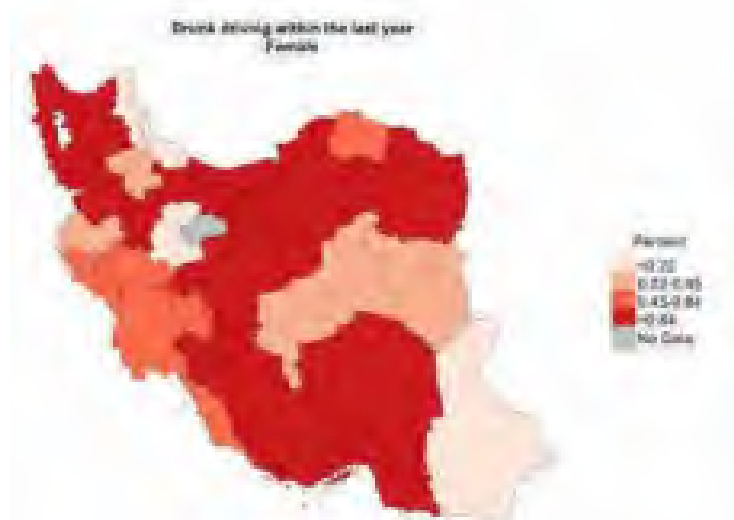


Figure 5.56. Geographical distribution of prevalence of drunk driving within the last year in females

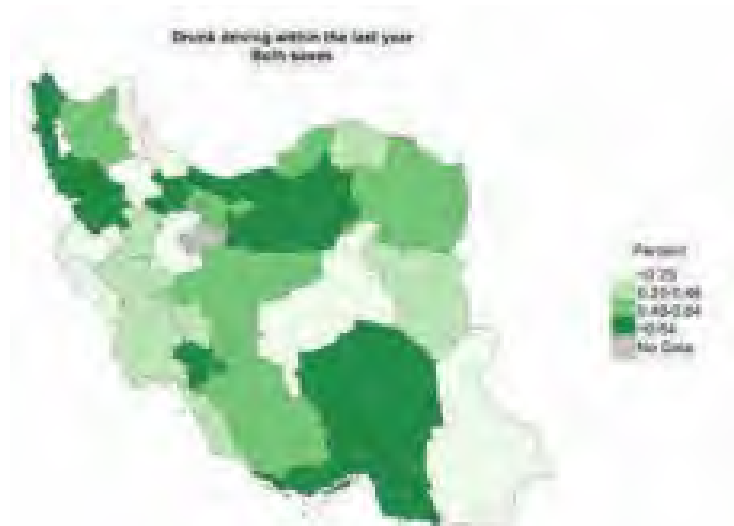


Figure 5.57. Geographical distribution of prevalence of drunk driving within the last year in both sexes

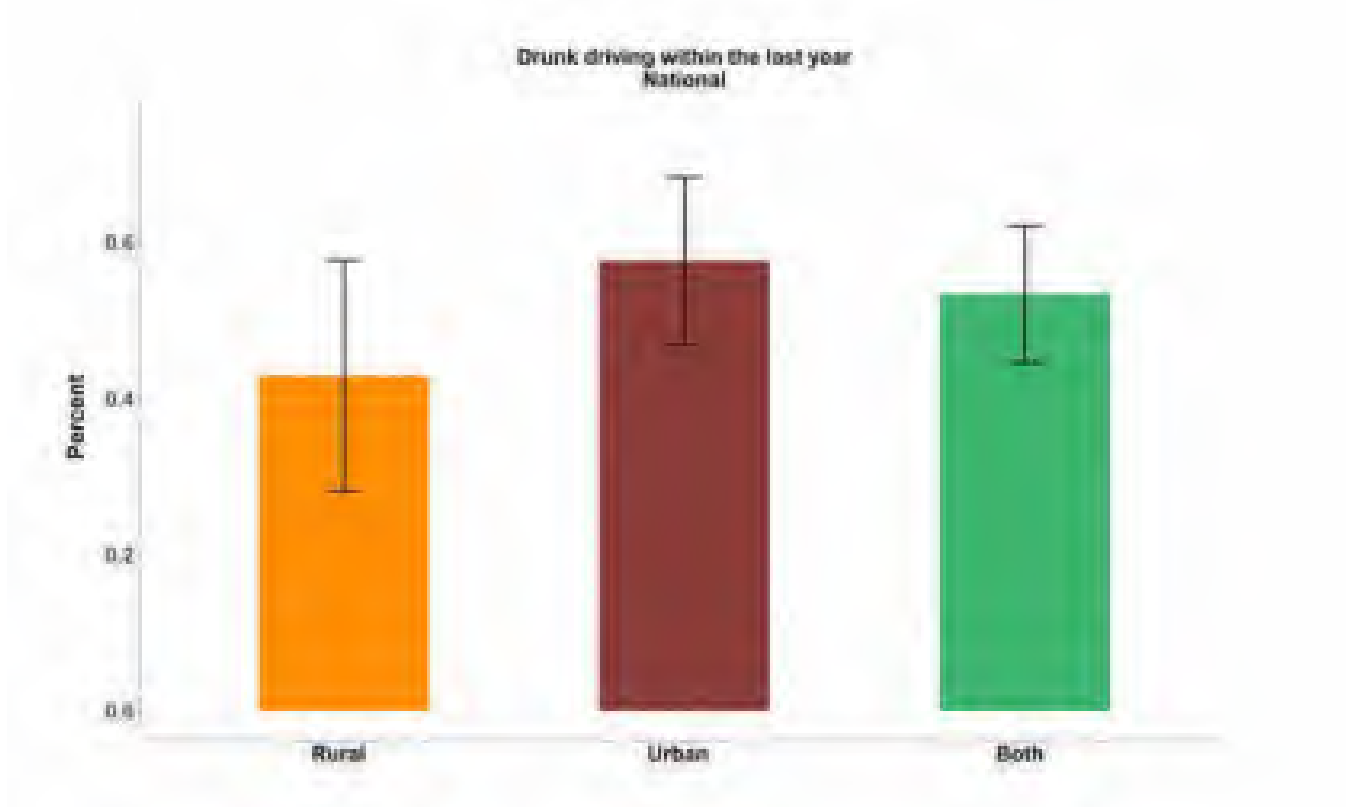


Figure 5.58. Prevalence of drunk driving within the last year by area of residency at national level

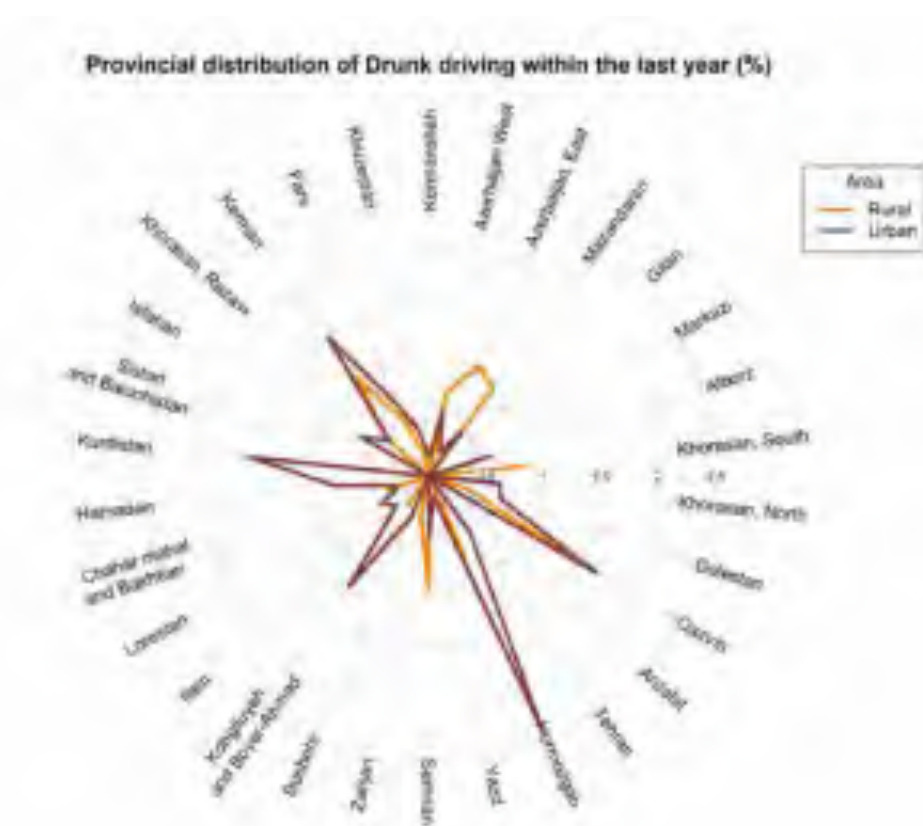


Figure 5.59. Provincial distribution of prevalence of drunk driving within the last year by area of residency

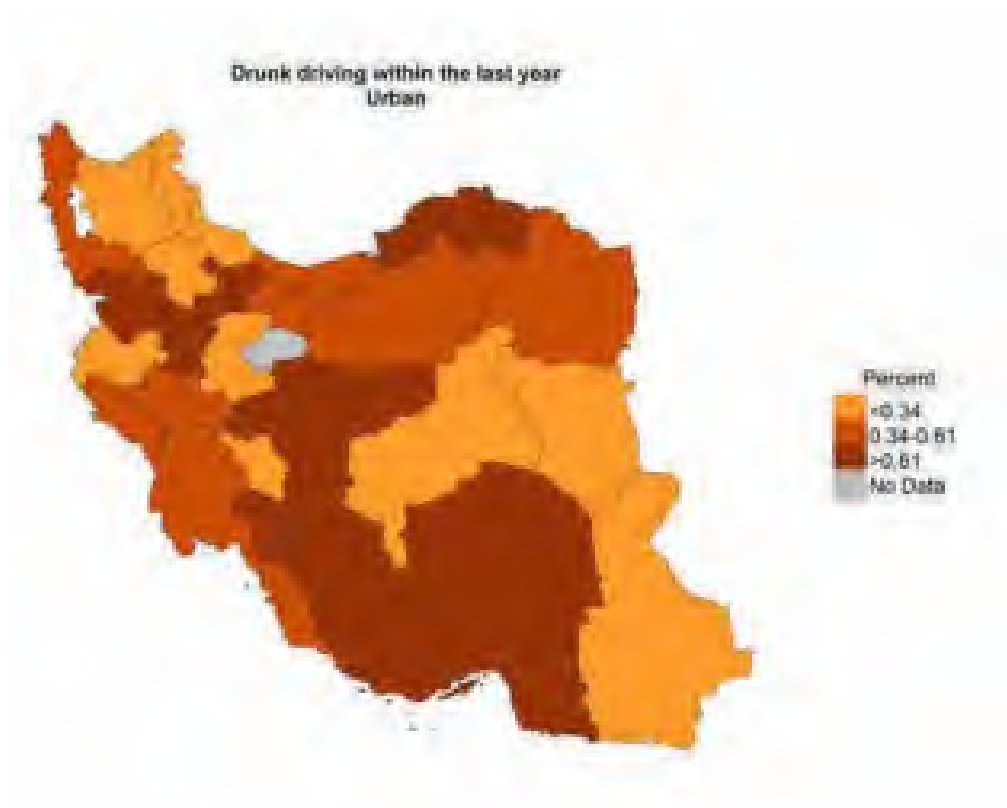


Figure 5.60. Geographical distribution of prevalence of drunk driving within the last year in urban area of residency

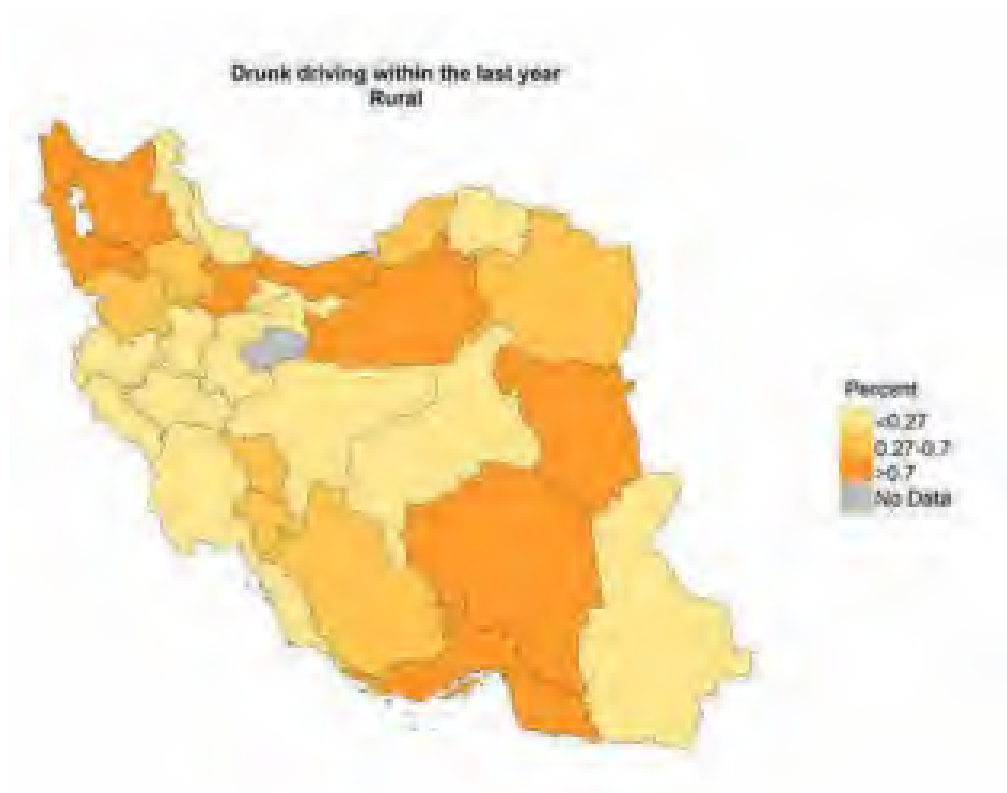
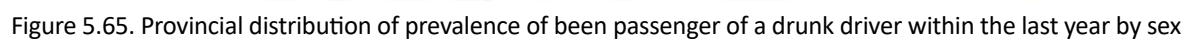
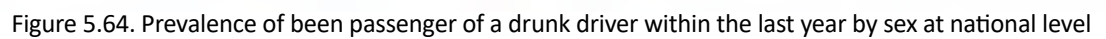


Figure 5.61. Geographical distribution of prevalence of drunk driving within the last year in rural area of residency



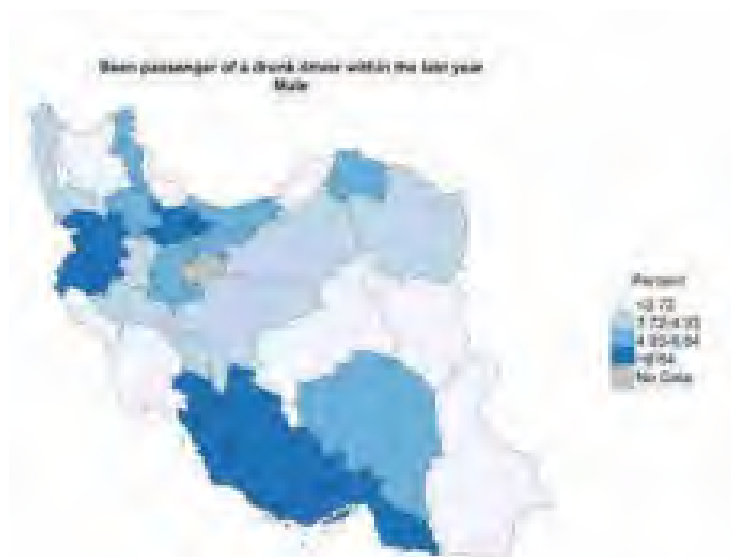


Figure 5.66. Geographical distribution of prevalence of been passenger of a drunk driver within the last year in males

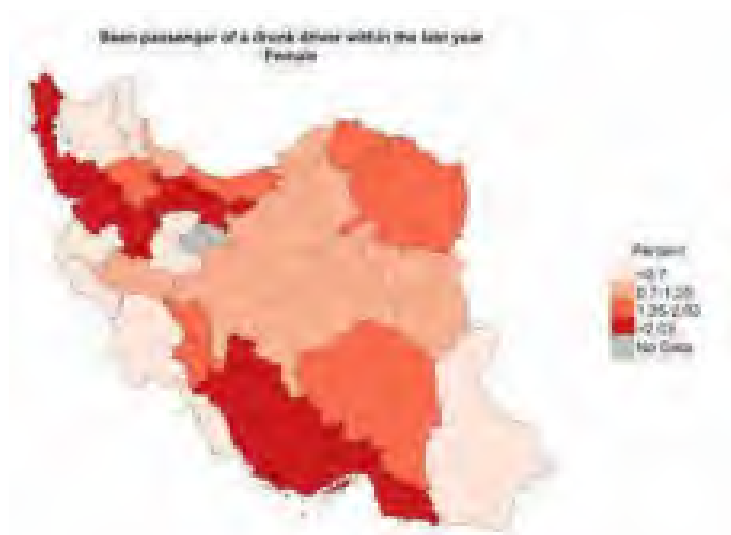


Figure 5.67. Geographical distribution of prevalence of been passenger of a drunk driver within the last year in females

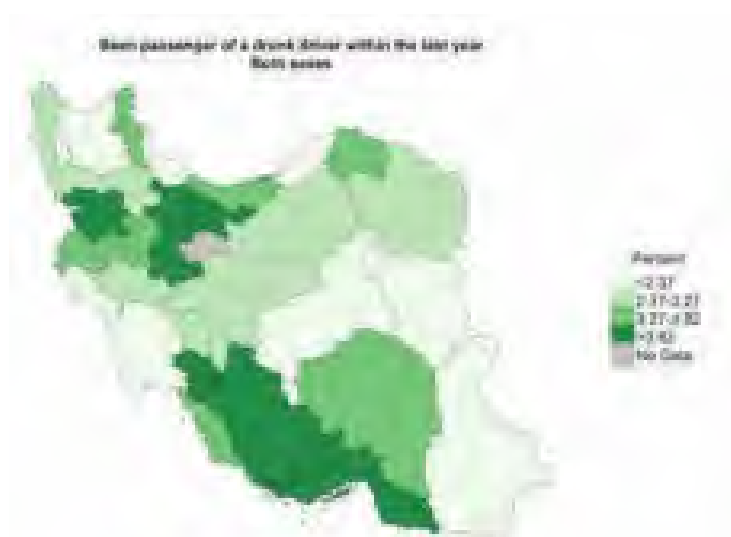


Figure 5.68. Geographical distribution of prevalence of been passenger of a drunk driver within the last year in both sexes

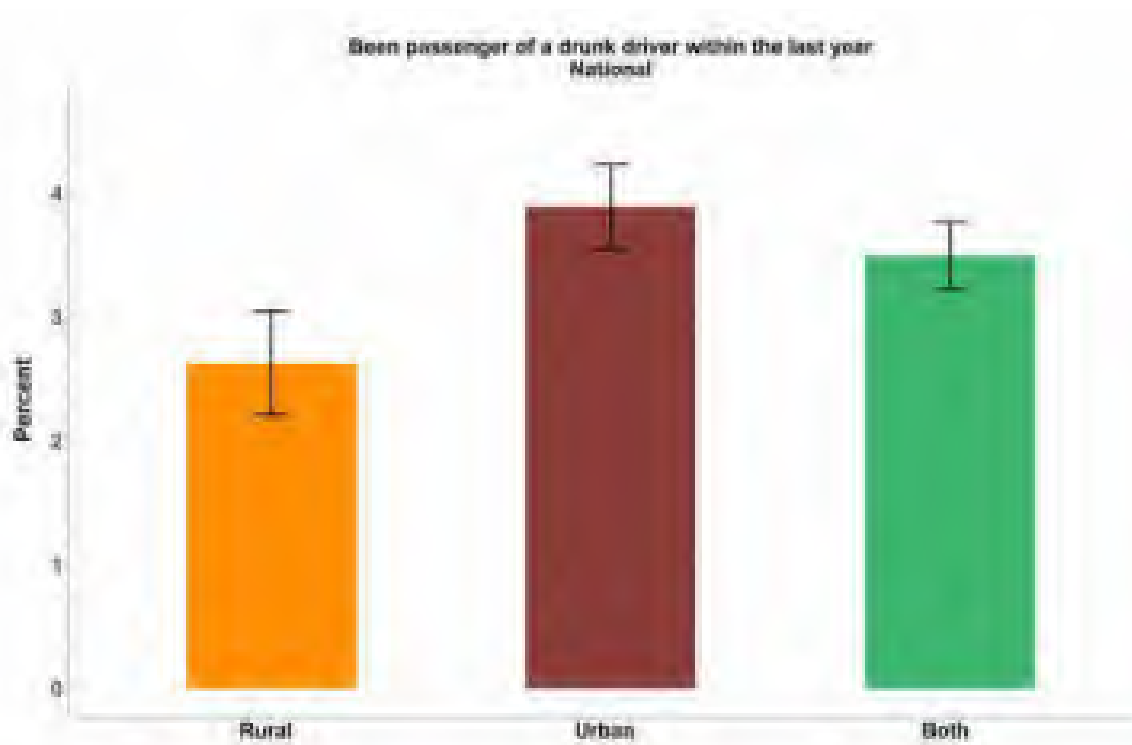


Figure 5.69. Prevalence of been passenger of a drunk driver within the last year by area of residency at national level

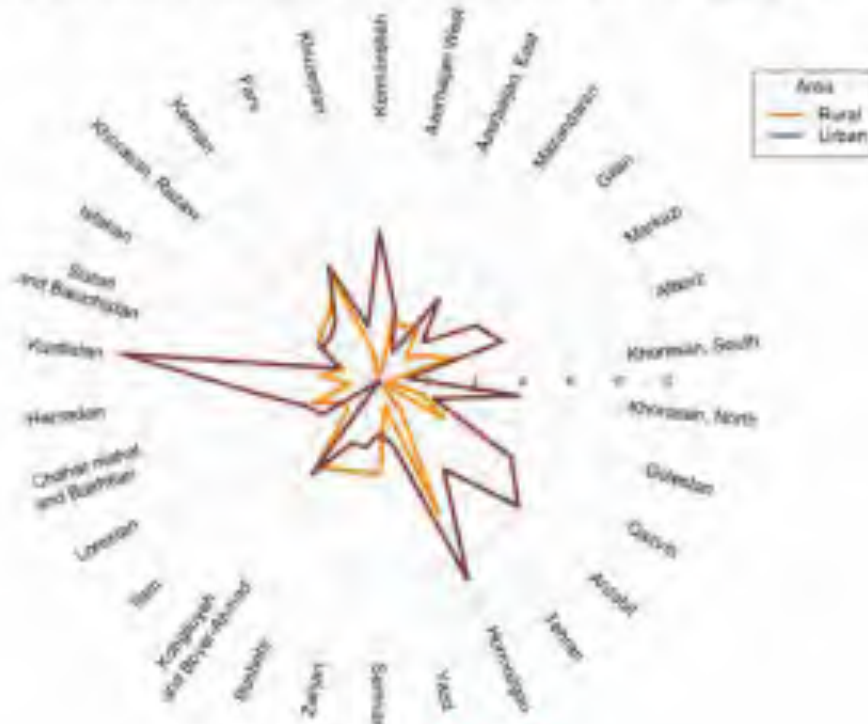
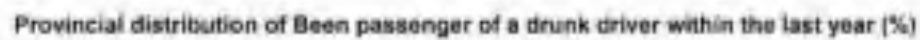


Figure 5.70. Provincial distribution of prevalence of been passenger of a drunk driver within the last year by area of residency

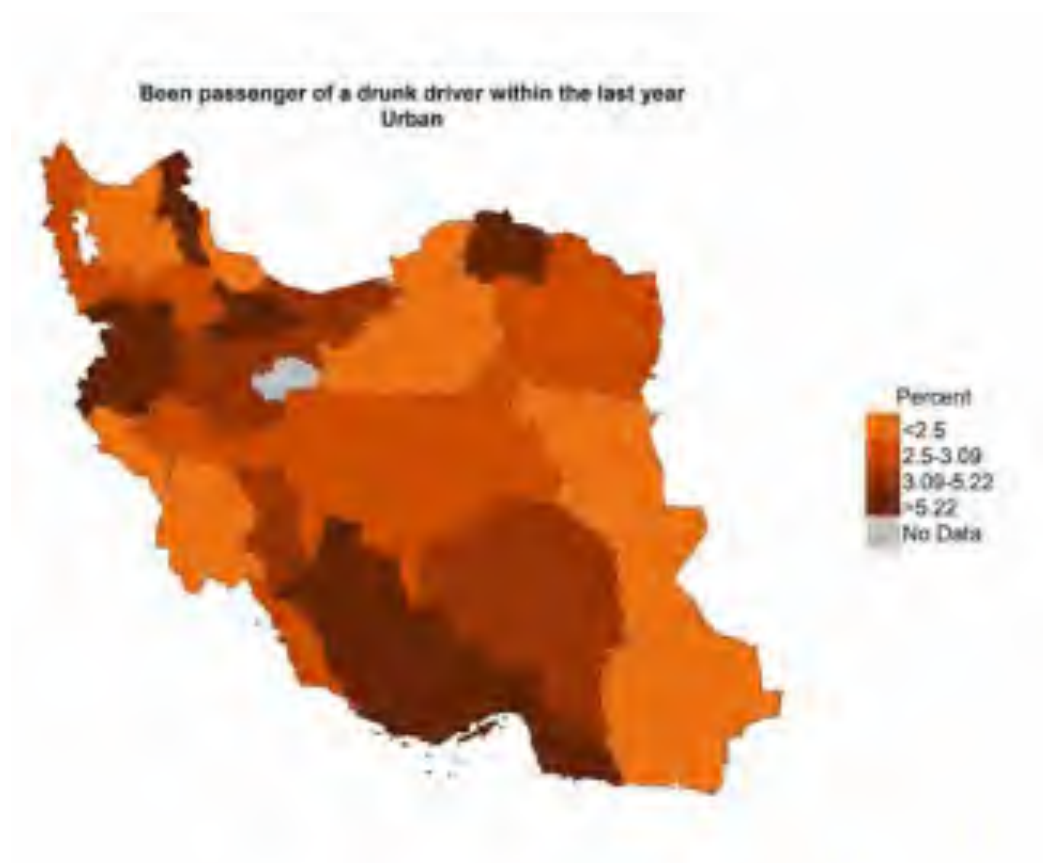


Figure 5.71. Geographical distribution of prevalence of been passenger of a drunk driver within the last year in urban area of residency

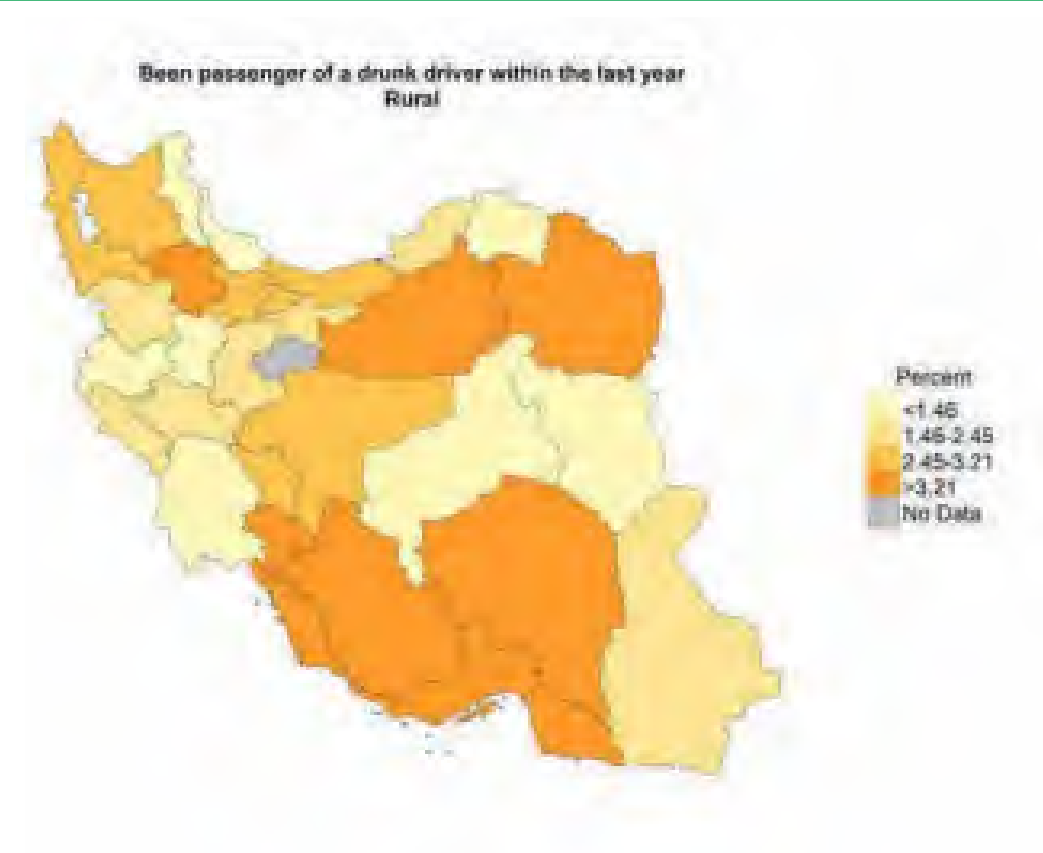


Figure 5.72. Geographical distribution of prevalence of been passenger of a drunk driver within the last year in rural area of residency

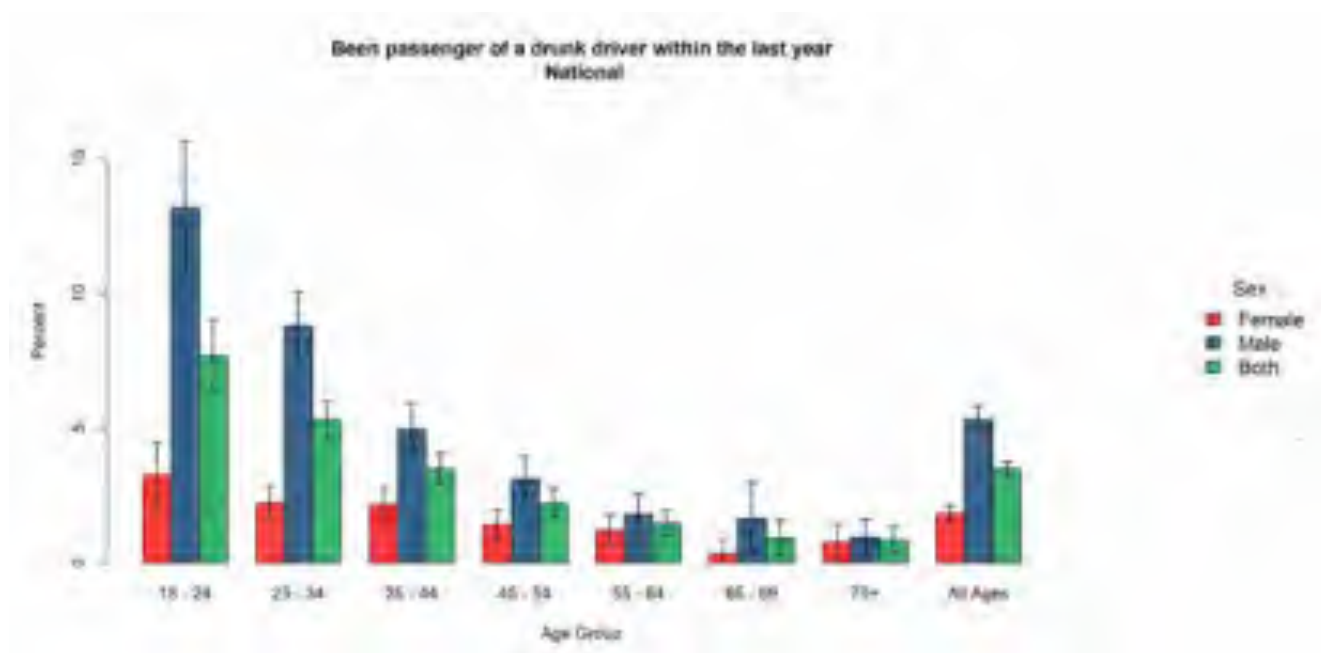


Figure 5.73. Prevalence of been passenger of a drunk driver within the last year by age and sex at national level

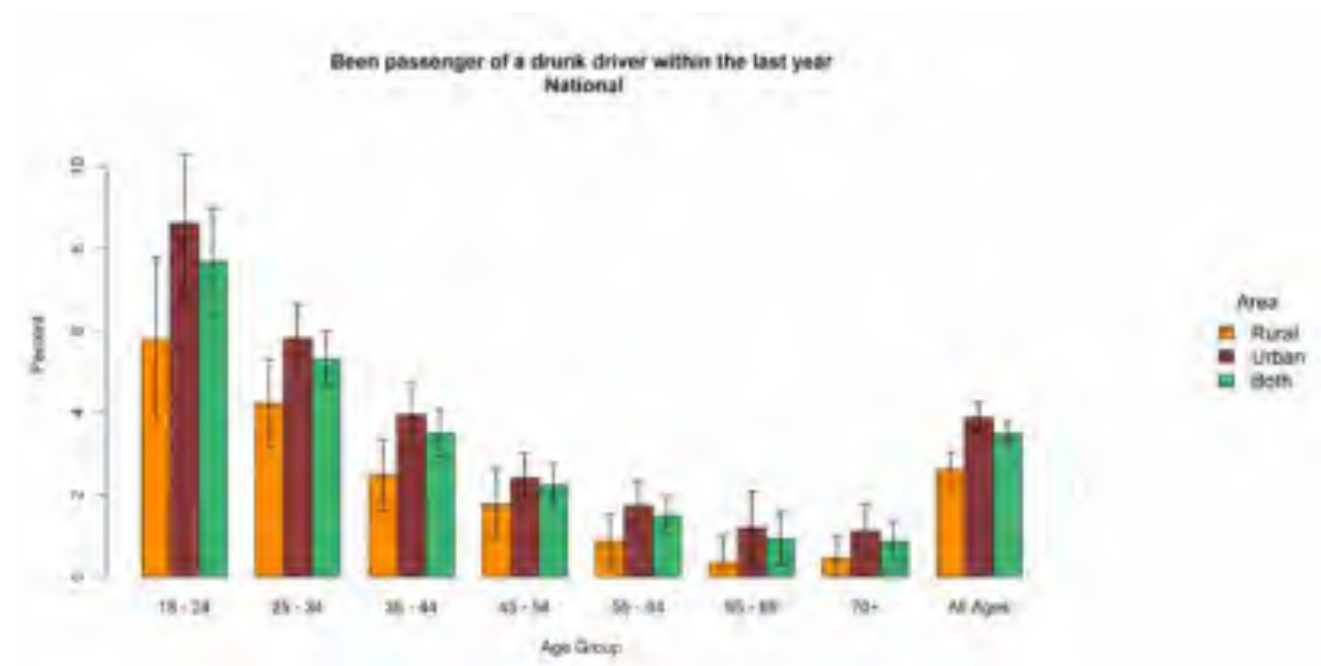


Figure 5.74. Prevalence of been passenger of a drunk driver within the last year by age and area of residency at national level

CHAPTER 2

Results

Section 6.1

The System of Offering Services in Controlling Non-Communicable Diseases: Awareness, Coverage, and Effectiveness of Treatment

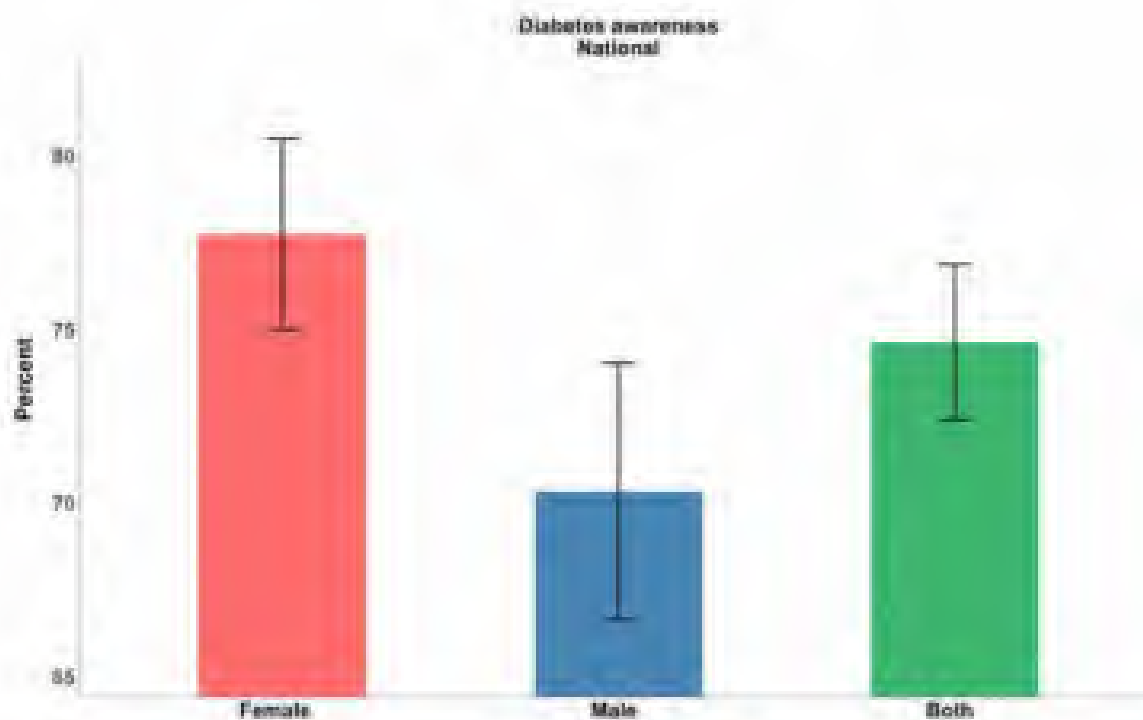


Figure 6.1.1. Prevalence of diabetes awareness by sex at national level

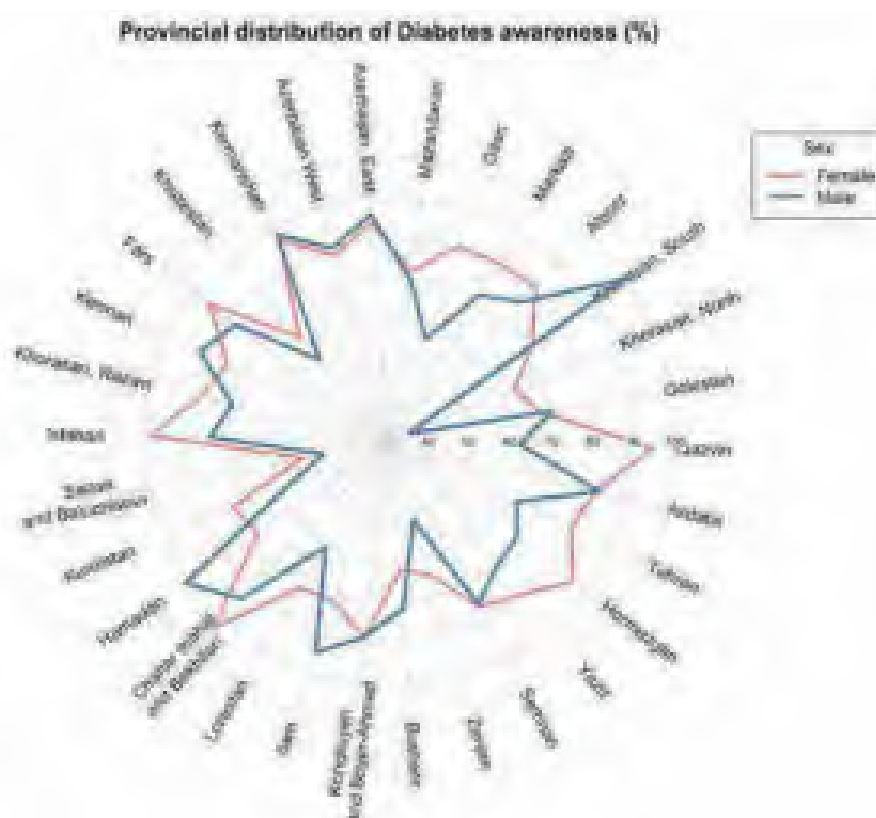


Figure 6.1.2. Provincial distribution of prevalence of diabetes awareness by sex

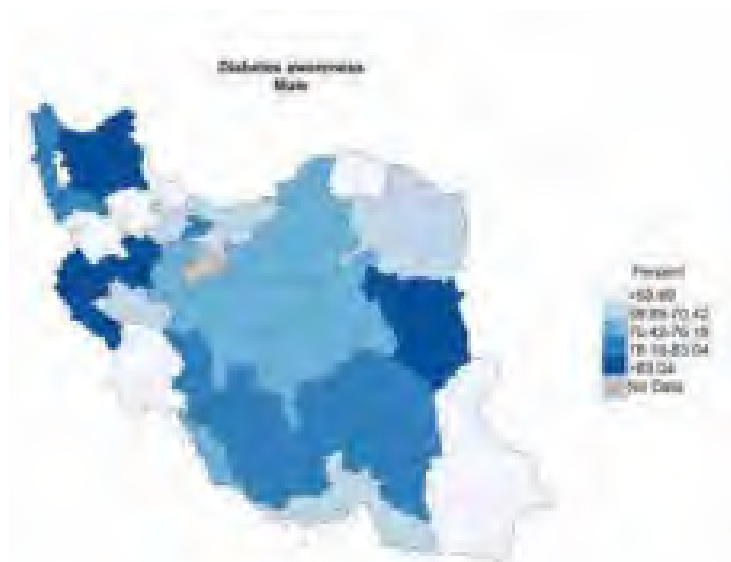


Figure 6.1.3. Geographical distribution of prevalence of diabetes awareness in males

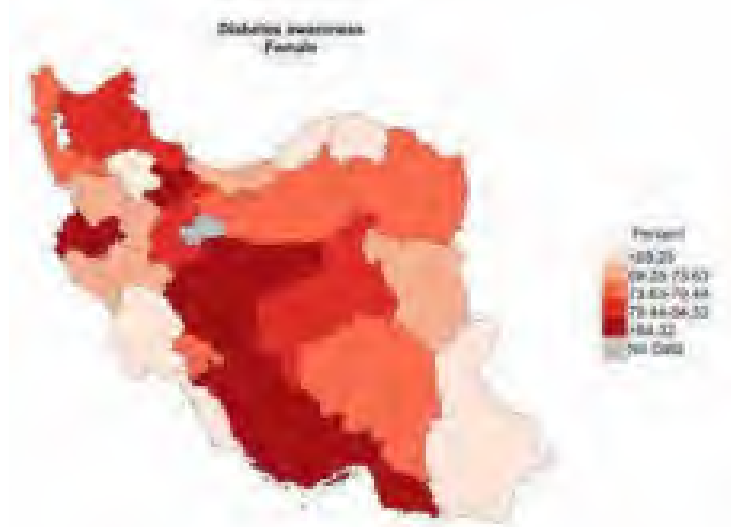


Figure 6.1.4. Geographical distribution of prevalence of diabetes awareness in females

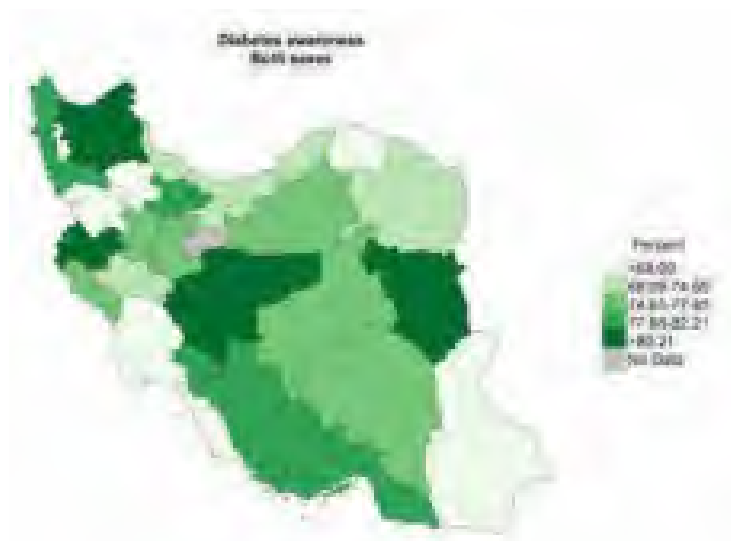


Figure 6.1.5. Geographical distribution of prevalence of diabetes awareness in both sexes

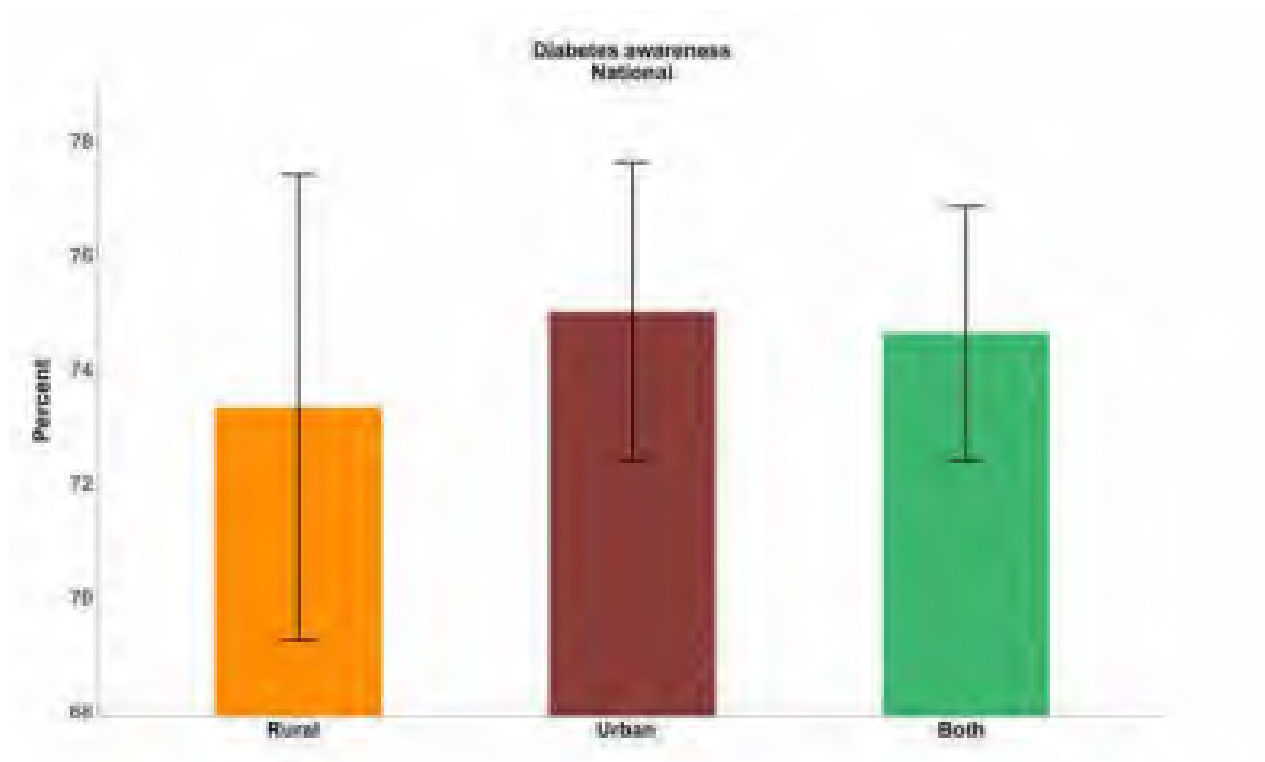


Figure 6.1.6. Prevalence of diabetes awareness by area of residency at national level

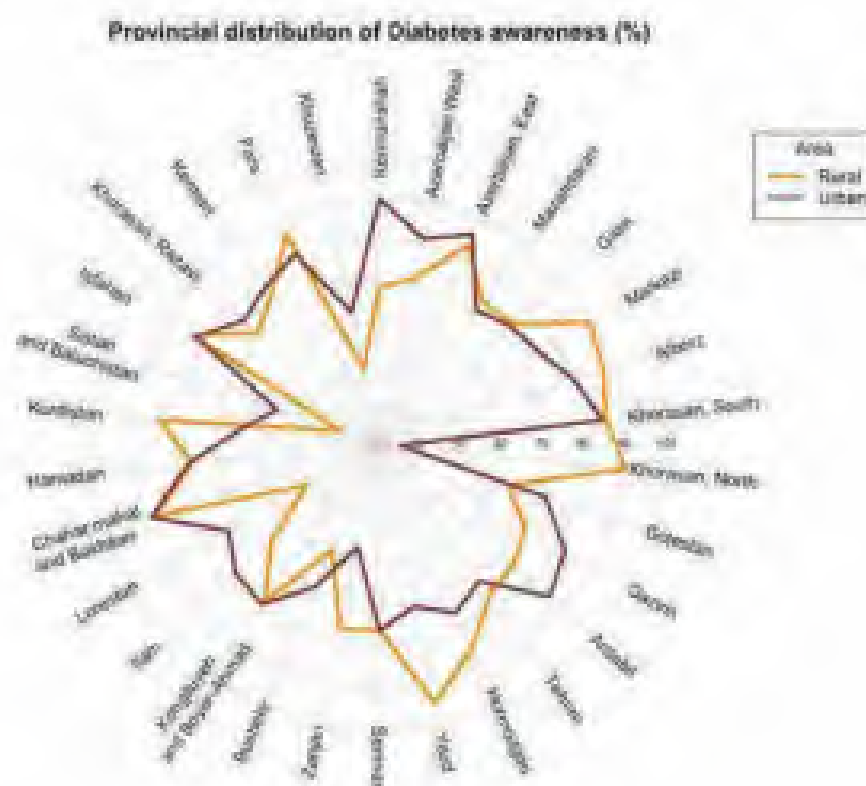


Figure 6.1.7. Provincial distribution of prevalence of diabetes awareness by area of residency

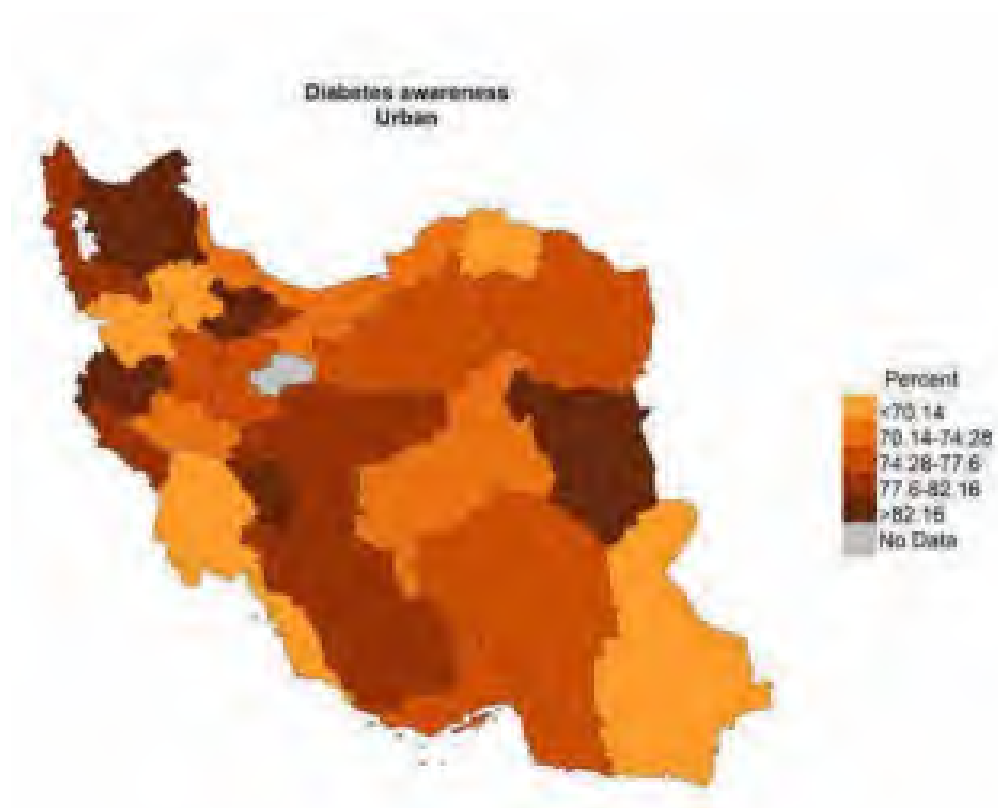


Figure 6.1.8. Geographical distribution of prevalence of diabetes awareness in urban area of residency

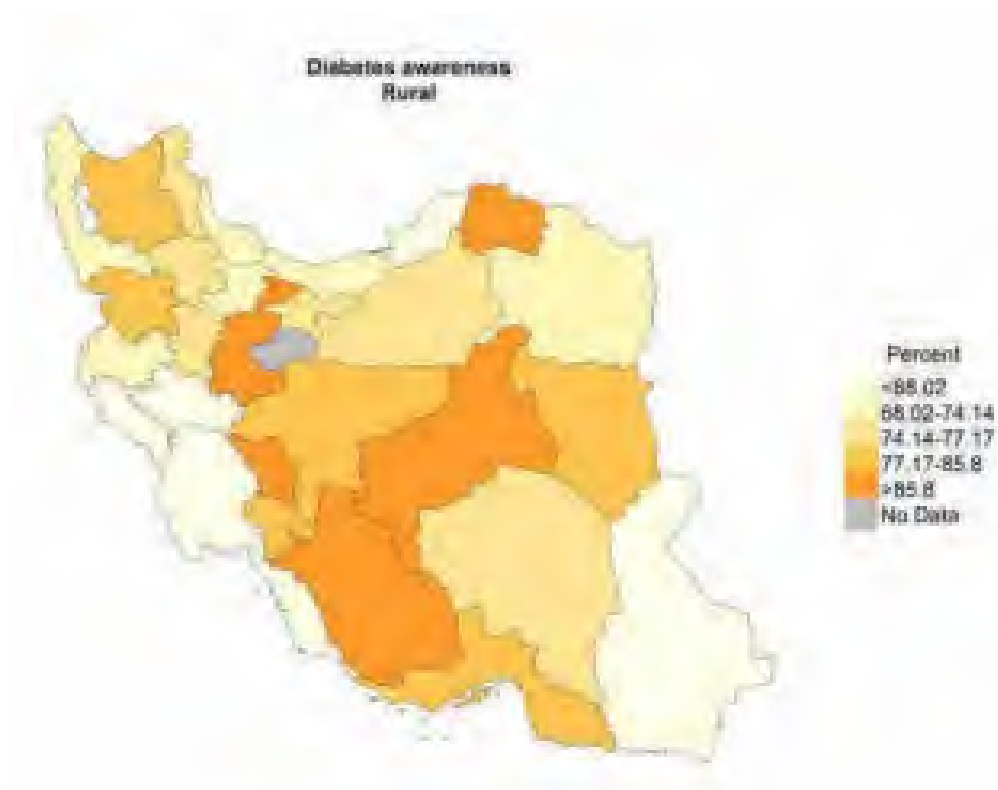


Figure 6.1.9. Geographical distribution of prevalence of diabetes awareness in rural area of residency

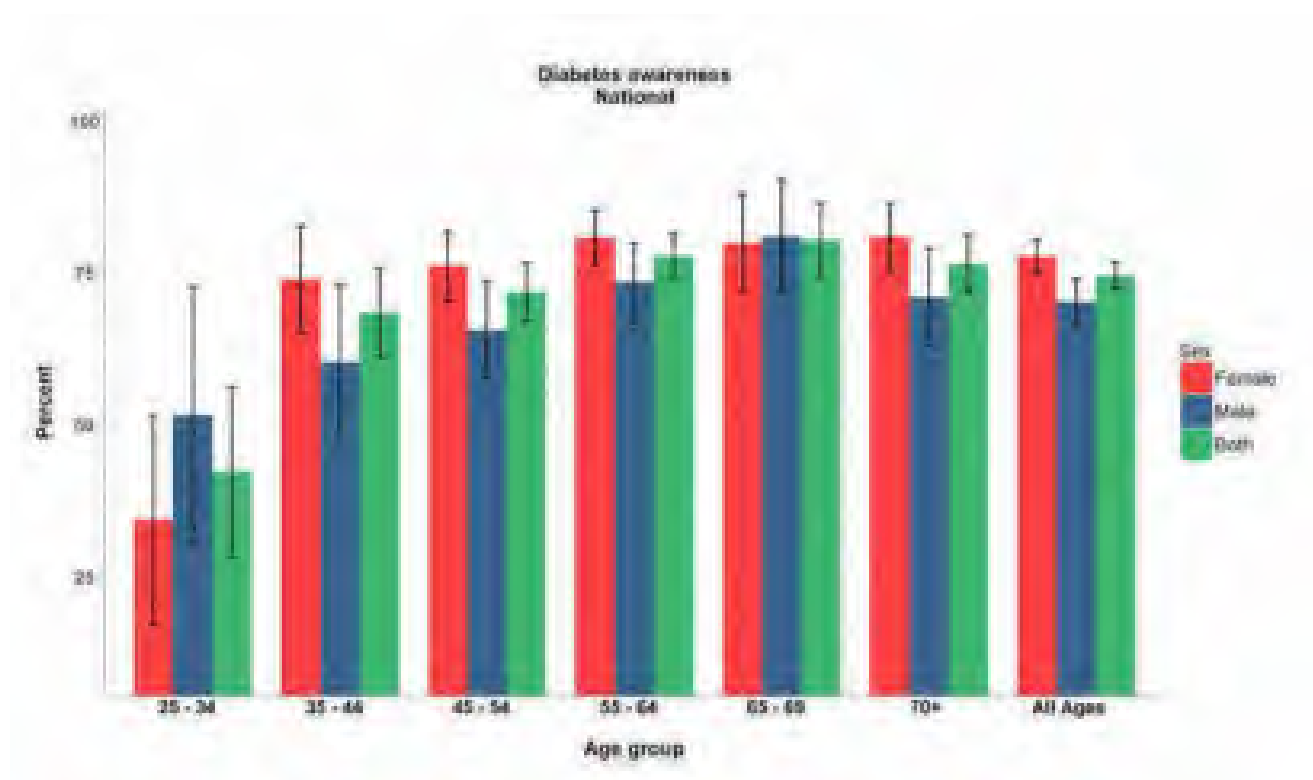


Figure 6.1.10. Prevalence of diabetes awareness by age and sex at national level

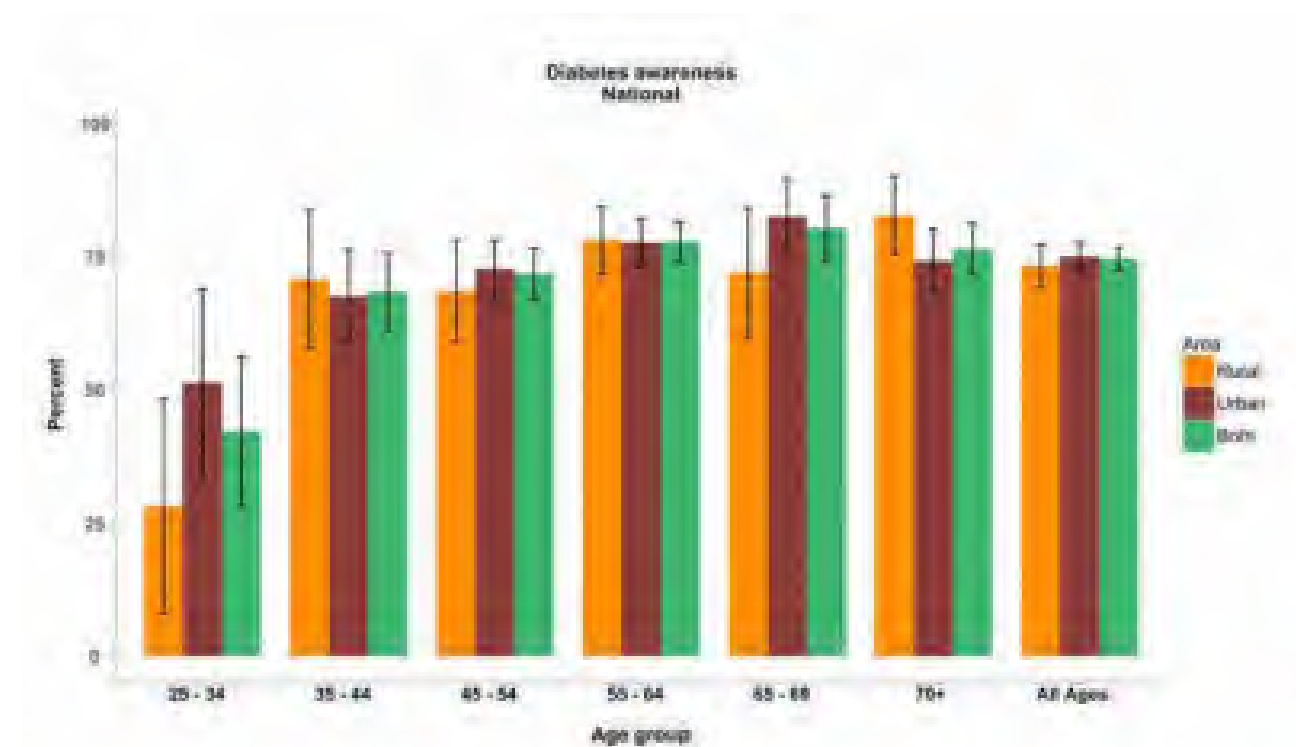


Figure 6.1.11. Prevalence of diabetes awareness by age and area of residency at national level

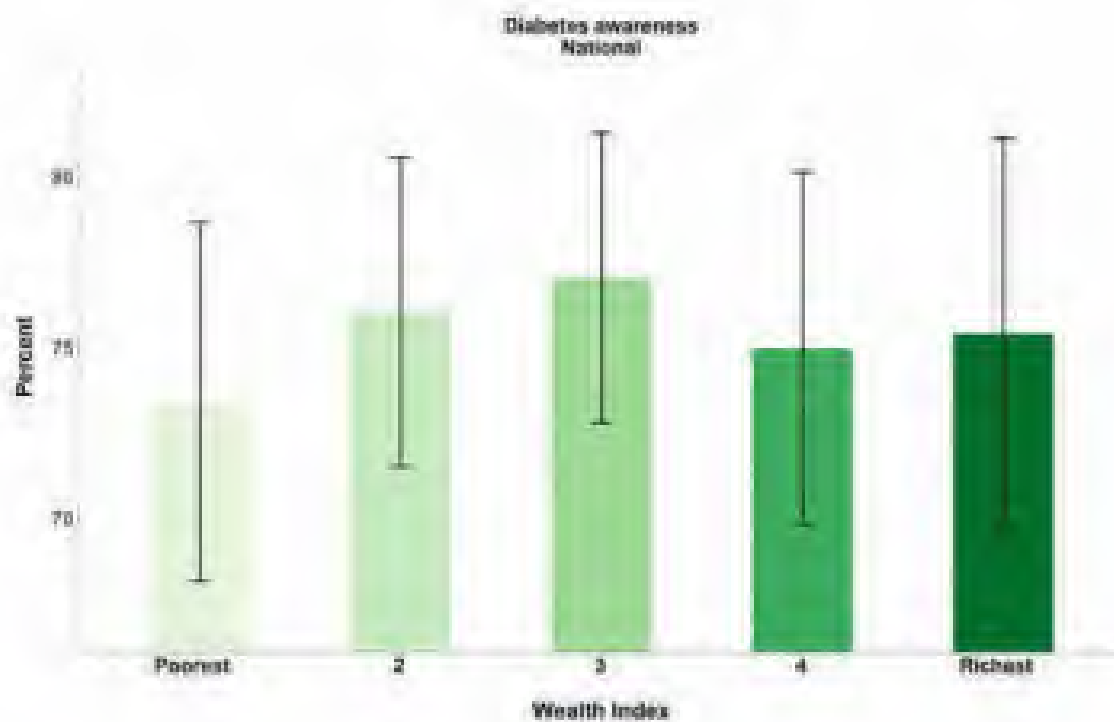


Figure 6.1.12. Prevalence of diabetes awareness by wealth index quantiles at national level

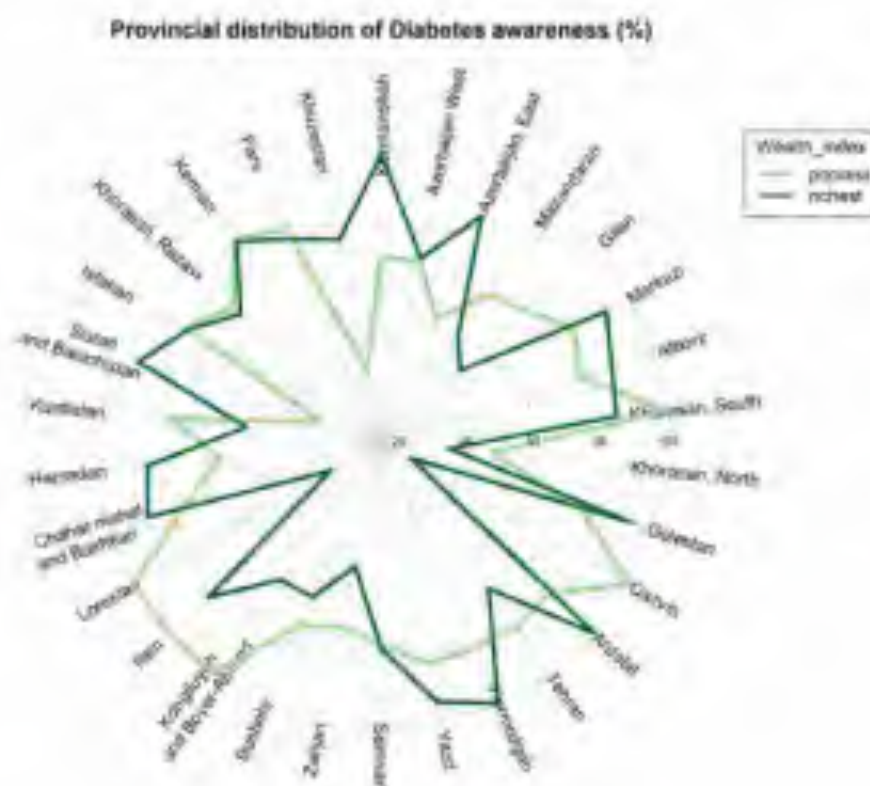


Figure 6.1.13. Provincial distribution of prevalence of diabetes awareness by wealth index

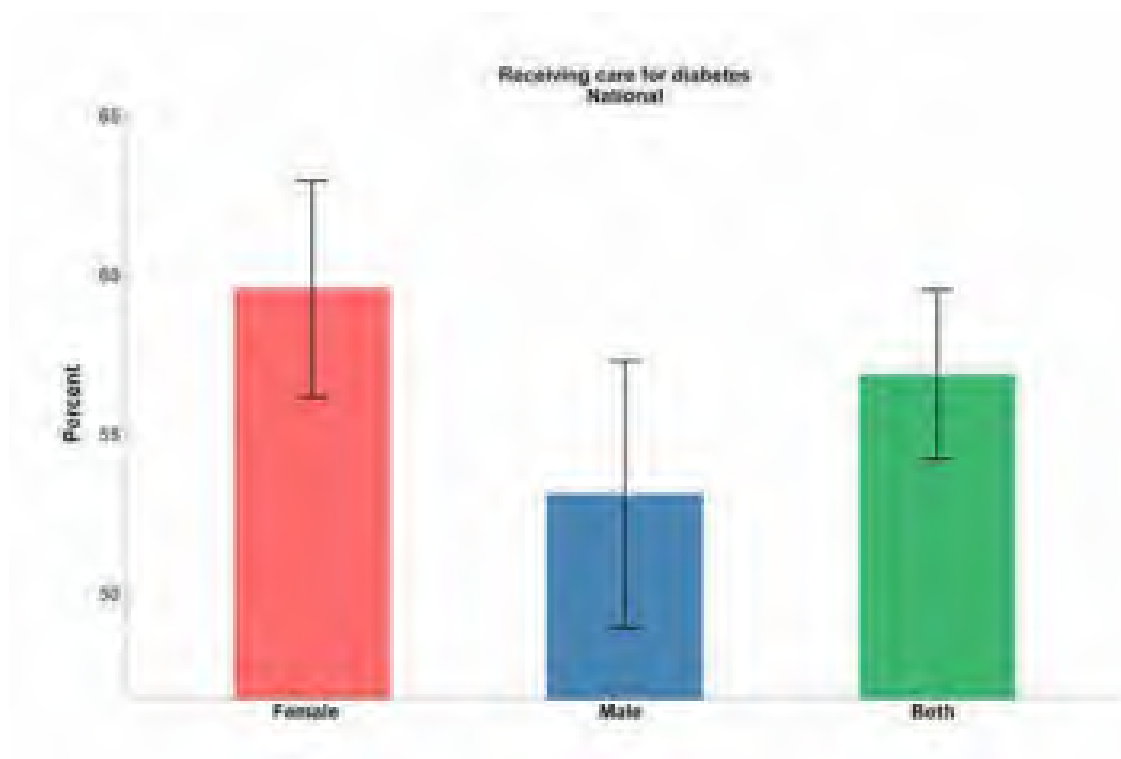


Figure 6.1.14. Prevalence of receiving care for diabetes by sex at national level

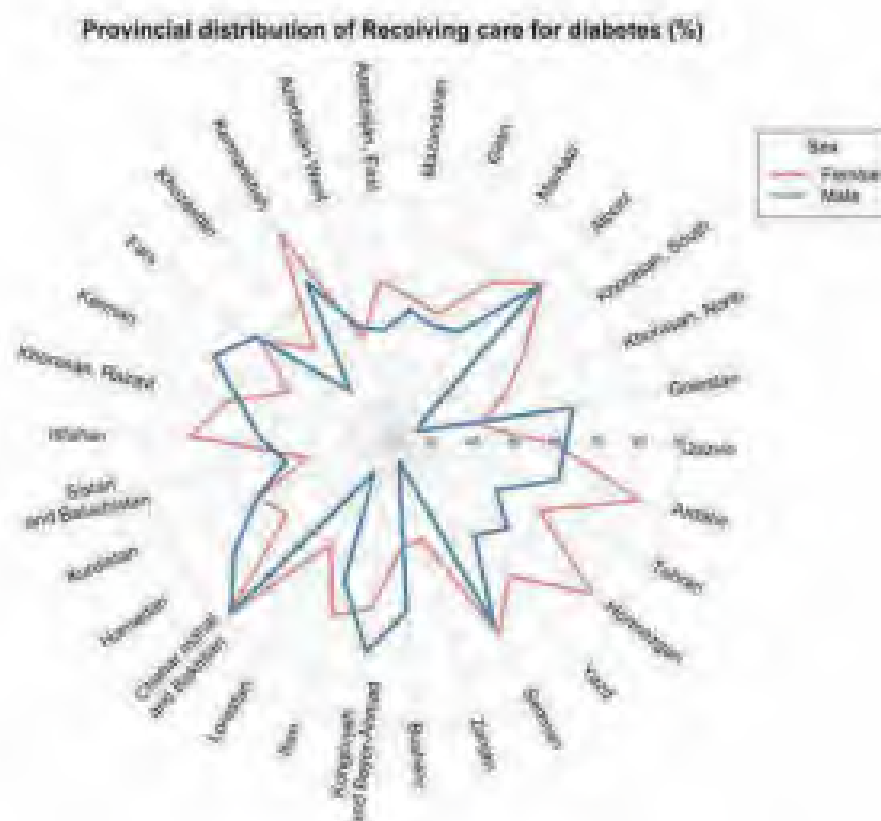


Figure 6.1.15. Provincial distribution of prevalence of receiving care for diabetes by sex

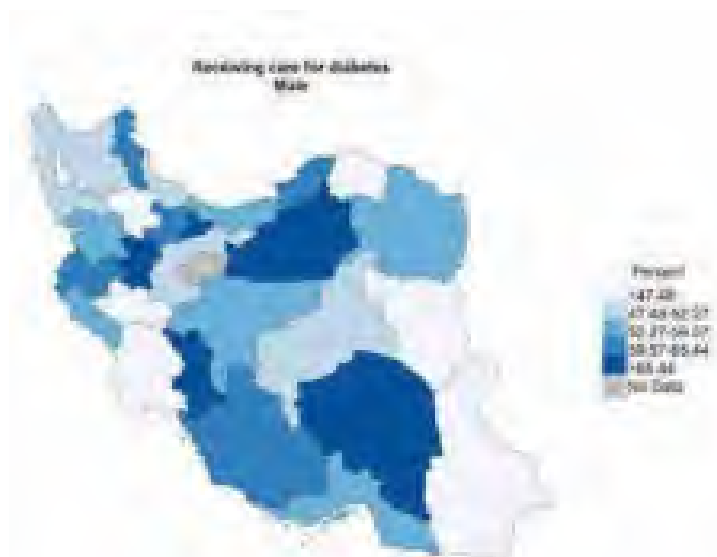


Figure 6.1.16. Geographical distribution of prevalence of receiving care for diabetes in males

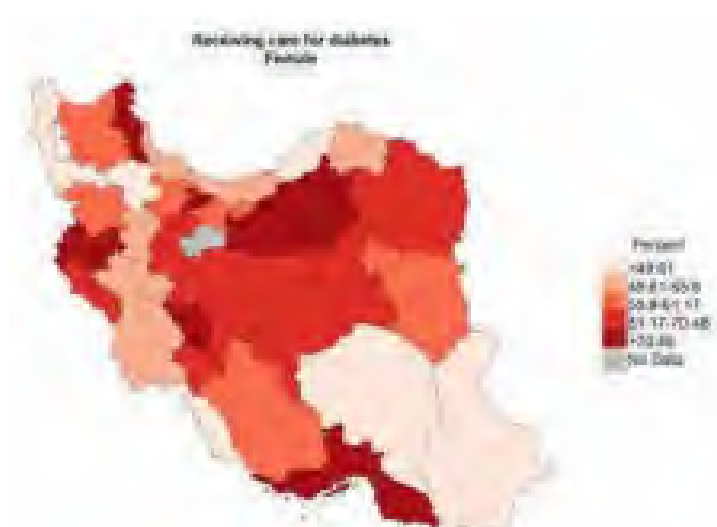


Figure 6.1.17. Geographical distribution of prevalence of receiving care for diabetes in females

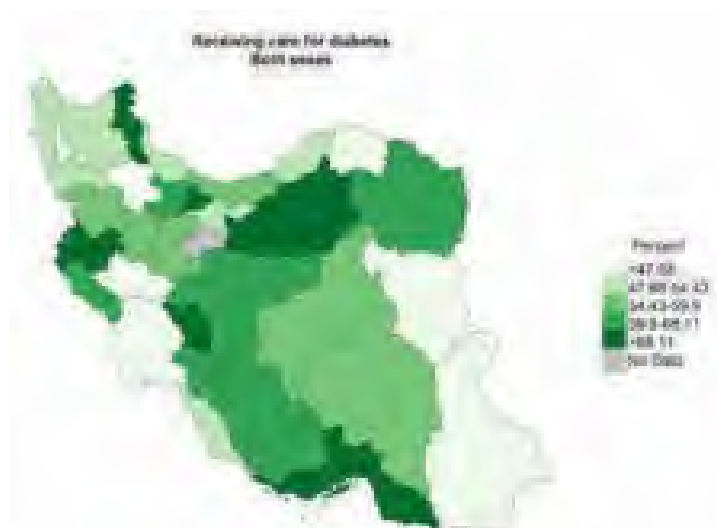


Figure 6.1.18. Geographical distribution of prevalence of receiving care for diabetes in both sexes

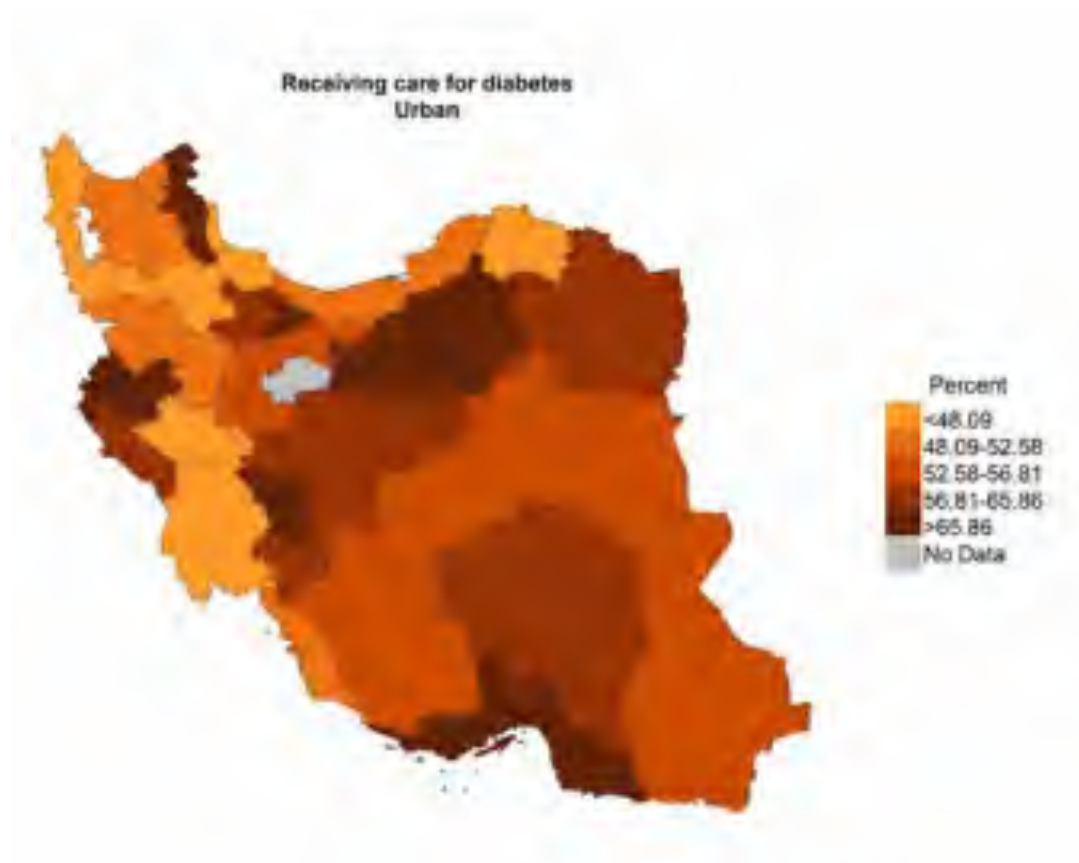


Figure 6.1.21. Geographical distribution of prevalence of receiving care for diabetes in urban area of residency

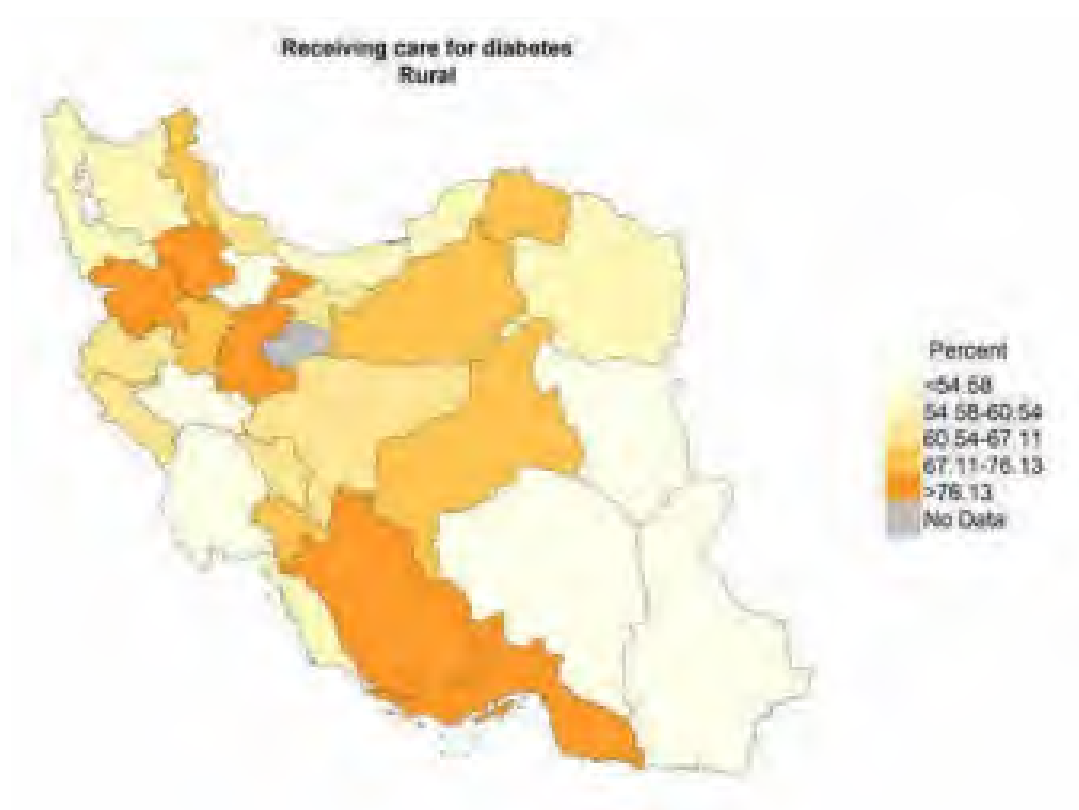


Figure 6.1.22. Geographical distribution of prevalence of receiving care for diabetes in rural area of residency

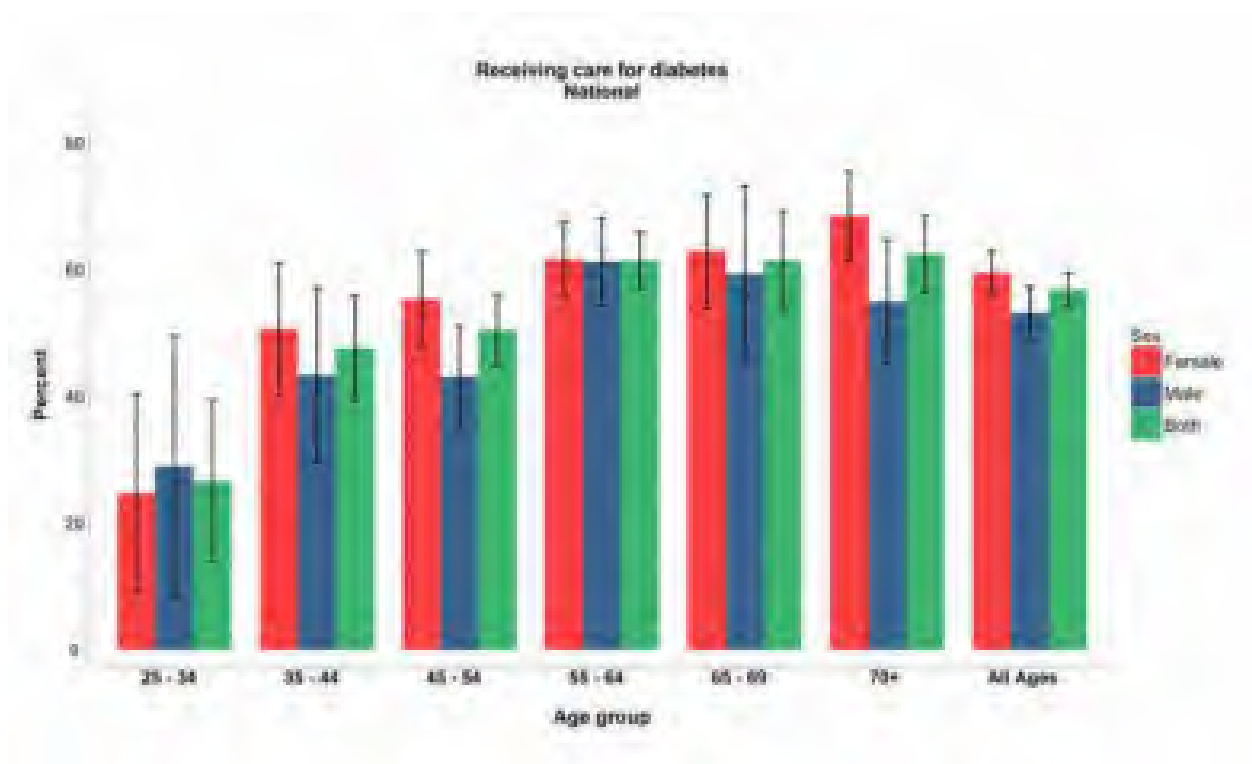


Figure 6.1.23. Prevalence of receiving care for diabetes by age and sex at national level

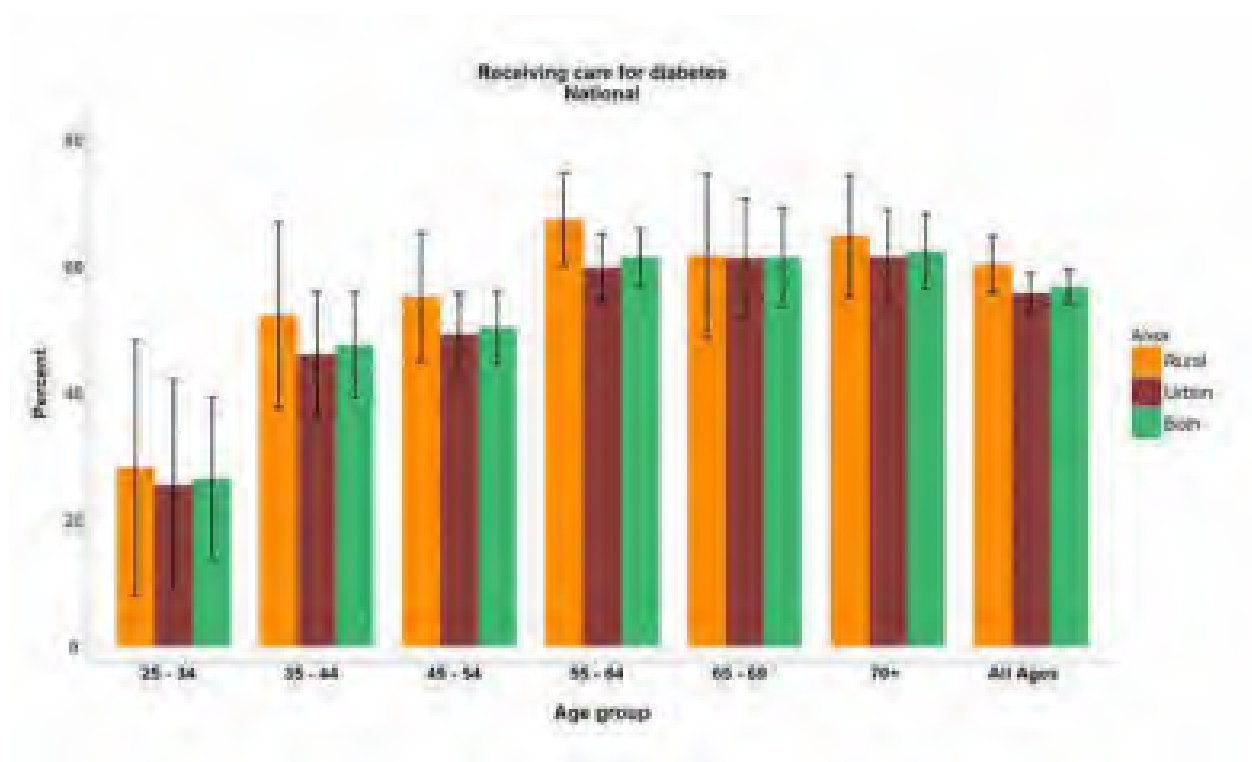


Figure 6.1.24. Prevalence of receiving care for diabetes by age and area of residency at national level

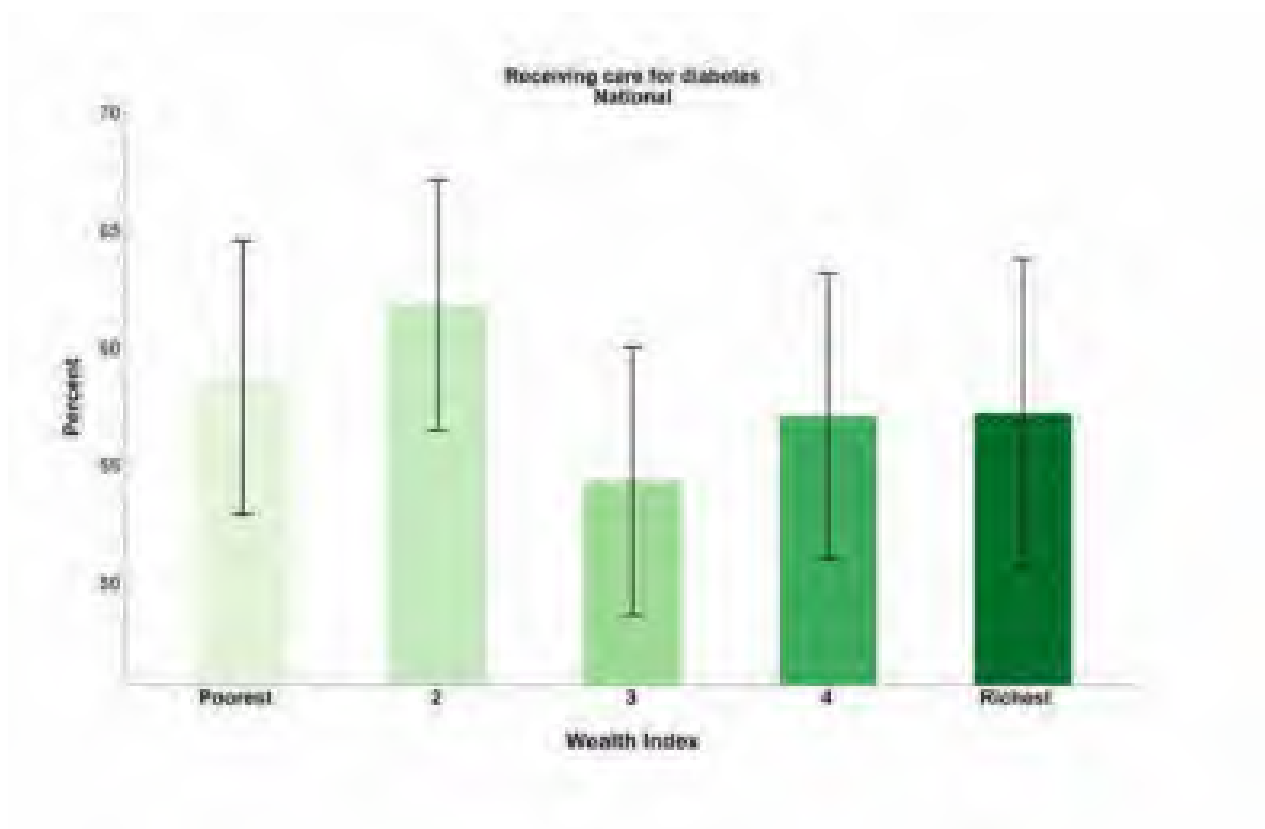


Figure 6.1.25. Prevalence of receiving care for diabetes by wealth index quantiles at national level

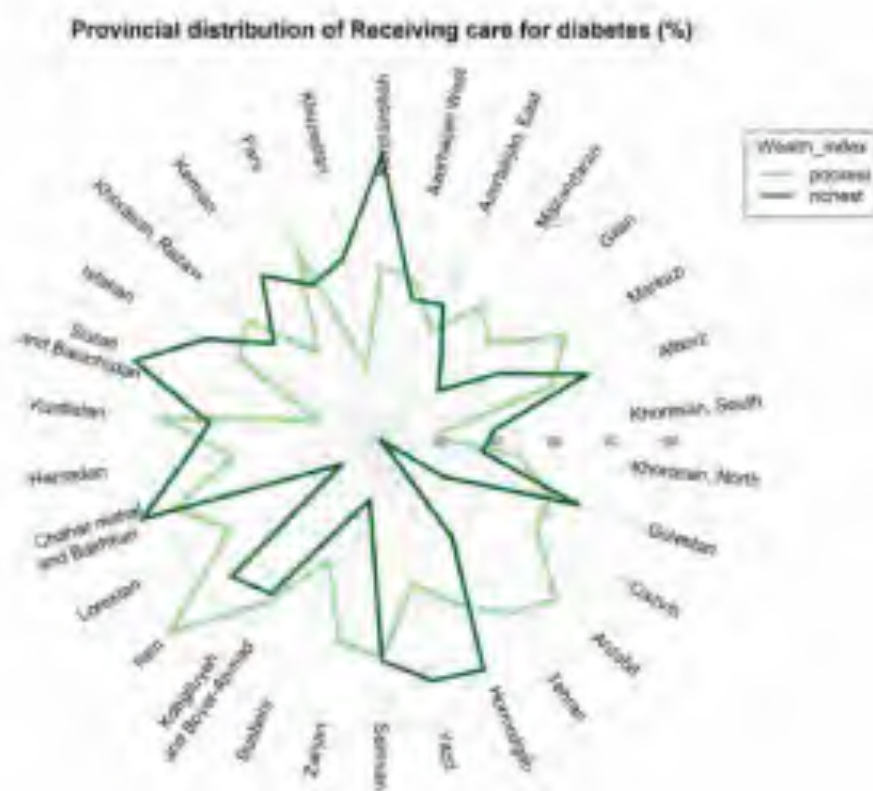


Figure 6.1.26. Provincial distribution of prevalence of receiving care for diabetes by wealth index

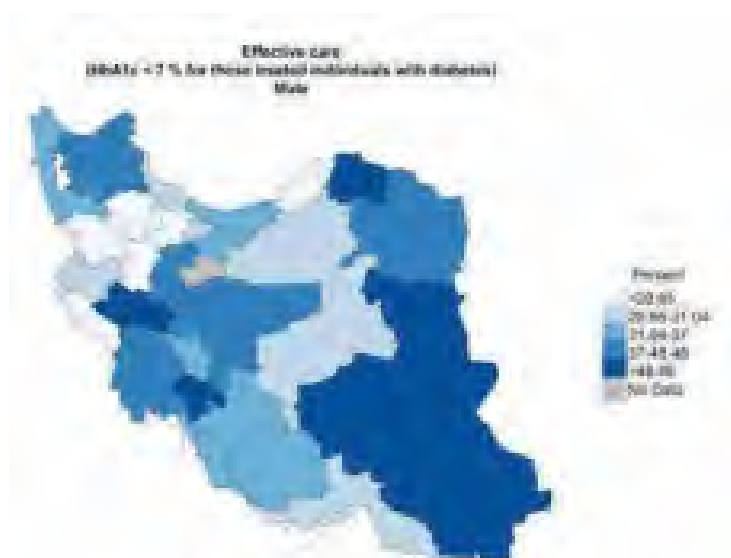


Figure 6.1.29. Geographical distribution of prevalence of effective care for those treated individuals with diabetes in males

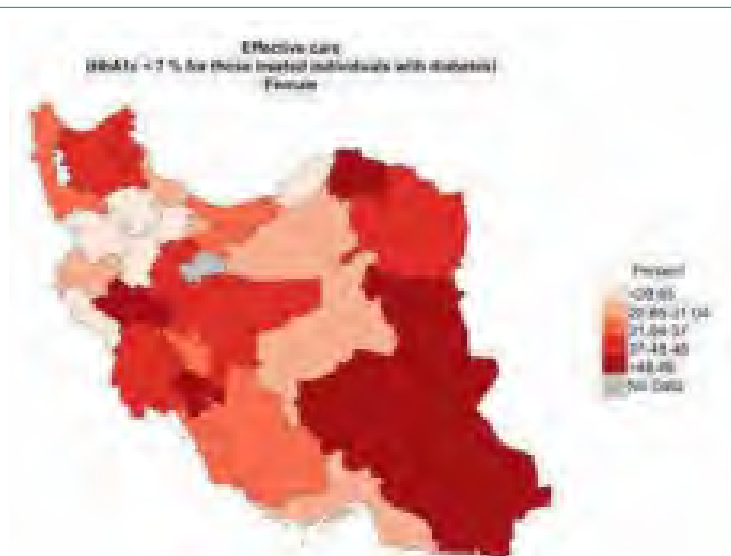


Figure 6.1.30. Geographical distribution of prevalence of effective care for those treated individuals with diabetes in females

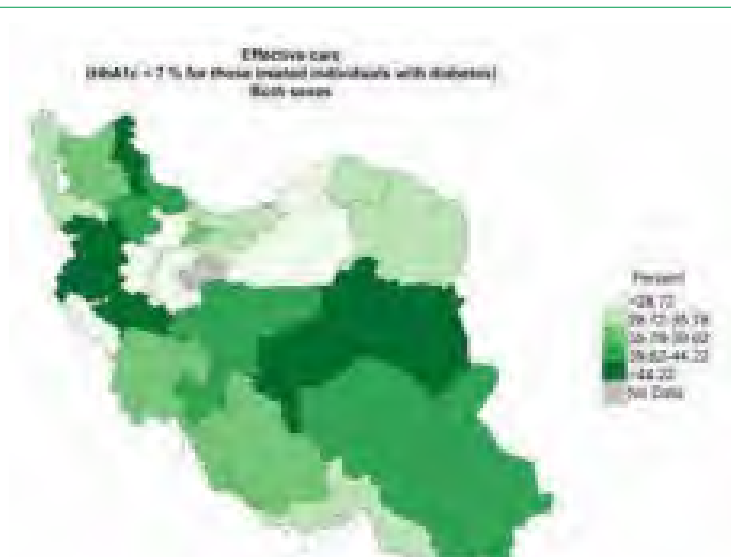


Figure 6.1.31. Geographical distribution of prevalence of effective care for those treated individuals with diabetes in both sexes

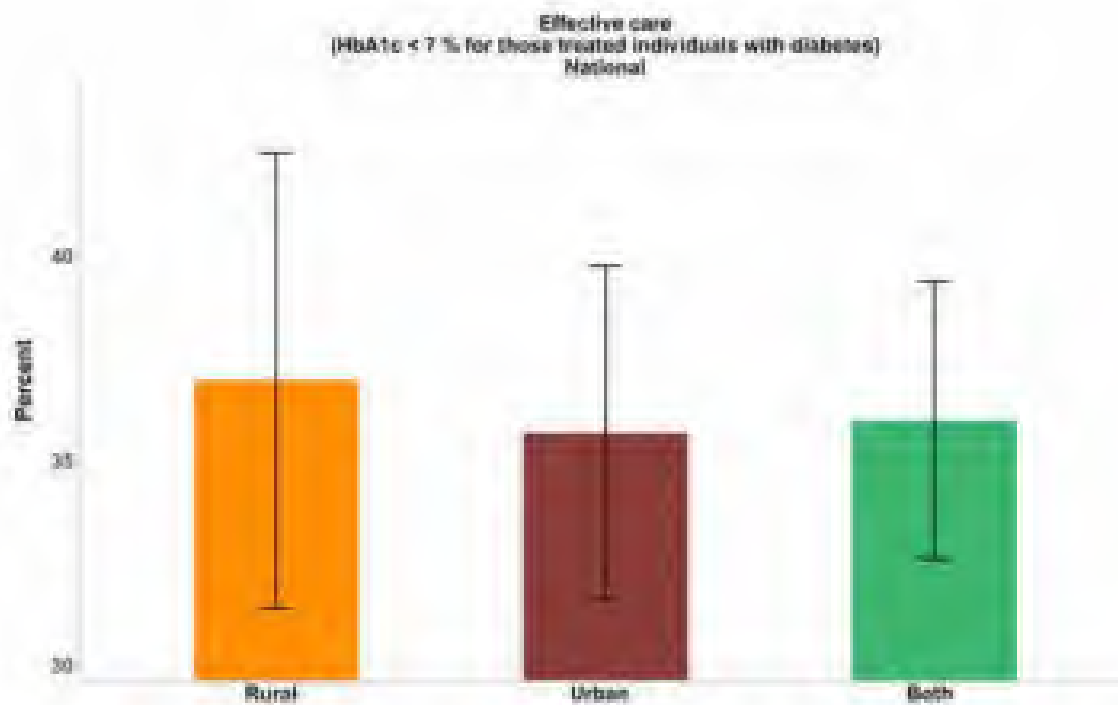


Figure 6.1.32. Prevalence of effective care for those treated individuals with diabetes by area of residency at national level

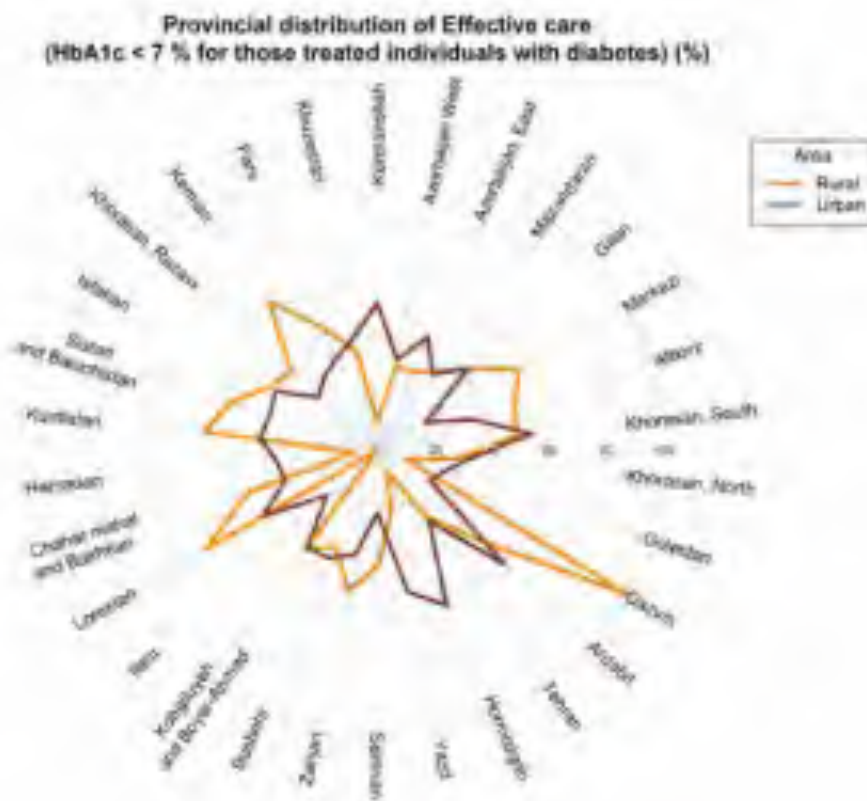


Figure 6.1.33. Provincial distribution of prevalence of effective care for those treated individuals with diabetes by area of residency

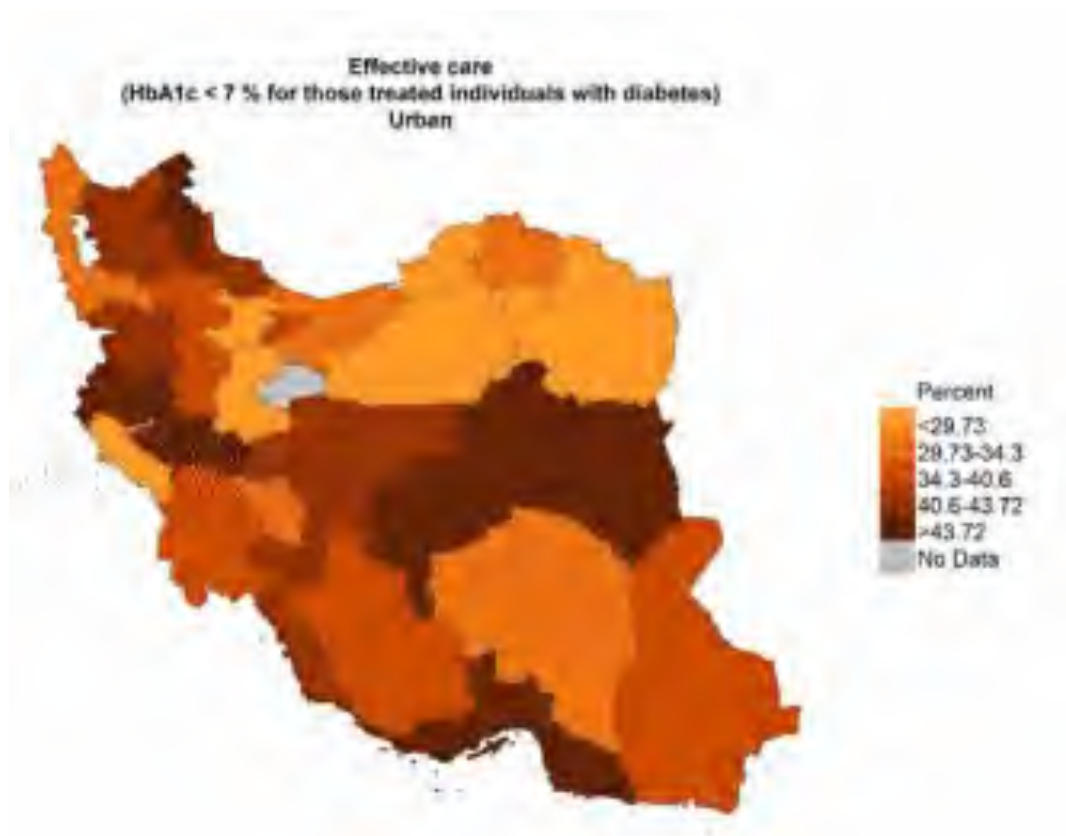


Figure 6.1.34. Geographical distribution of prevalence of effective care for those treated individuals with diabetes in urban area of residency

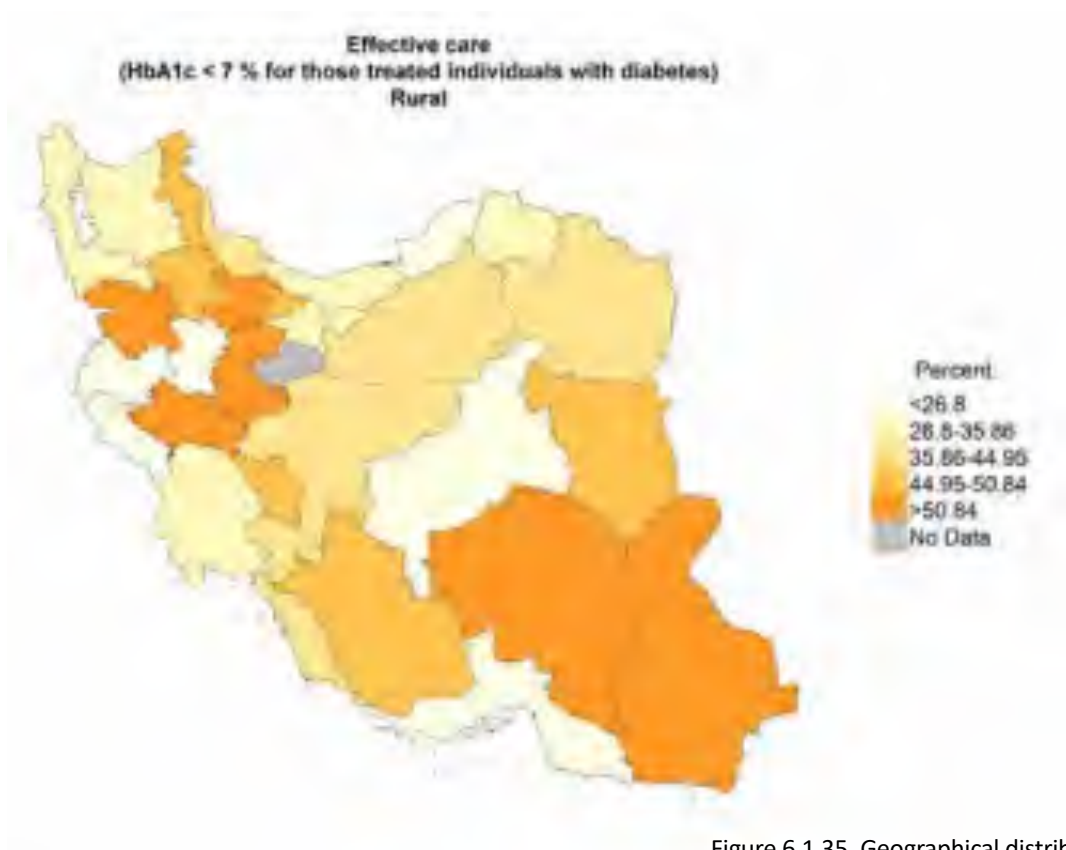


Figure 6.1.35. Geographical distribution of prevalence of effective care for those treated individuals with diabetes in rural area of residency

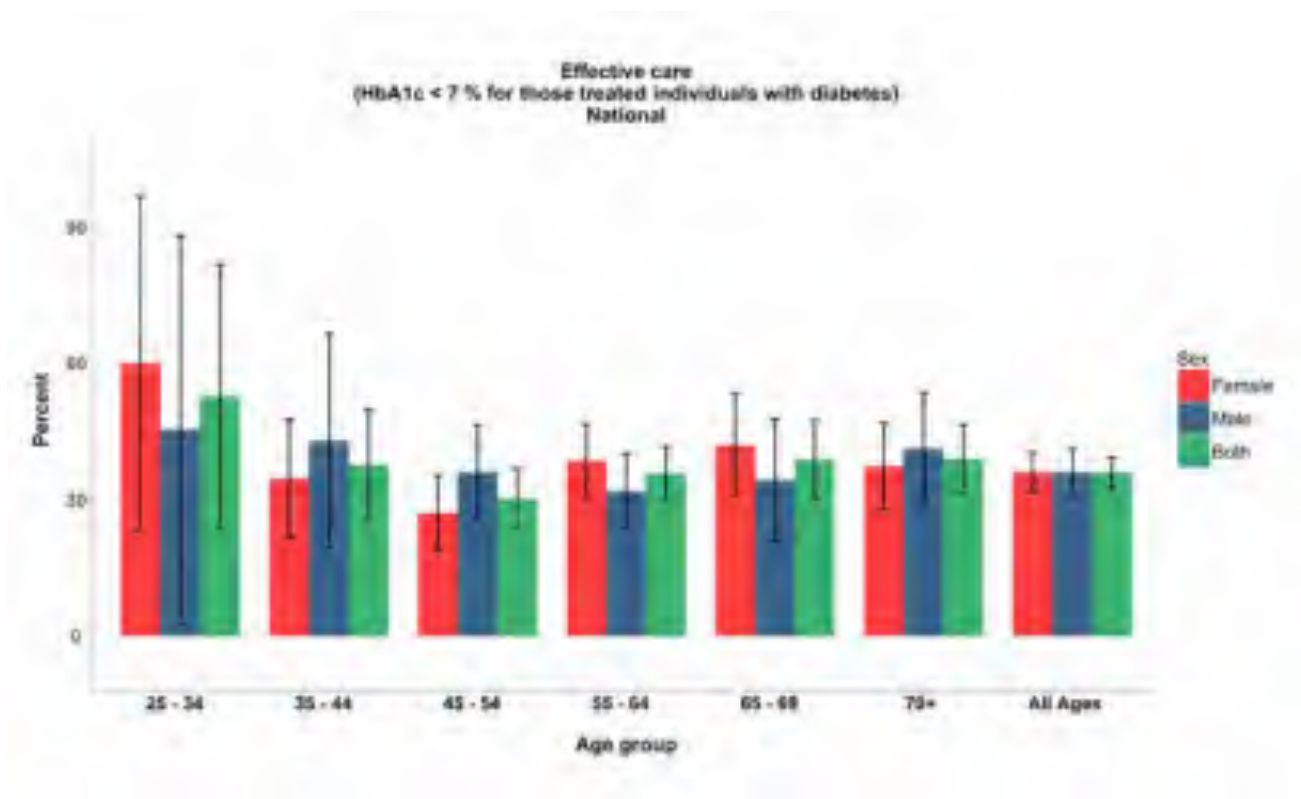


Figure 6.1.36. Prevalence of effective care for those treated individuals with diabetes by age and sex at national level

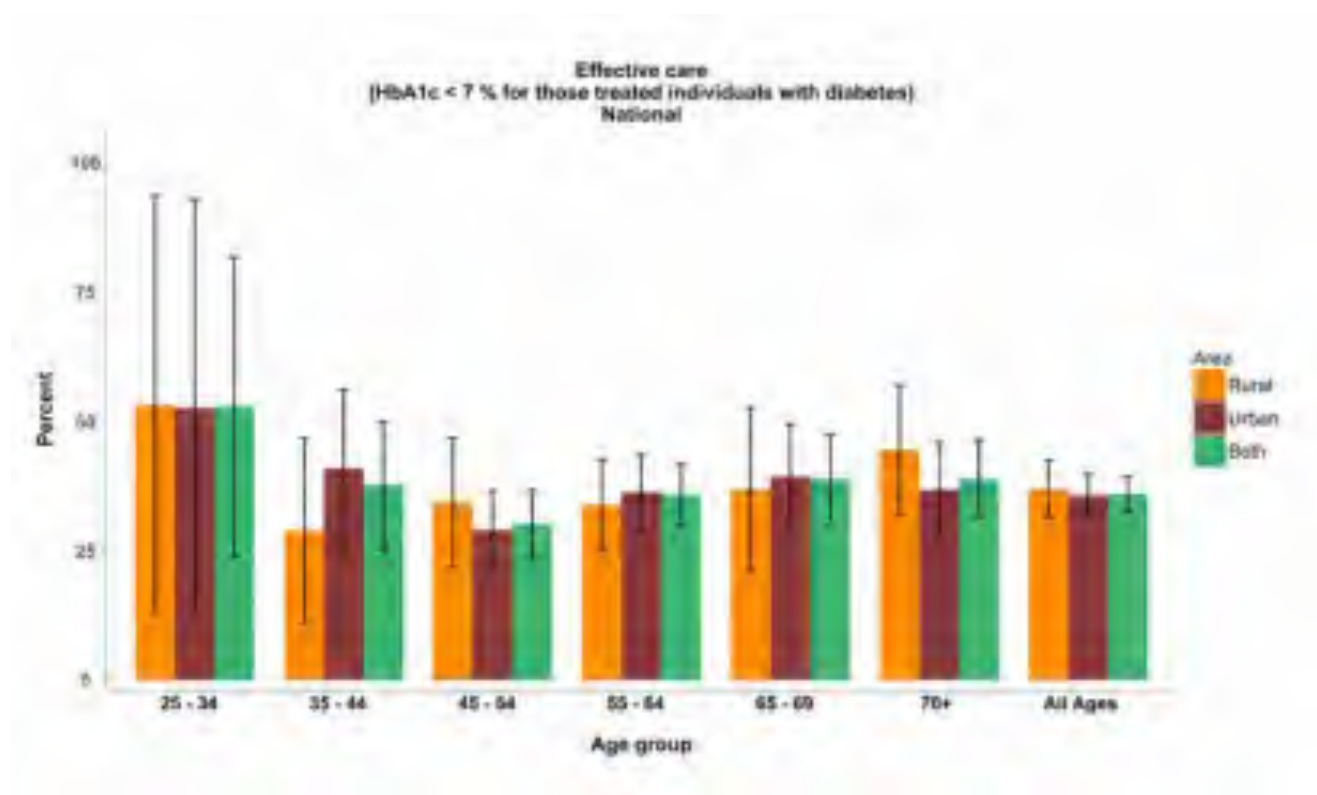


Figure 6.1.37. Prevalence of effective care for those treated individuals with diabetes by age and area of residency at national level

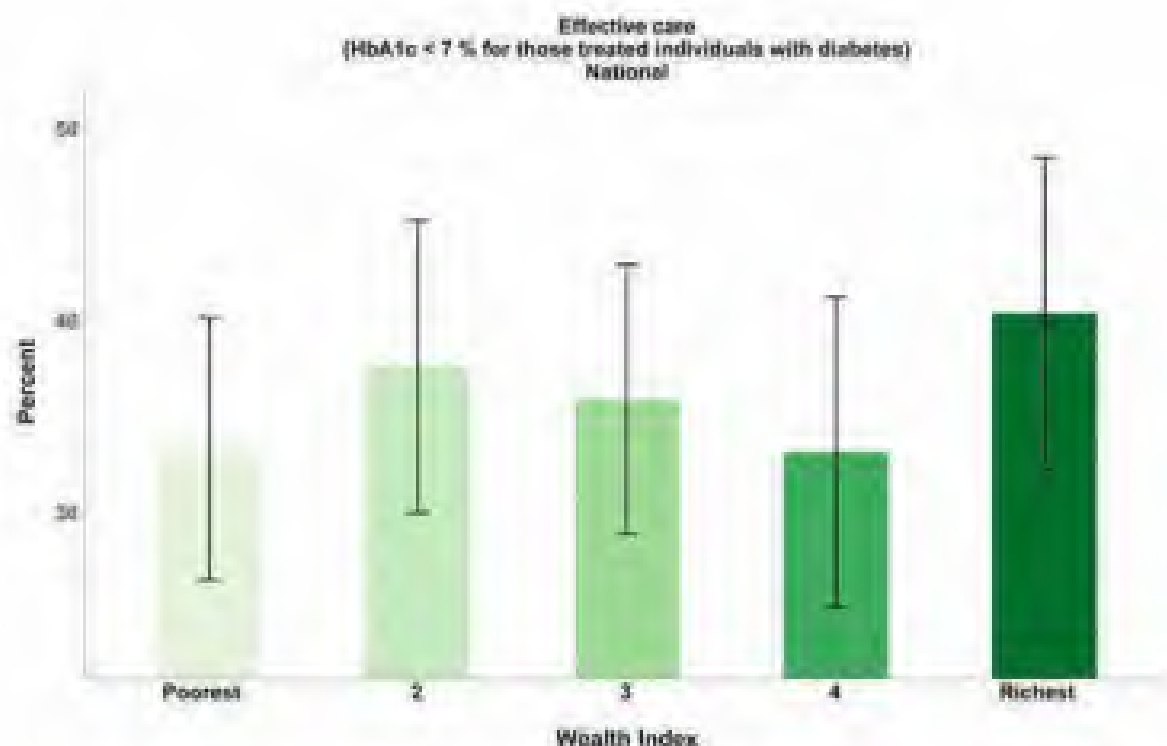


Figure 6.1.38. Prevalence of effective care for those treated individuals with diabetes by wealth index quantiles at national level

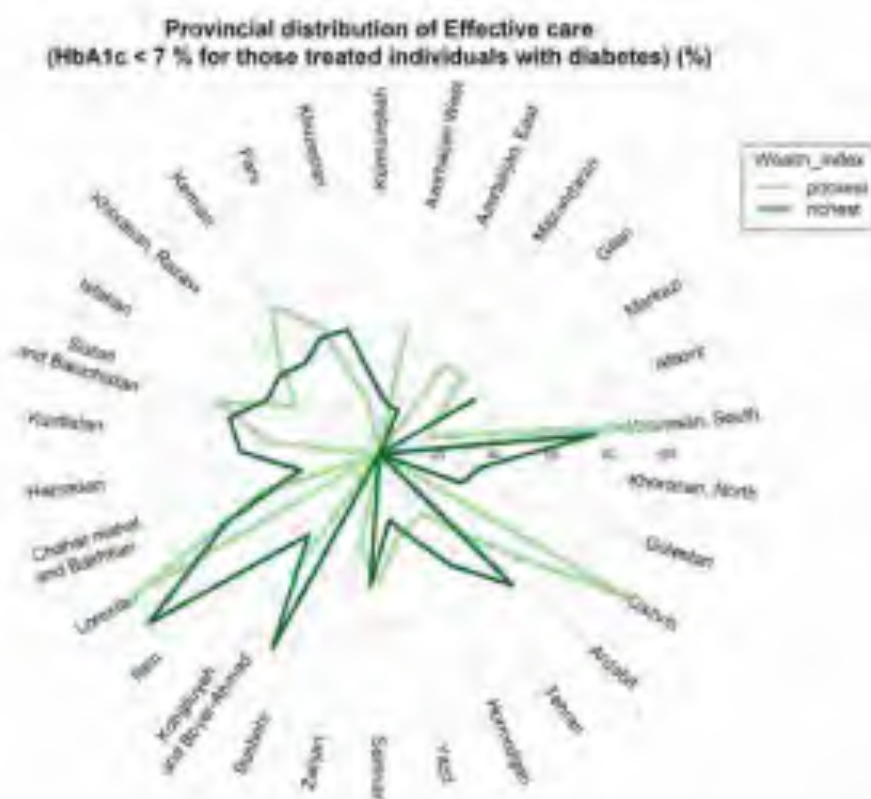


Figure 6.1.39. Provincial distribution of prevalence of effective care for those treated individuals with diabetes by wealth index

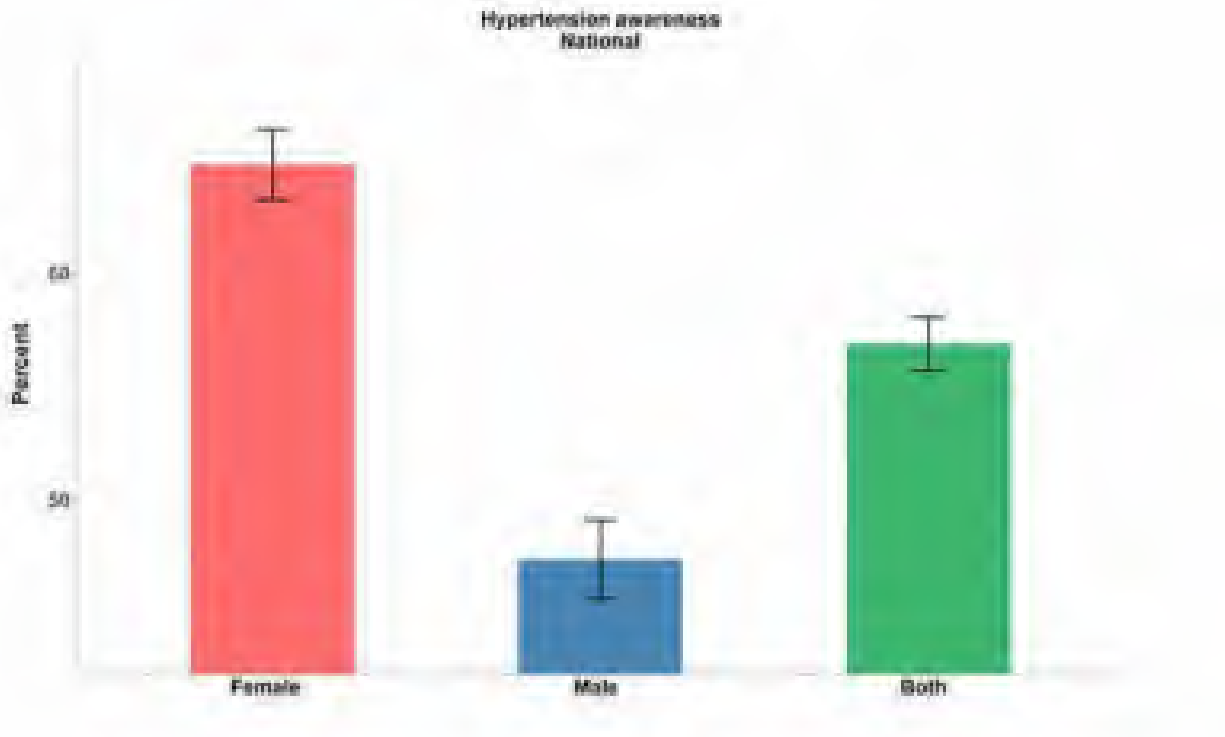


Figure 6.1.40. Prevalence of hypertension awareness by sex at national level

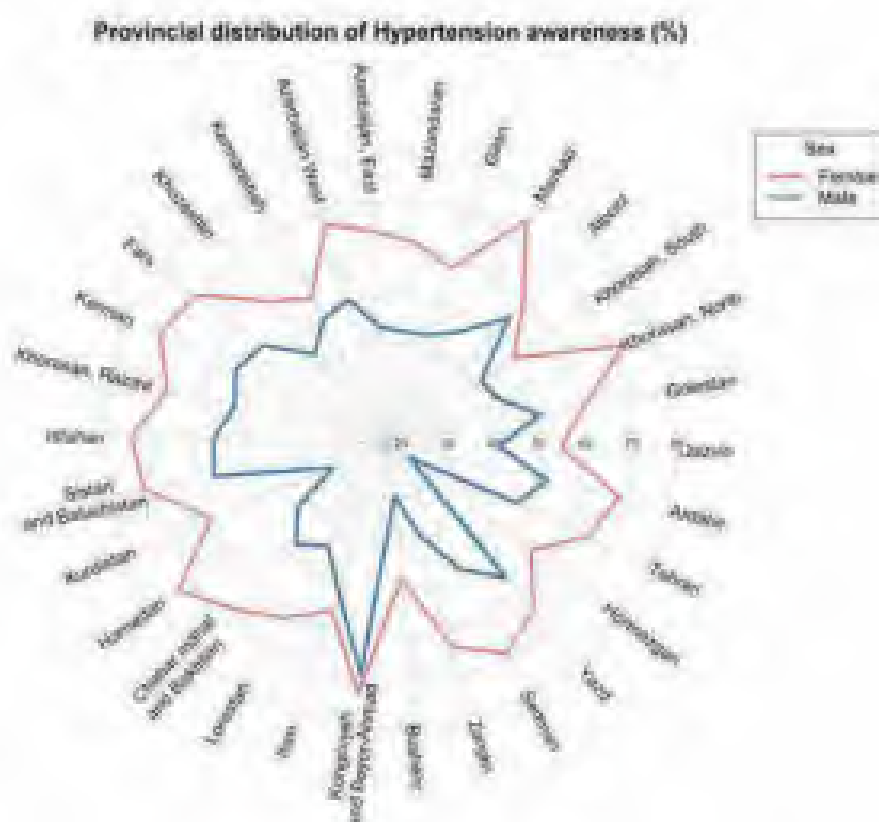


Figure 6.1.41. Provincial distribution of prevalence of hypertension awareness by sex

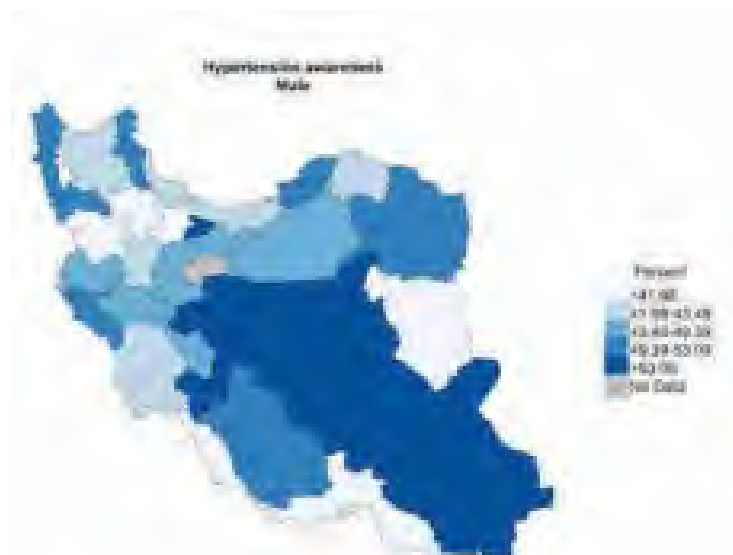


Figure 6.1.42. Geographical distribution of prevalence of hypertension awareness in males

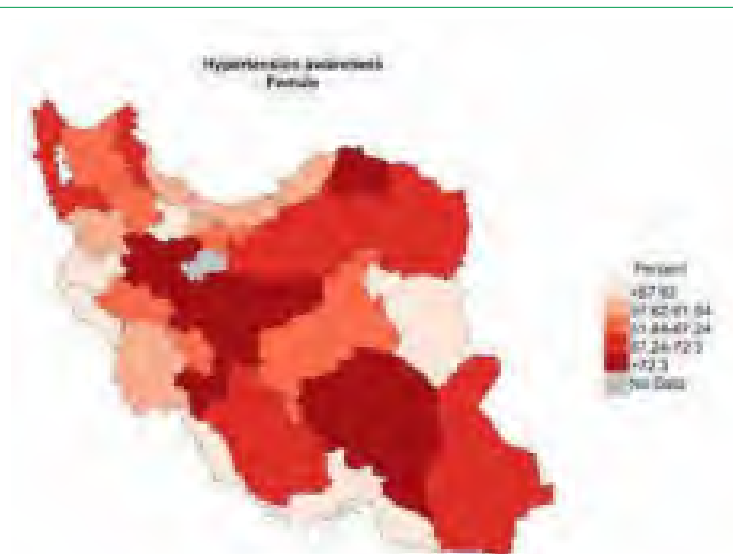


Figure 6.1.43. Geographical distribution of prevalence of hypertension awareness in females

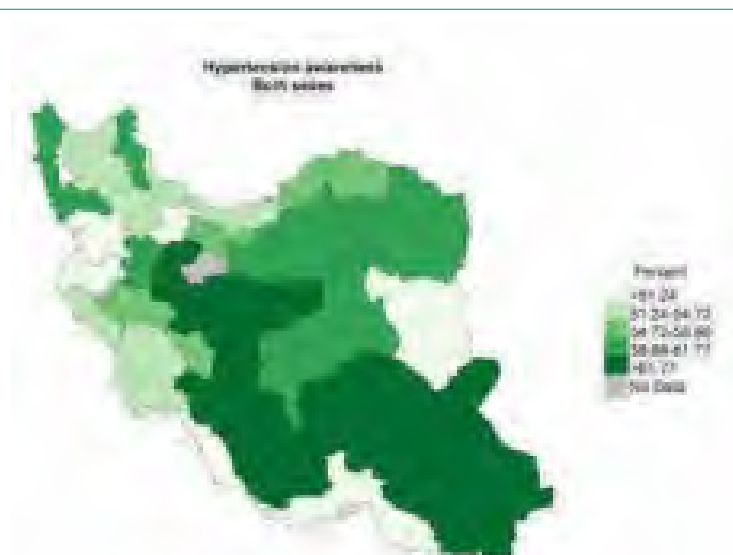


Figure 6.1.44. Geographical distribution of prevalence of hypertension awareness in both sexes

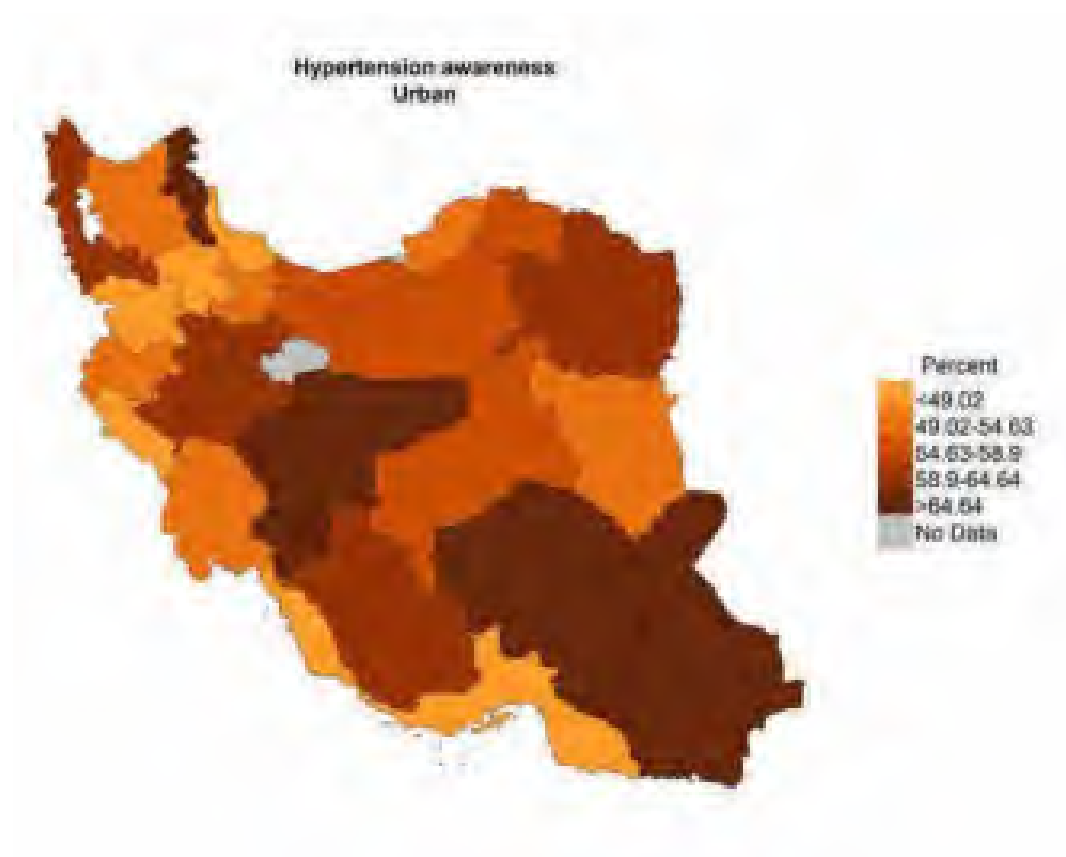


Figure 6.1.47. Geographical distribution of prevalence of hypertension awareness in urban area of residency

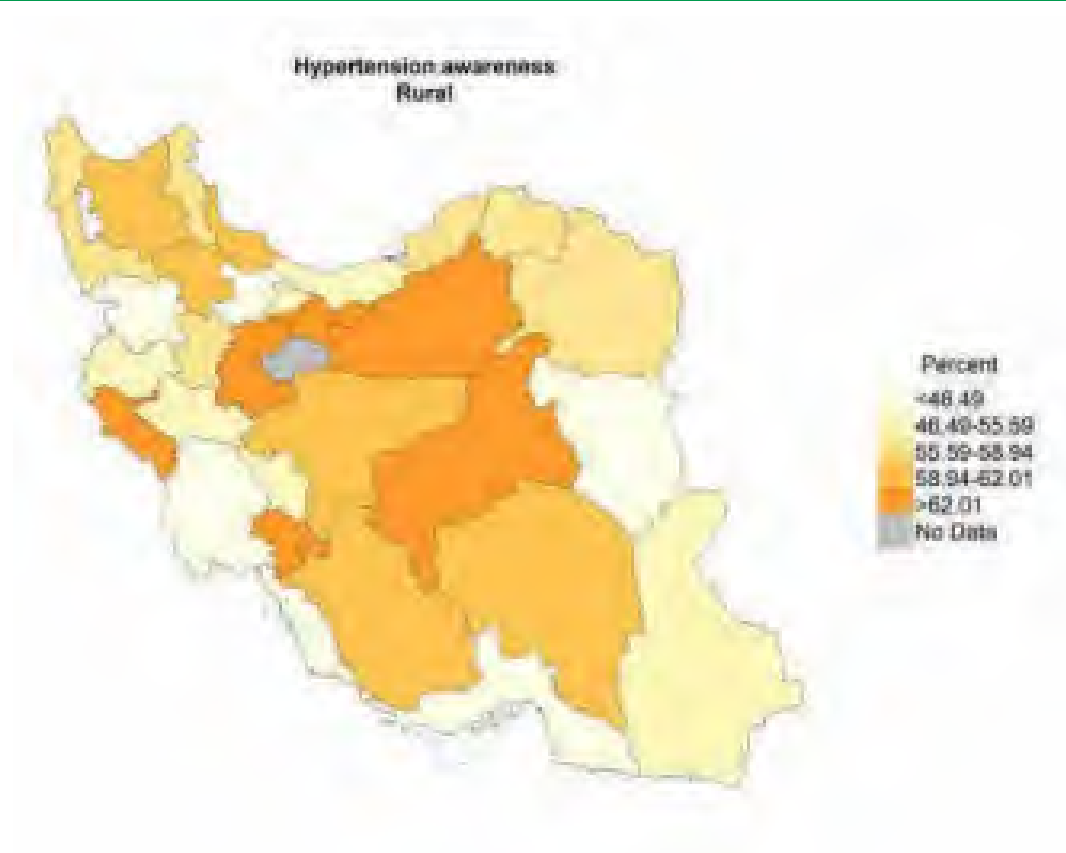


Figure 6.1.48. Geographical distribution of prevalence of hypertension awareness in rural area of residency

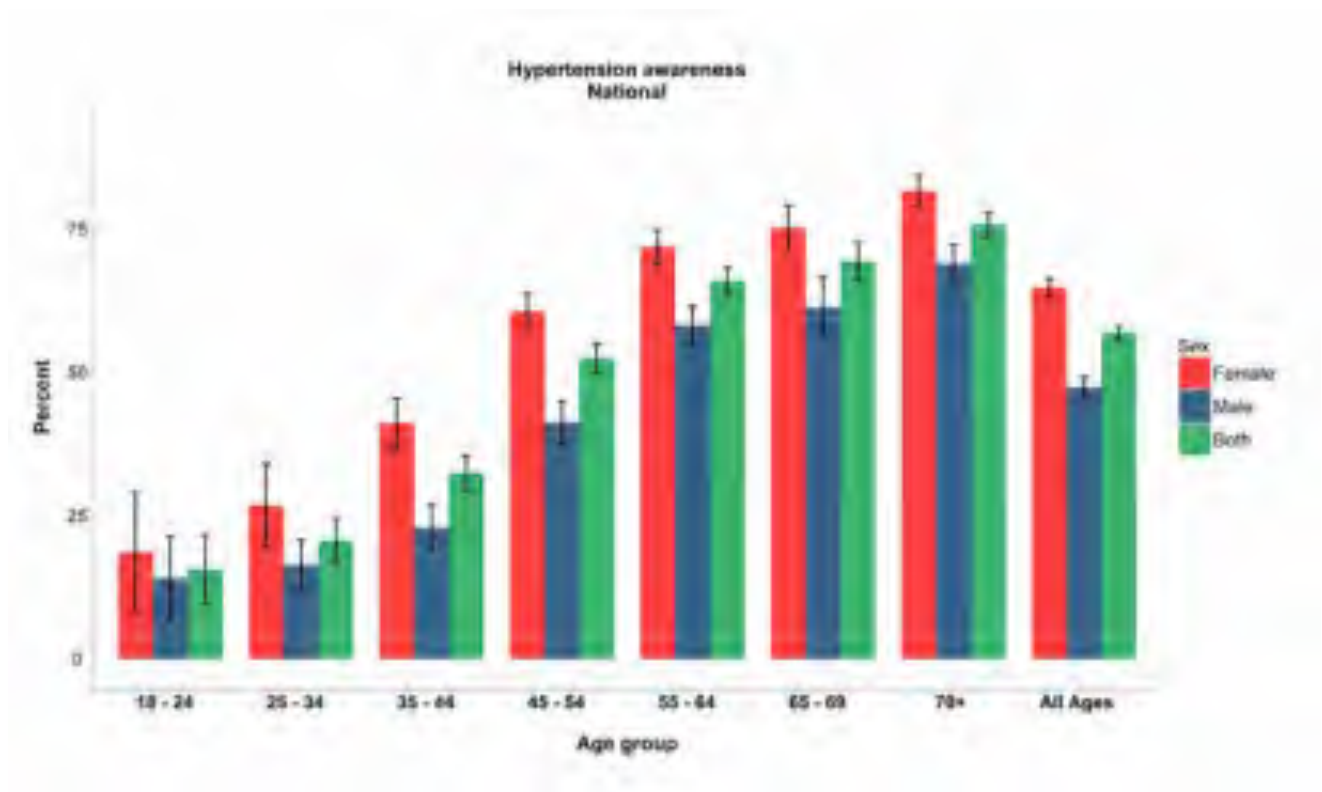


Figure 6.1.49. Prevalence of hypertension awareness by age and sex at national level

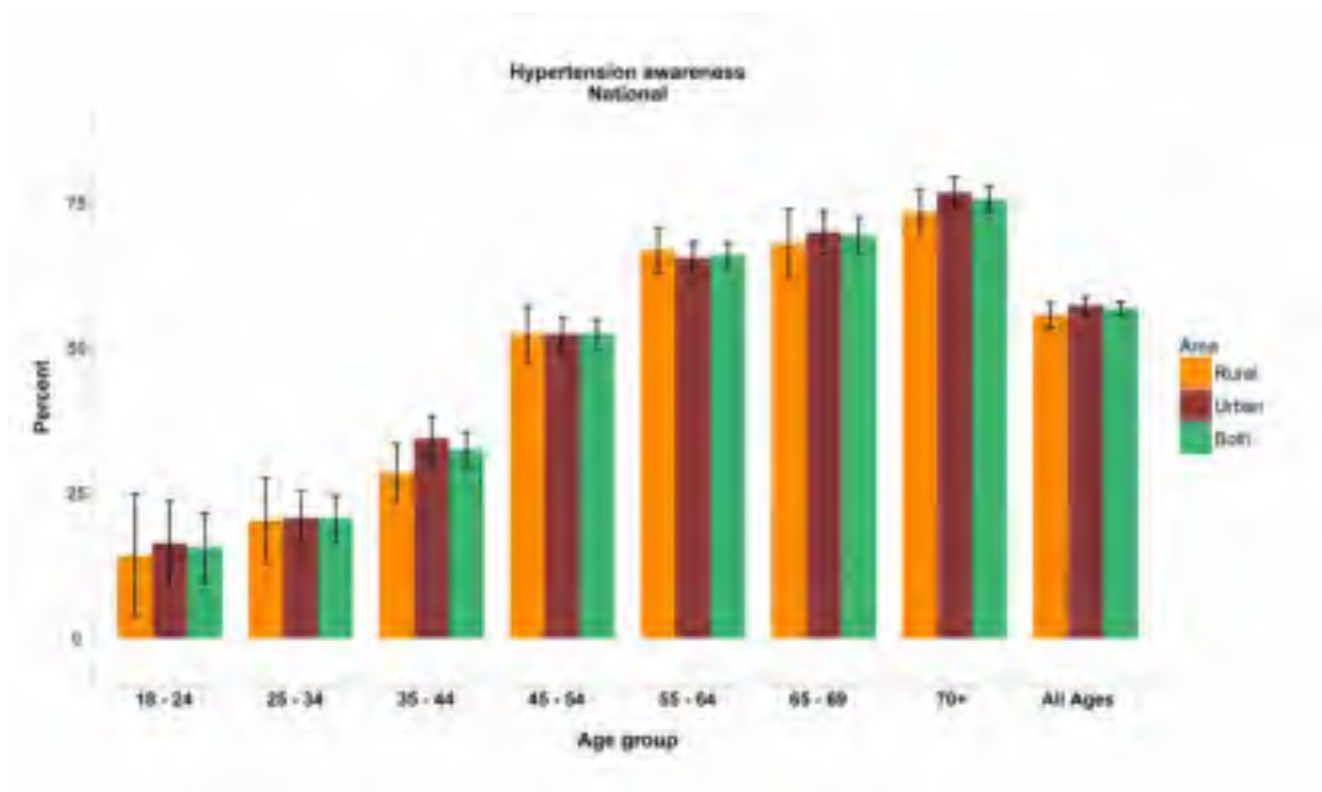


Figure 6.1.50. Prevalence of hypertension awareness by age and area of residency at national level

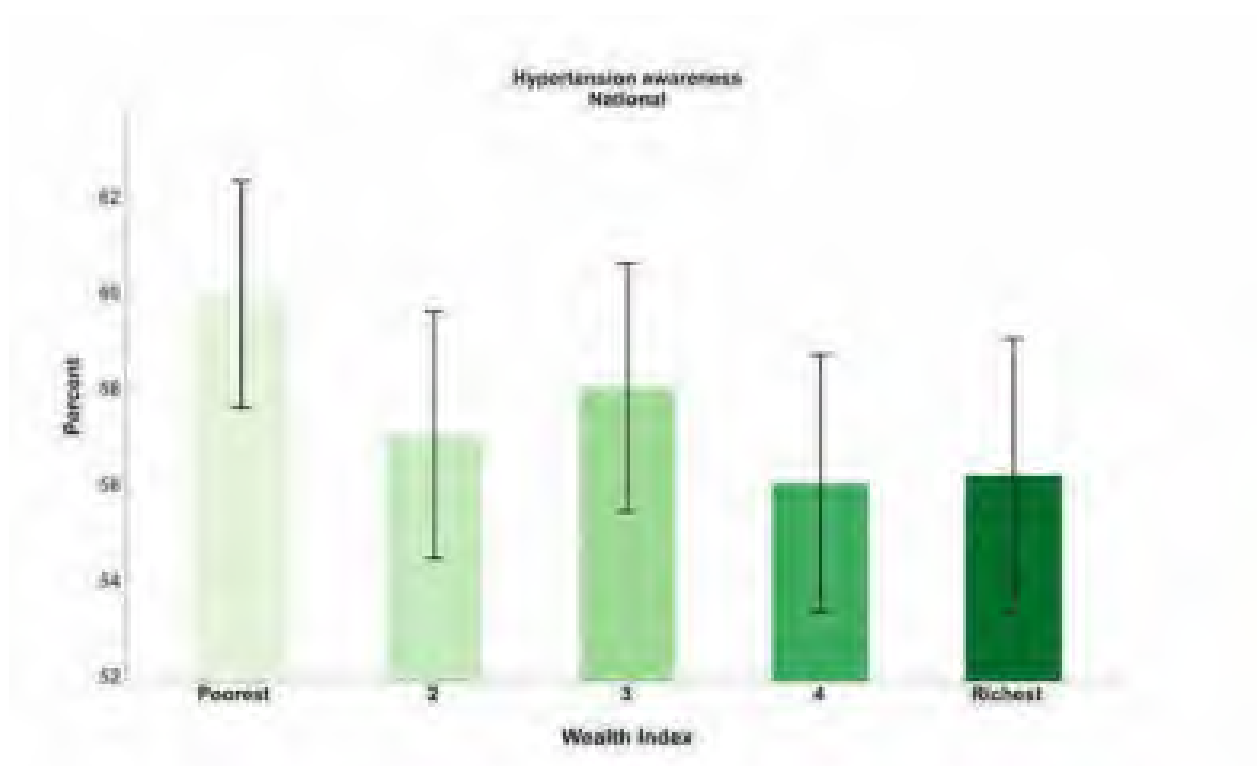


Figure 6.1.51. Prevalence of hypertension awareness by wealth index quantiles at national level

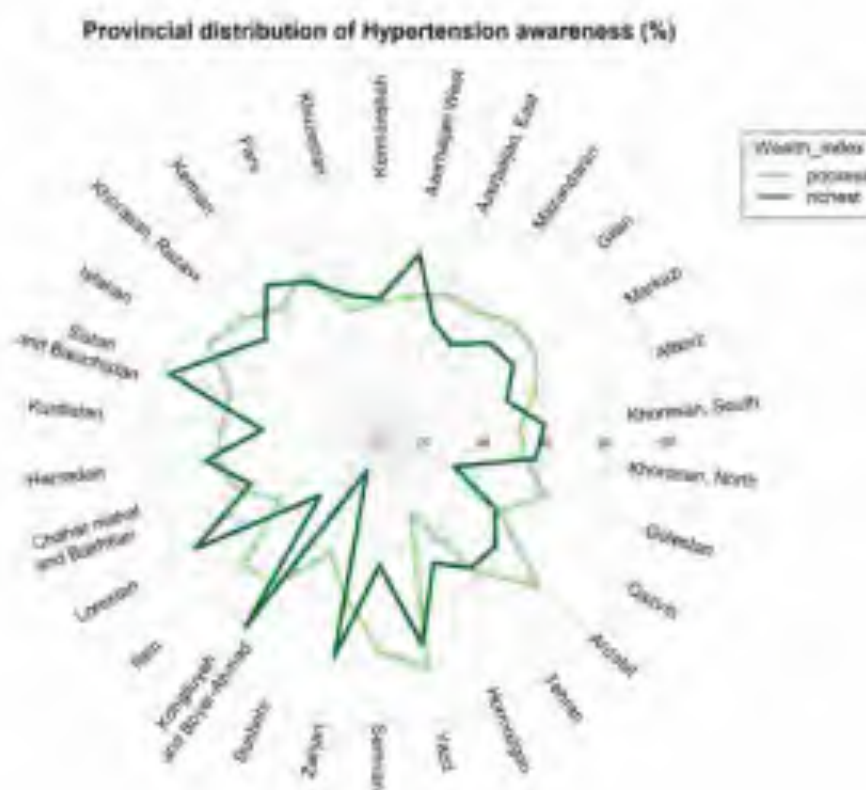


Figure 6.1.52. Provincial distribution of prevalence of hypertension awareness by wealth index

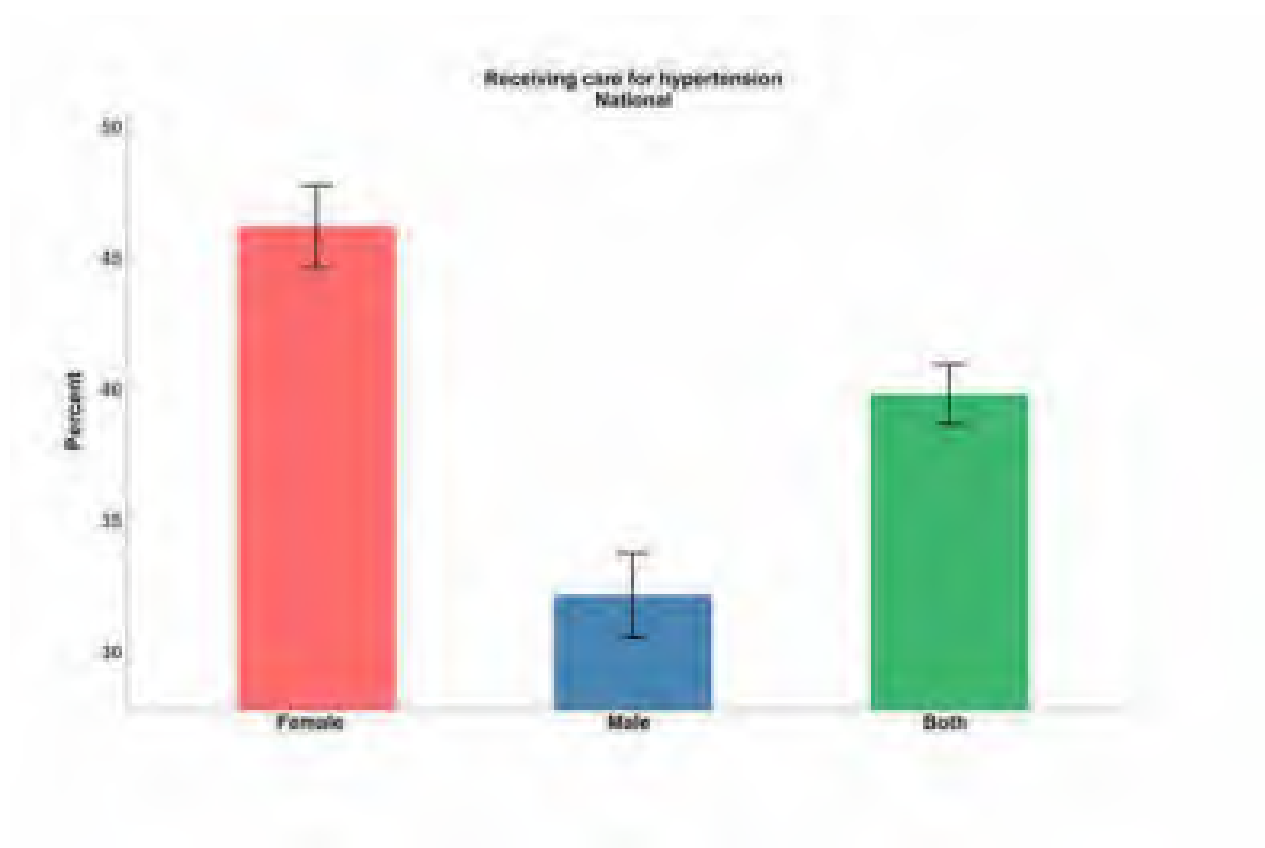


Figure 6.1.53. Prevalence of receiving care for hypertension by sex at national level

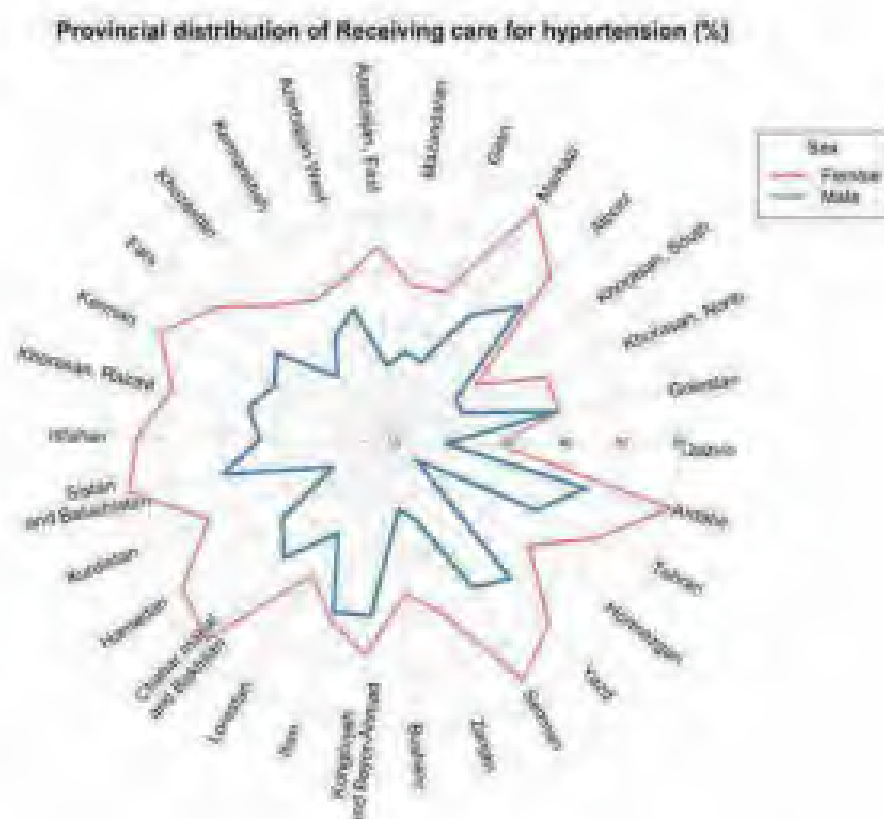


Figure 6.1.54. Provincial distribution of prevalence of receiving care for hypertension by sex

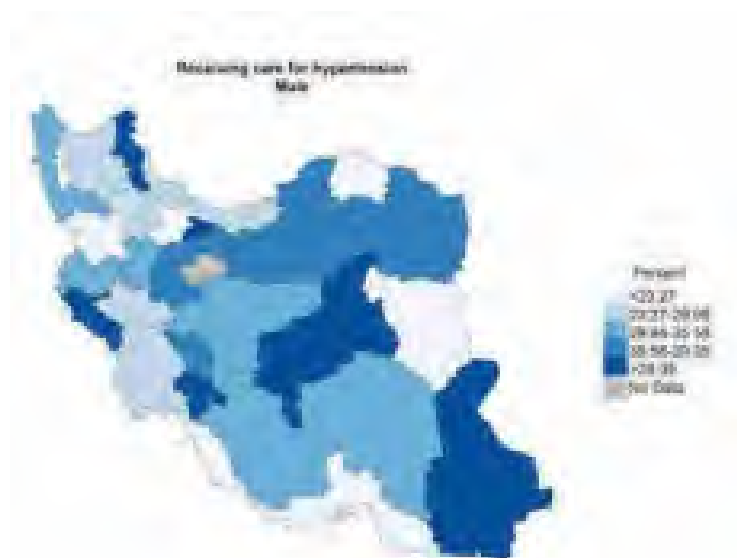


Figure 6.1.55. Geographical distribution of prevalence of receiving care for hypertension in males

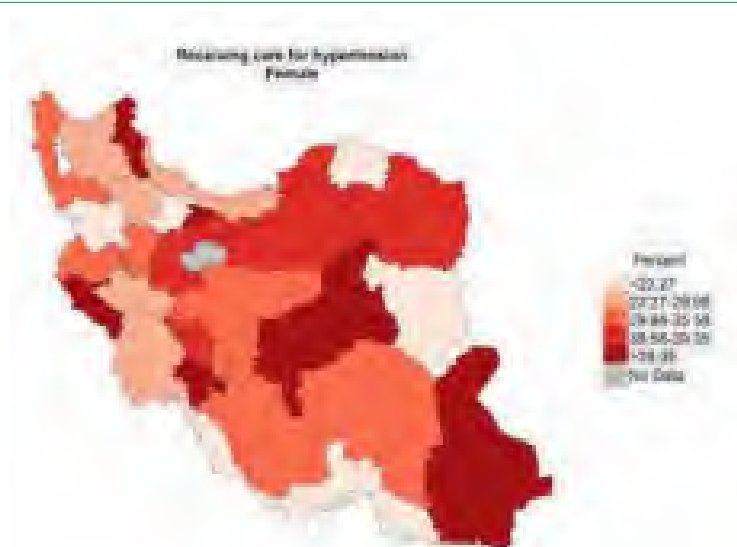


Figure 6.1.56. Geographical distribution of prevalence of receiving care for hypertension in females

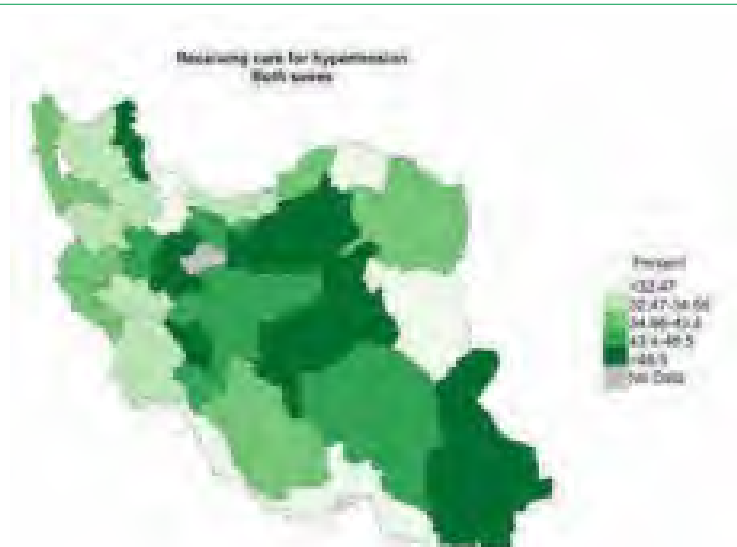


Figure 6.1.57. Geographical distribution of prevalence of receiving care for hypertension in both sexes

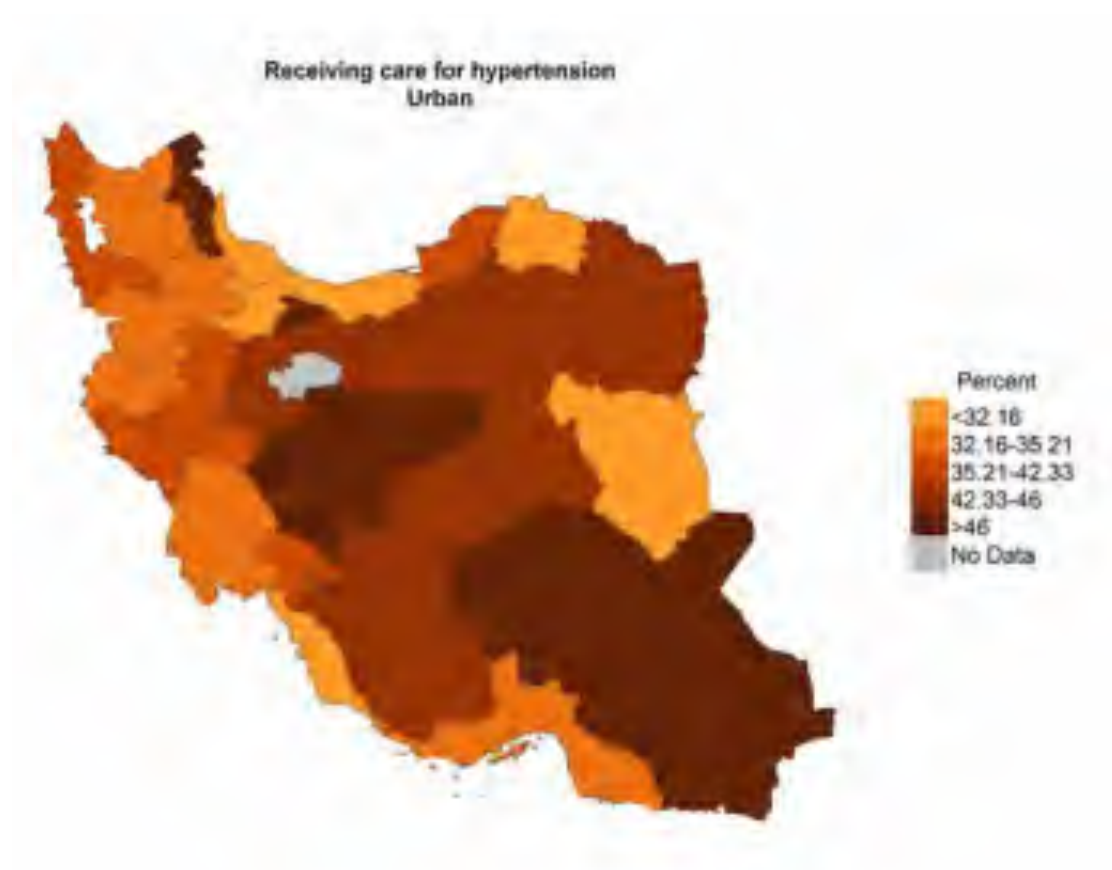


Figure 6.1.60. Geographical distribution of prevalence of receiving care for hypertension in urban area of residency

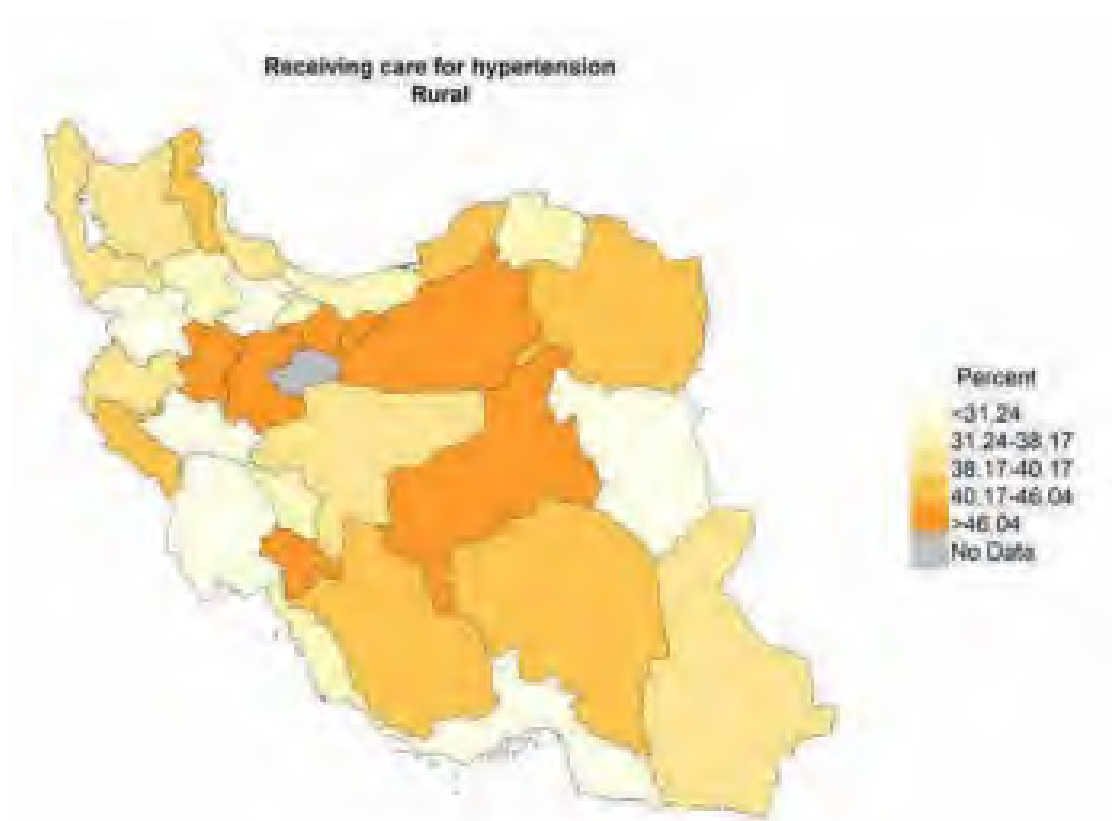


Figure 6.1.61. Geographical distribution of prevalence of receiving care for hypertension in rural area of residency

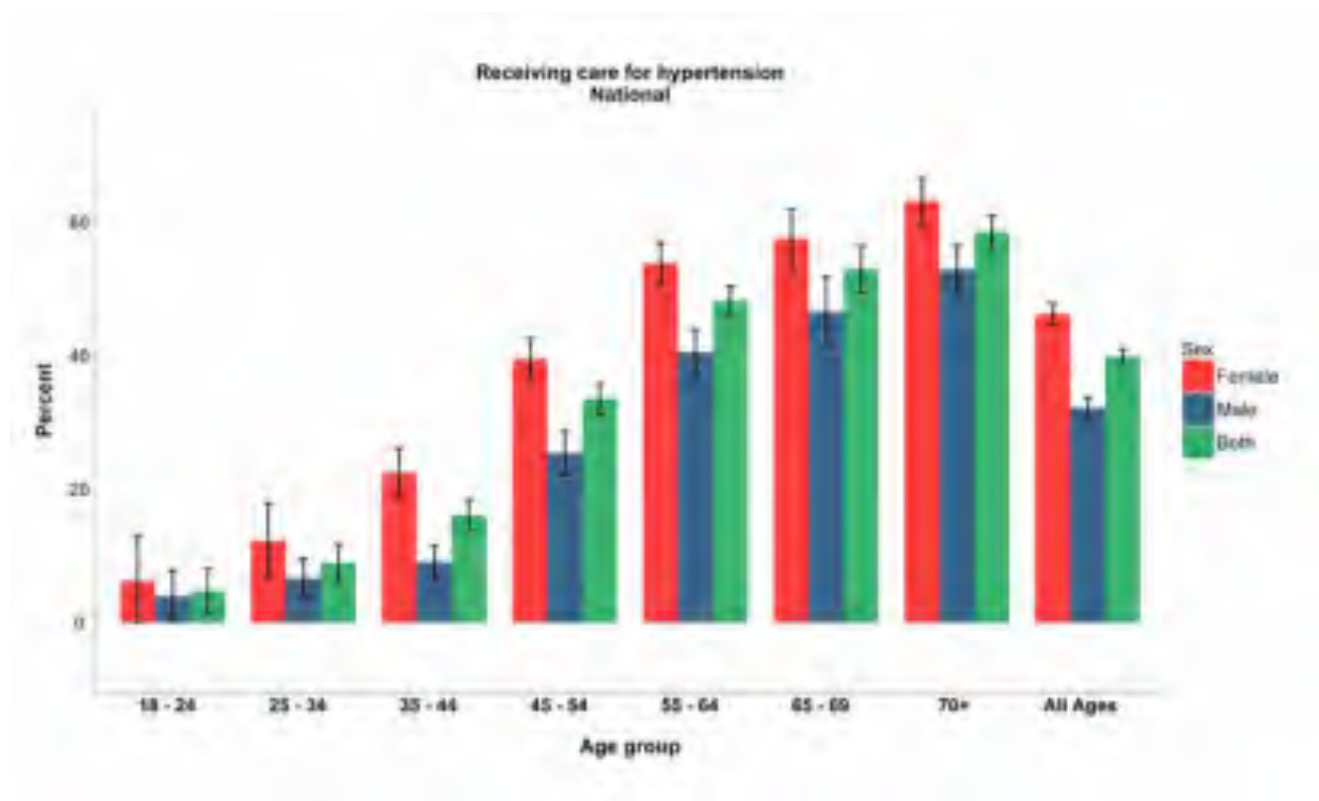


Figure 6.1.62. Prevalence of receiving care for hypertension by age and sex at national level

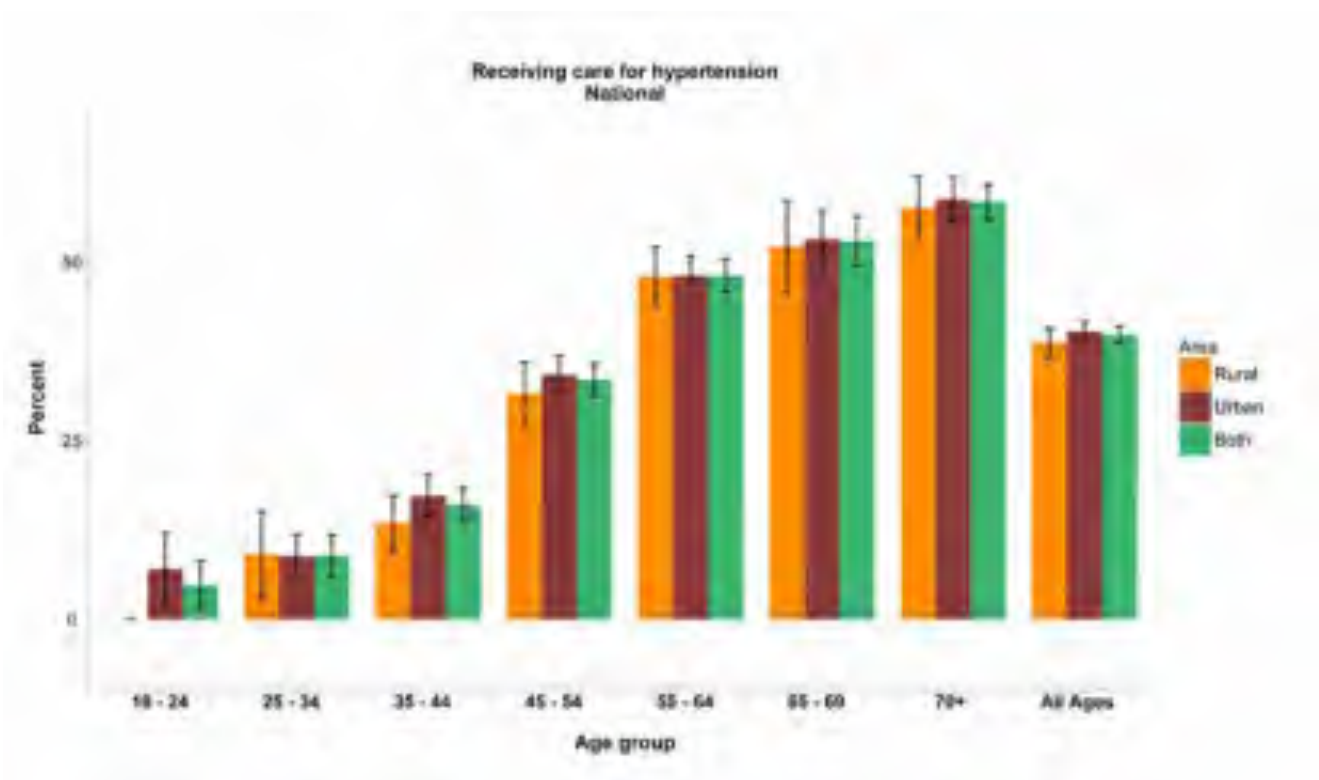


Figure 6.1.63. Prevalence of receiving care for hypertension by age and area of residency at national level

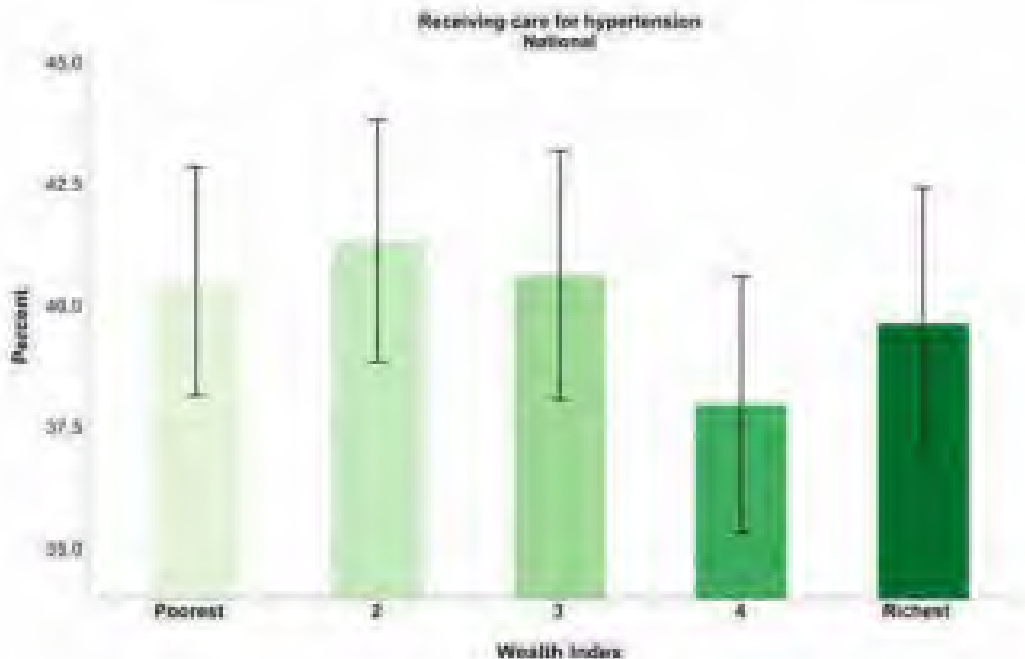


Figure 6.1.64. Prevalence of receiving care for hypertension by wealth index quantiles at national level

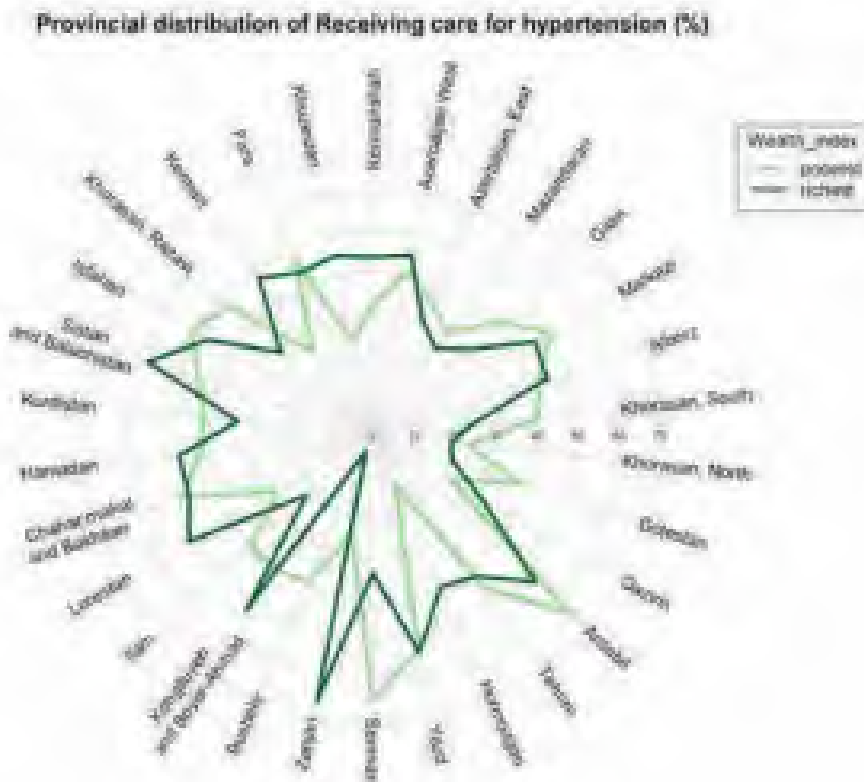


Figure 6.1.65. Provincial distribution of prevalence of receiving care for hypertension by wealth index

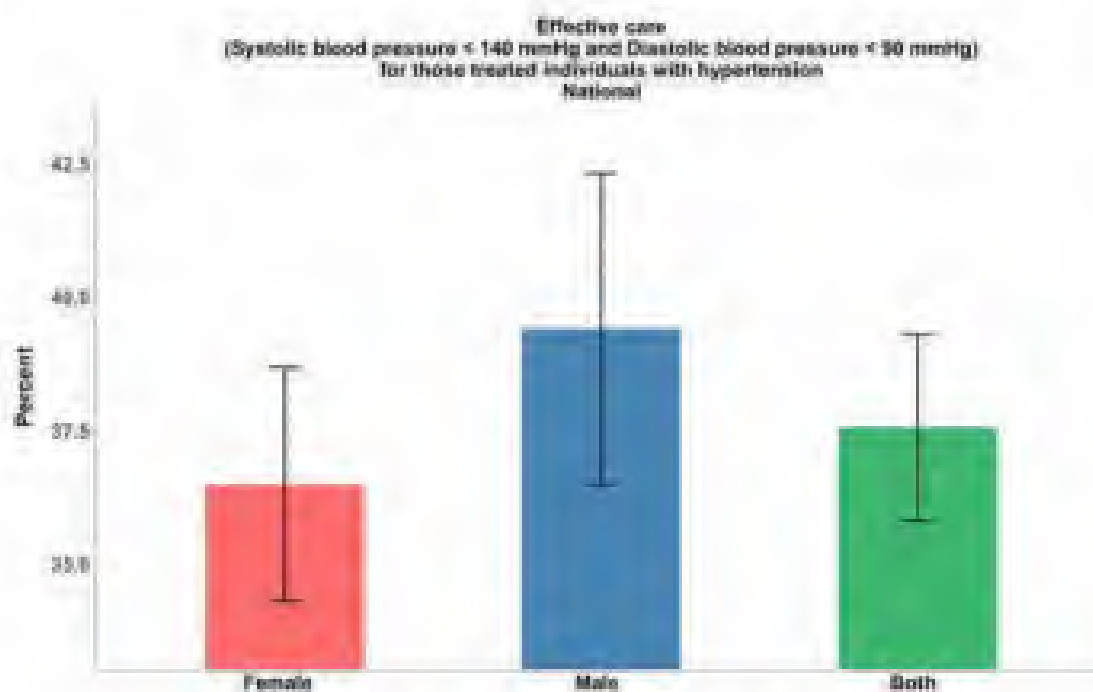


Figure 6.1.66. Percentage of effective care for those treated individuals with hypertension by sex at national level

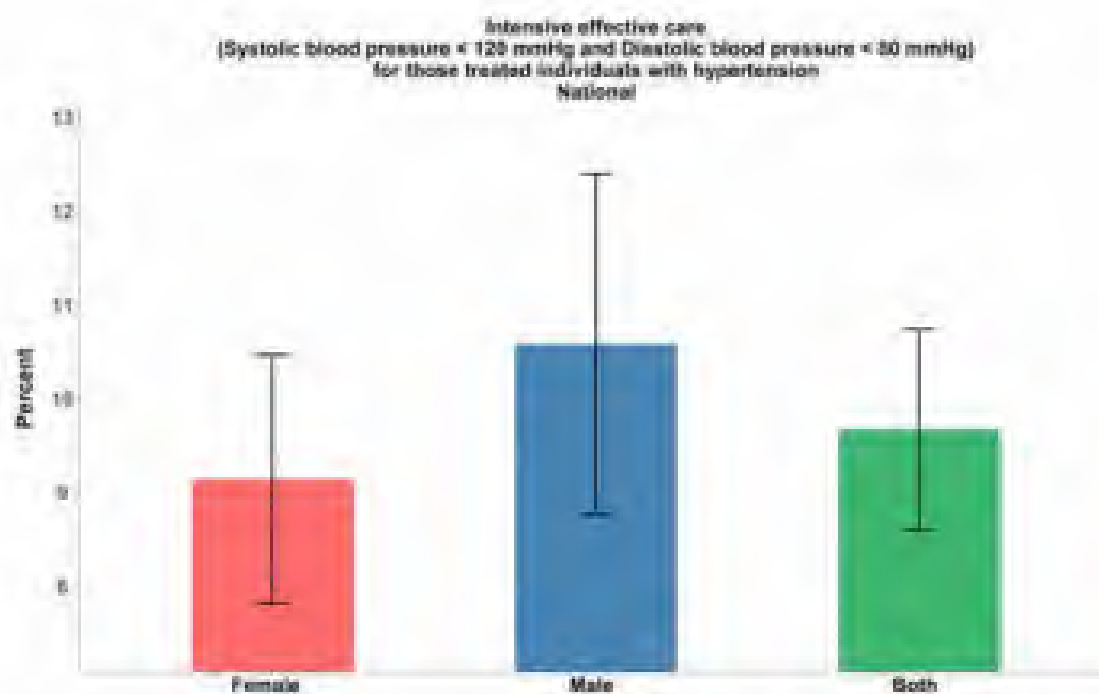
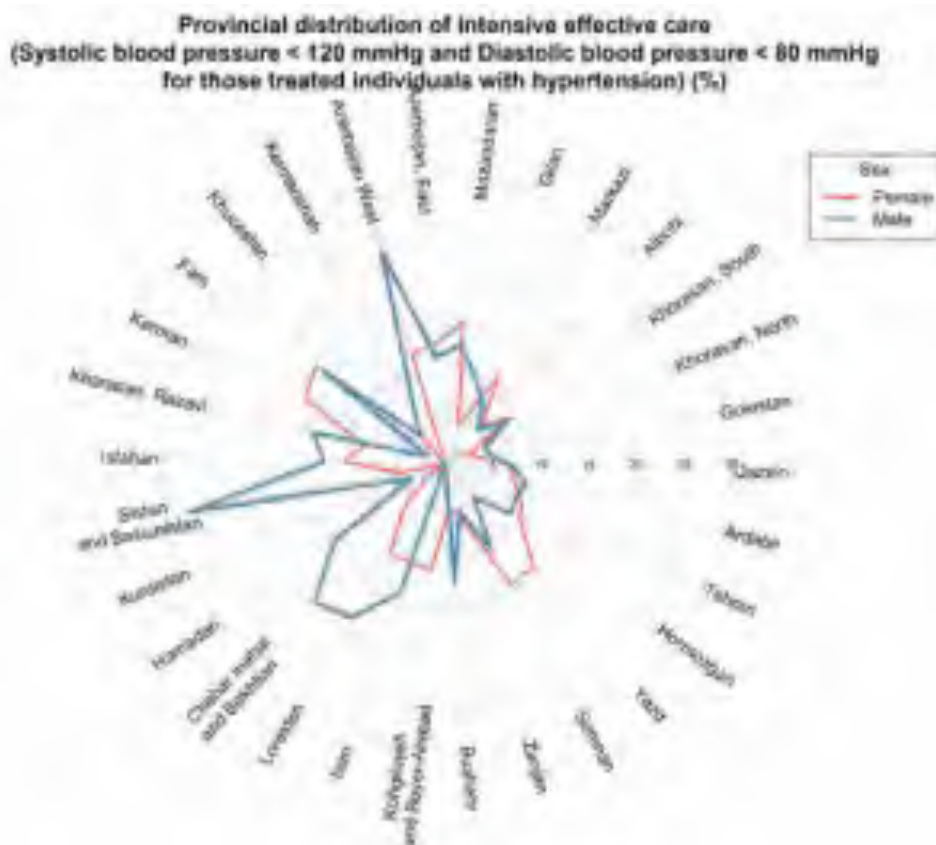
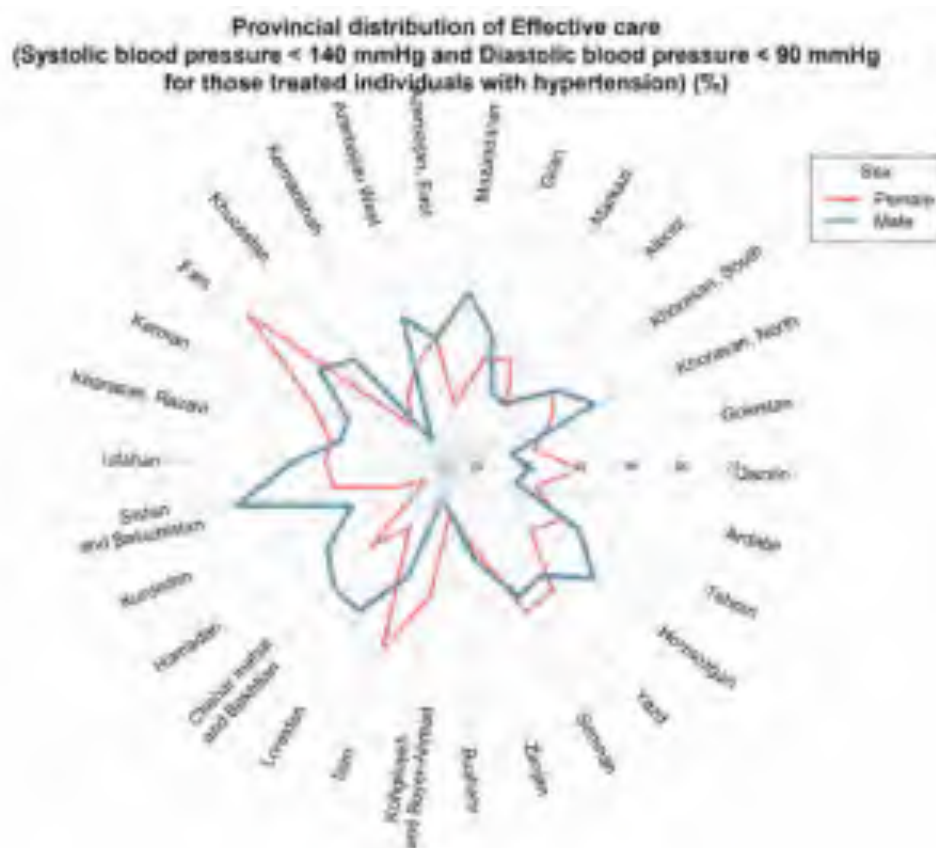


Figure 6.1.67. Percentage of intensive effective care for those treated individuals with hypertension by sex at national level



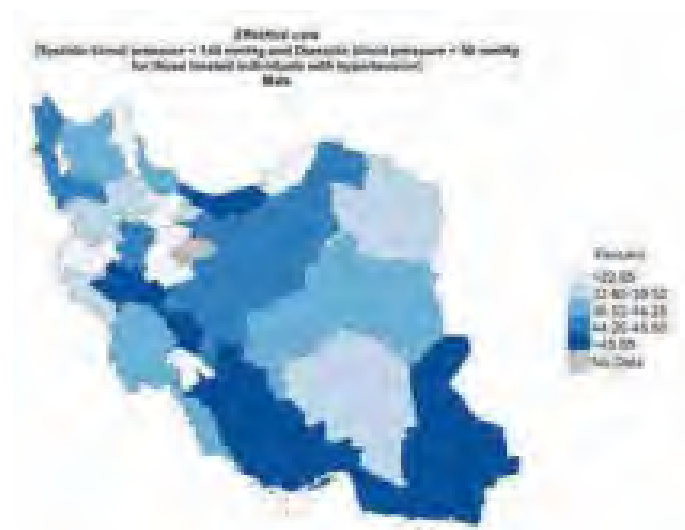


Figure 6.1.70. Geographical distribution of effective care for those treated individuals with hypertension in males

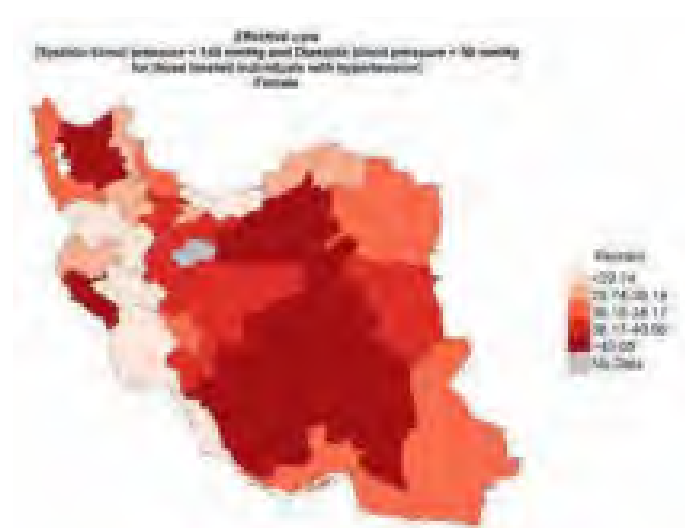


Figure 6.1.71. Geographical distribution of effective care for those treated individuals with hypertension in females

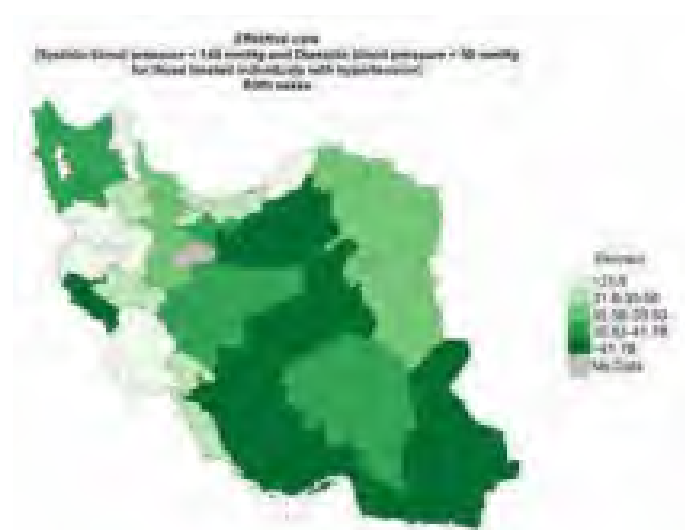


Figure 6.1.72. Geographical distribution of effective care for those treated individuals with hypertension in both sexes

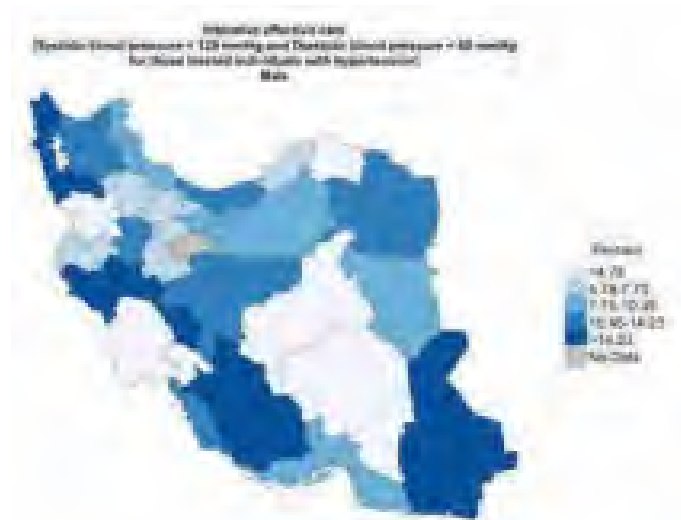


Figure 6.1.73. Geographical distribution of intensive effective care for those treated individuals with hypertension in males

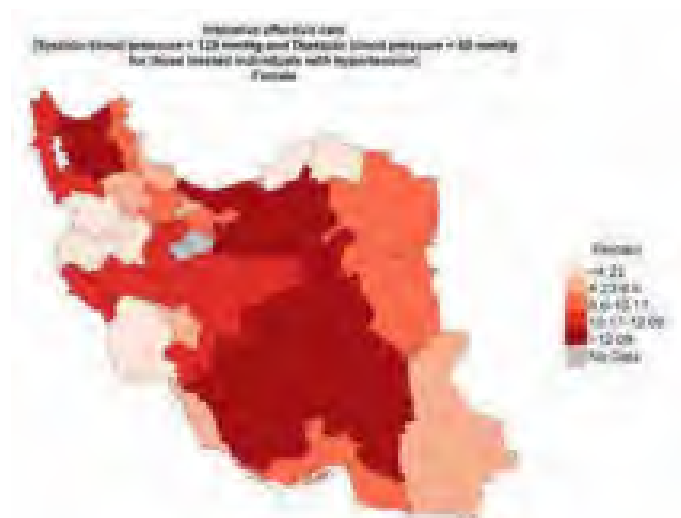


Figure 6.1.74. Geographical distribution of intensive effective care for those treated individuals with hypertension in females

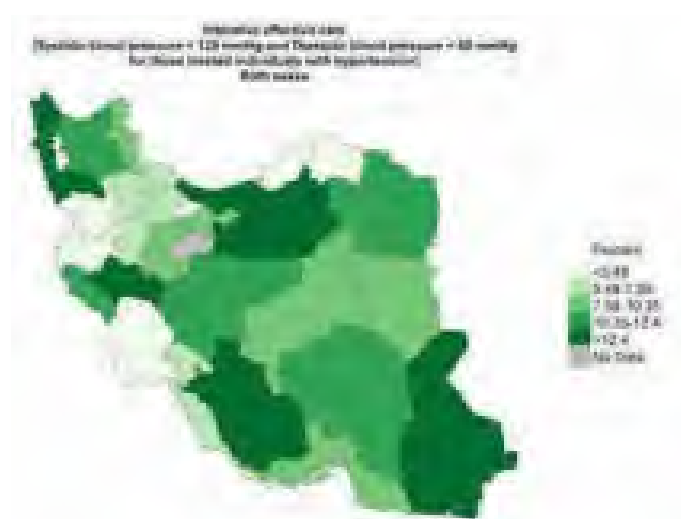


Figure 6.1.75. Geographical distribution of intensive effective care for those treated individuals with hypertension in both sexes

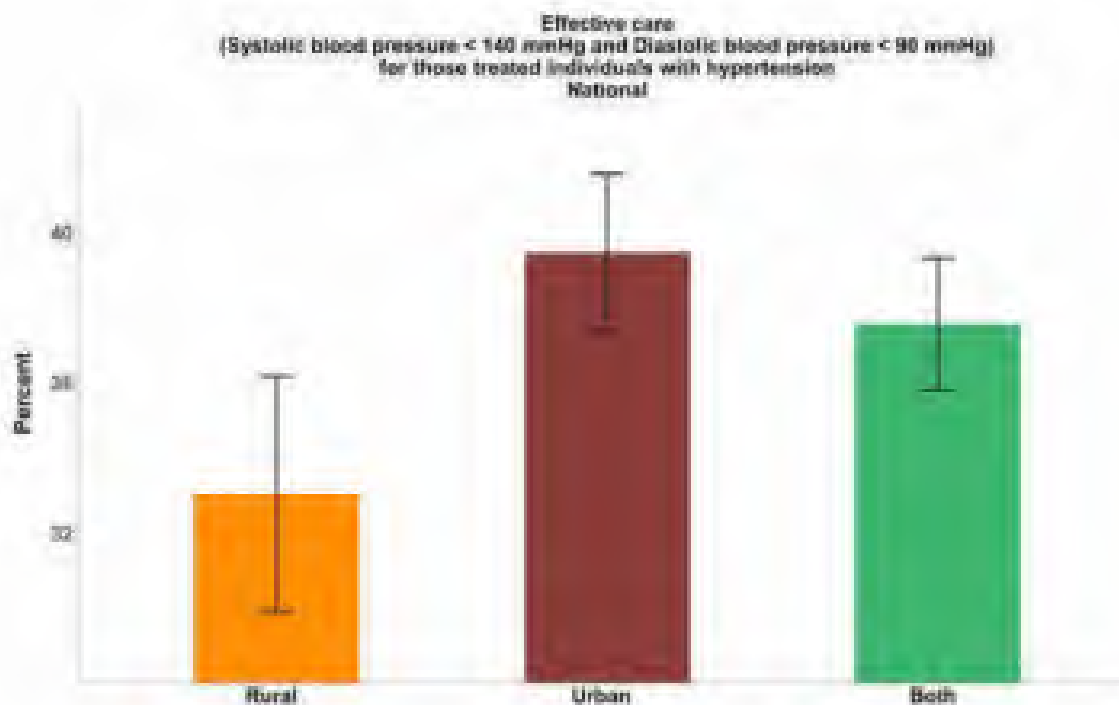


Figure 6.1.76. Percentage of effective care for those treated individuals with hypertension by area of residency at national level

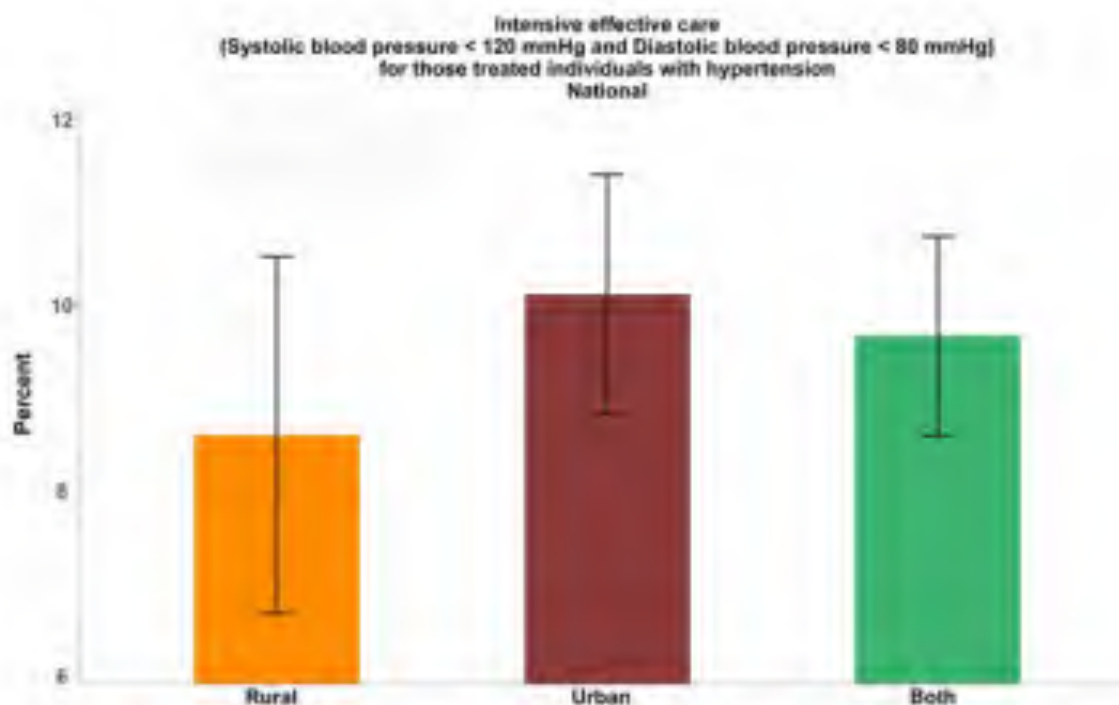


Figure 6.1.77. Percentage of intensive effective care for those treated individuals with hypertension by area of residency at national level

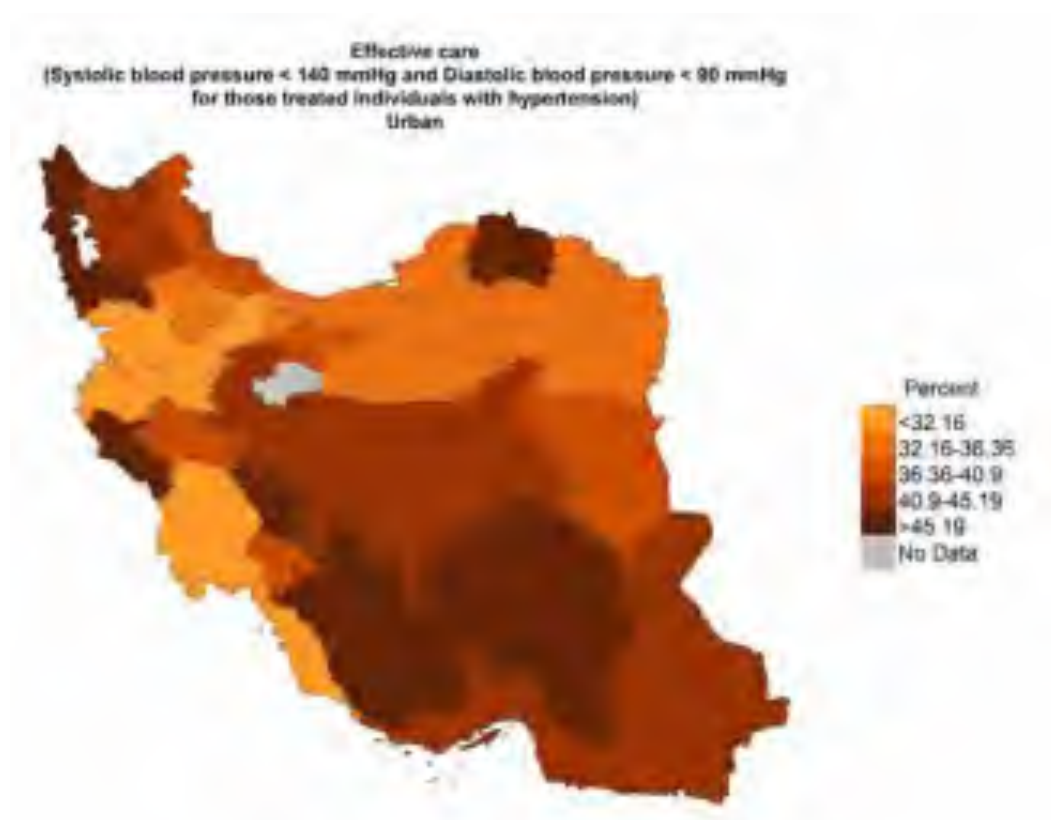


Figure 6.1.80. Geographical distribution of effective care for those treated individuals with hypertension in urban area of residency

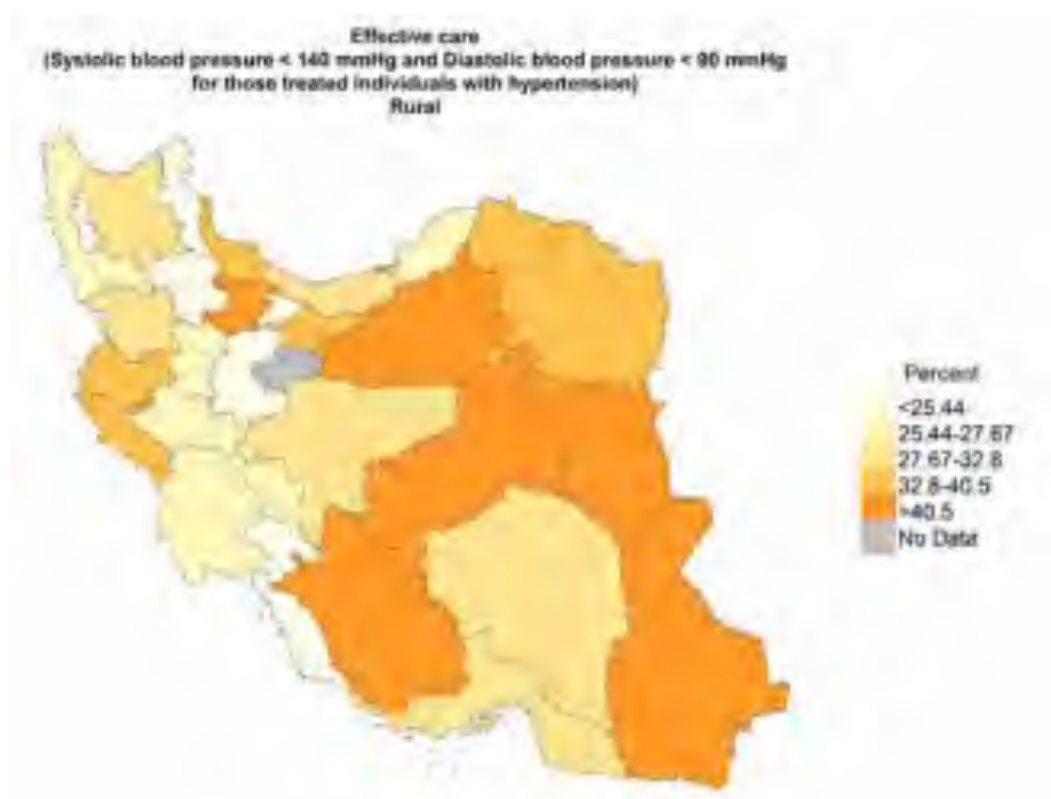


Figure 6.1.81. Geographical distribution of effective care for those treated individuals with hypertension in rural area of residency

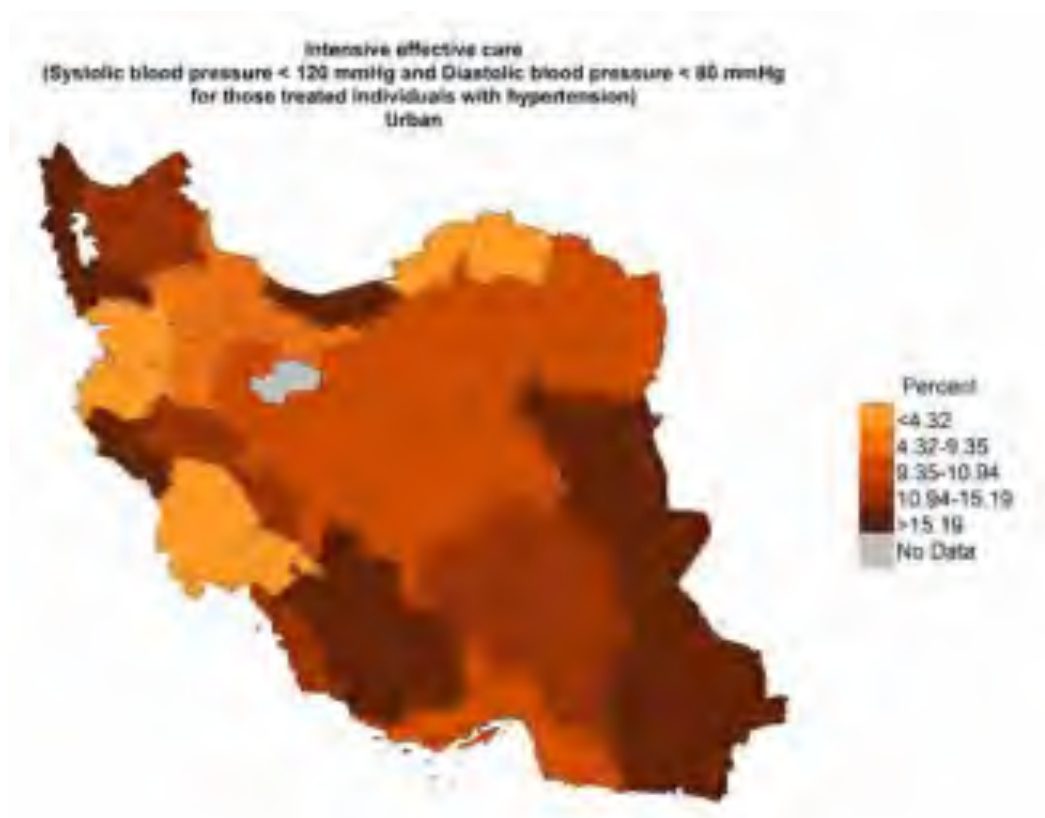


Figure 6.1.82. Geographical distribution of intensive effective care for those treated individuals with hypertension in urban area of residency

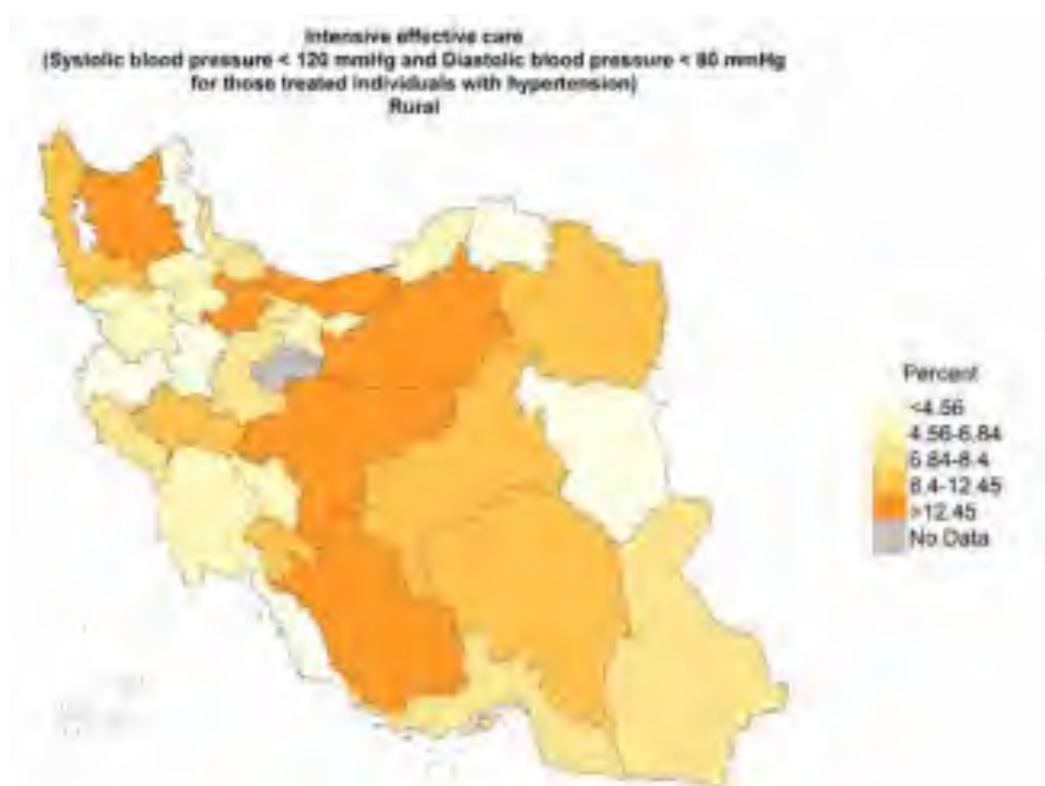


Figure 6.1.83. Geographical distribution of intensive effective care for those treated individuals with hypertension in rural area of residency

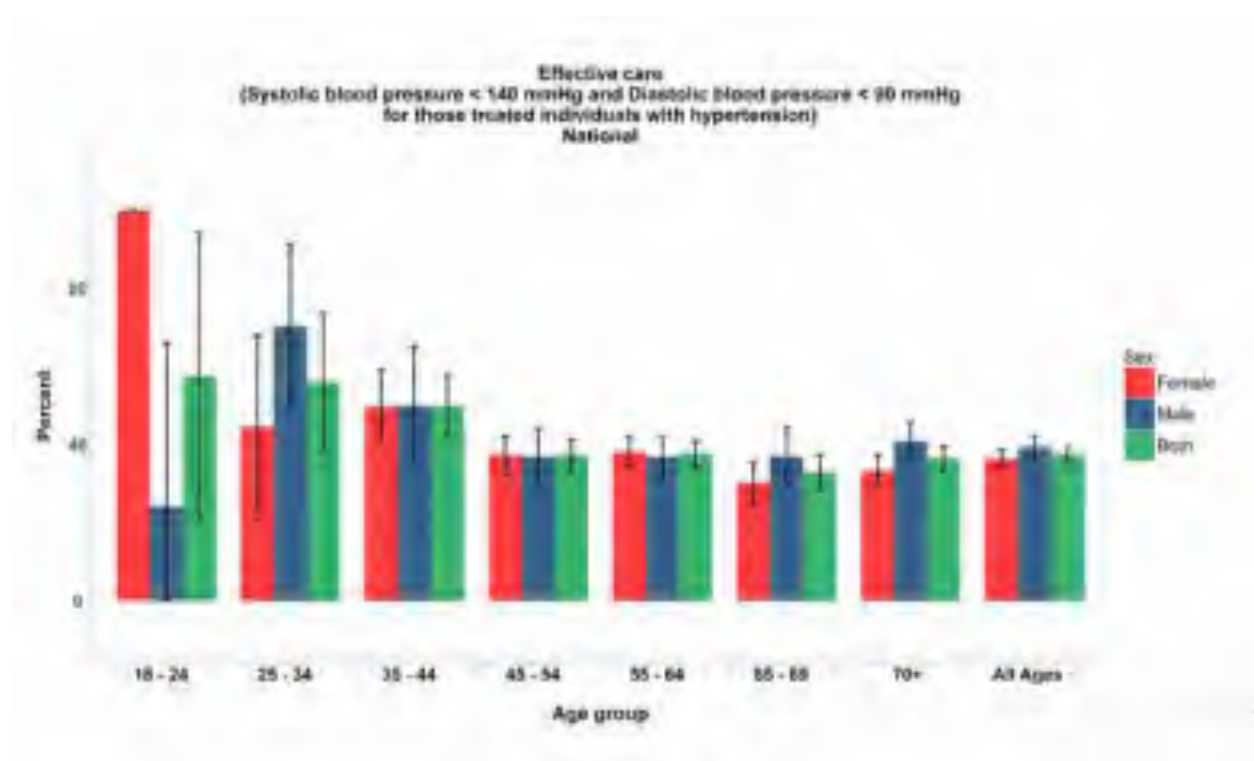


Figure 6.1.84. Percentage of effective care for those treated individuals with hypertension by age and sex at national level

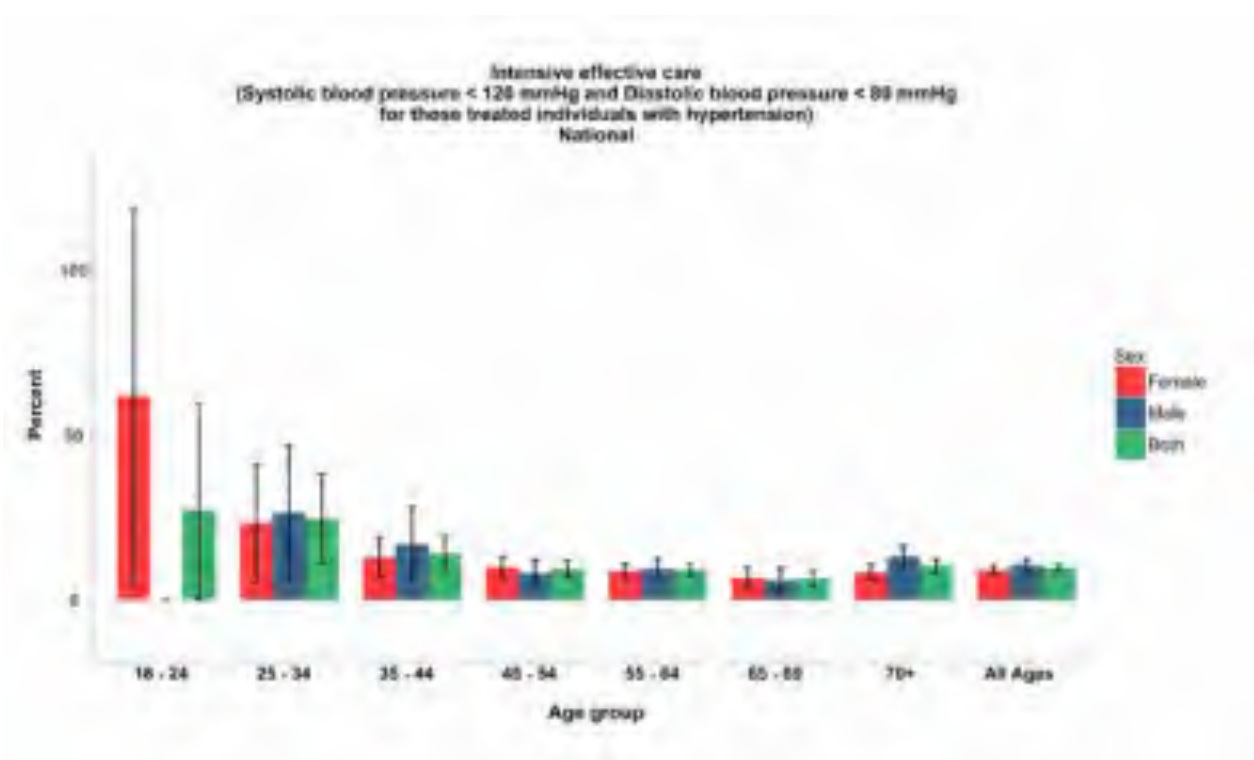


Figure 6.1.85. Percentage of intensive effective care for those treated individuals with hypertension by age and sex at national level

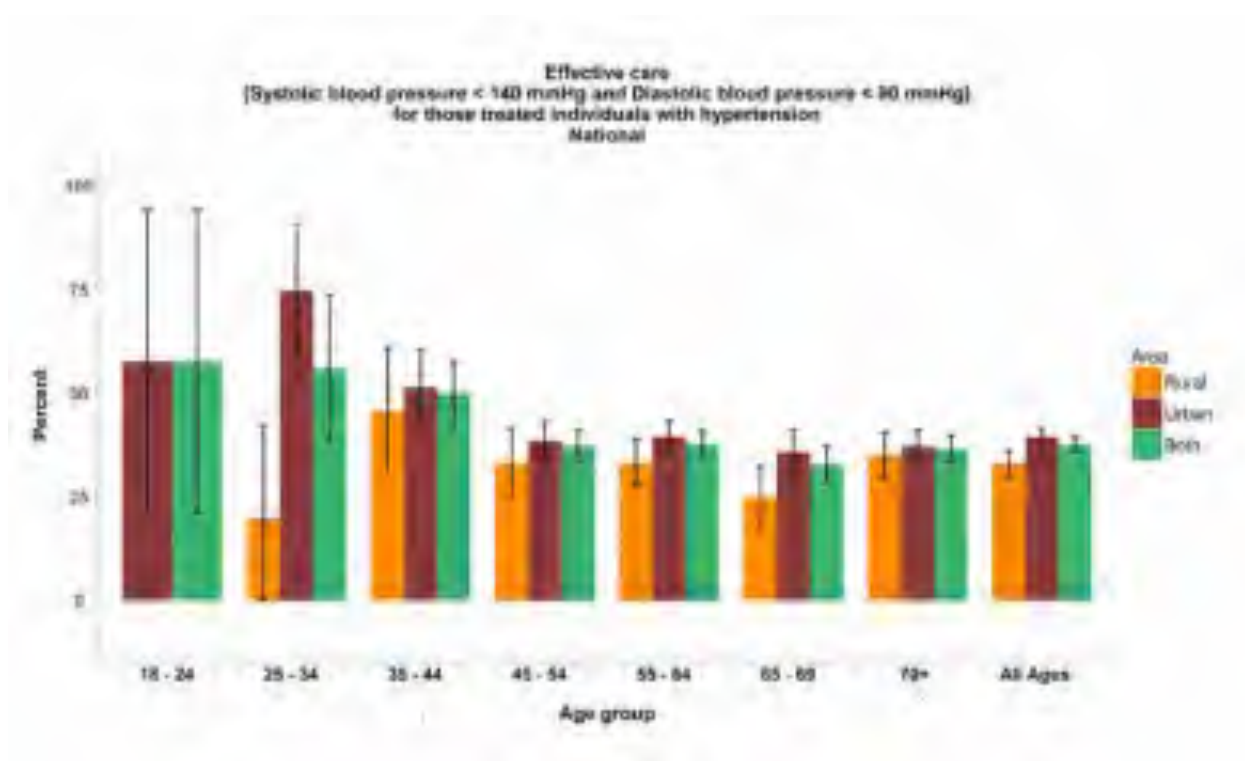


Figure 6.1.86. Percentage of effective care for those treated individuals with hypertension by age and area of residency at national level

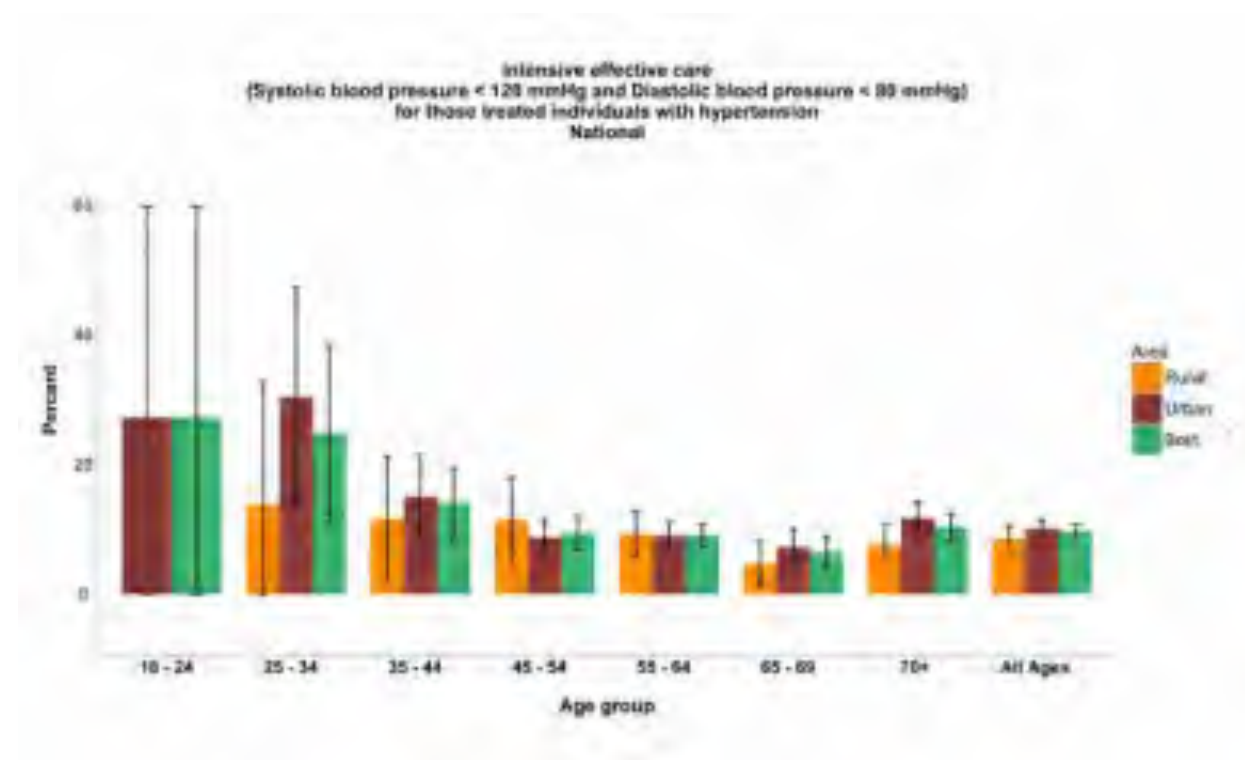


Figure 6.1.87. Percentage of intensive effective care for those treated individuals with hypertension by age and area of residency

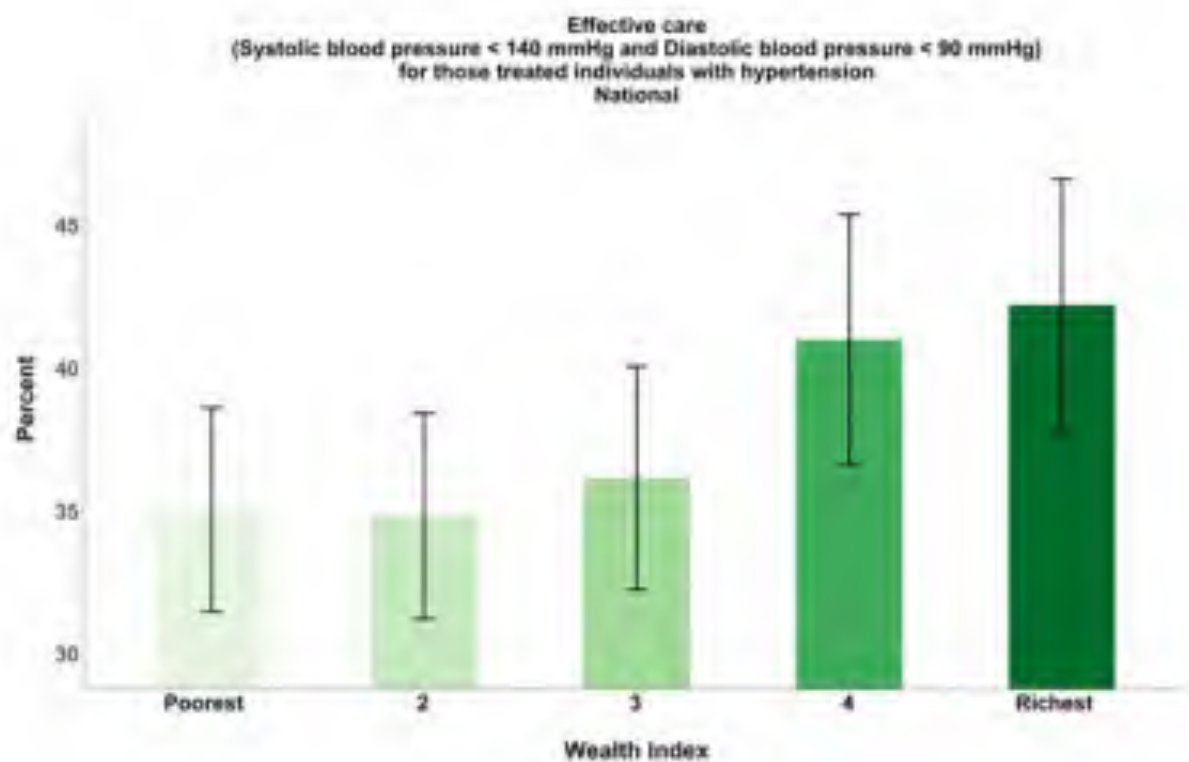


Figure 6.1.88. Percentage of effective care for those treated individuals with hypertension by wealth index quantiles at national level

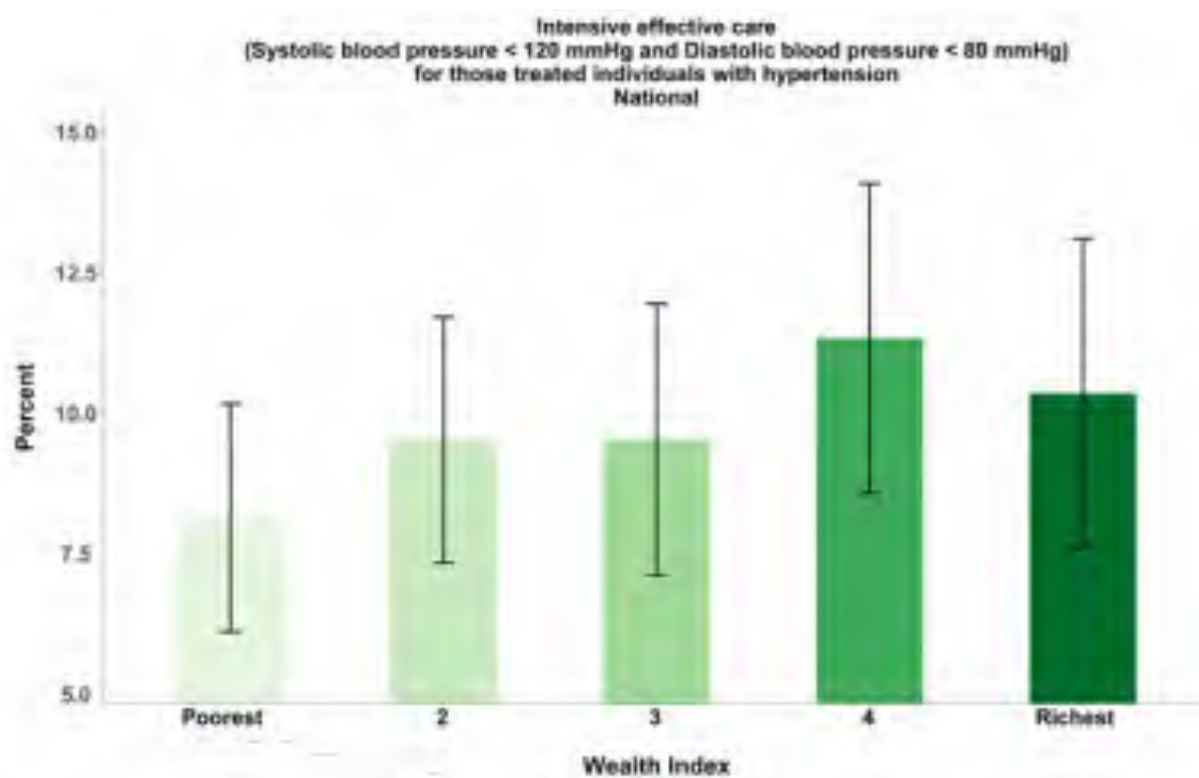


Figure 6.1.89. Percentage of intensive effective care for those treated individuals with hypertension by wealth index quantiles at national level

Provincial distribution of Effective care
(Systolic blood pressure < 140 mmHg and Diastolic blood pressure < 90 mmHg for those treated individuals with hypertension) (%)

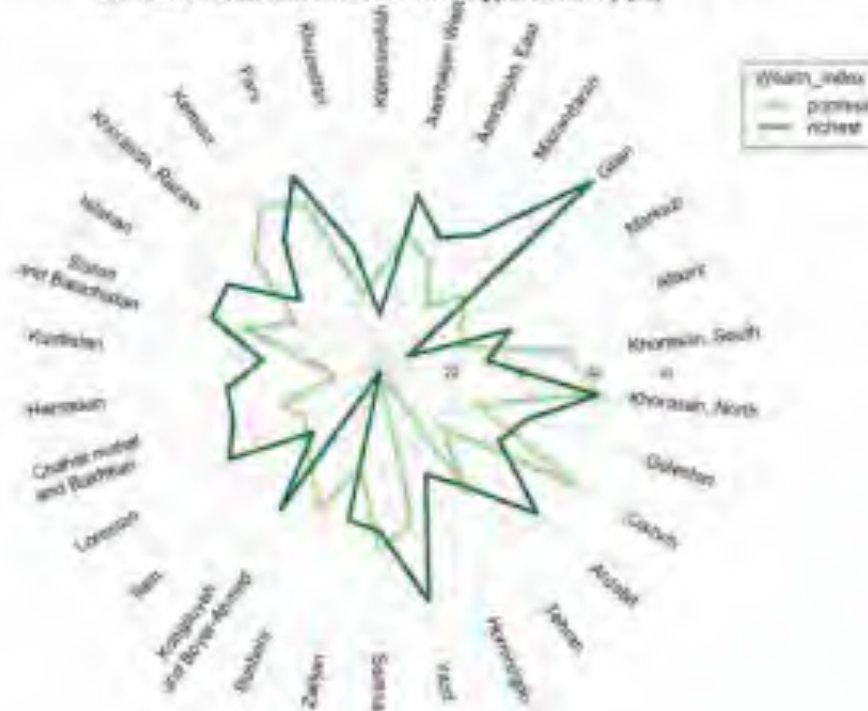


Figure 6.1.90. Provincial distribution of effective care for those treated individuals with hypertension by wealth index

Provincial distribution of Intensive effective care
(Systolic blood pressure < 120 mmHg and Diastolic blood pressure < 80 mmHg for those treated individuals with hypertension) (%)

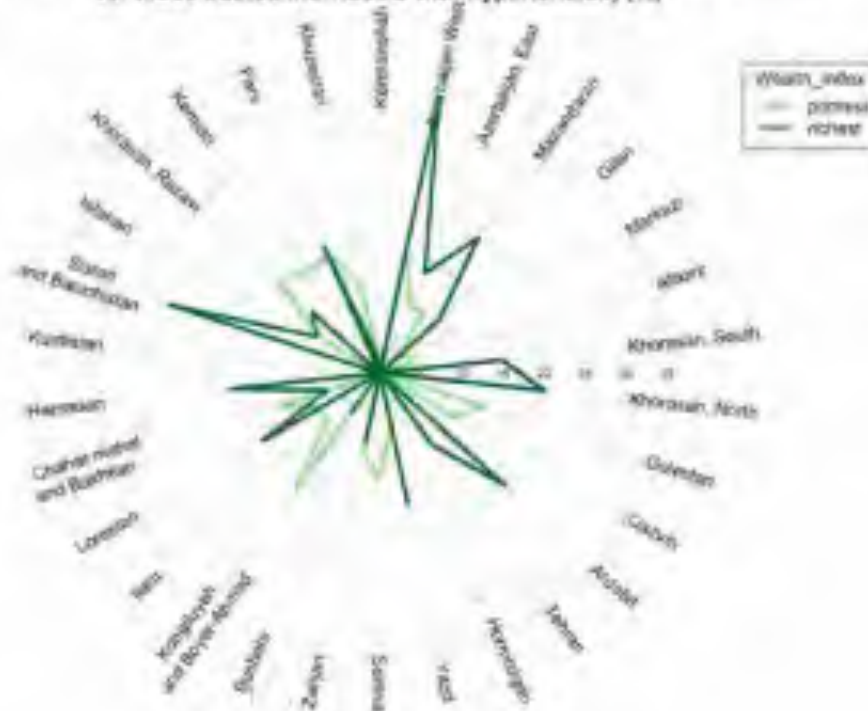


Figure 6.1.91. Provincial distribution of intensive effective care for those treated individuals with hypertension by wealth index

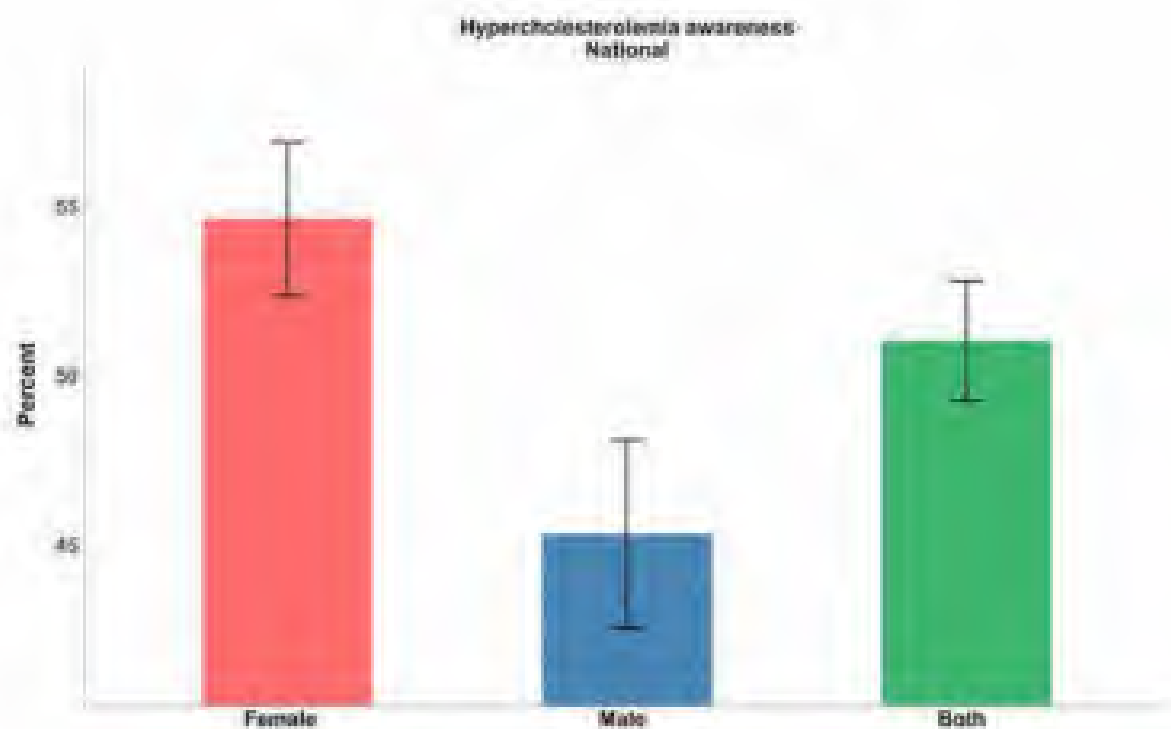


Figure 6.1.92. Prevalence of hypercholesterolemia awareness by sex at national level

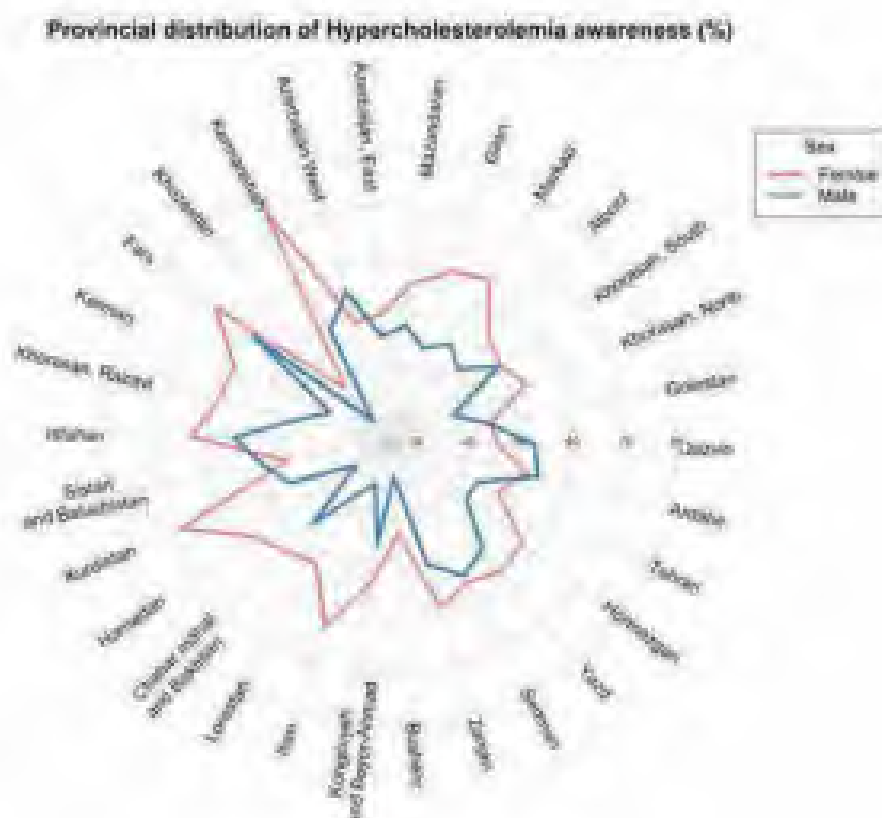


Figure 6.1.93. Provincial distribution of prevalence of hypercholesterolemia awareness by sex

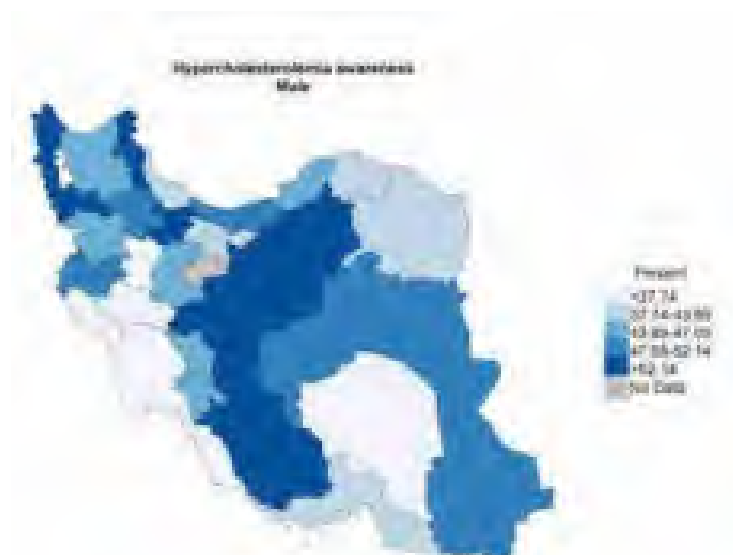


Figure 6.1.94. Geographical distribution of prevalence of hypercholesterolemia awareness in males

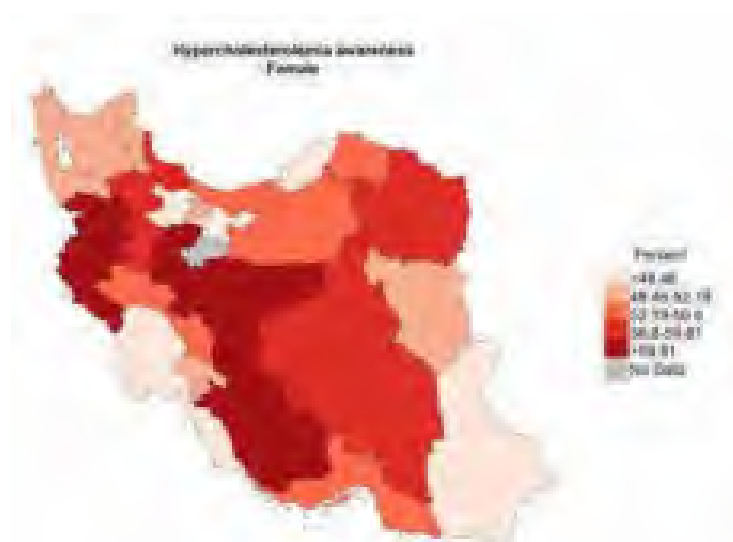


Figure 6.1.95. Geographical distribution of prevalence of hypercholesterolemia awareness in females

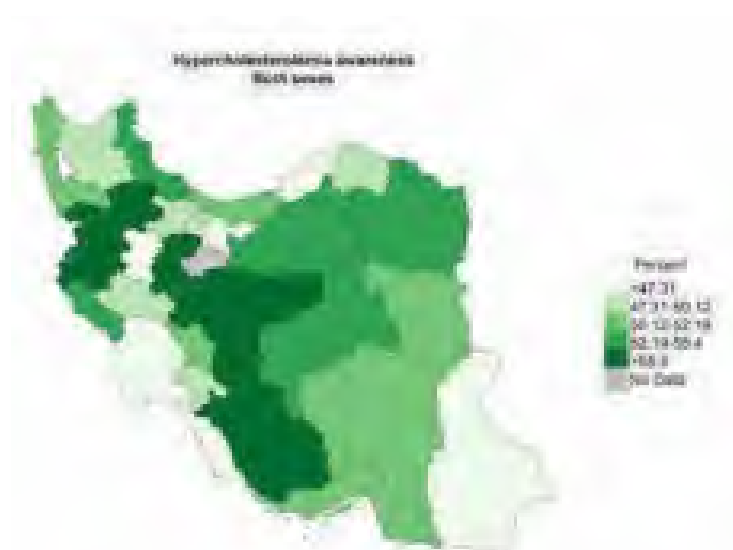


Figure 6.1.96. Geographical distribution of prevalence of hypercholesterolemia awareness in both sexes

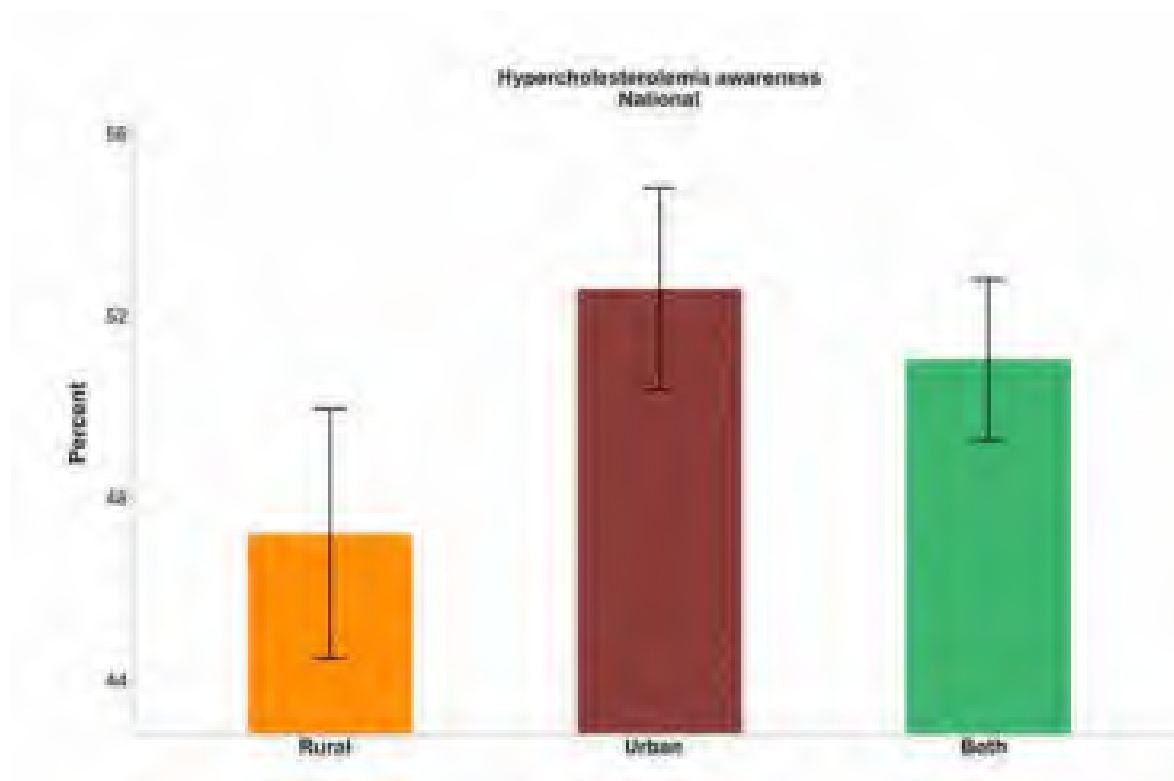


Figure 6.1.97. Prevalence of hypercholesterolemia awareness by area of residency at national level

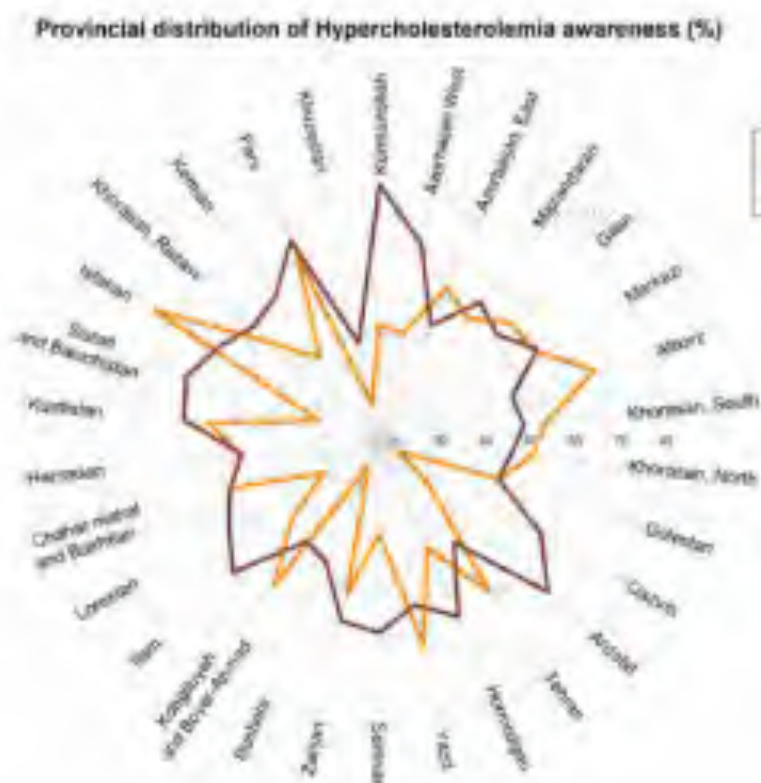


Figure 6.1.98. Provincial distribution of prevalence of hypercholesterolemia awareness by area of residency

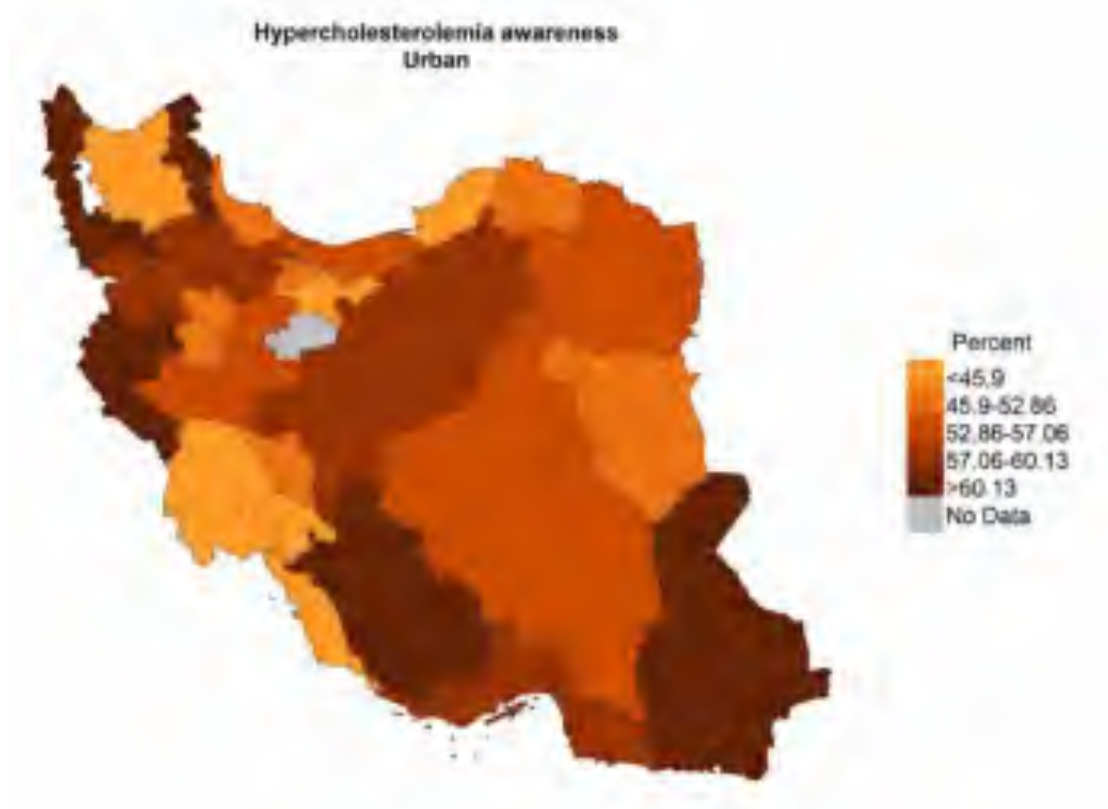


Figure 6.1.99. Geographical distribution of prevalence of hypercholesterolemia awareness in urban area of residency



Figure 6.1.100. Geographical distribution of prevalence of hypercholesterolemia awareness in rural area of residency

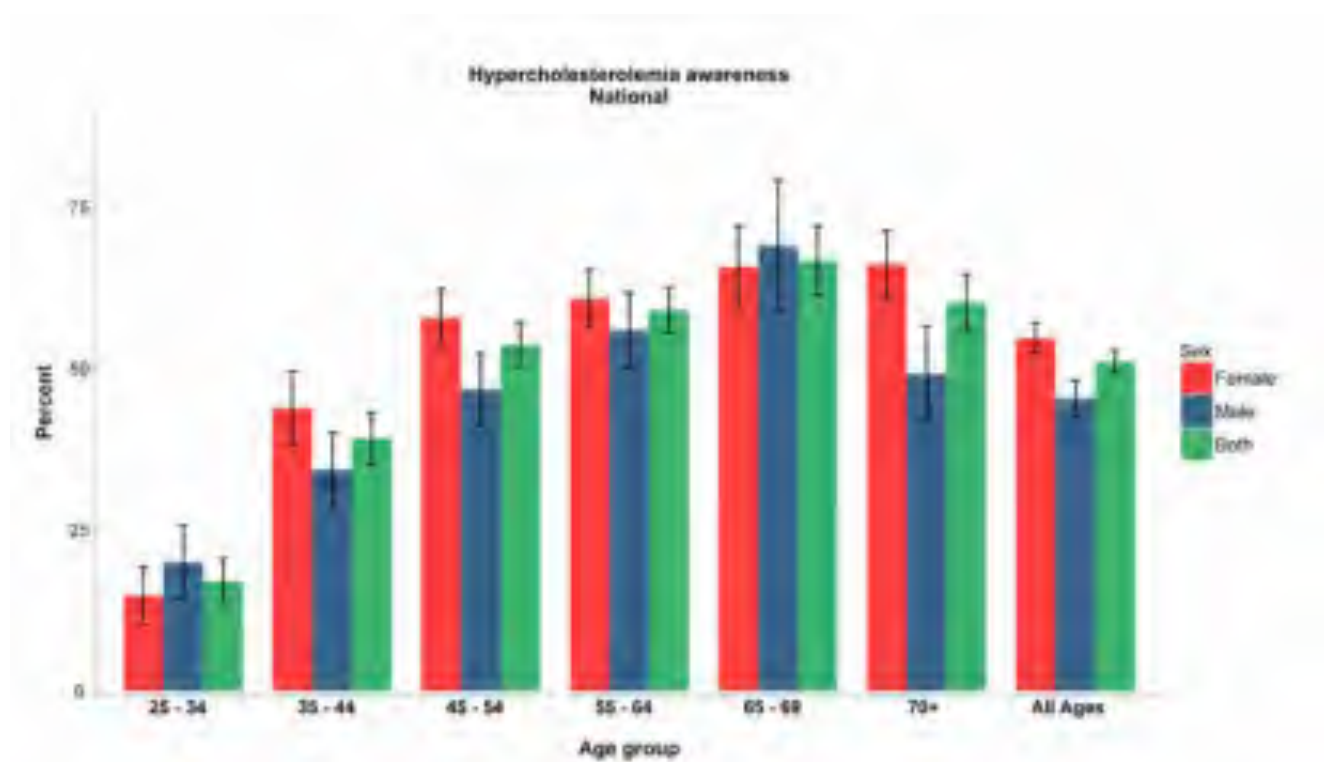


Figure 6.1.101. Prevalence of hypercholesterolemia awareness by age and sex at national level

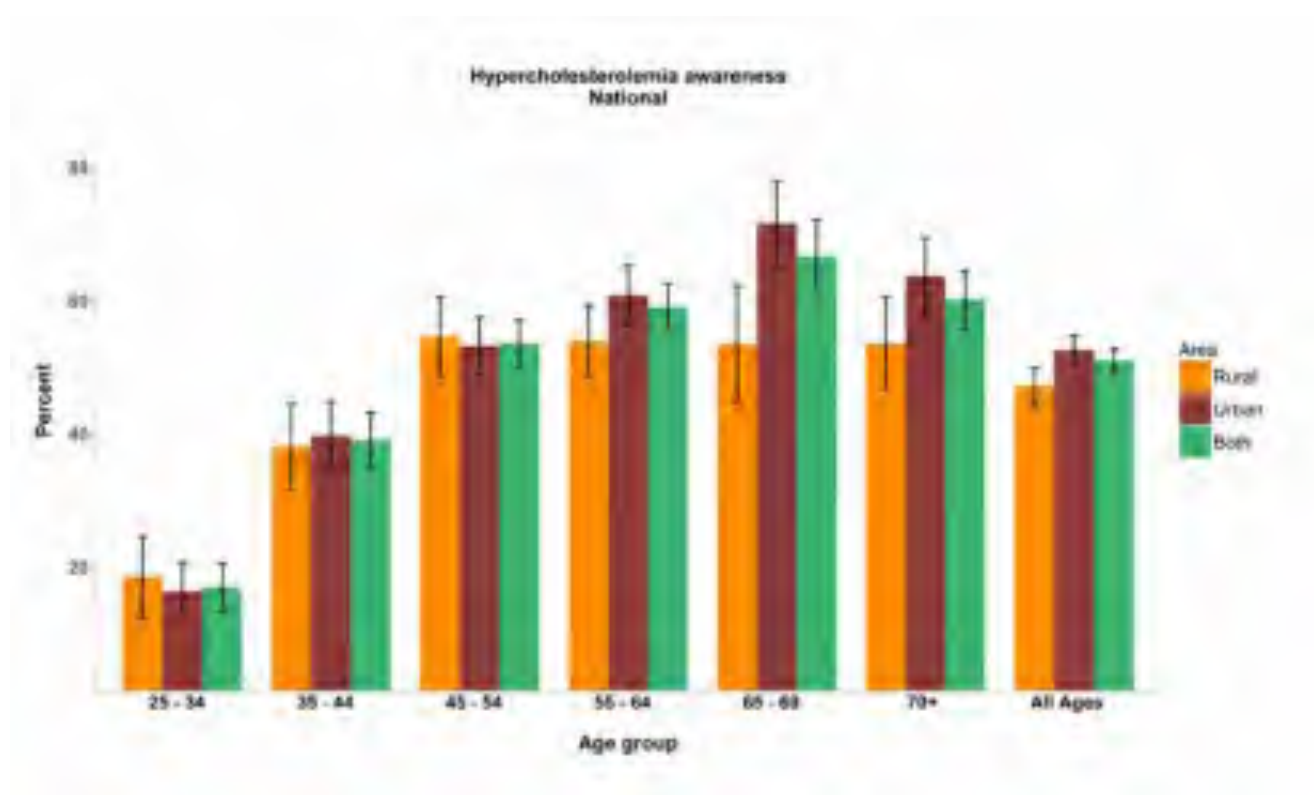


Figure 6.1.102. Prevalence of hypercholesterolemia awareness by age and area of residency at national level

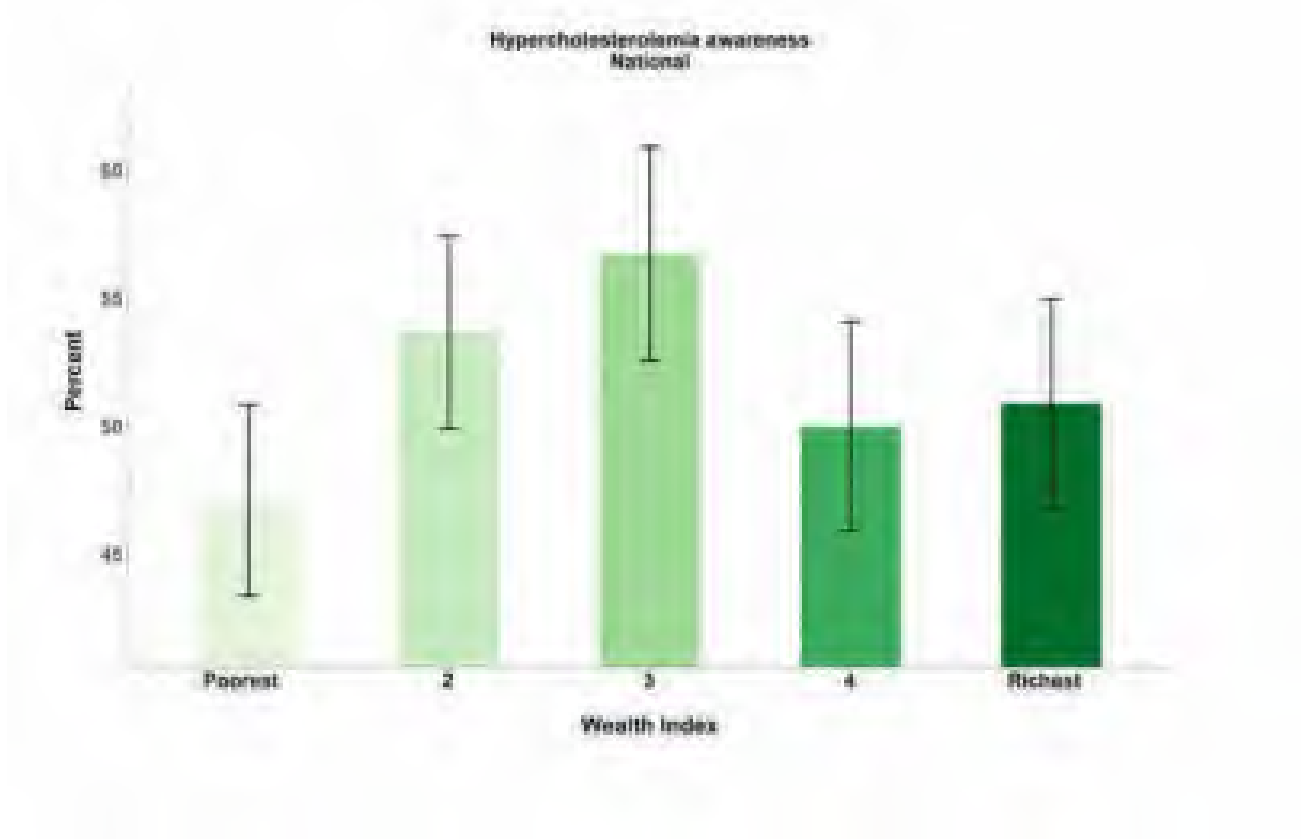


Figure 6.1.103. Prevalence of hypercholesterolemia awareness by wealth index quantiles at national level

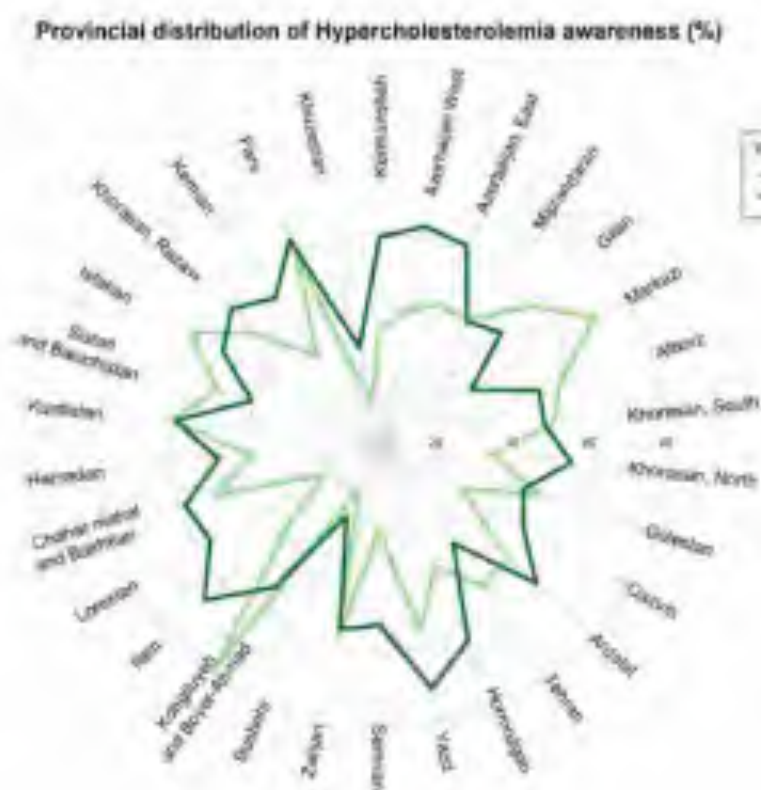


Figure 6.1.104. Provincial distribution of hypercholesterolemia awareness by wealth index

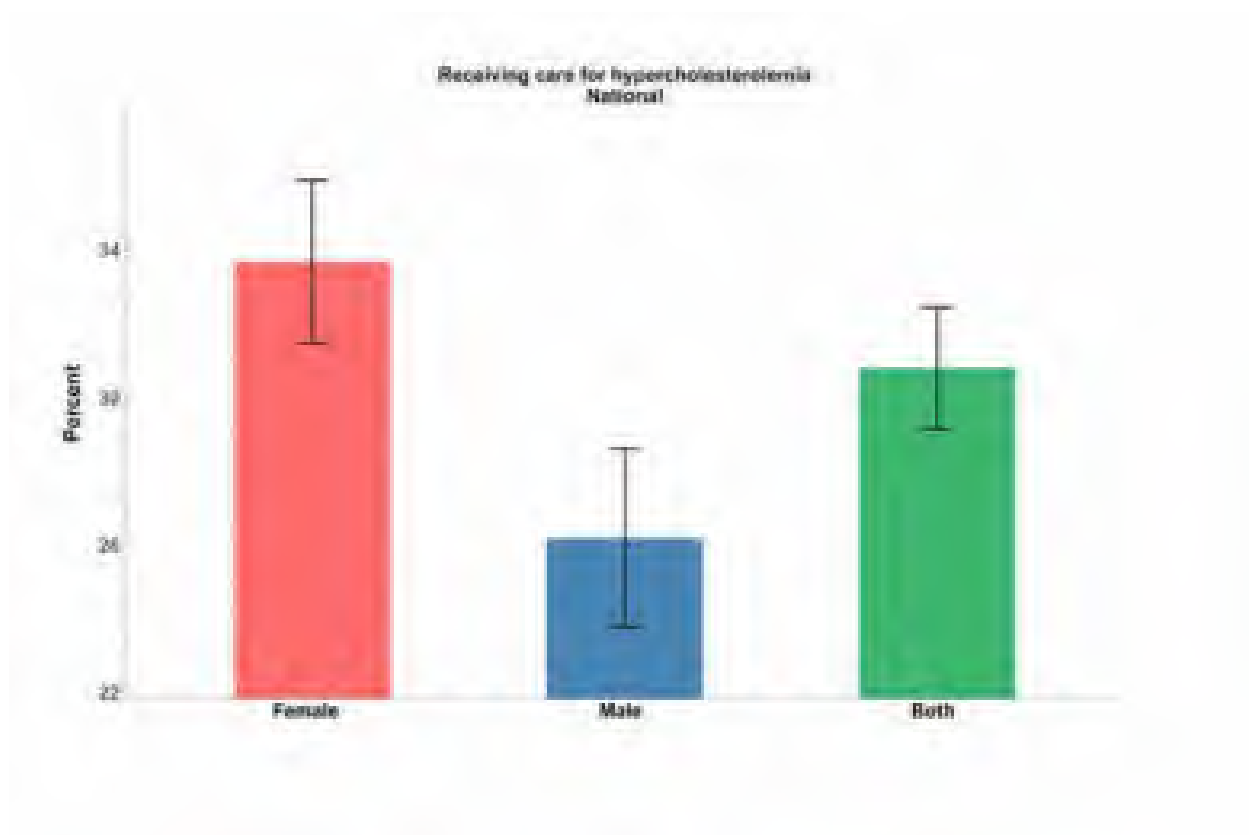


Figure 6.1.105. Prevalence of receiving care for hypercholesterolemia by sex at national level

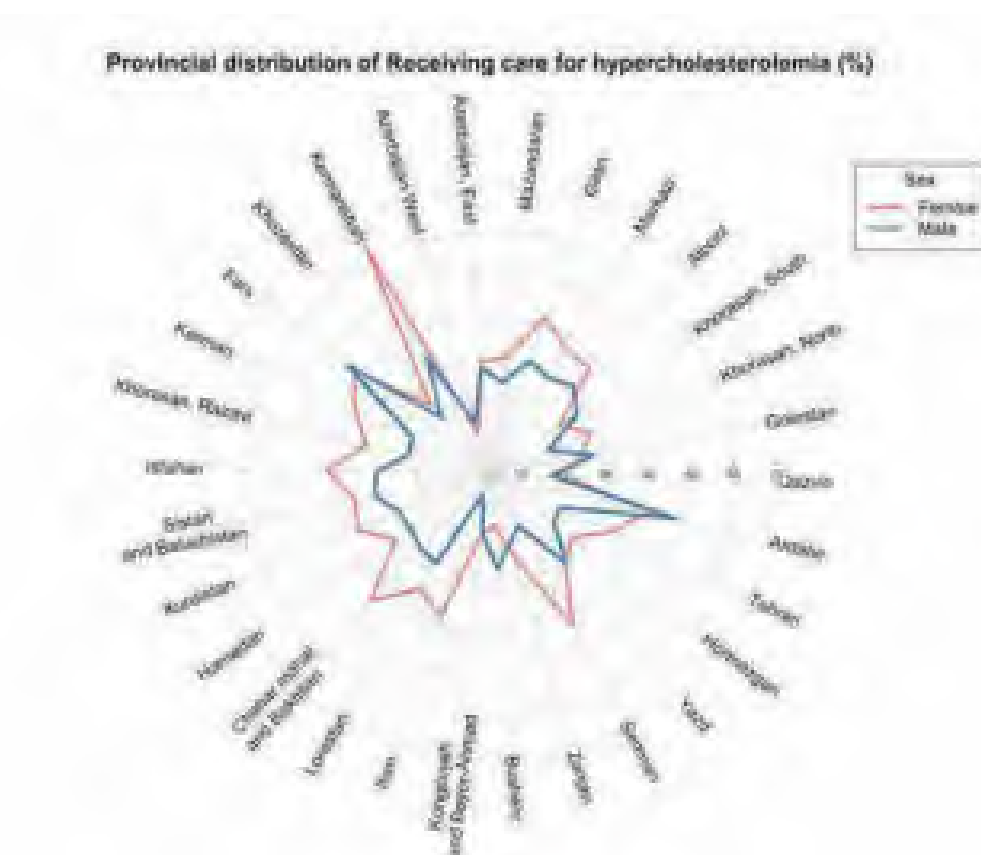


Figure 6.1.106. Provincial distribution of prevalence of receiving care for hypercholesterolemia by sex

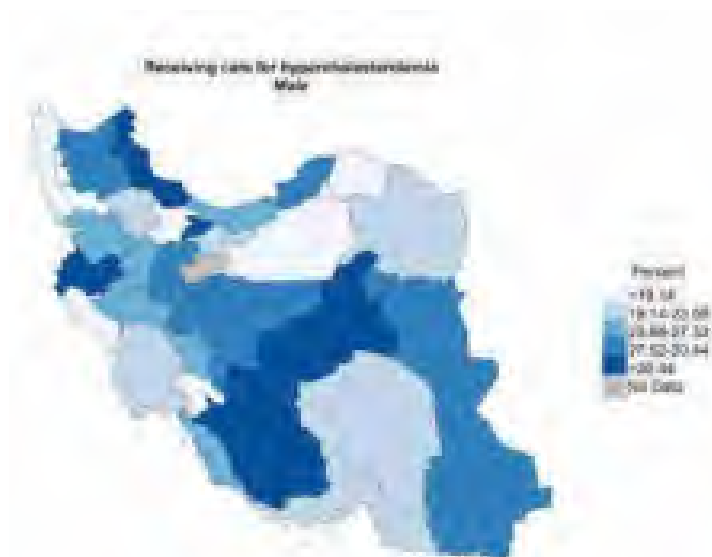


Figure 6.1.107. Geographical distribution of prevalence of receiving care for hypercholesterolemia in males

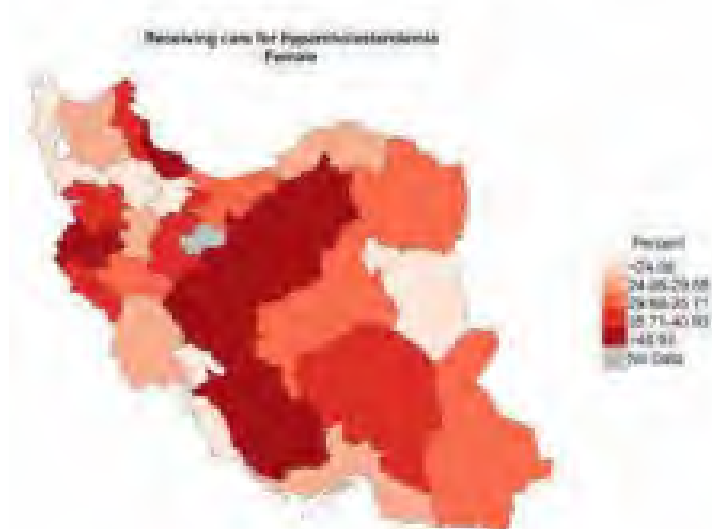


Figure 6.1.108. Geographical distribution of prevalence of receiving care for hypercholesterolemia in females

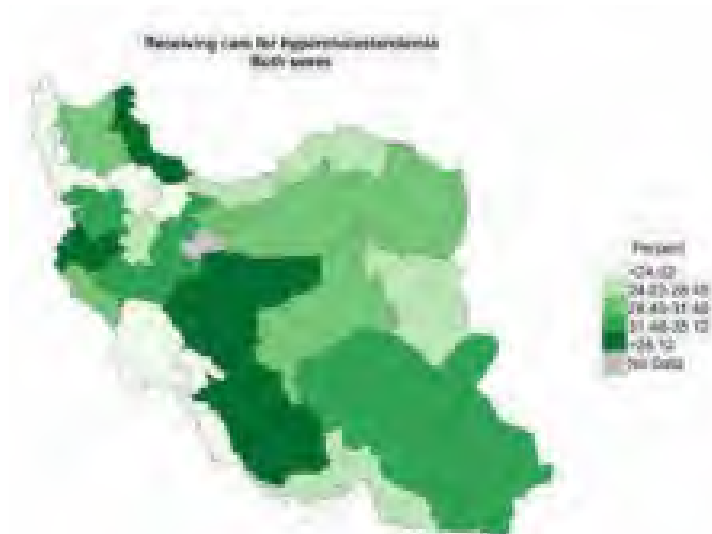


Figure 6.1.109. Geographical distribution of prevalence of receiving care for hypercholesterolemia in both sexes

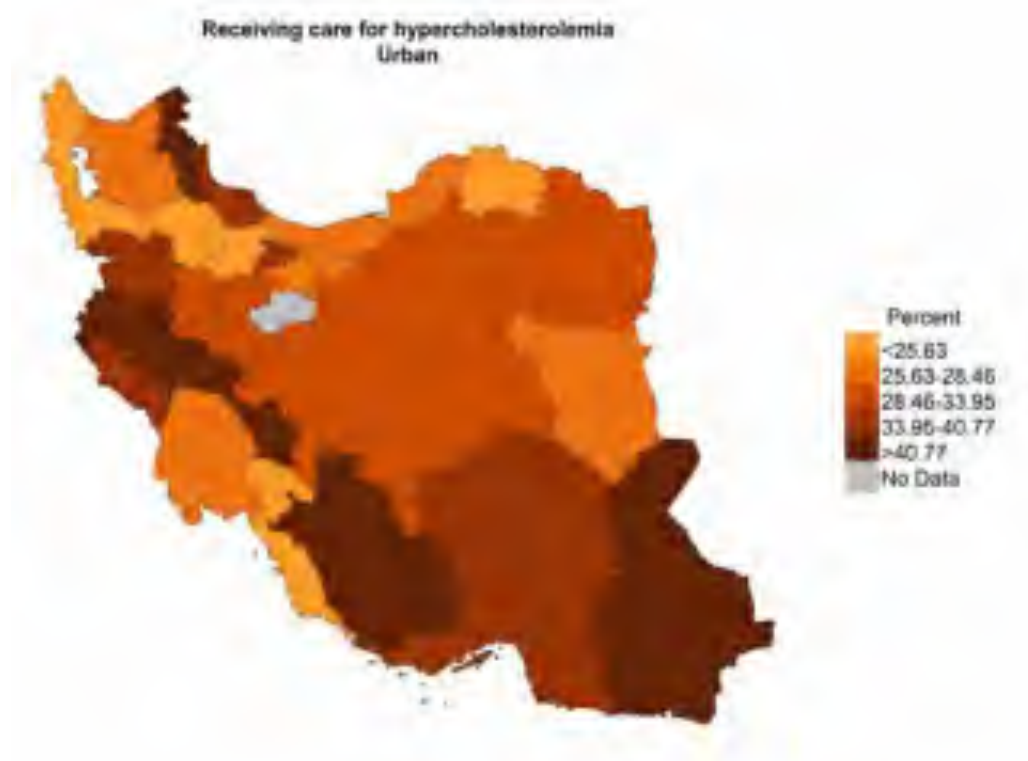


Figure 6.1.112. Geographical distribution of prevalence of receiving care for hypercholesterolemia in urban area of residency

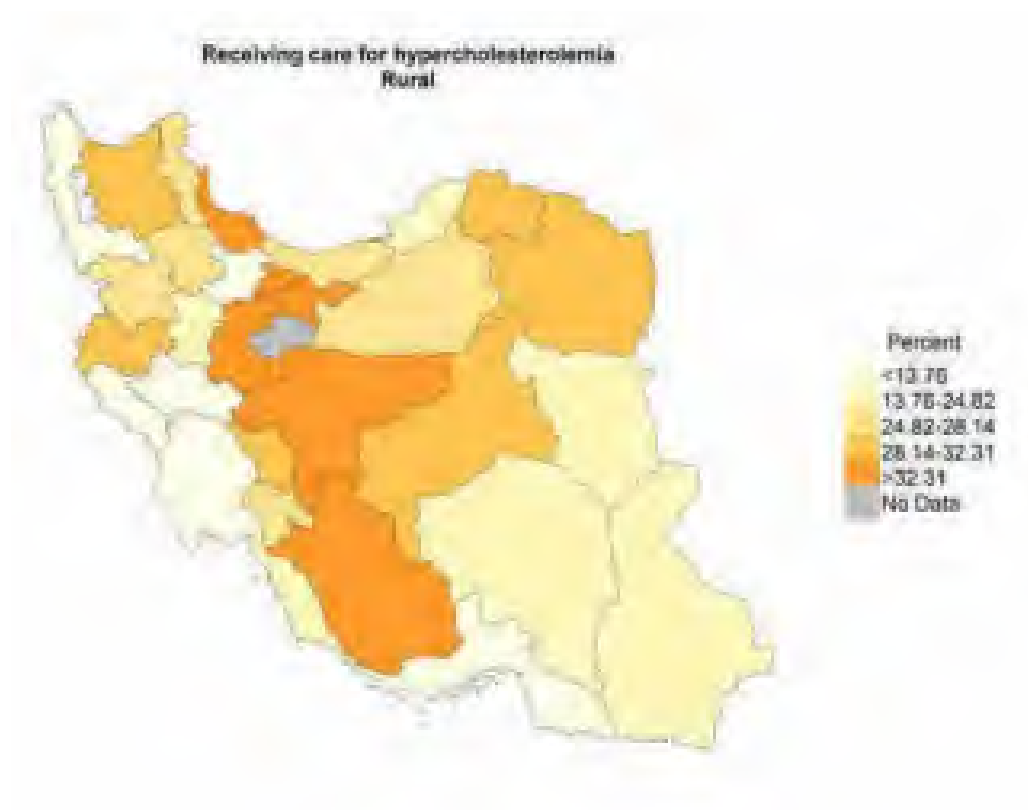


Figure 6.1.113. Geographical distribution of prevalence of receiving care for hypercholesterolemia in rural area of residency

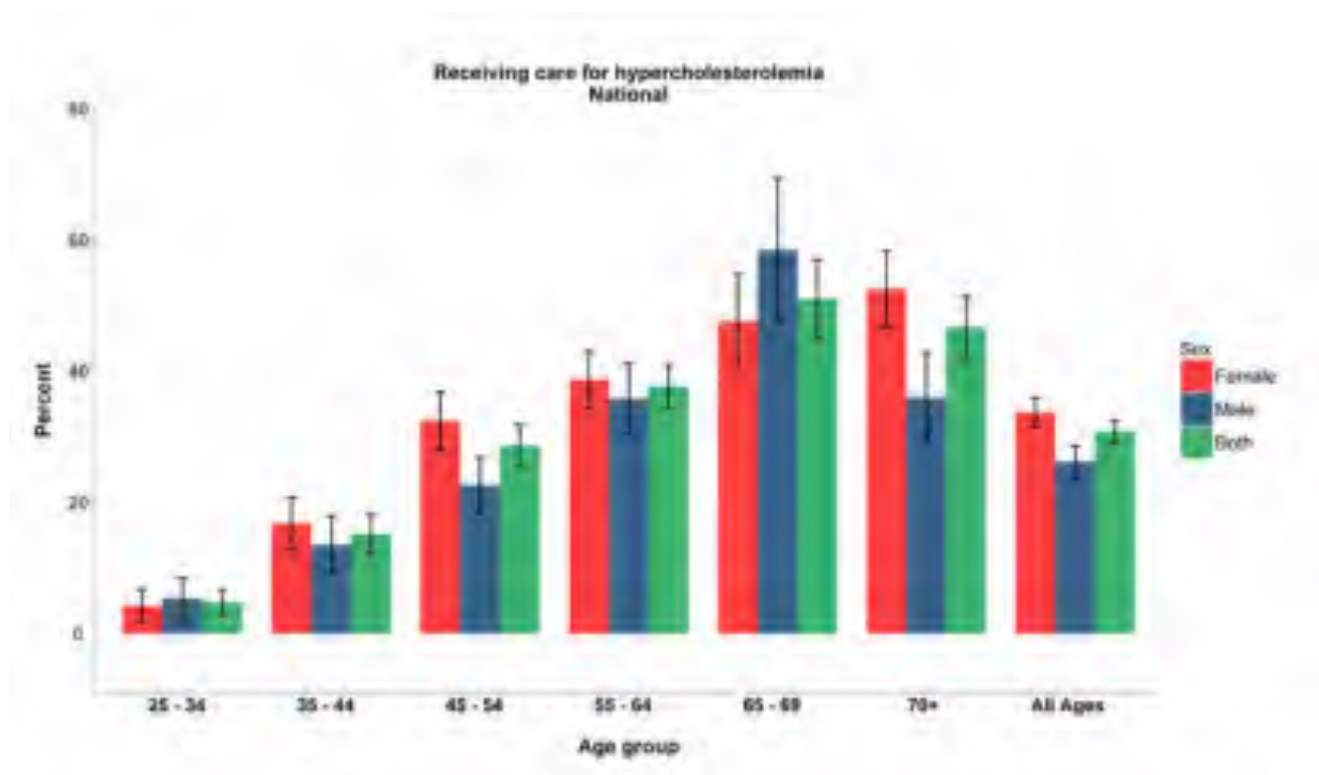


Figure 6.1.114. Prevalence of receiving care for hypercholesterolemia by age and sex at national level

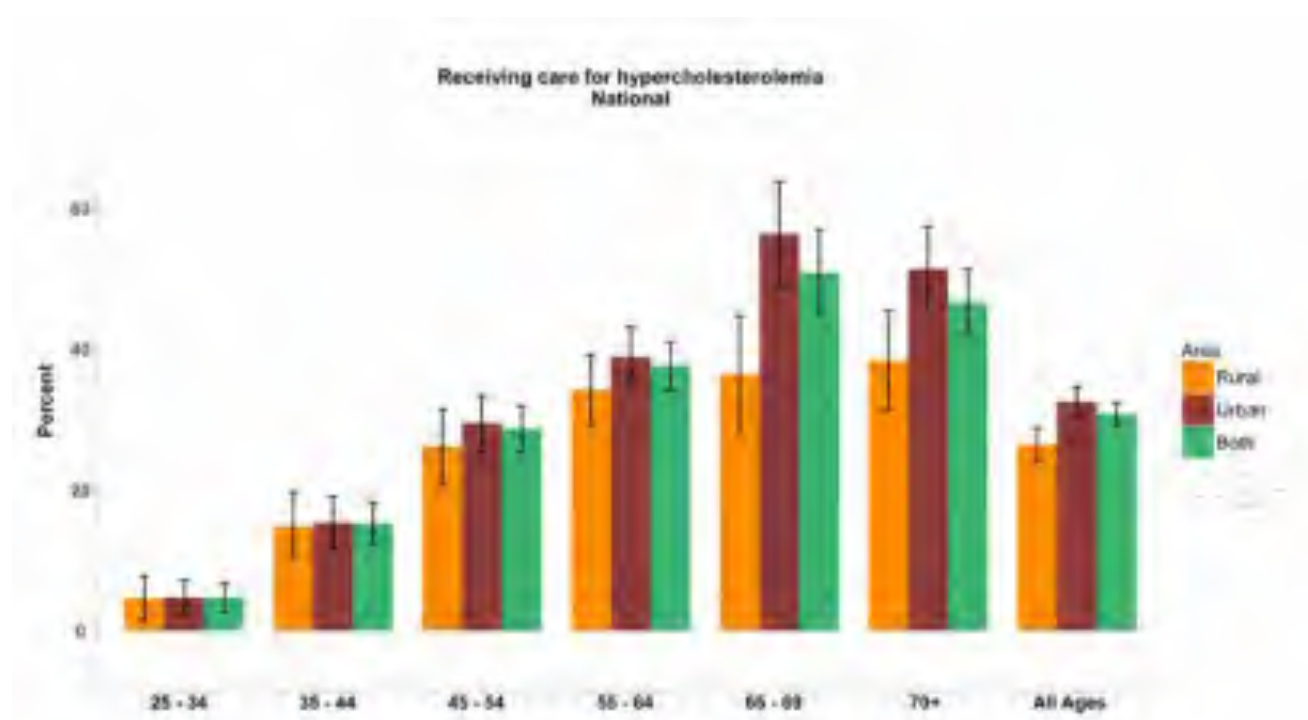


Figure 6.1.115. Prevalence of receiving care for hypercholesterolemia by age and area of residency at national level

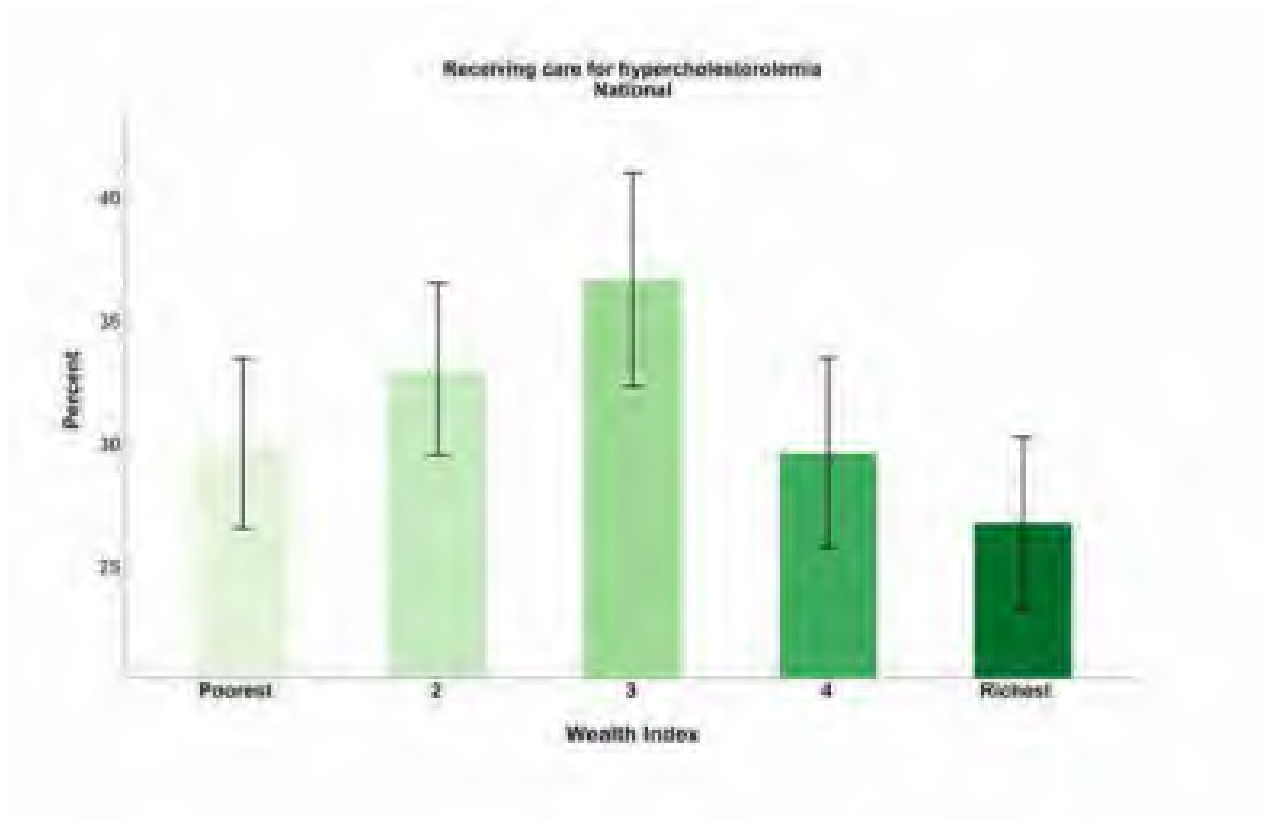


Figure 6.1.116. Prevalence of receiving care for hypercholesterolemia by wealth index quantiles at national level

Provincial distribution of Receiving care for hypercholesterolemia (%)

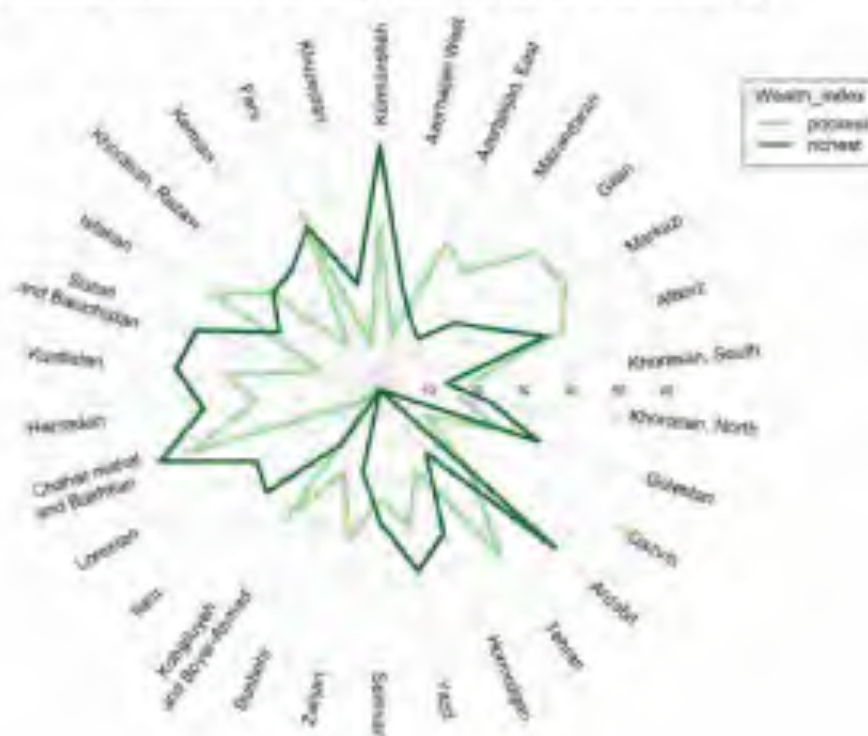


Figure 6.1.117. Provincial distribution of prevalence of receiving care for hypercholesterolemia by wealth index

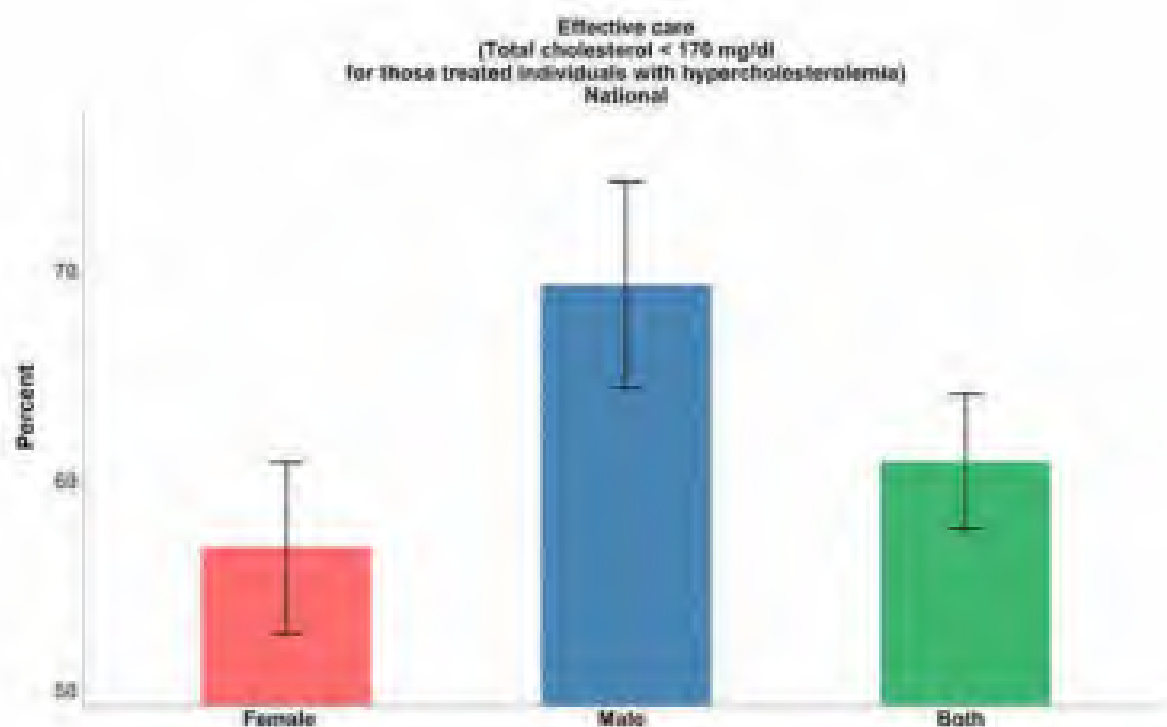


Figure 6.1.118. Prevalence of effective care for those treated individuals with hypercholesterolemia by sex at national level

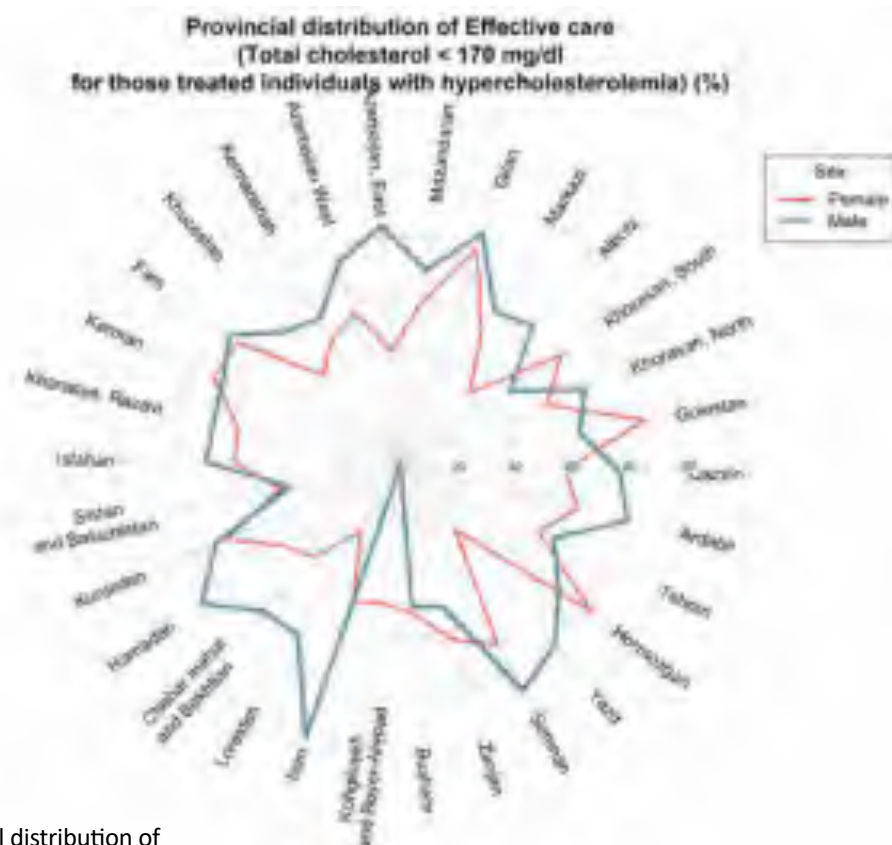


Figure 6.1.119. Provincial distribution of prevalence of effective care for those treated individuals with hypercholesterolemia by sex

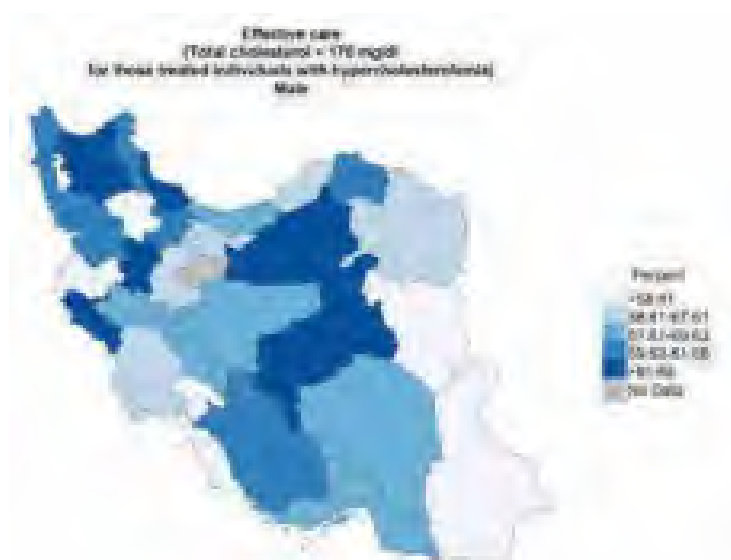


Figure 6.1.120. Geographical distribution of prevalence of effective care for those treated individuals with hypercholesterolemia in males

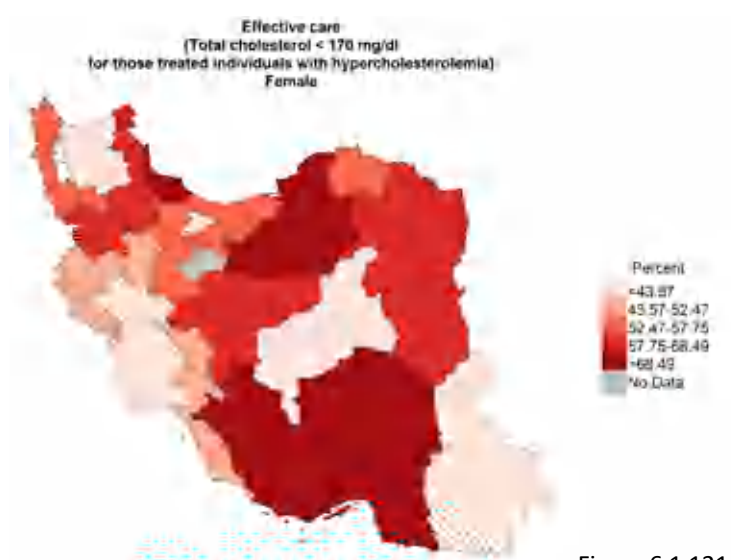


Figure 6.1.121. Geographical distribution of prevalence of effective care for those treated individuals with hypercholesterolemia in females

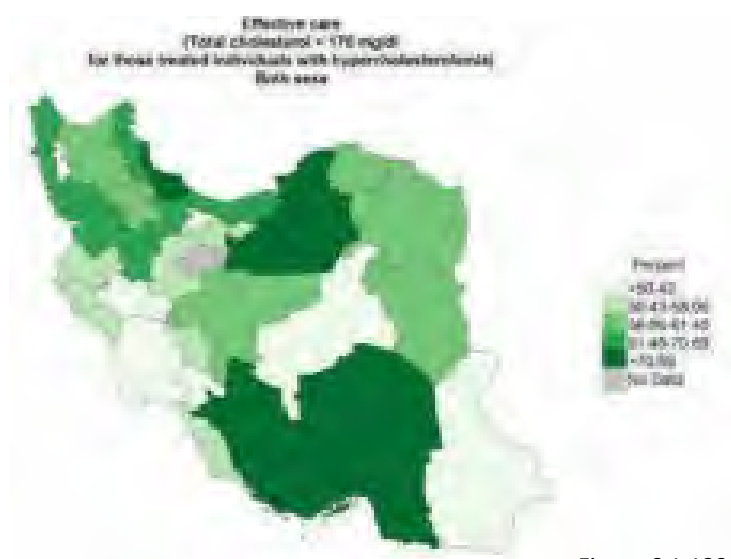


Figure 6.1.122. Geographical distribution of prevalence of effective care for those treated individuals with hypercholesterolemia in both sexes

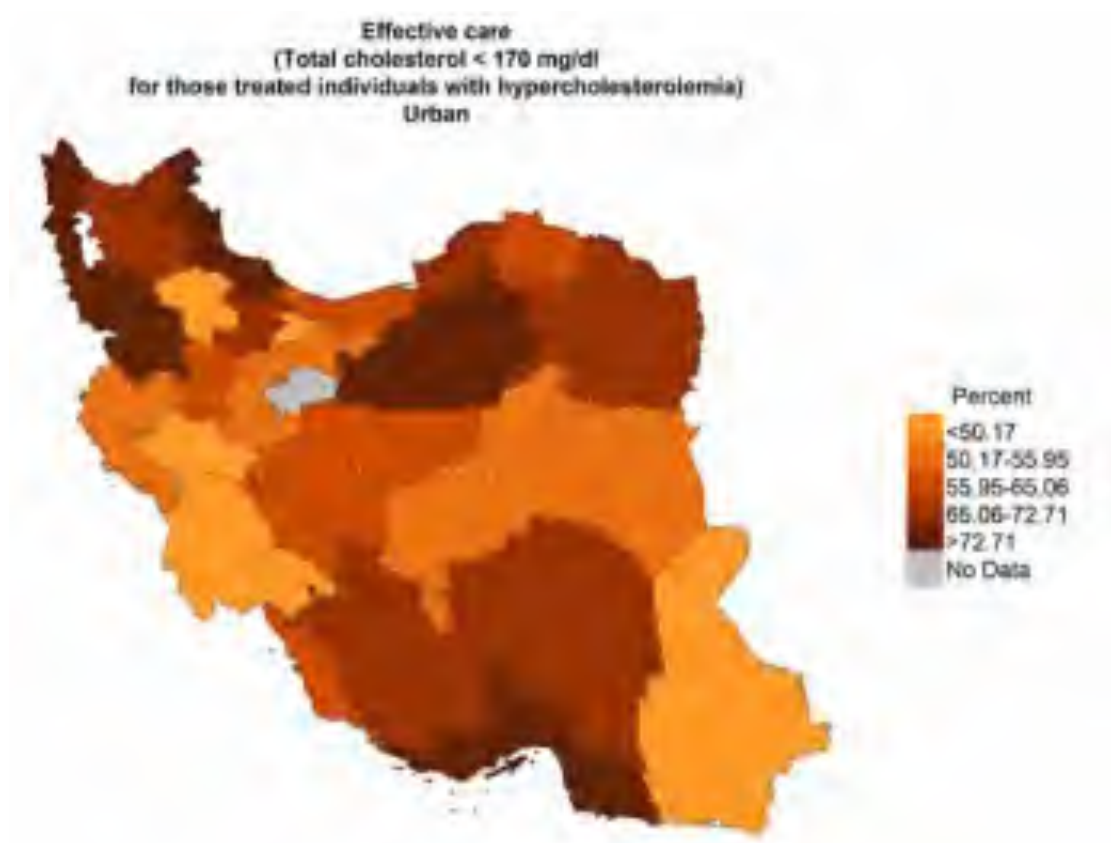


Figure 6.1.125. Geographical distribution of prevalence of effective care for those treated individuals with hypercholesterolemia in urban area of residency

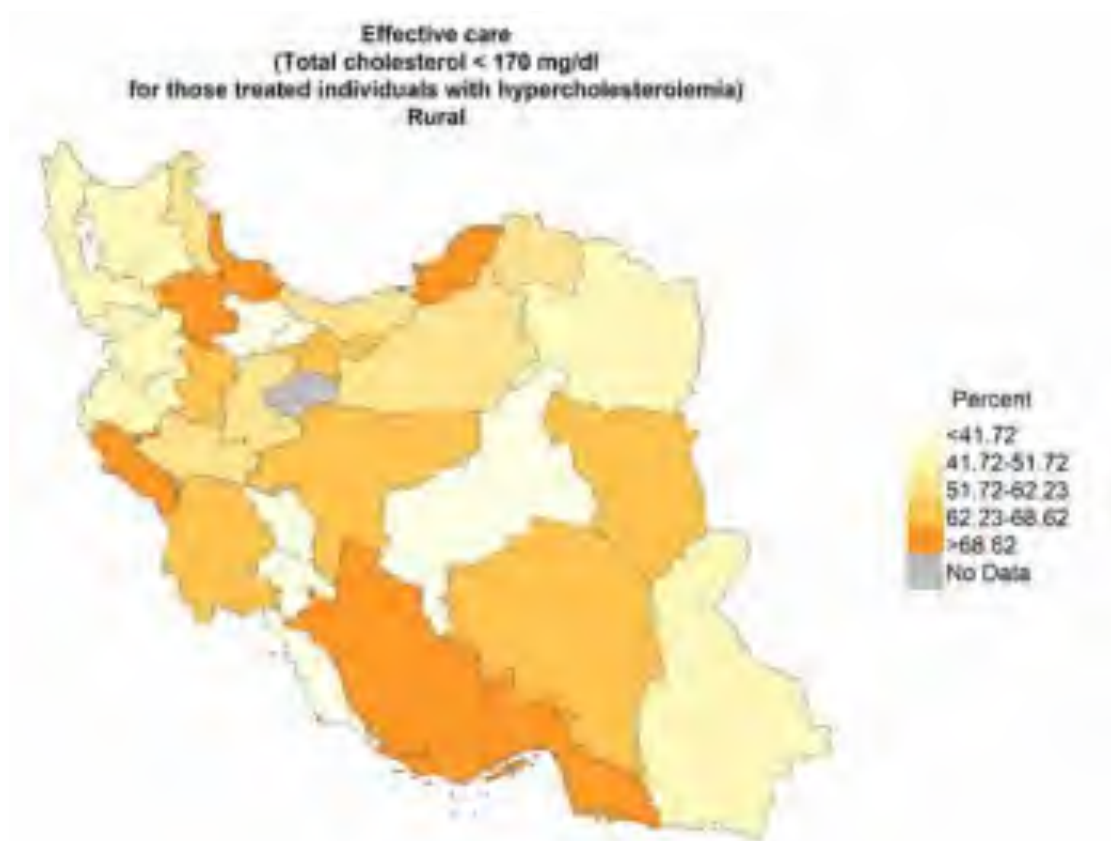


Figure 6.1.126. Geographical distribution of prevalence of effective care for those treated individuals with hypercholesterolemia in rural area of residency

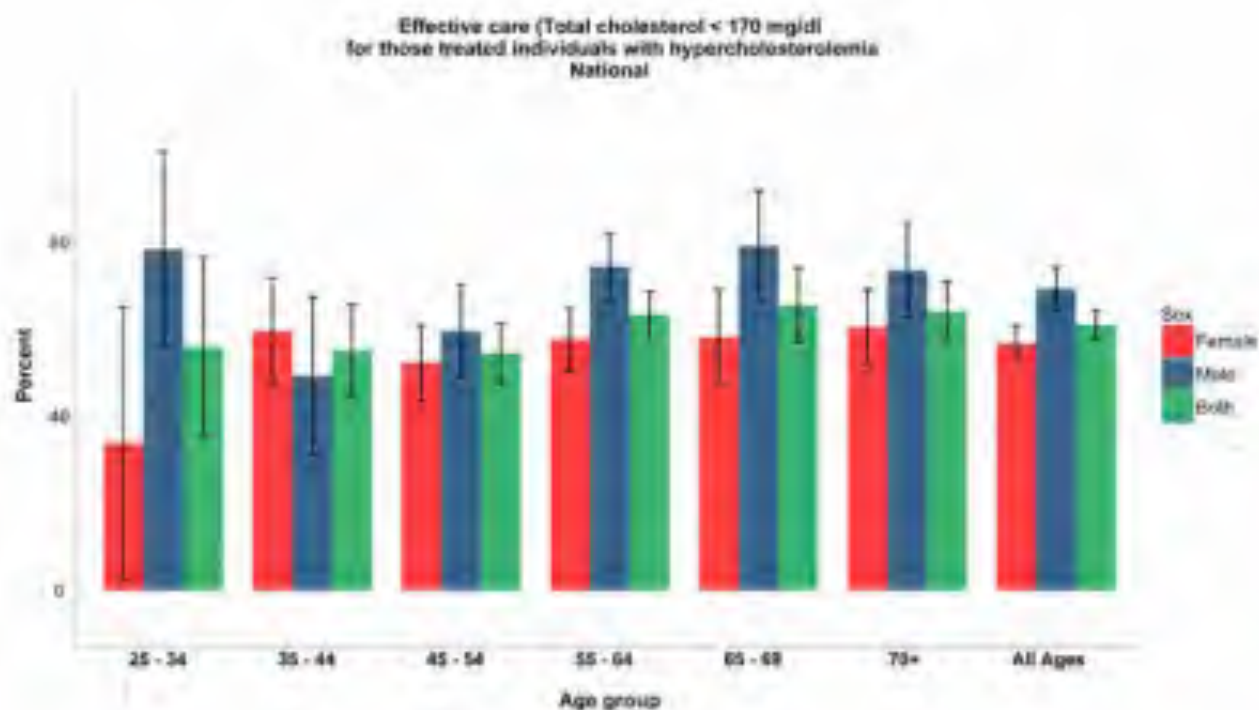


Figure 6.1.127. Prevalence of effective care for those treated individuals with hypercholesterolemia by age and sex at national level

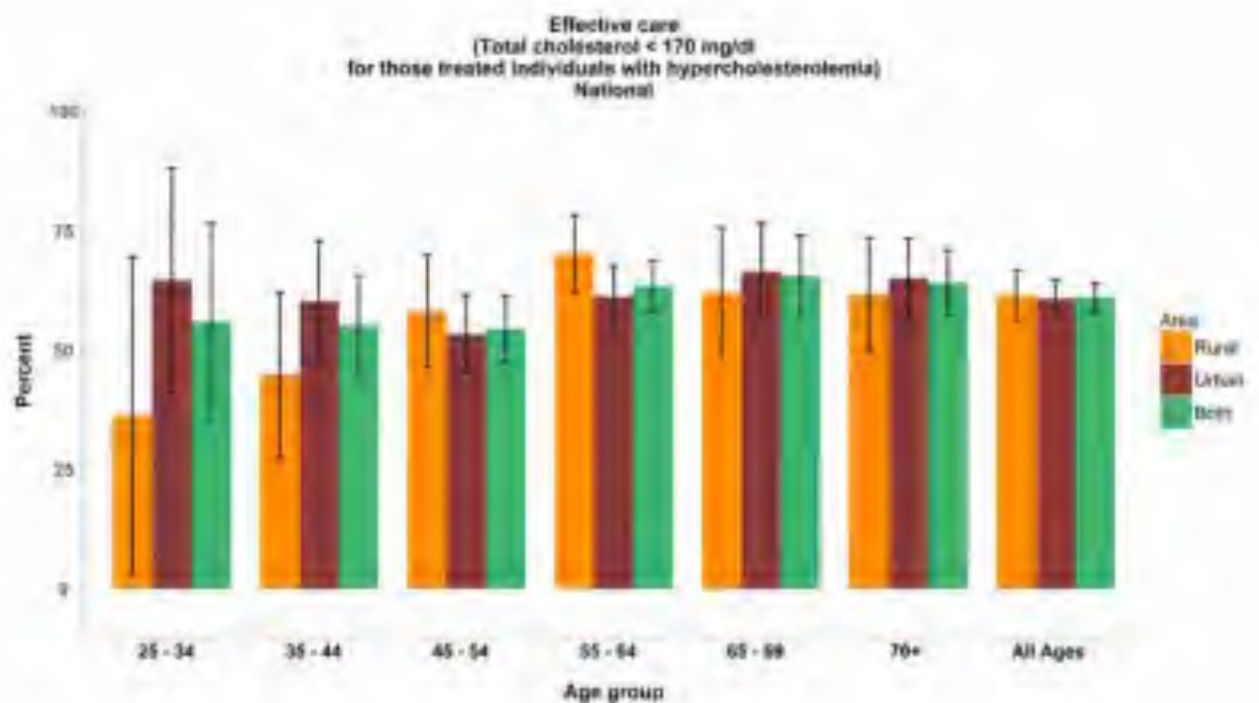


Figure 6.1.128. Prevalence of effective care for those treated individuals with hypercholesterolemia by age and area of residency at national level

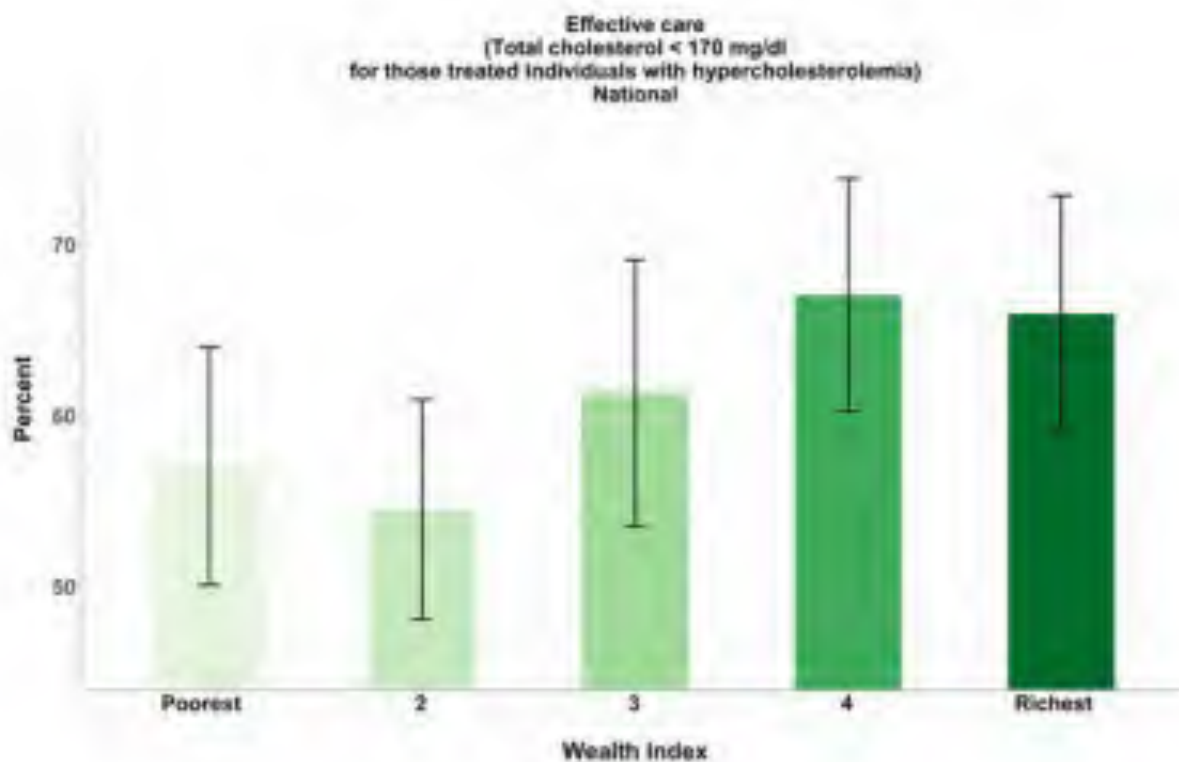


Figure 6.1.129. Prevalence of effective care for those treated individuals with hypercholesterolemia by wealth index quantiles at national level

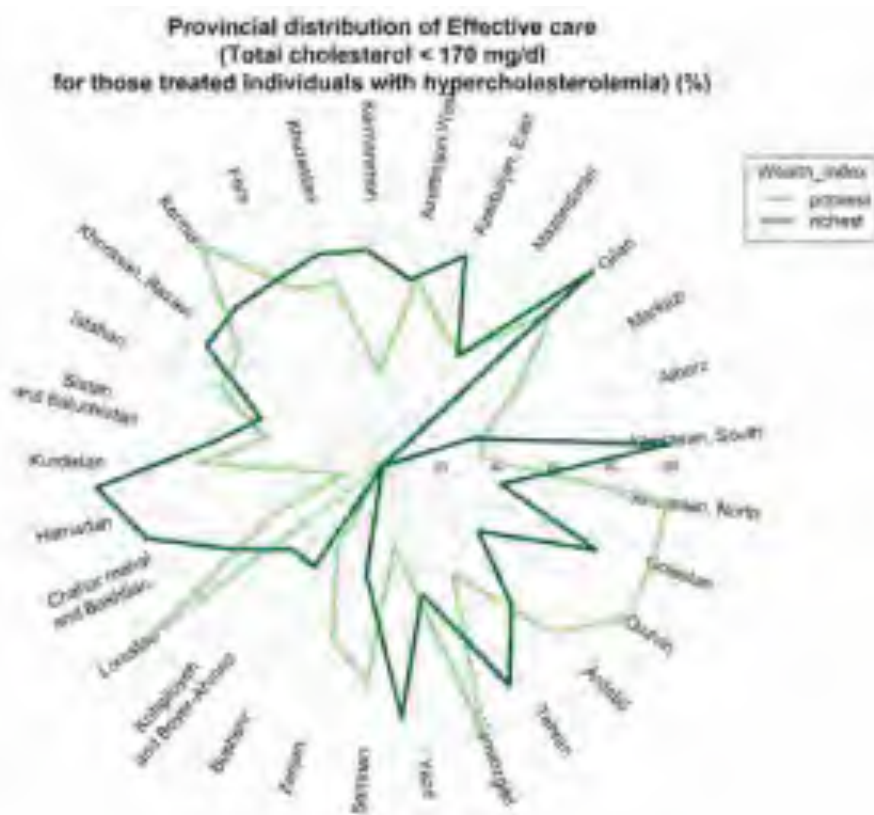


Figure 6.1.130. Provincial distribution of prevalence of effective care for those treated individuals with hypercholesterolemia by wealth index

CHAPTER 2

Results

Section 6.2

The System of Offering Services in Controlling Non-Communicable Diseases: Screening and Lifestyle Modification

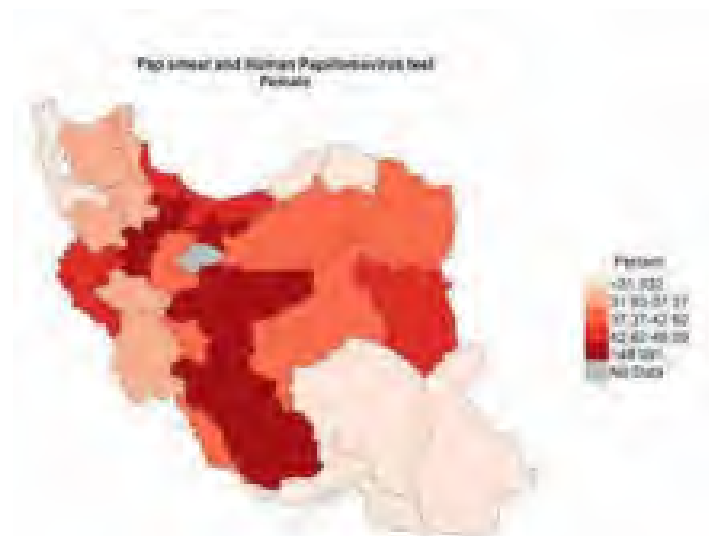


Figure 6.2.1. Geographical distribution of prevalence of pap smear and human papillomavirus test in females

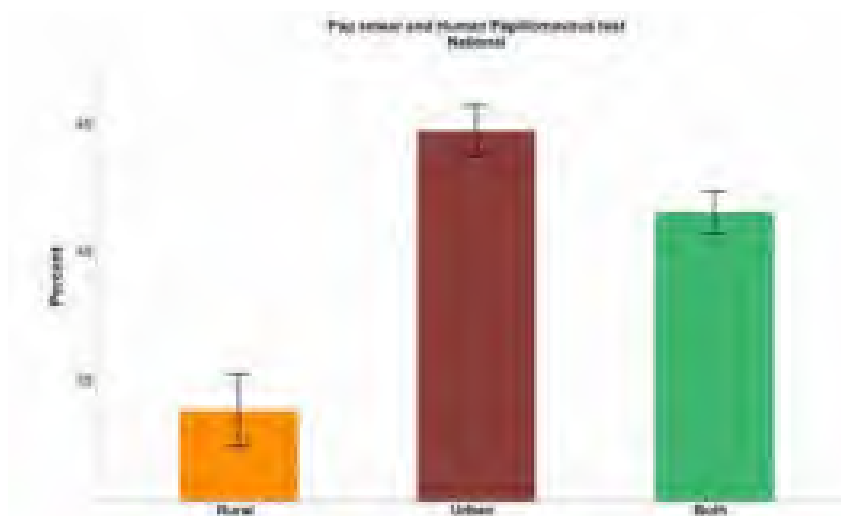


Figure 6.2.2. Prevalence of pap smear and human papillomavirus test by area of residency at national level

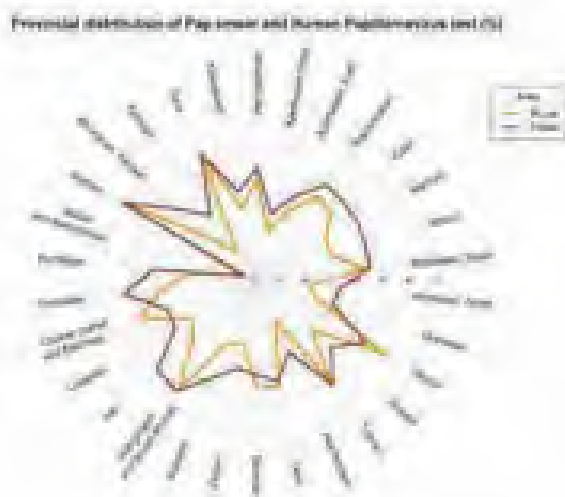


Figure 6.2.3. Provincial distribution of prevalence of pap smear and human papillomavirus test by area of residency

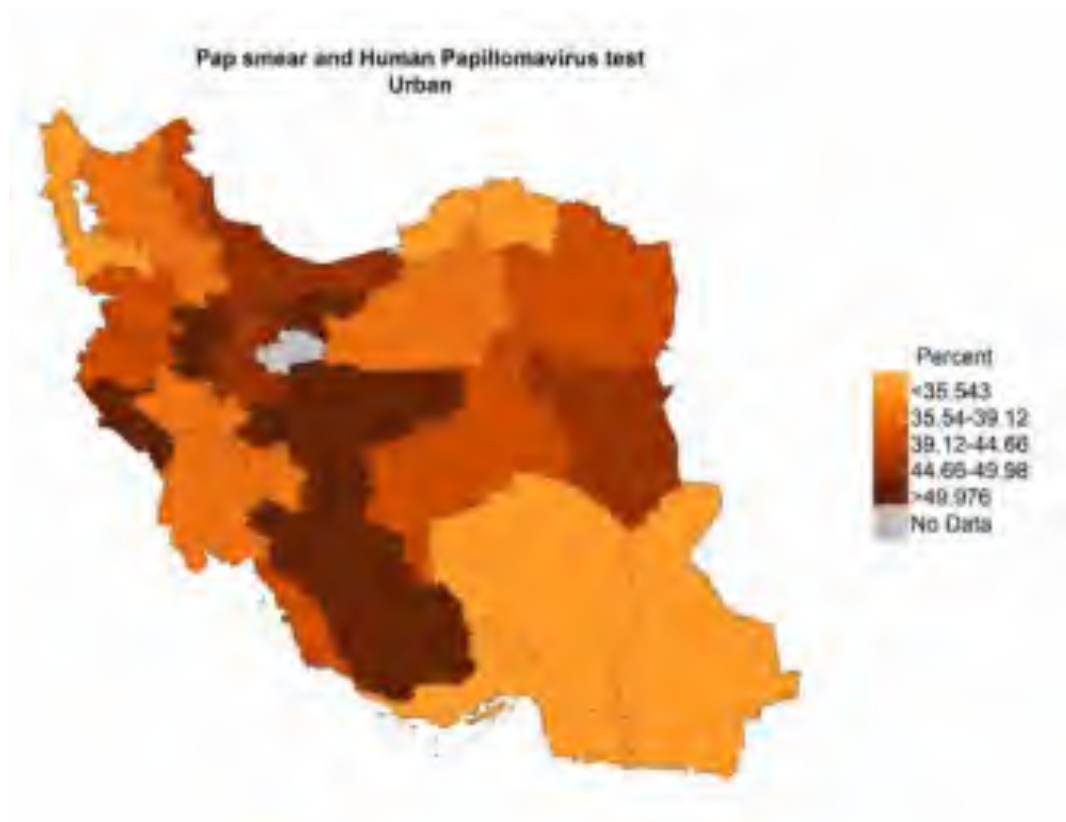


Figure 6.2.4. Geographical distribution of prevalence of pap smear and human papillomavirus test in urban area of residency

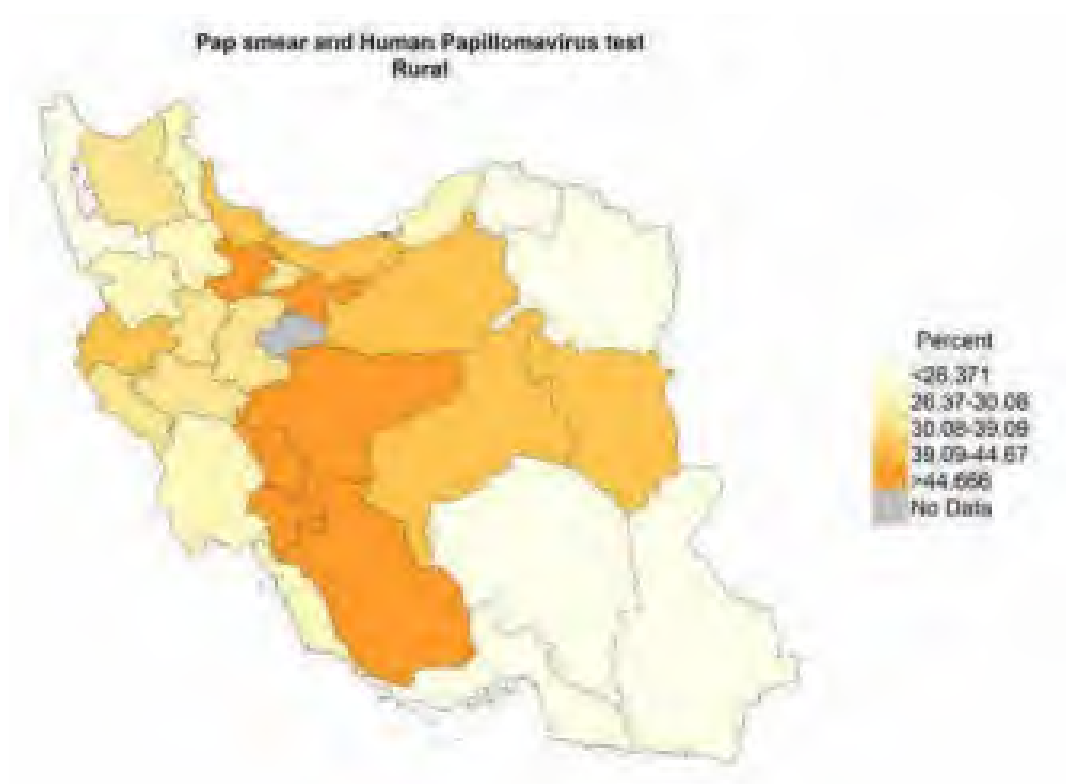


Figure 6.2.5. Geographical distribution of prevalence of pap smear and human papillomavirus test in rural area of residency

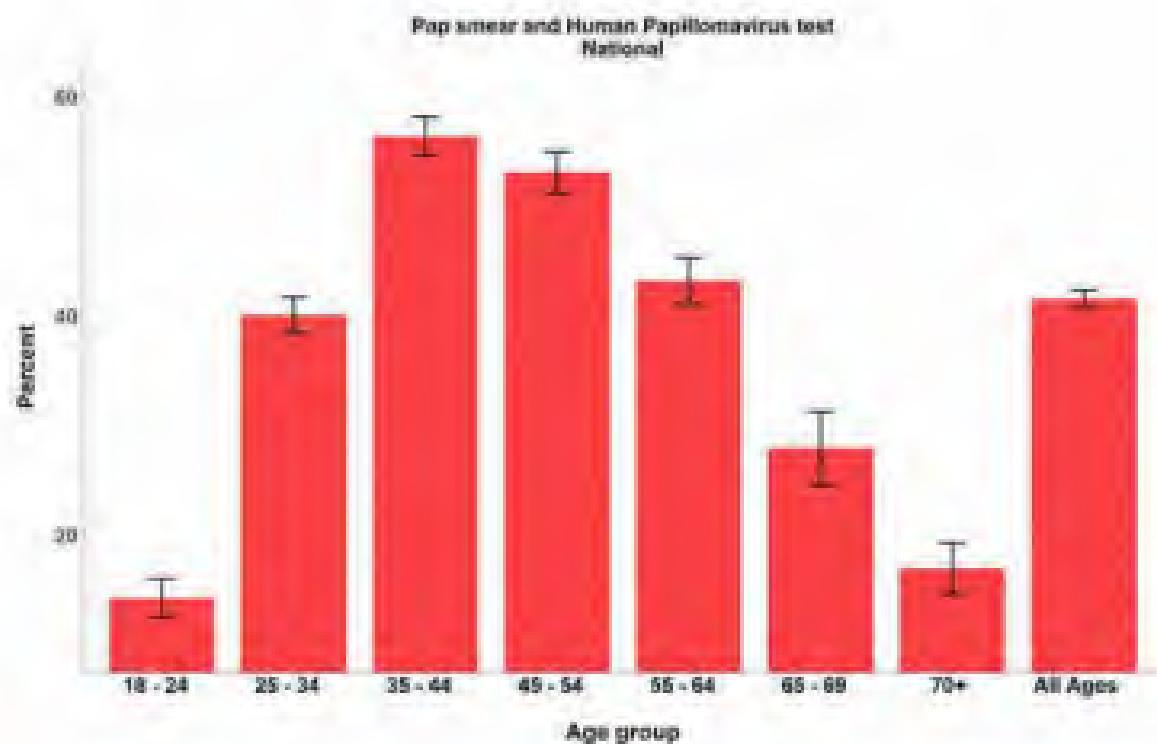


Figure 6.2.6. Prevalence of pap smear and human papillomavirus test by age at national level

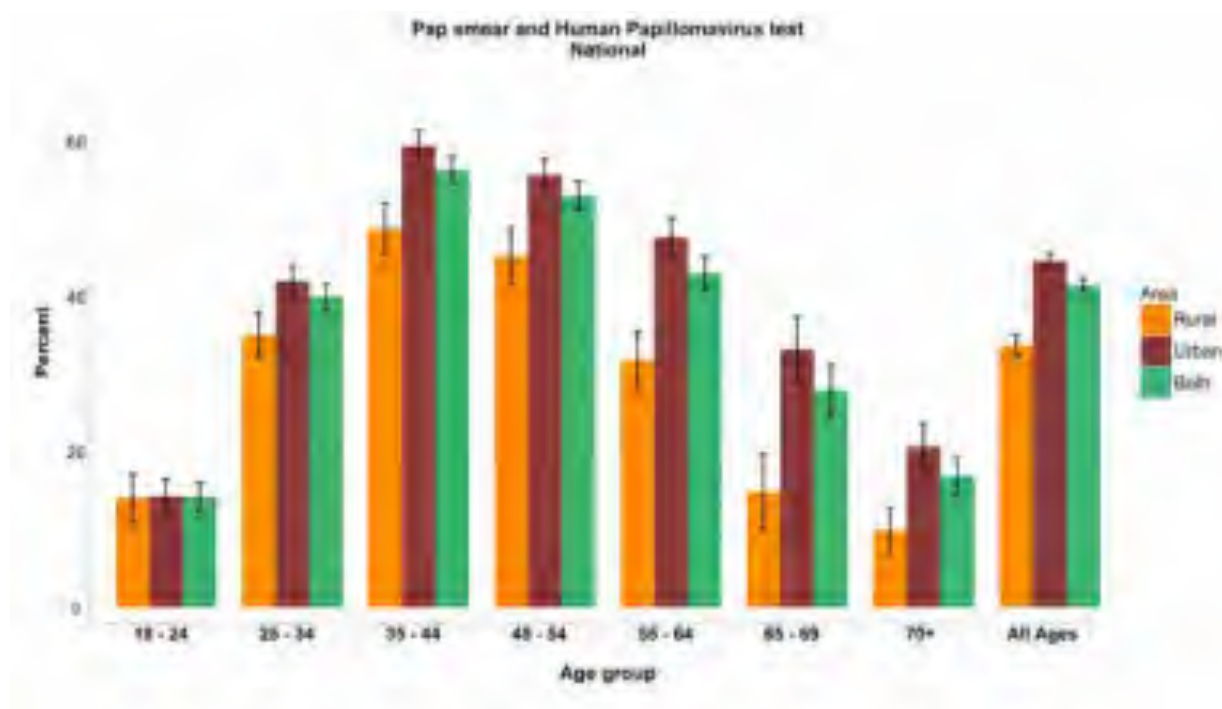


Figure 6.2.7. Prevalence of pap smear and human papillomavirus test by age and area of residency at national level

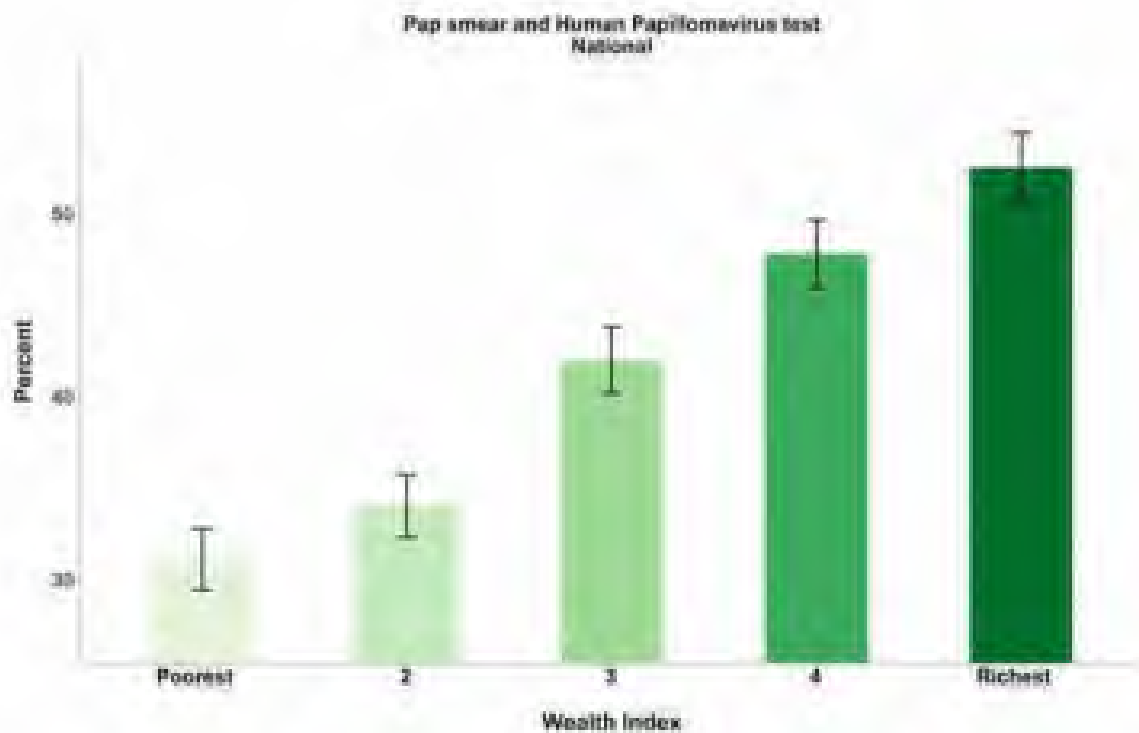


Figure 6.2.8. Prevalence of pap smear and human papillomavirus test by wealth index quantiles at national level

Provincial distribution of Pap smear and Human Papillomavirus test (%)

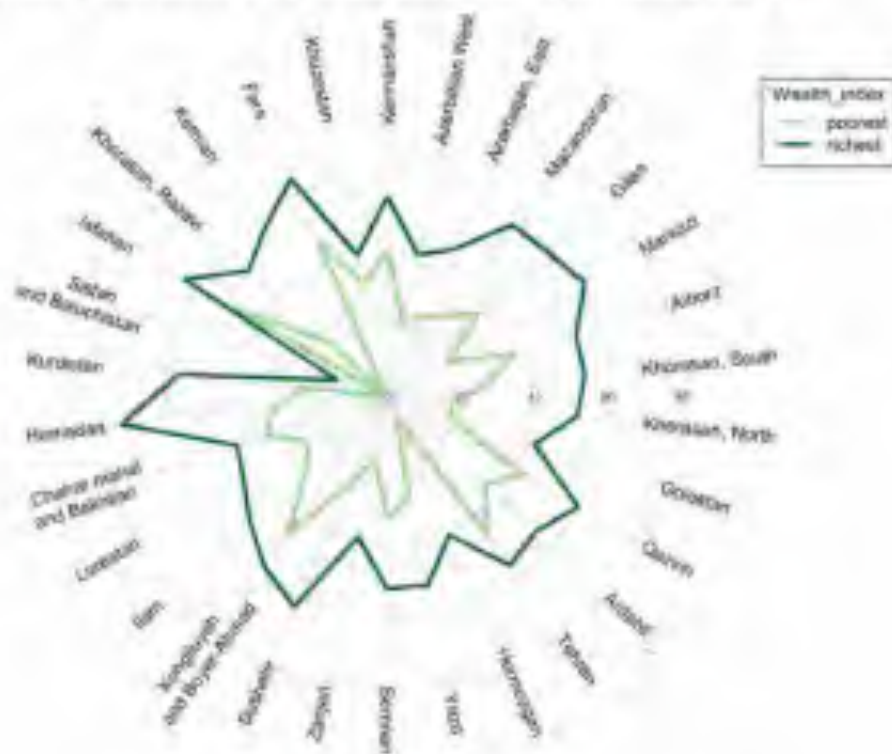
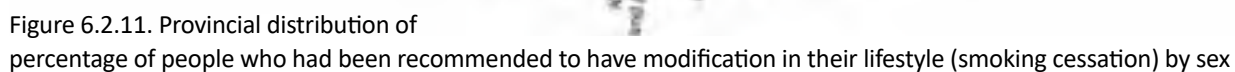
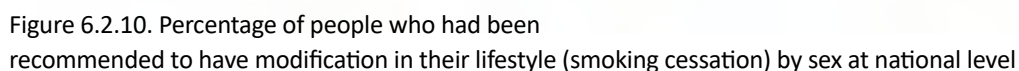


Figure 6.2.9. Provincial distribution of prevalence of pap smear and human papillomavirus test by wealth index



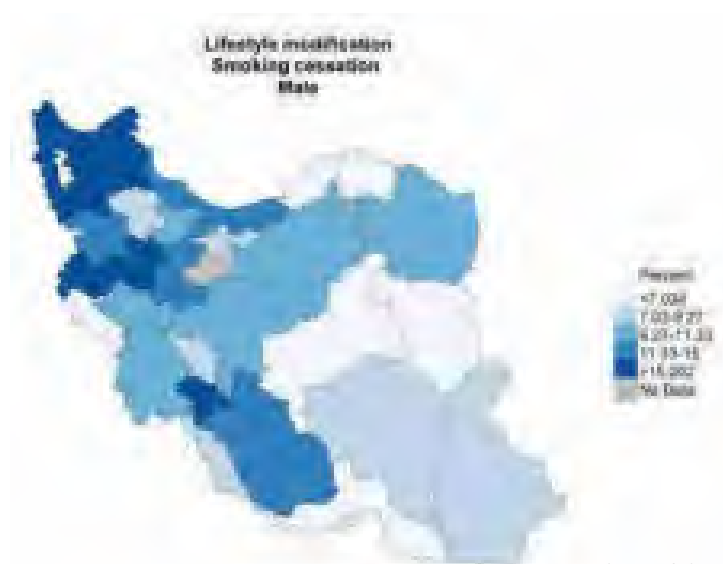


Figure 6.2.12. Geographical distribution of percentage of people who had been recommended to have modification in their lifestyle (smoking cessation) in males

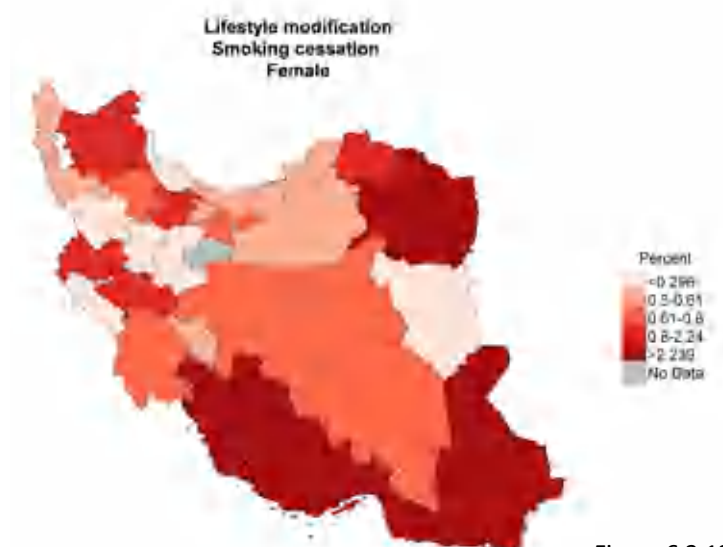


Figure 6.2.13. Geographical distribution of percentage of people who had been recommended to have modification in their lifestyle (smoking cessation) in females

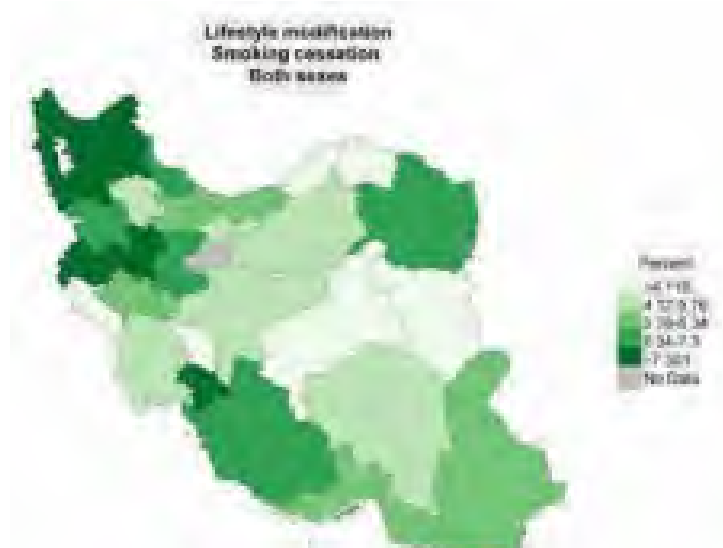


Figure 6.2.14. Geographical distribution of percentage of people who had been recommended to have modification in their lifestyle (smoking cessation) in both sexes

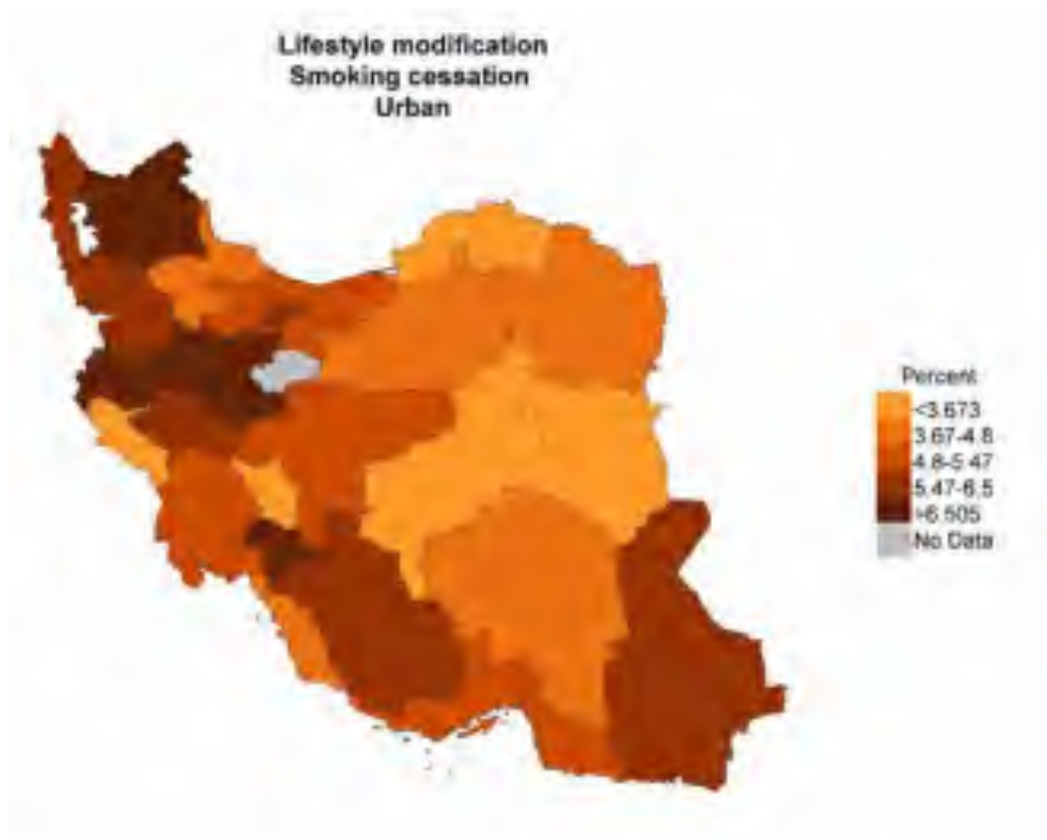


Figure 6.2.17. Geographical distribution of percentage of people who had been recommended to have modification in their lifestyle (smoking cessation) in urban area of residency

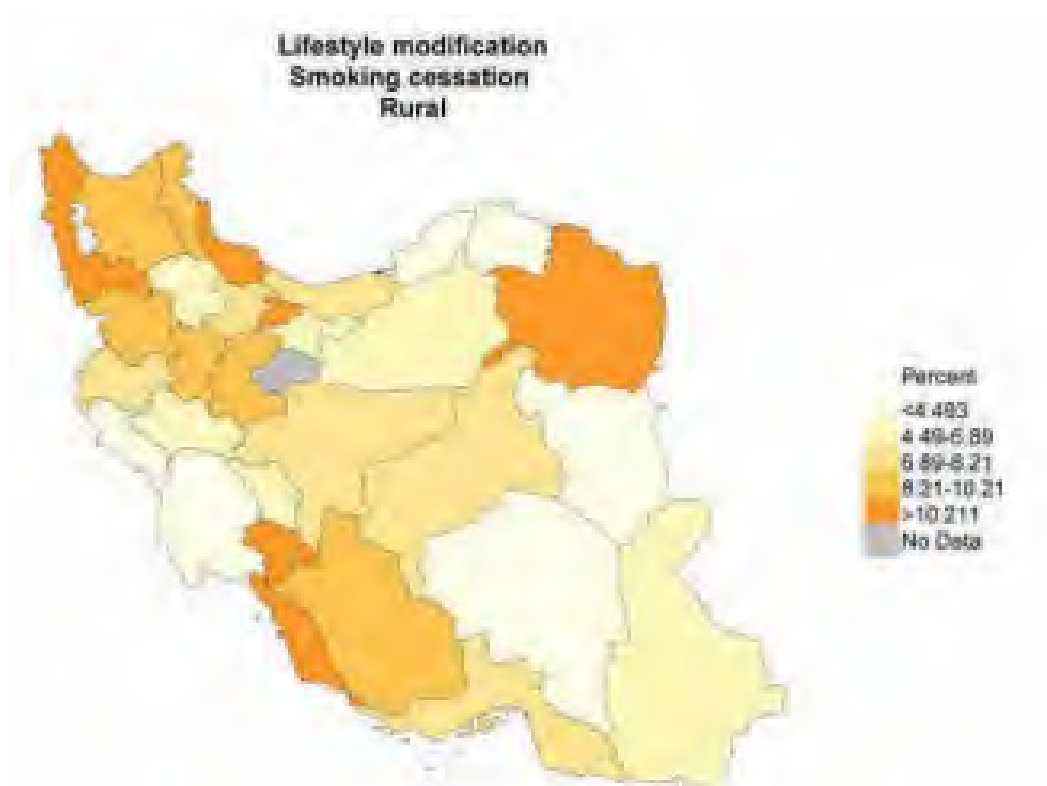


Figure 6.2.18. Geographical distribution of percentage of people who had been recommended to have modification in their lifestyle (smoking cessation) in rural area of residency

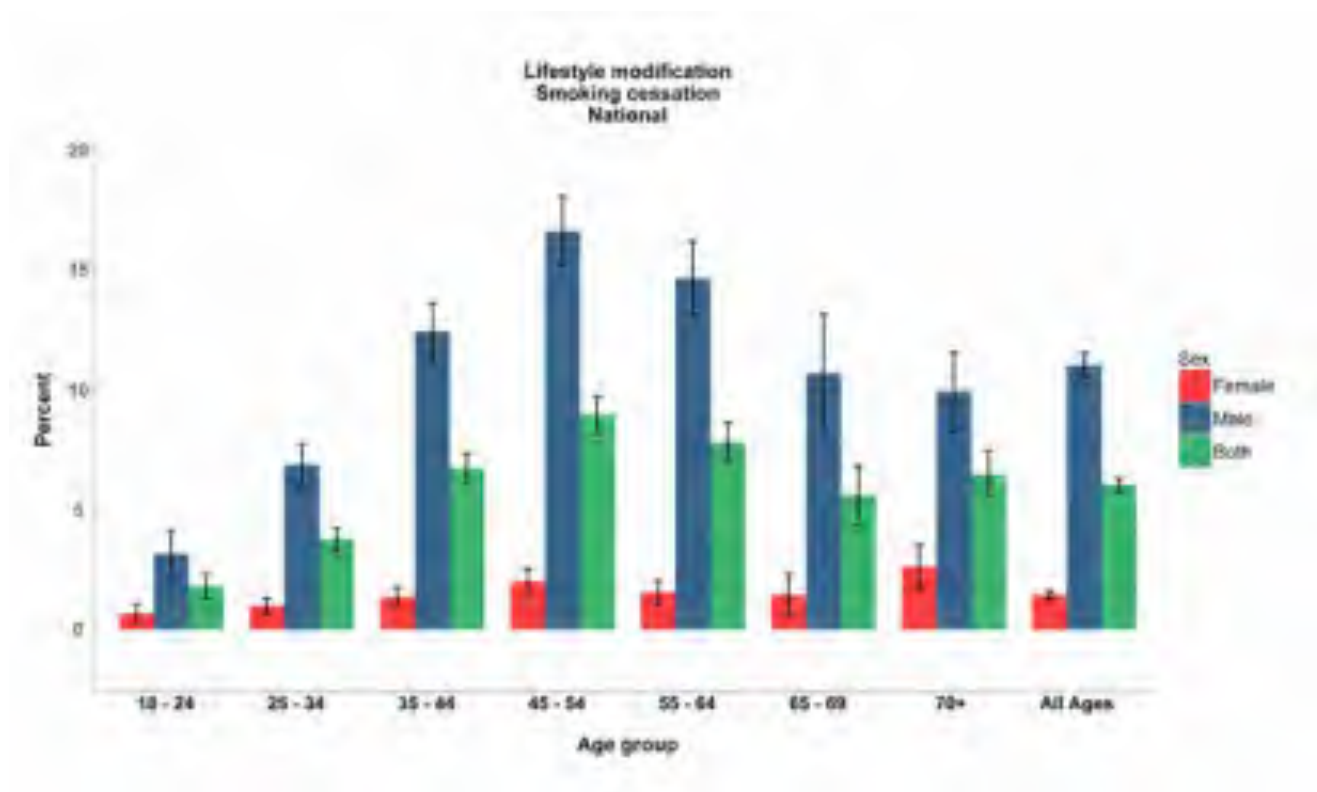


Figure 6.2.19. Percentage of people who had been recommended to have modification in their lifestyle (smoking cessation) by age and sex at national level

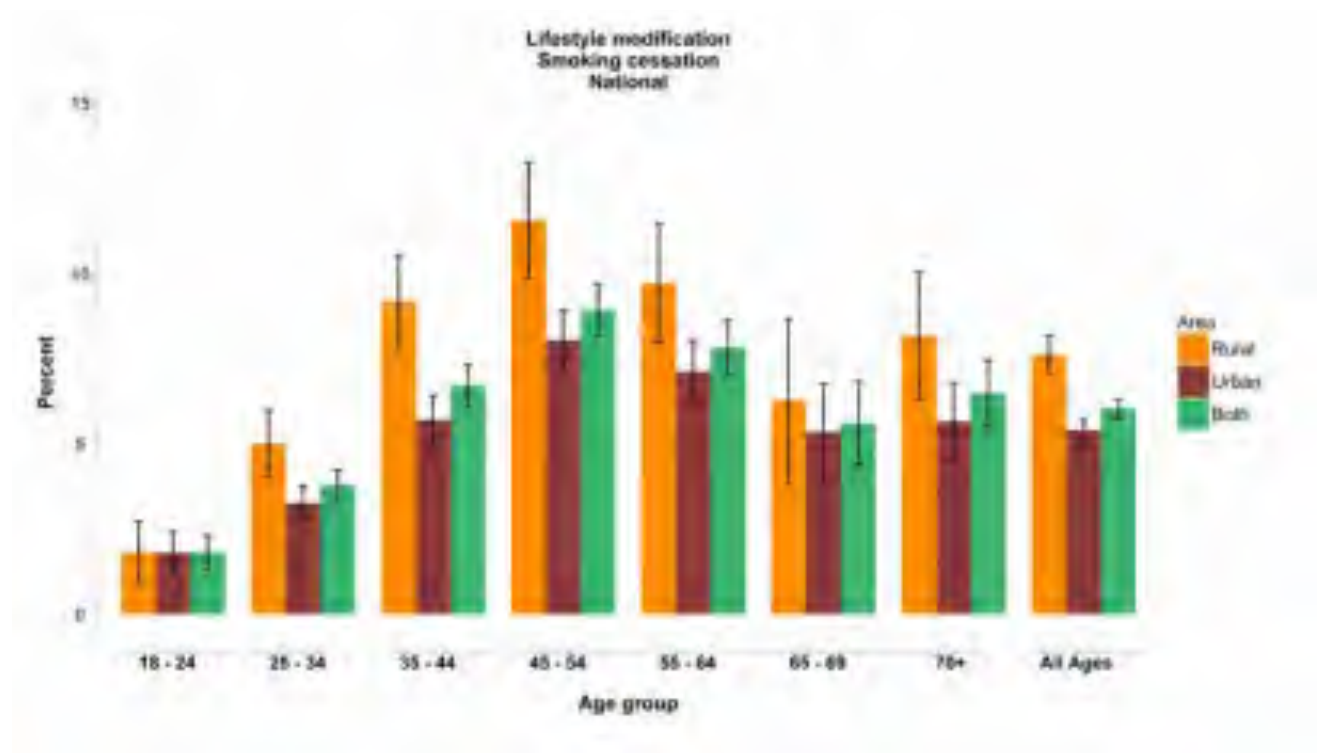


Figure 6.2.20. Percentage of people who had been recommended to have modification in their lifestyle (smoking cessation) by age and area of residency at national level

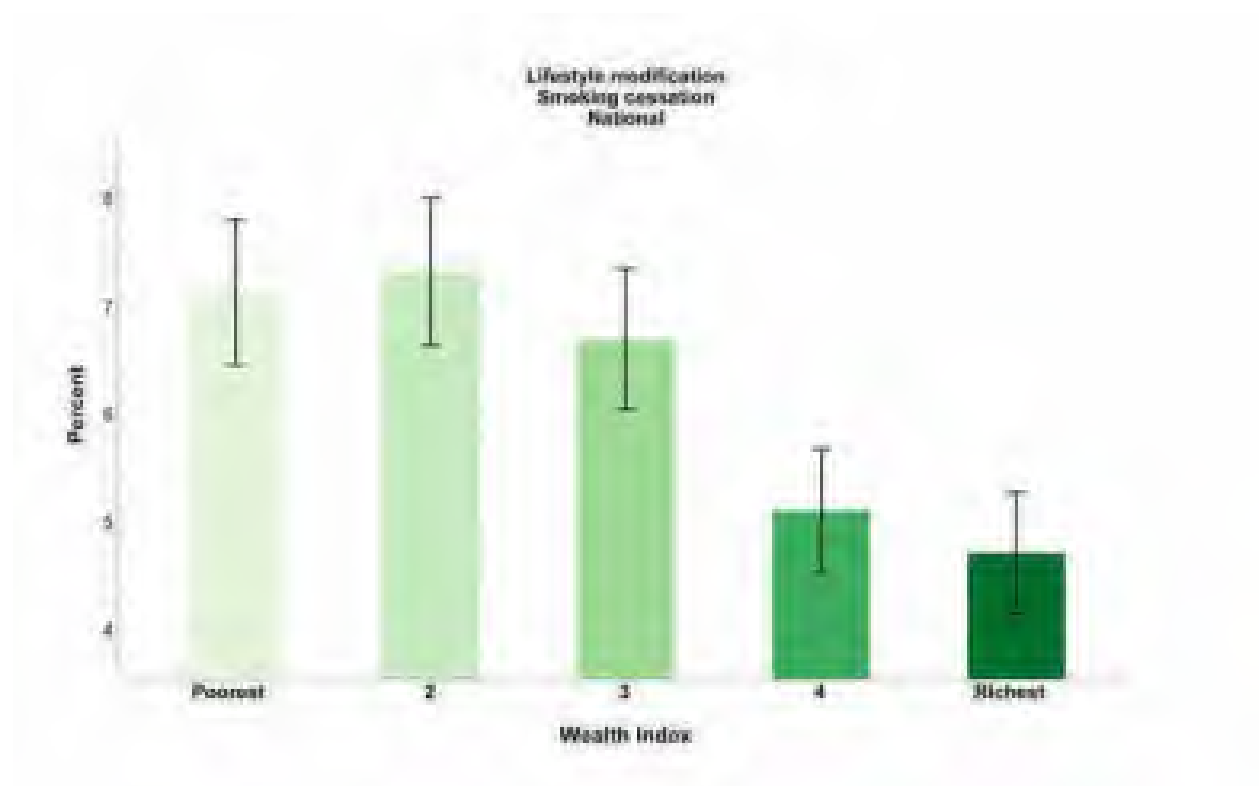


Figure 6.2.21. Percentage of people who had been recommended to have modification in their lifestyle (smoking cessation) by wealth index quantiles at national level

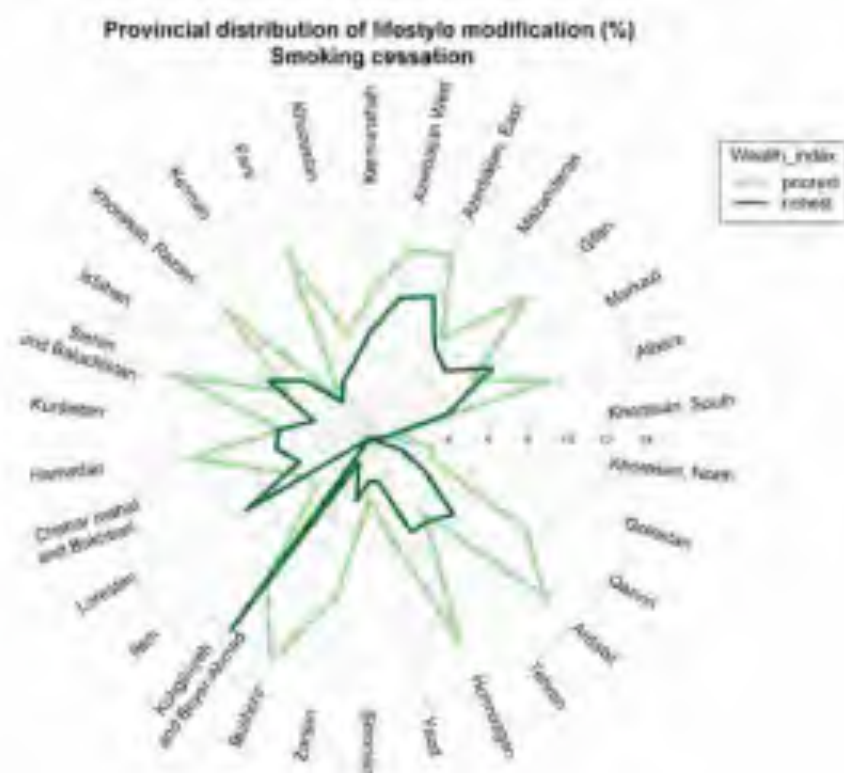


Figure 6.2.22. Provincial distribution of percentage of people who had been recommended to have modification in their lifestyle (smoking cessation) by wealth index

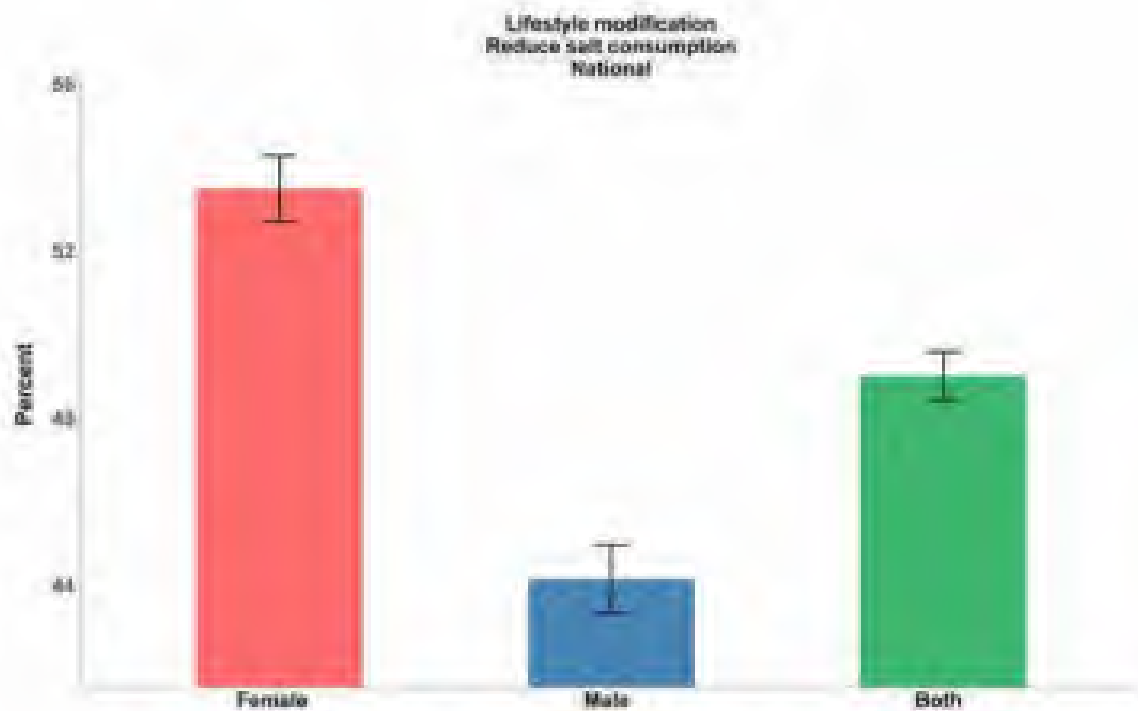


Figure 6.2.23. Percentage of people who had been recommended to have modification in their lifestyle (reduce salt intake) by sex at national level

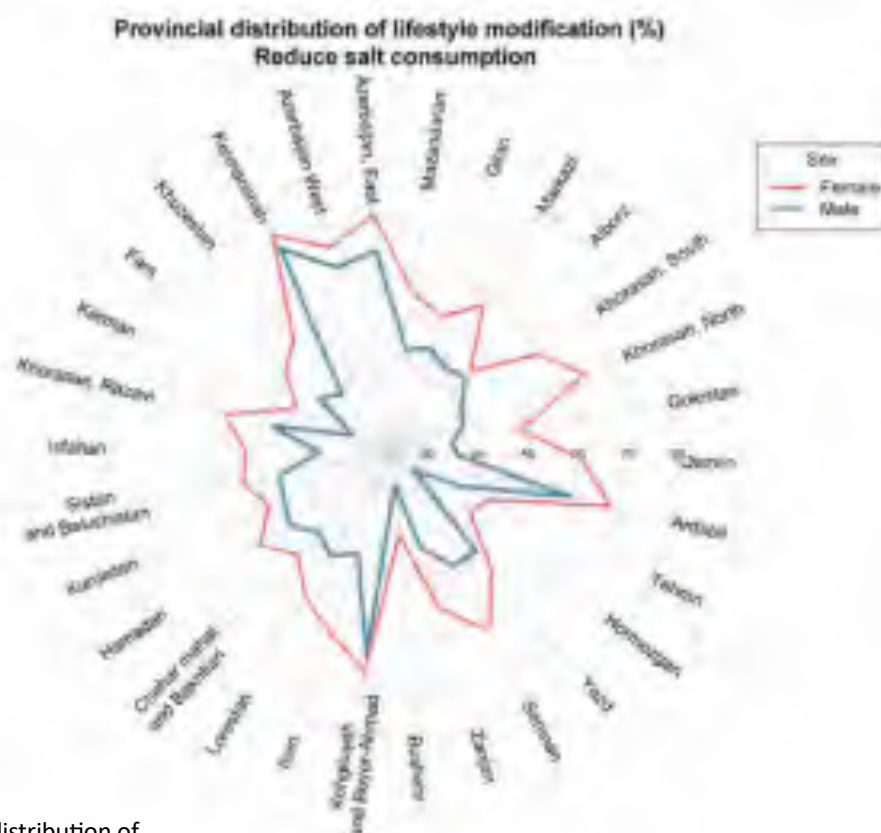


Figure 6.2.24. Provincial distribution of percentage of people who had been recommended to have modification in their lifestyle (reduce salt intake) by sex

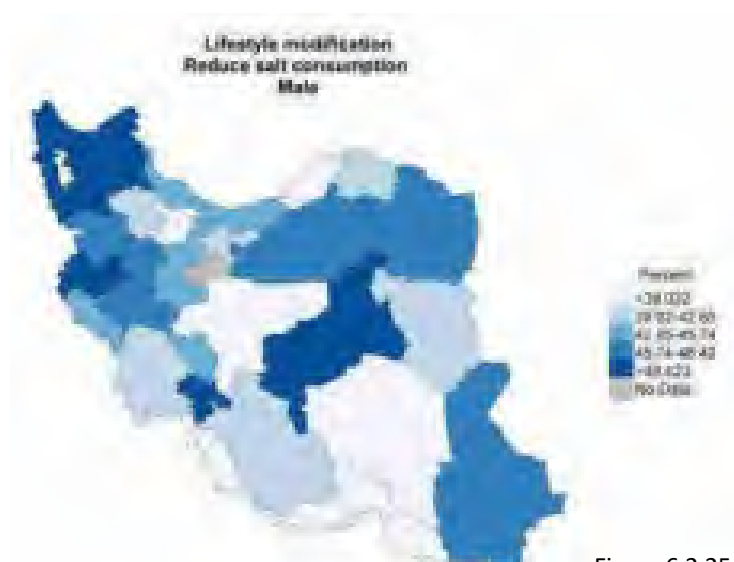


Figure 6.2.25. Geographical distribution of percentage of people who had been recommended to have modification in their lifestyle (reduce salt intake) in males

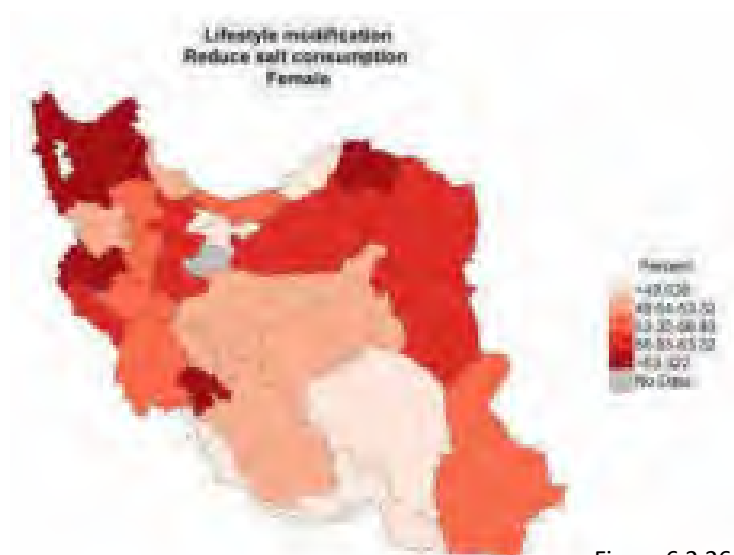


Figure 6.2.26. Geographical distribution of percentage of people who had been recommended to have modification in their lifestyle (reduce salt intake) in females

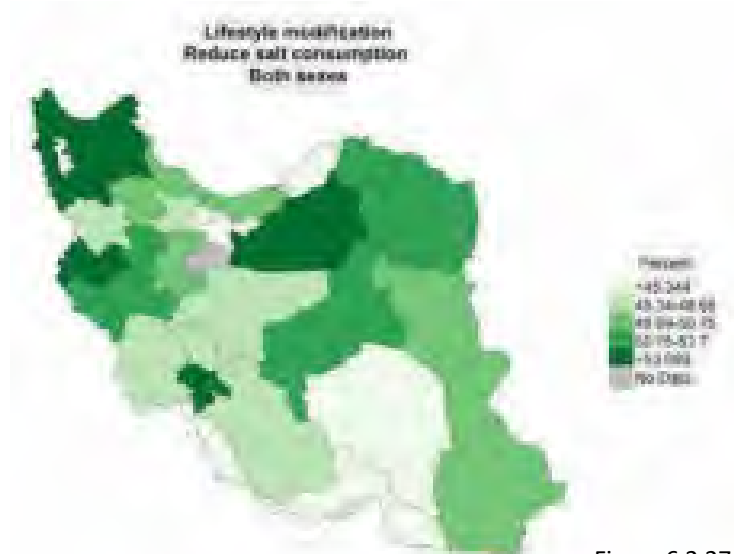


Figure 6.2.27. Geographical distribution of percentage of people who had been recommended to have modification in their lifestyle (reduce salt intake) in both sexes

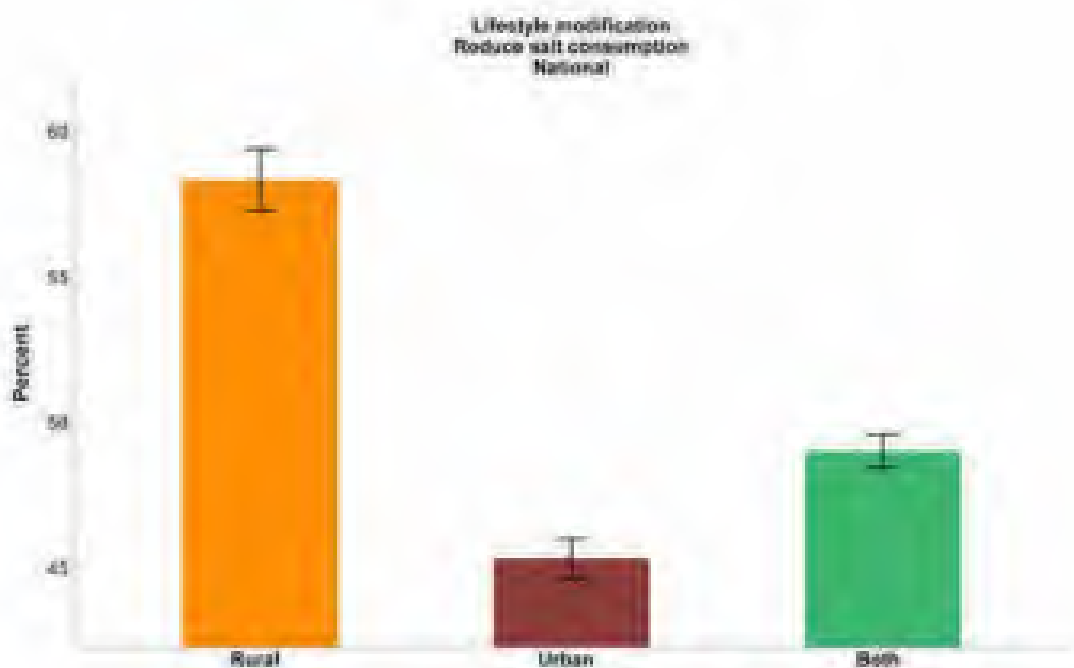


Figure 6.2.28. Percentage of people who had been recommended to have modification in their lifestyle (reduce salt intake) by area of residency at national level

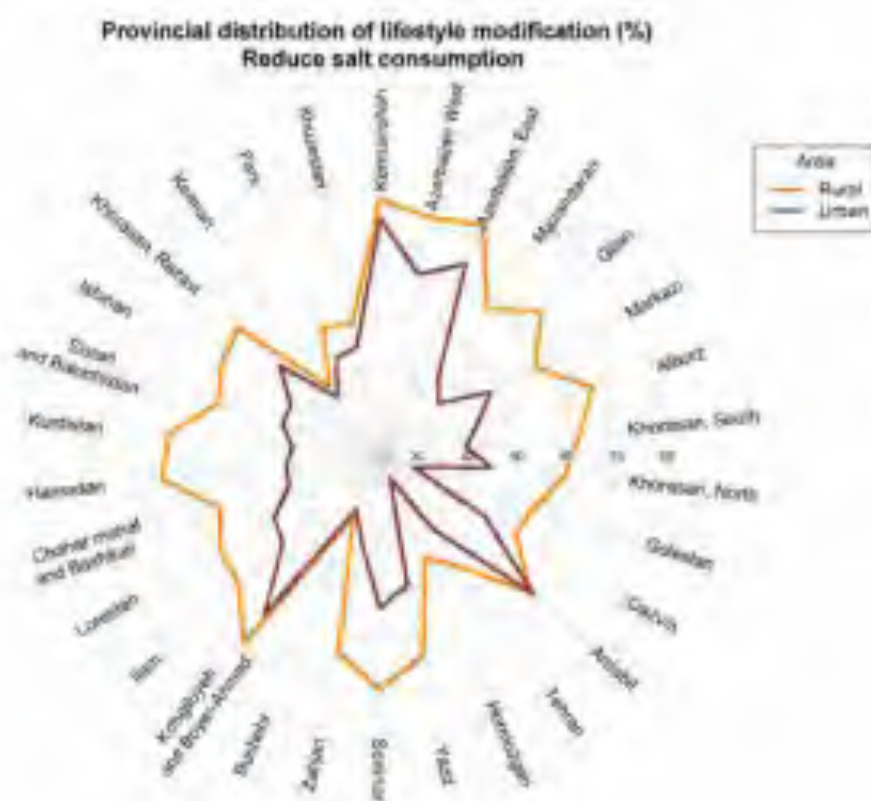


Figure 6.2.29. Provincial distribution of percentage of people who had been recommended to have modification in their lifestyle (reduce salt intake) by area of residency

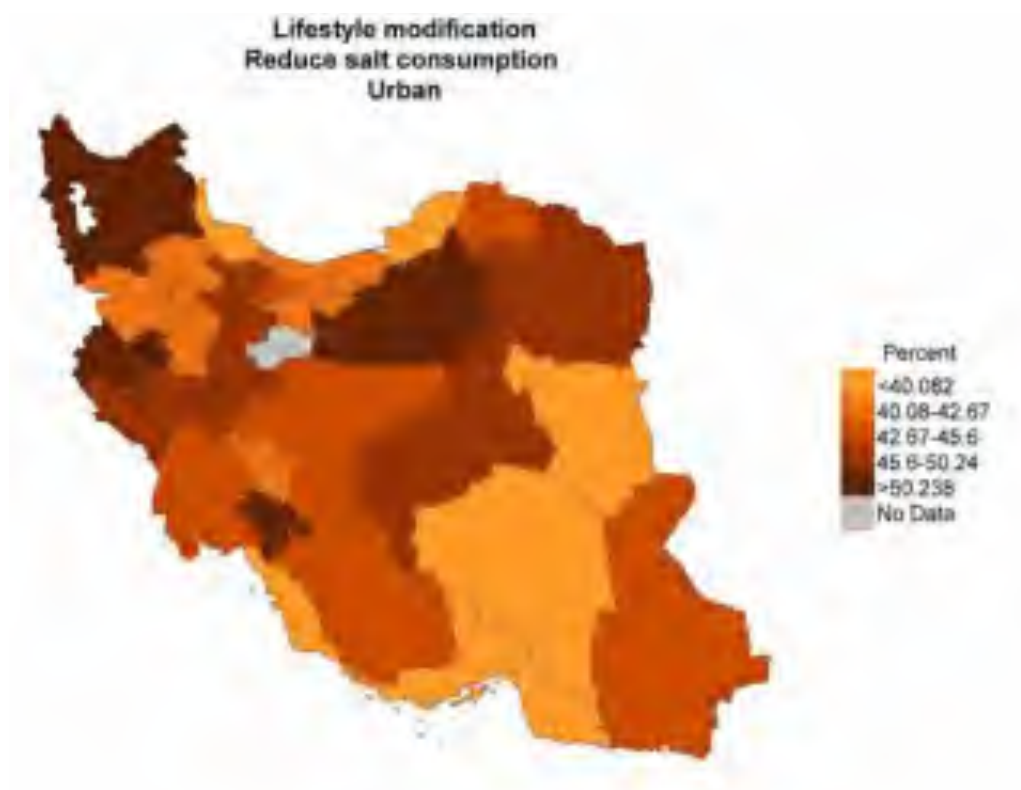


Figure 6.2.30. Geographical distribution of percentage of people who had been recommended to have modification in their lifestyle (reduce salt intake) in urban area of residency

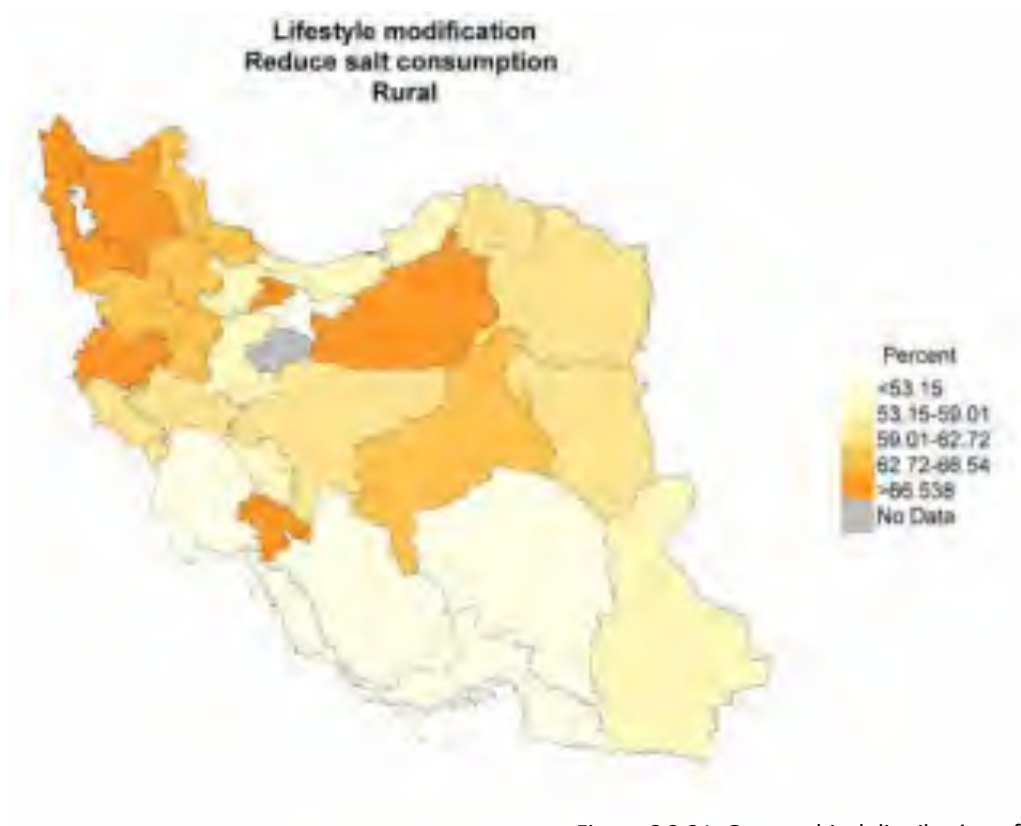


Figure 6.2.31. Geographical distribution of percentage of people who had been recommended to have modification in their lifestyle (reduce salt intake) in rural area of residency

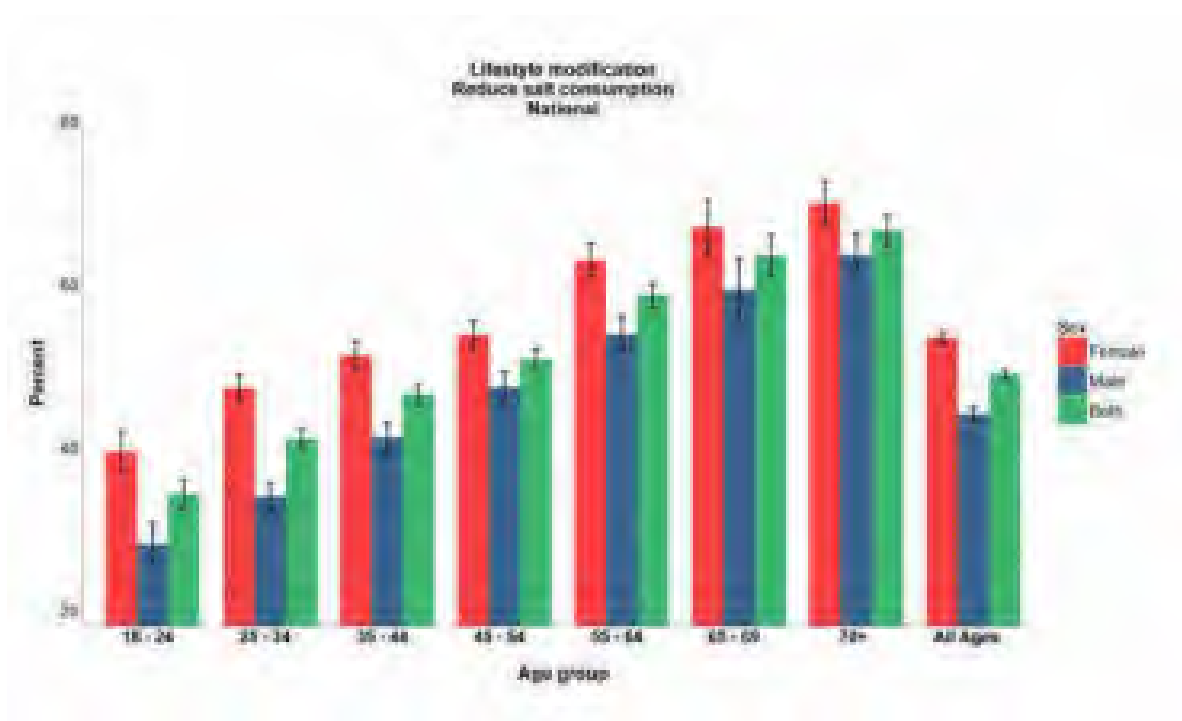


Figure 6.2.32. Percentage of people who had been recommended to have modification in their lifestyle (reduce salt intake) by age and sex at national level

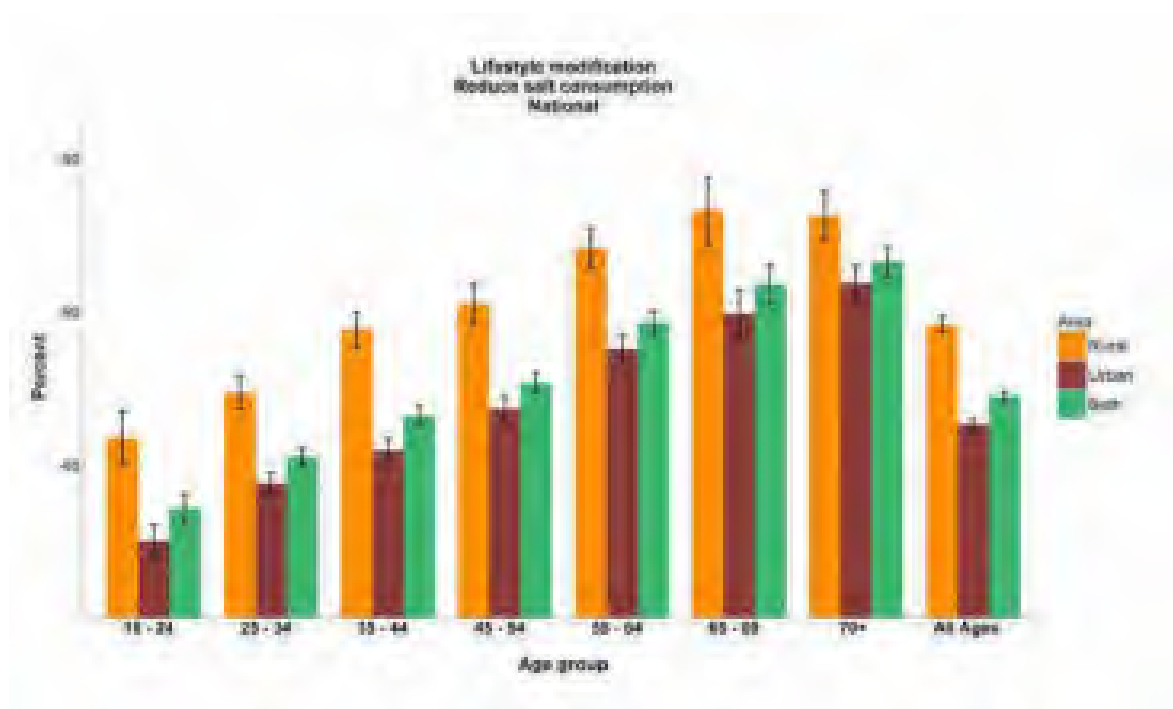


Figure 6.2.33. Percentage of people who had been recommended to have modification in their lifestyle (reduce salt intake) by age and area of residency at national level

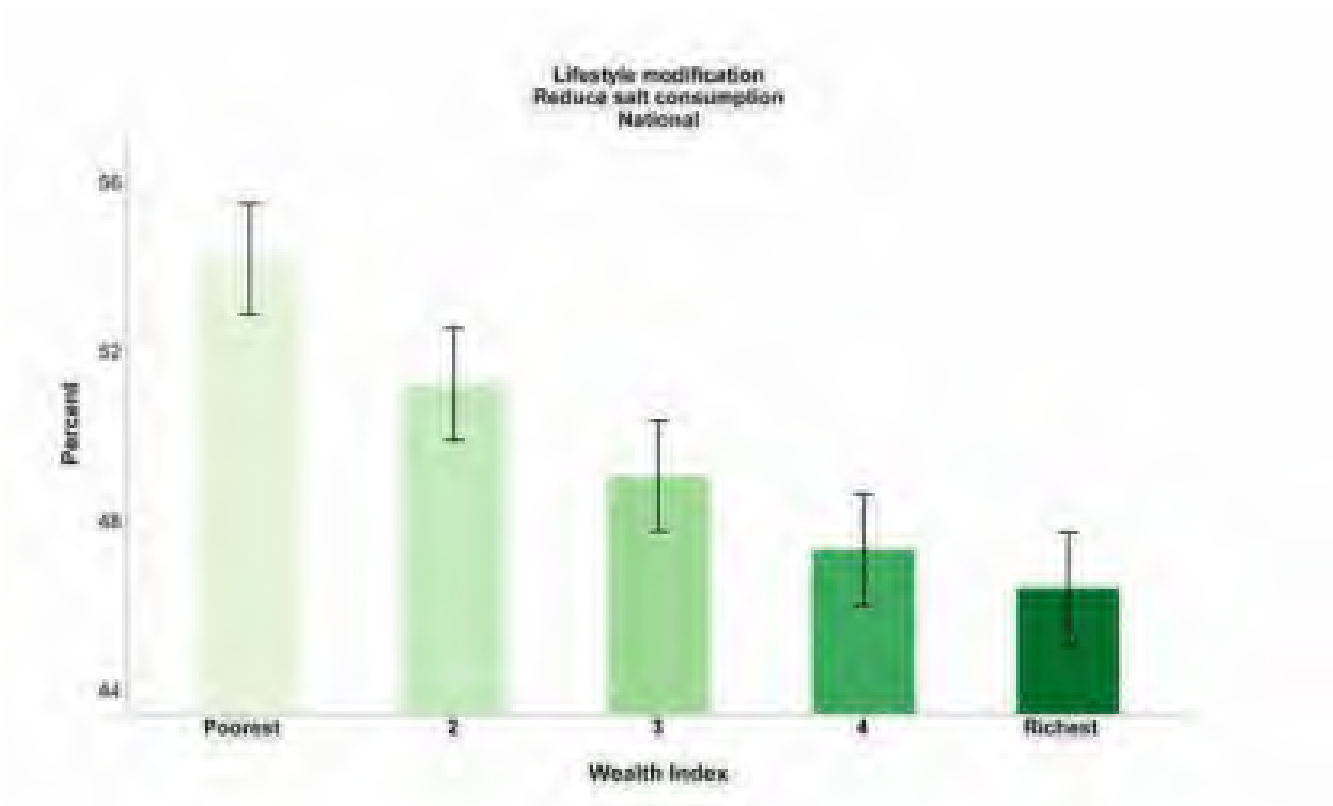


Figure 6.2.34. Percentage of people who had been recommended to have modification in their lifestyle (reduce salt intake) by wealth index quantiles at national level

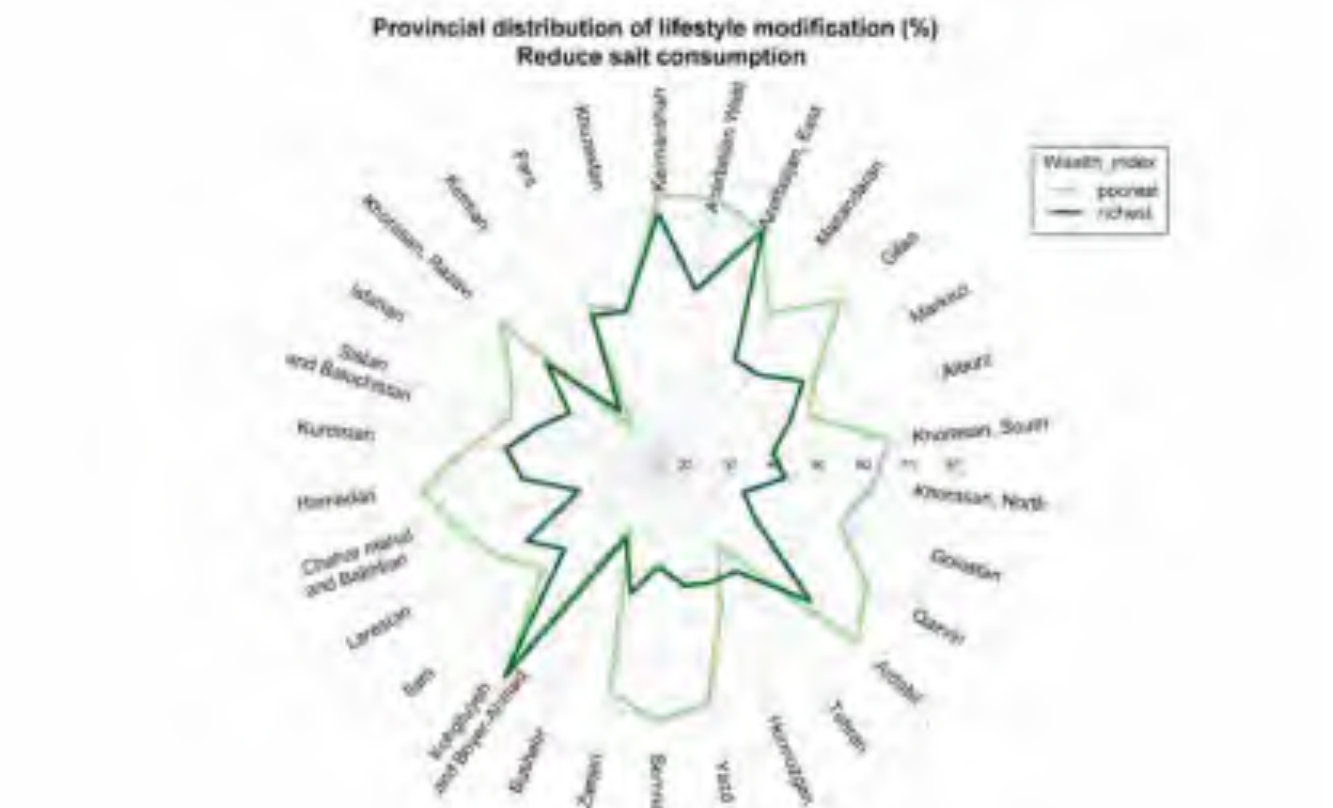


Figure 6.2.35. Provincial distribution of percentage of people who had been recommended to have modification in their lifestyle (reduce salt intake) by wealth index

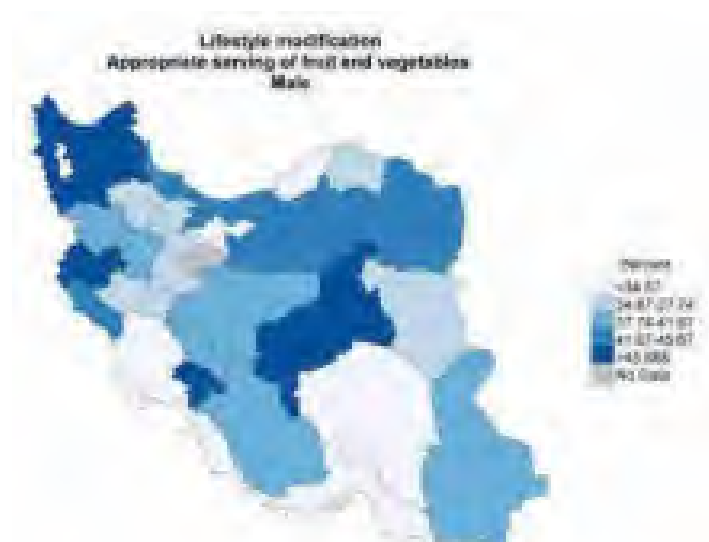


Figure 6.2.38. Geographical distribution of percentage of people who had been recommended to have modification in their lifestyle (appropriate serving of fruit and vegetables) in males

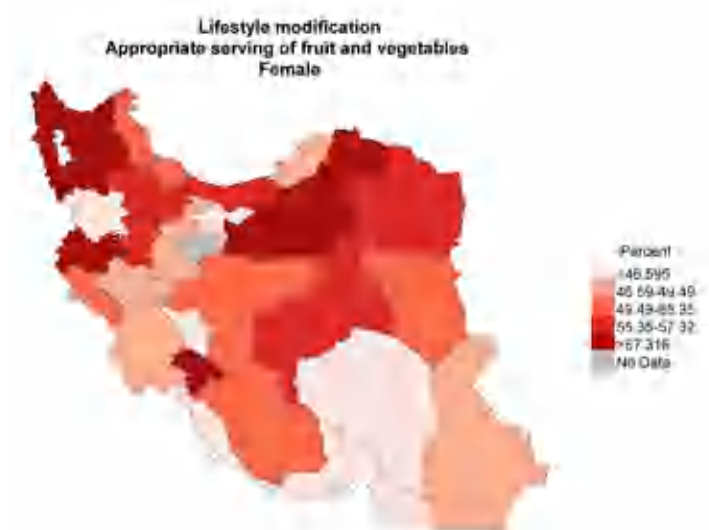


Figure 6.2.39. Geographical distribution of percentage of people who had been recommended to have modification in their lifestyle (appropriate serving of fruit and vegetables) in females

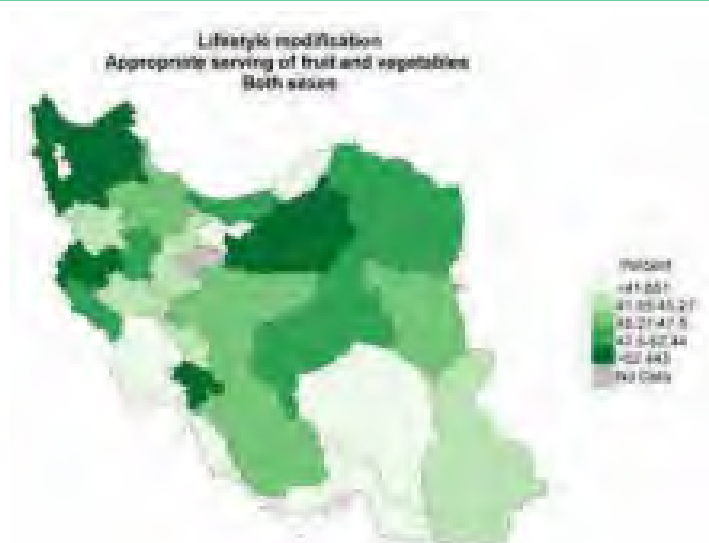


Figure 6.2.40. Geographical distribution of percentage of people who had been recommended to have modification in their lifestyle (appropriate serving of fruit and vegetables) in both sexes

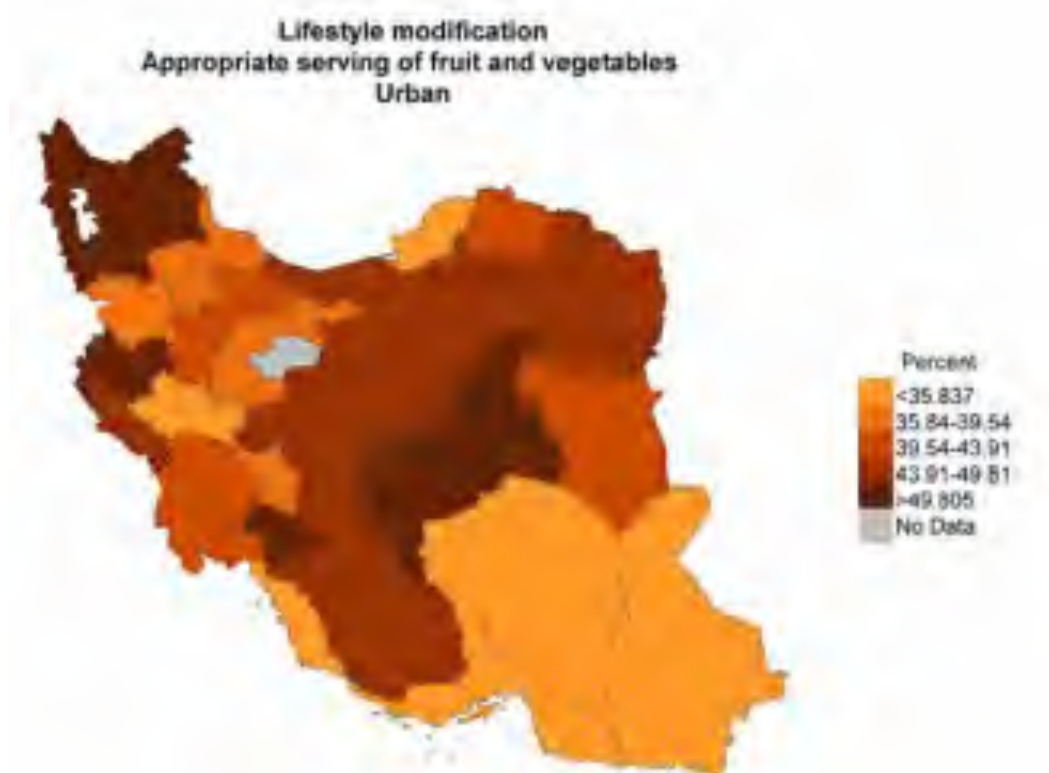


Figure 6.2.43. Geographical distribution of percentage of people who had been recommended to have modification in their lifestyle (appropriate serving of fruit and vegetables) in urban area of residency

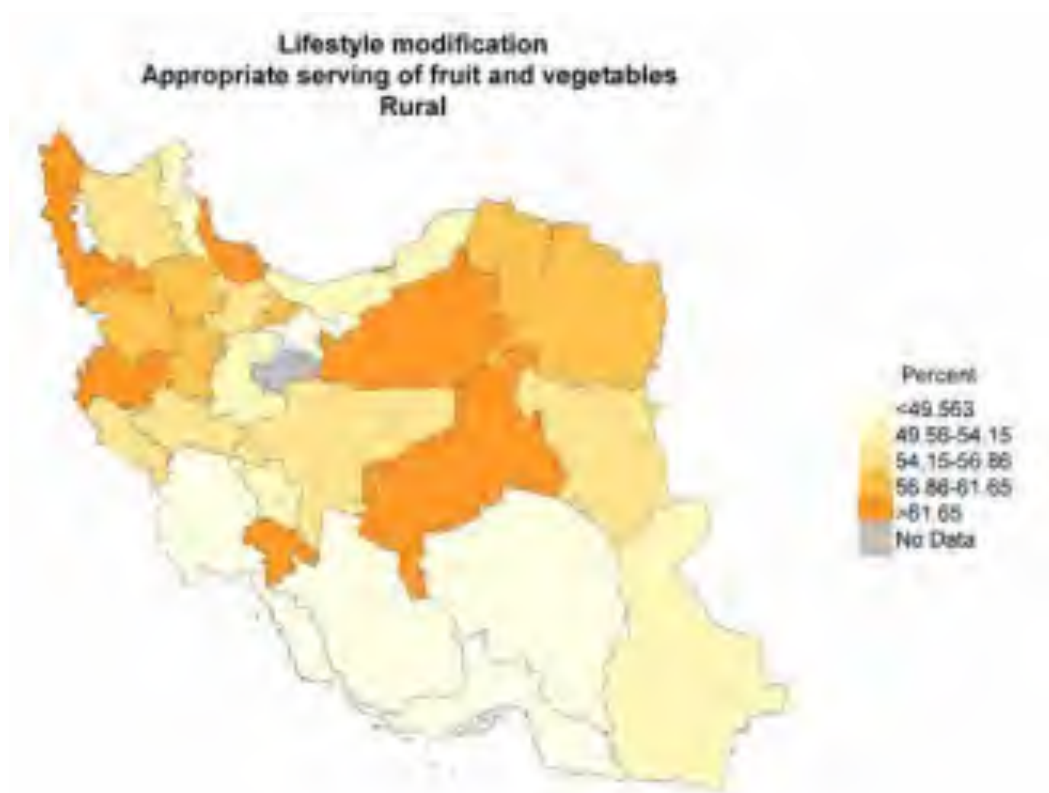


Figure 6.2.44. Geographical distribution of percentage of people who had been recommended to have modification in their lifestyle (appropriate serving of fruit and vegetables) in rural area of residency

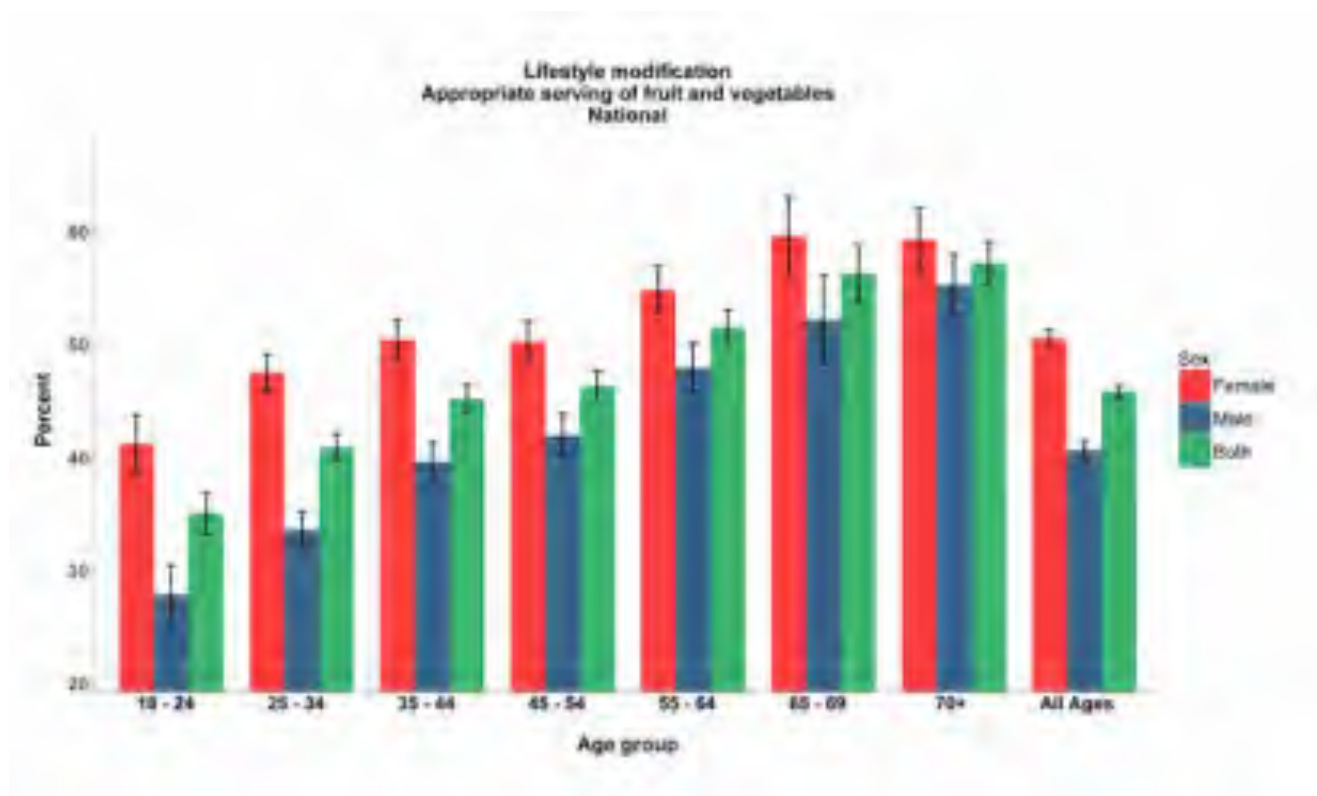


Figure 6.2.45. Percentage of people who had been recommended to have modification in their lifestyle (appropriate serving of fruit and vegetables) by age and sex at national level

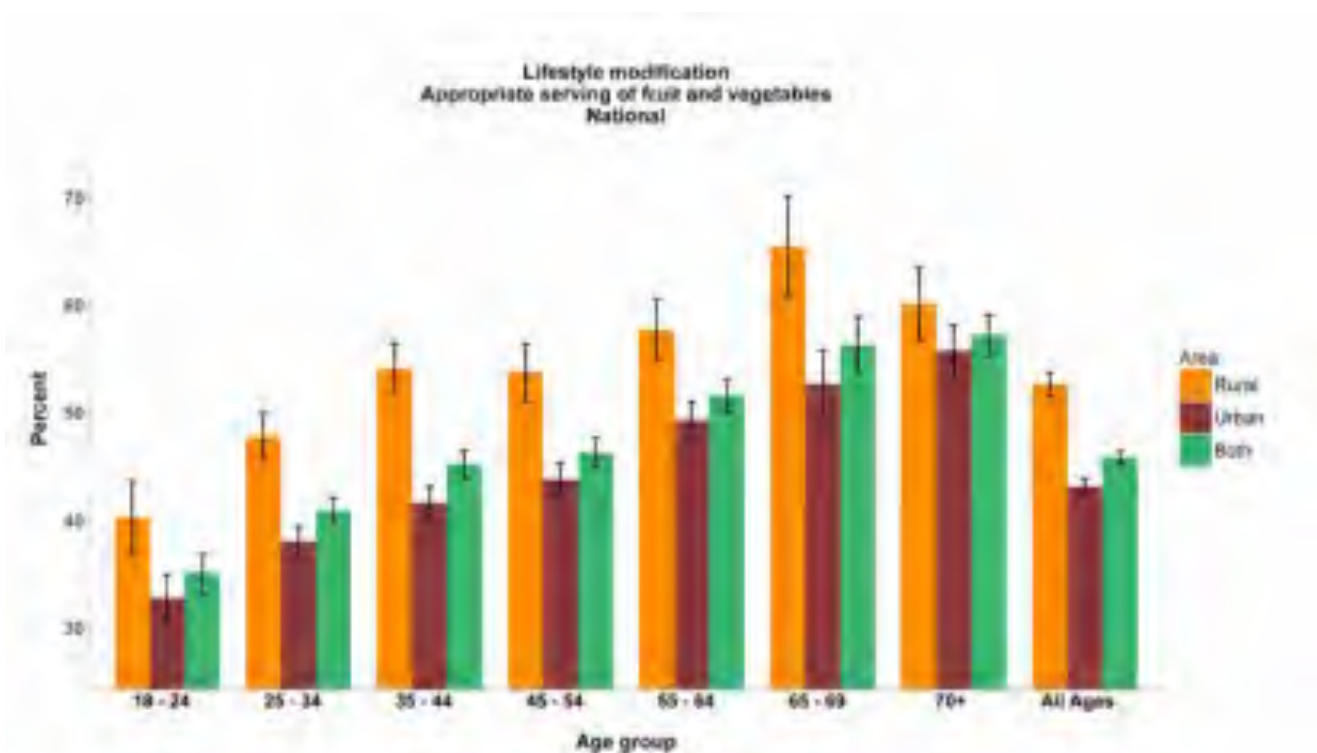


Figure 6.2.46. Percentage of people who had been recommended to have modification in their lifestyle (appropriate serving of fruit and vegetables) by age and area of residency at national level

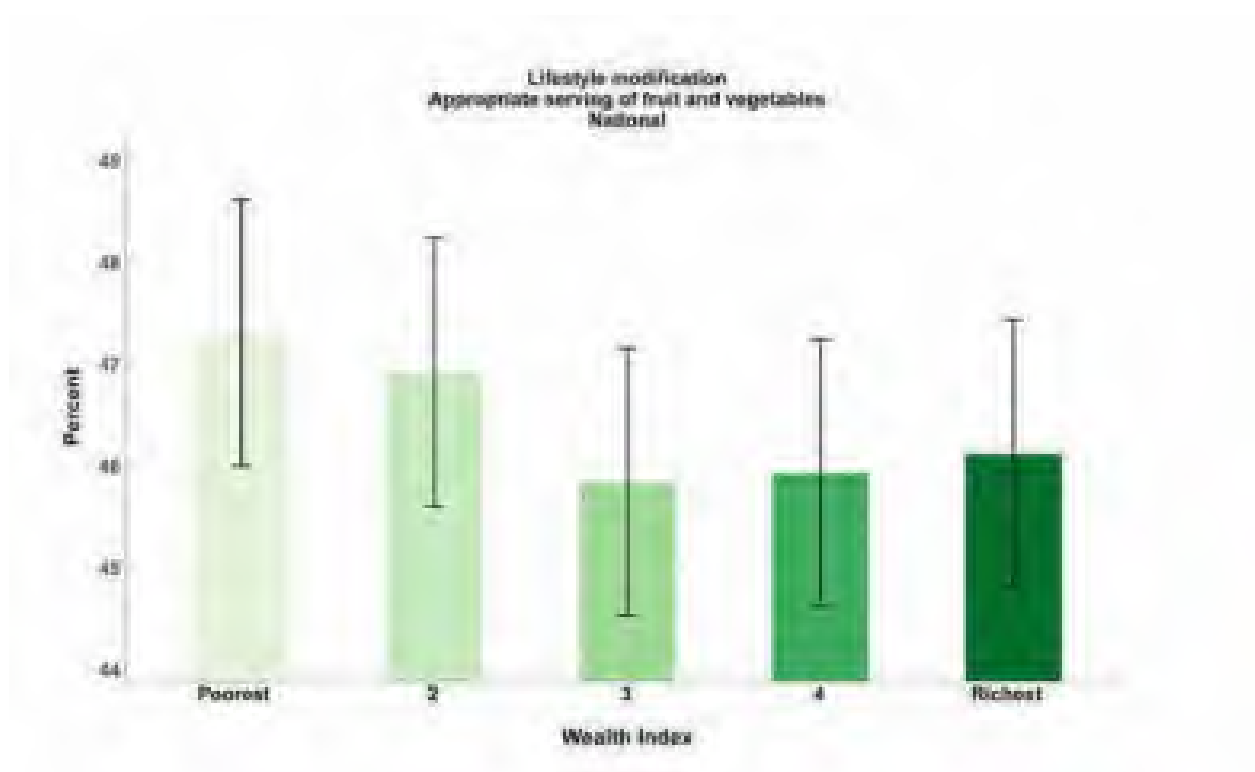


Figure 6.2.47. Percentage of people who had been recommended to have modification in their lifestyle (appropriate serving of fruit and vegetables) by wealth index quantiles at national level

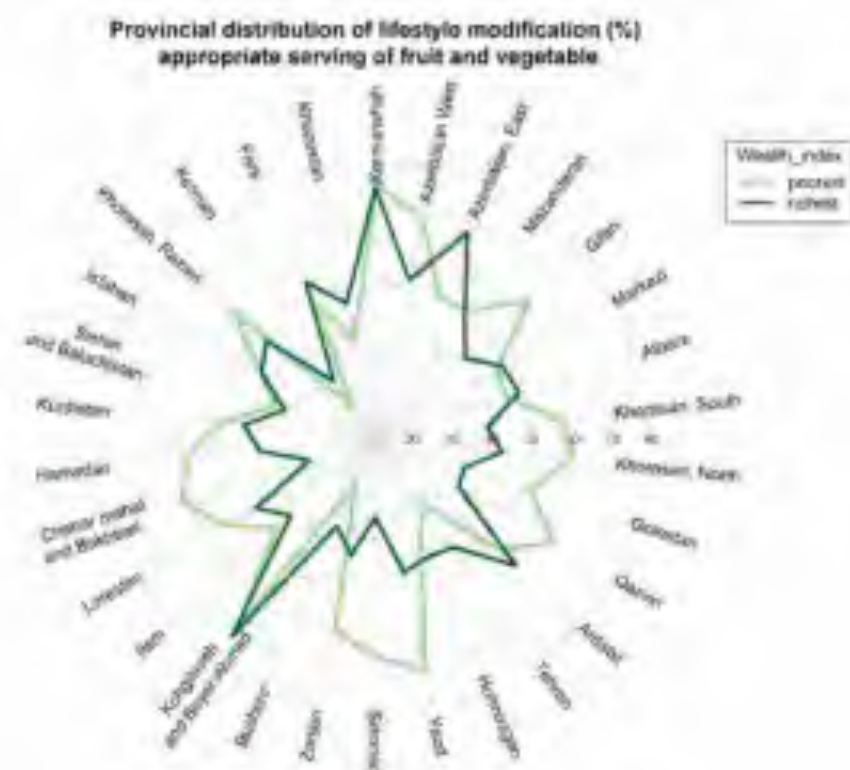


Figure 6.2.48. Provincial distribution of percentage of people who had been recommended to have modification in their lifestyle (appropriate serving of fruit and vegetables) by wealth index

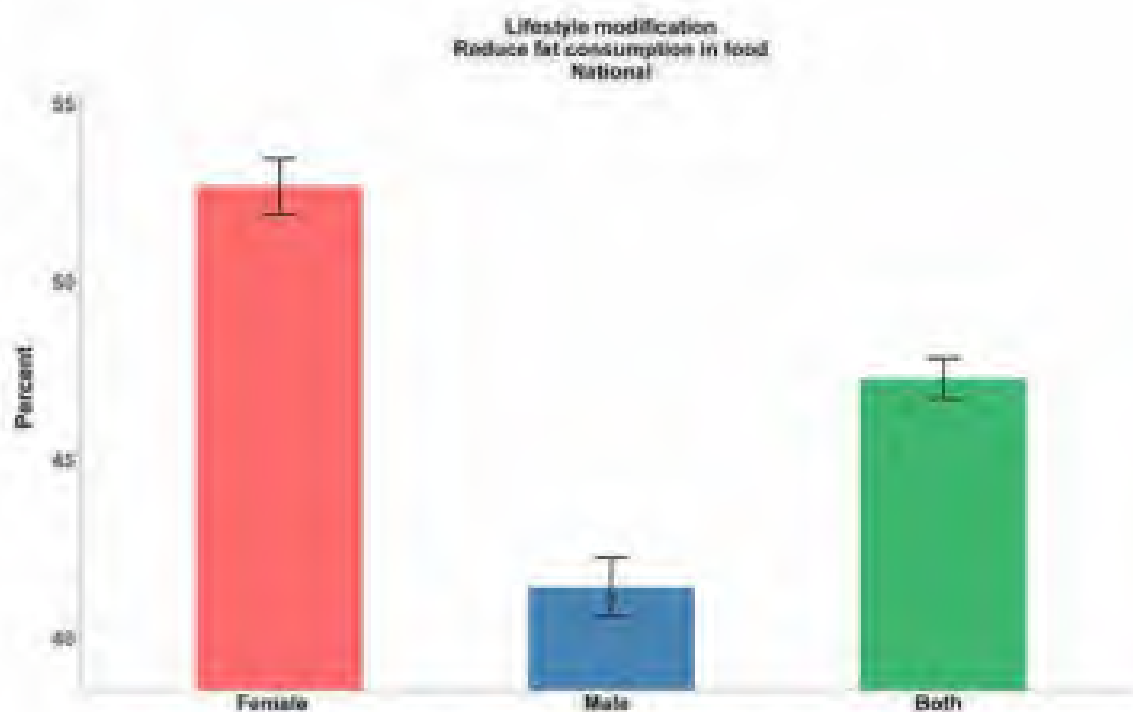


Figure 6.2.49. Percentage of people who had been recommended to have modification in their lifestyle (reduce fat consumption in food) by sex at national level

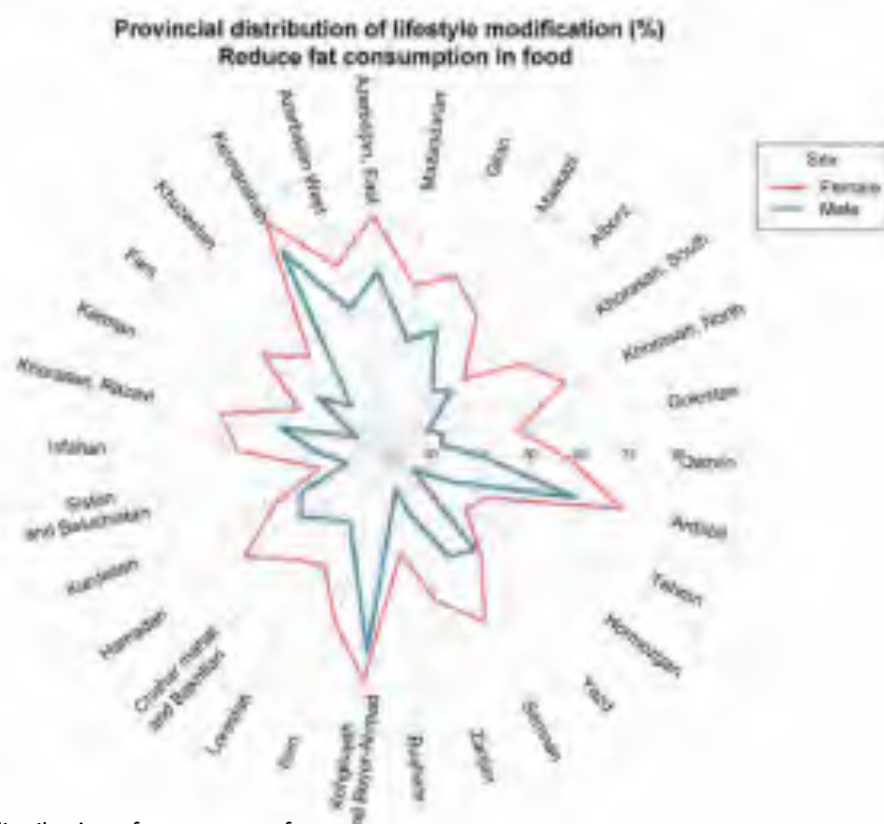


Figure 6.2.50. Provincial distribution of percentage of people who had been recommended to have modification in their lifestyle (reduce fat consumption in food) by sex

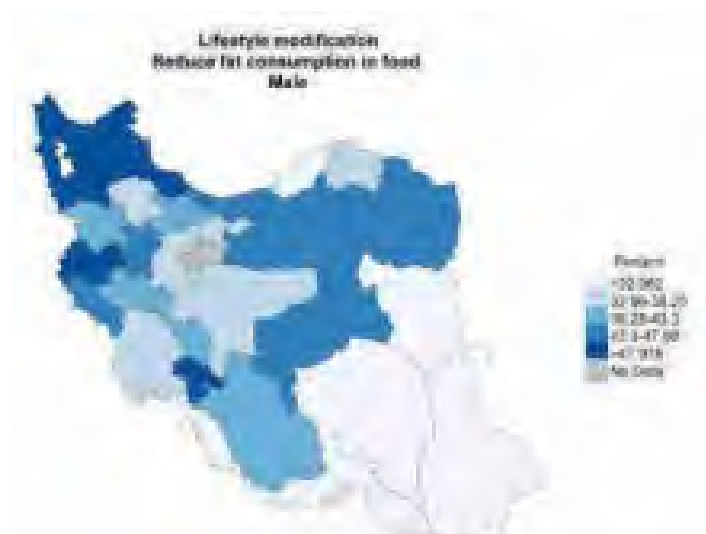


Figure 6.2.51. Geographical distribution of percentage of people who had been recommended to have modification in their lifestyle (reduce fat consumption in food) in males

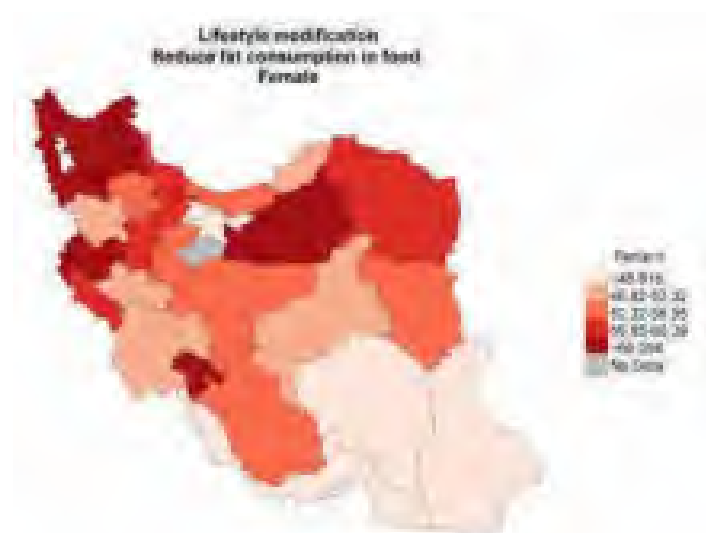


Figure 6.2.52. Geographical distribution of percentage of people who had been recommended to have modification in their lifestyle (reduce fat consumption in food) in females

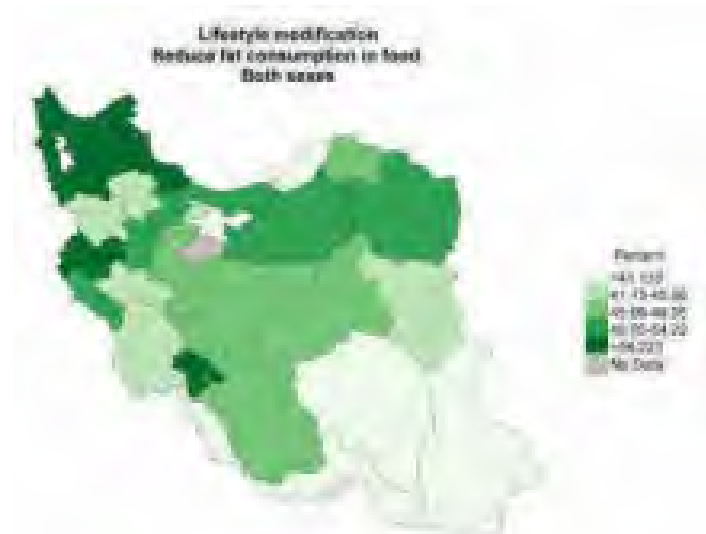


Figure 6.2.53. Geographical distribution of percentage of people who had been recommended to have modification in their lifestyle (reduce fat consumption in food) in both sexes

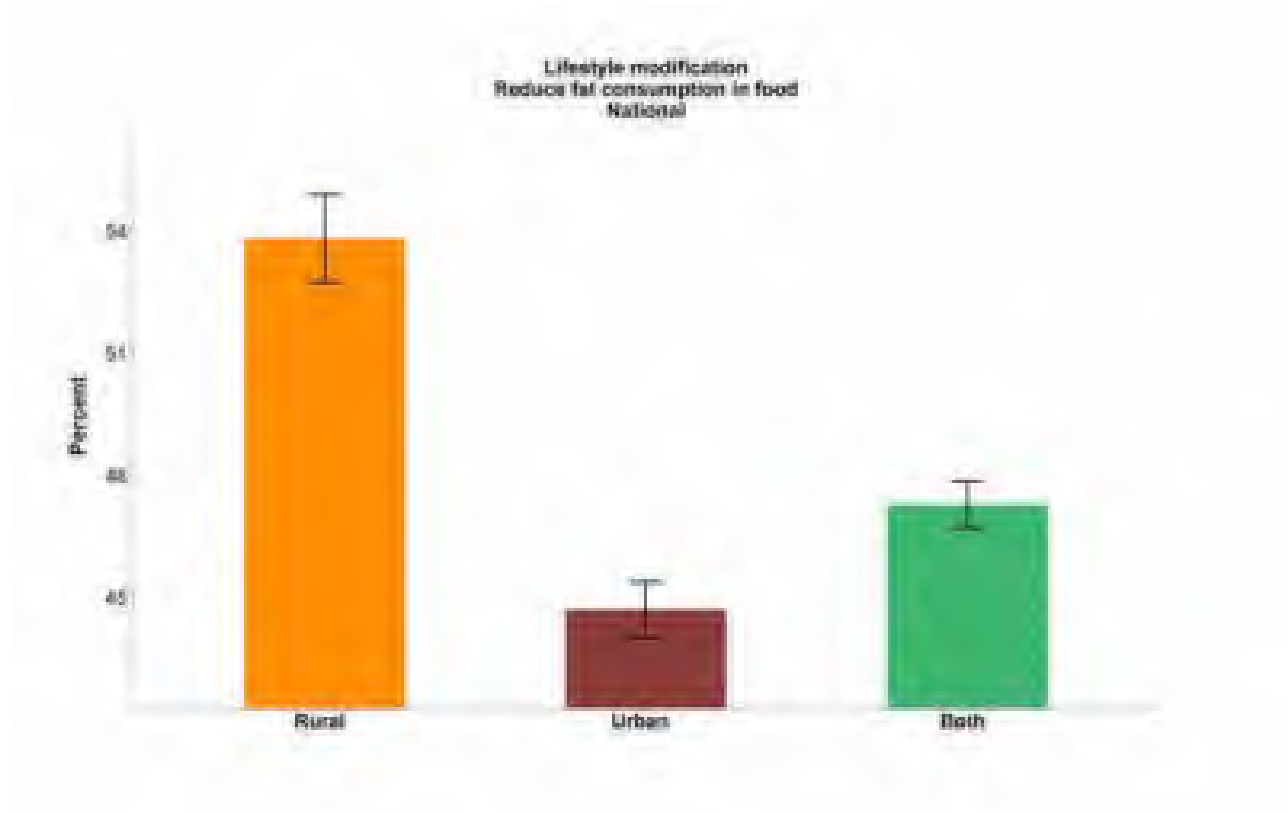


Figure 6.2.54. Percentage of people who had been recommended to have modification in their lifestyle (reduce fat consumption in food) by area of residency at national level

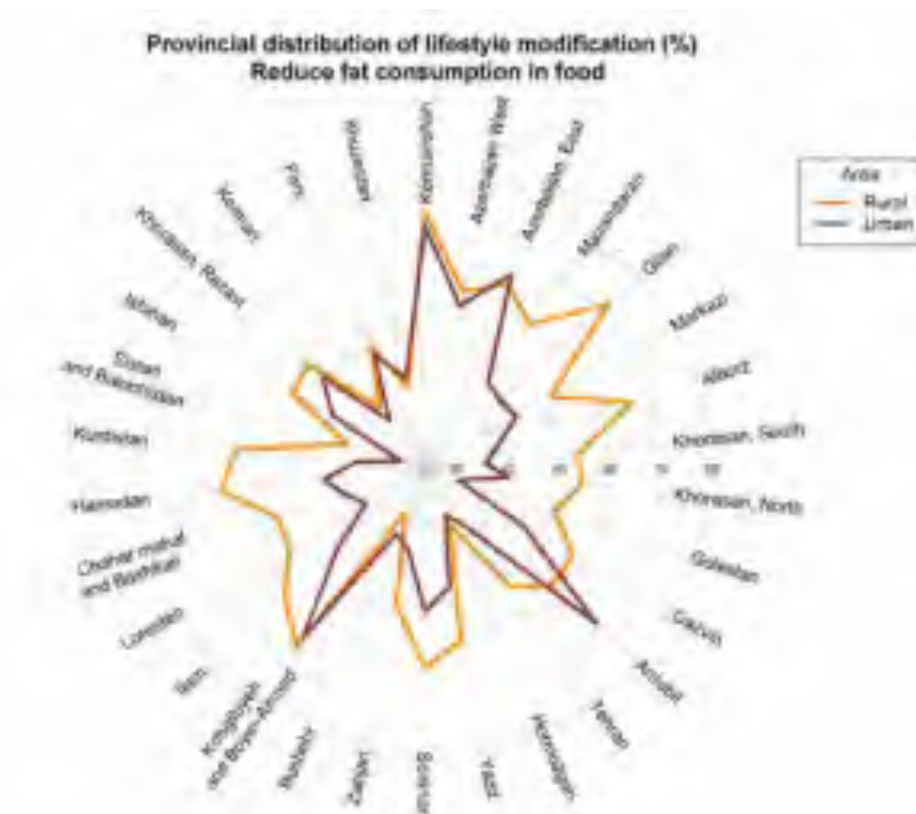


Figure 6.2.55. Provincial distribution of percentage of people who had been recommended to have modification in their lifestyle (reduce fat consumption in food) by area of residency

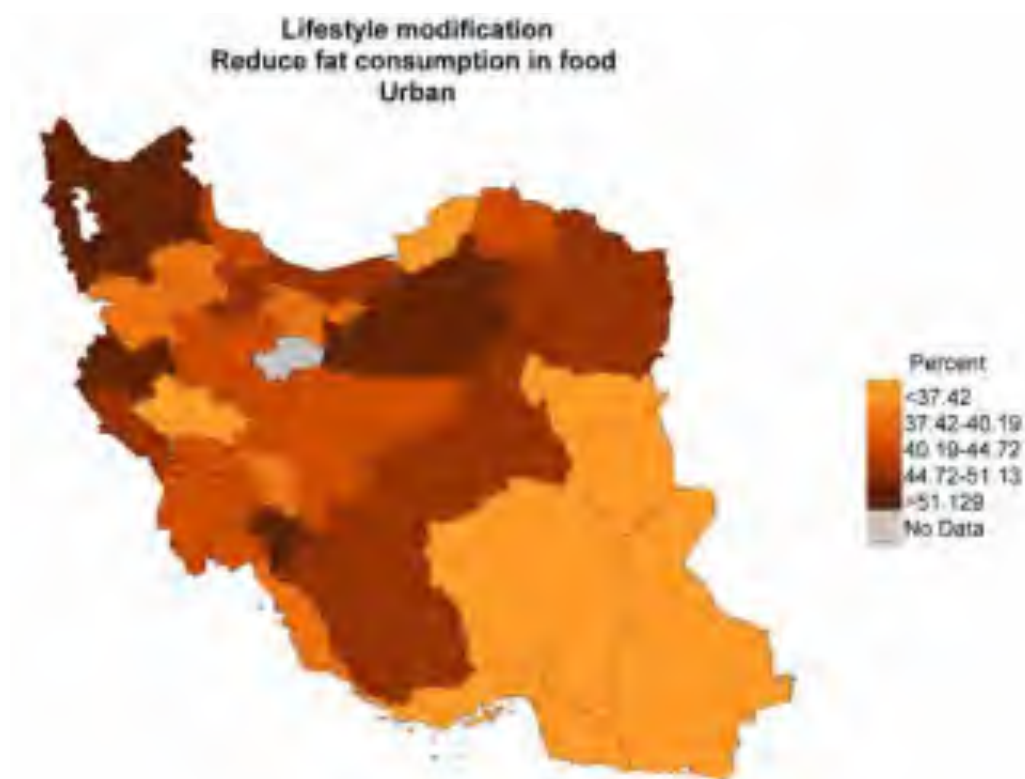


Figure 6.2.56. Geographical distribution of percentage of people who had been recommended to have modification in their lifestyle (reduce fat consumption in food) in urban area of residency

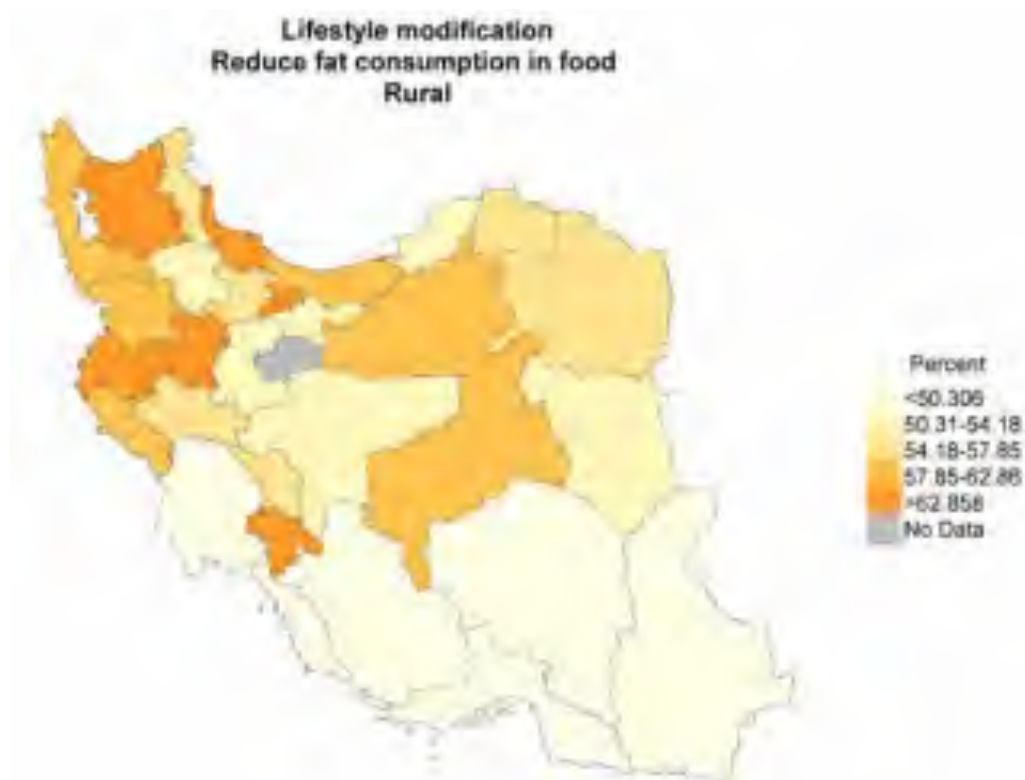


Figure 6.2.57. Geographical distribution of percentage of people who had been recommended to have modification in their lifestyle (reduce fat consumption in food) in rural area of residency

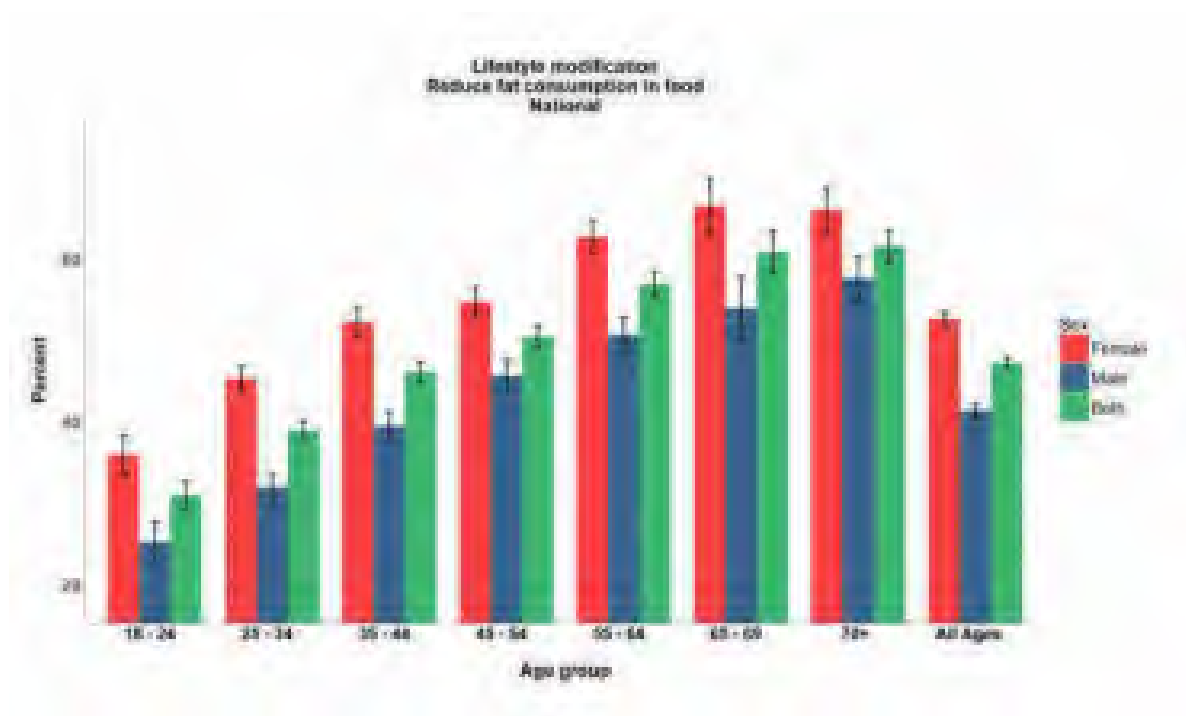


Figure 6.2.58. Percentage of people who had been recommended to have modification in their lifestyle (reduce fat consumption in food) by age and sex at national level

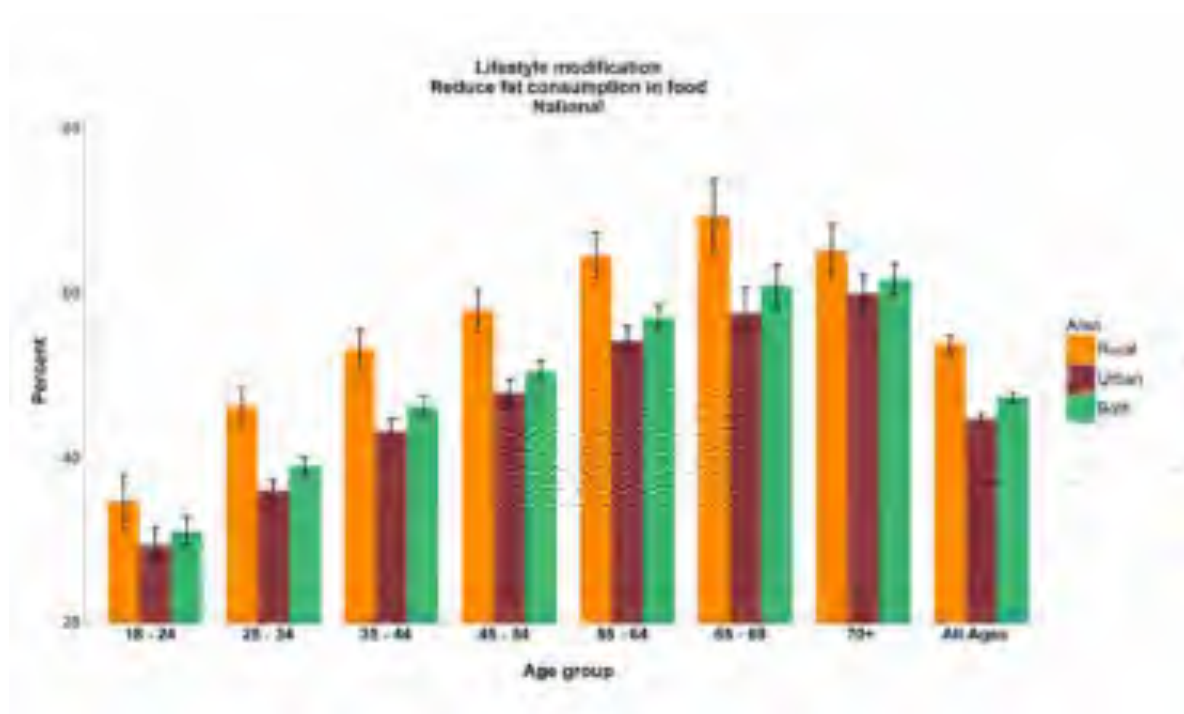


Figure 6.2.59. Percentage of people who had been recommended to have modification in their lifestyle (reduce fat consumption in food) by age and area of residency at national level

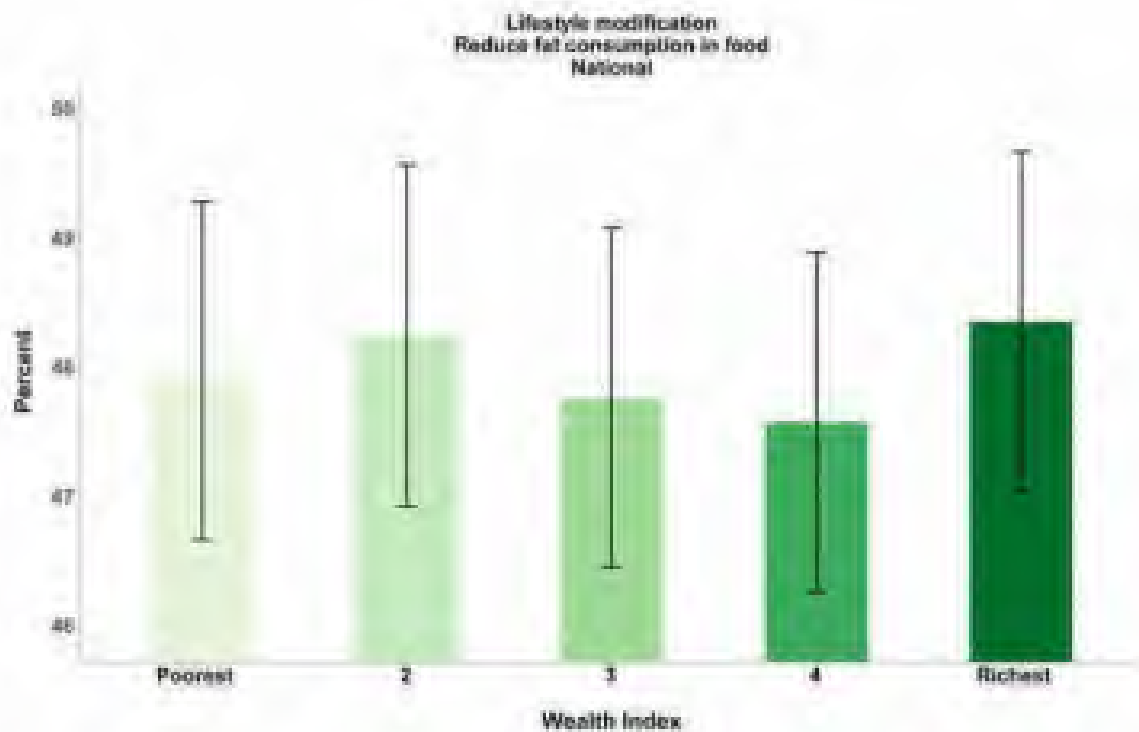


Figure 6.2.60. Percentage of people who had been recommended to have modification in their lifestyle (reduce fat consumption in food) by wealth index quantiles at national level

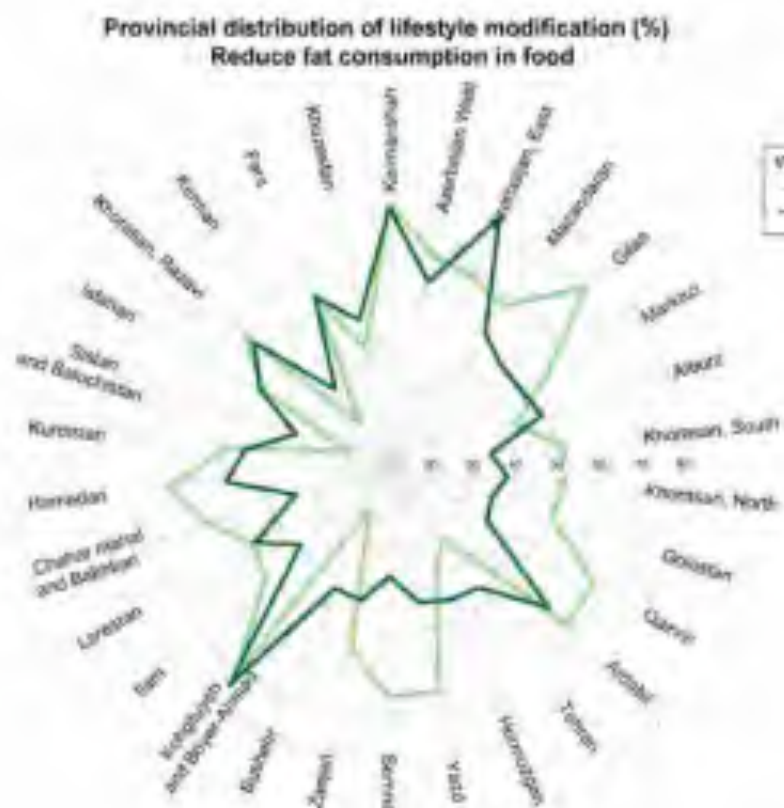


Figure 6.2.61. Provincial distribution of percentage of people who had been recommended to have modification in their lifestyle (reduce fat consumption in food) by wealth index

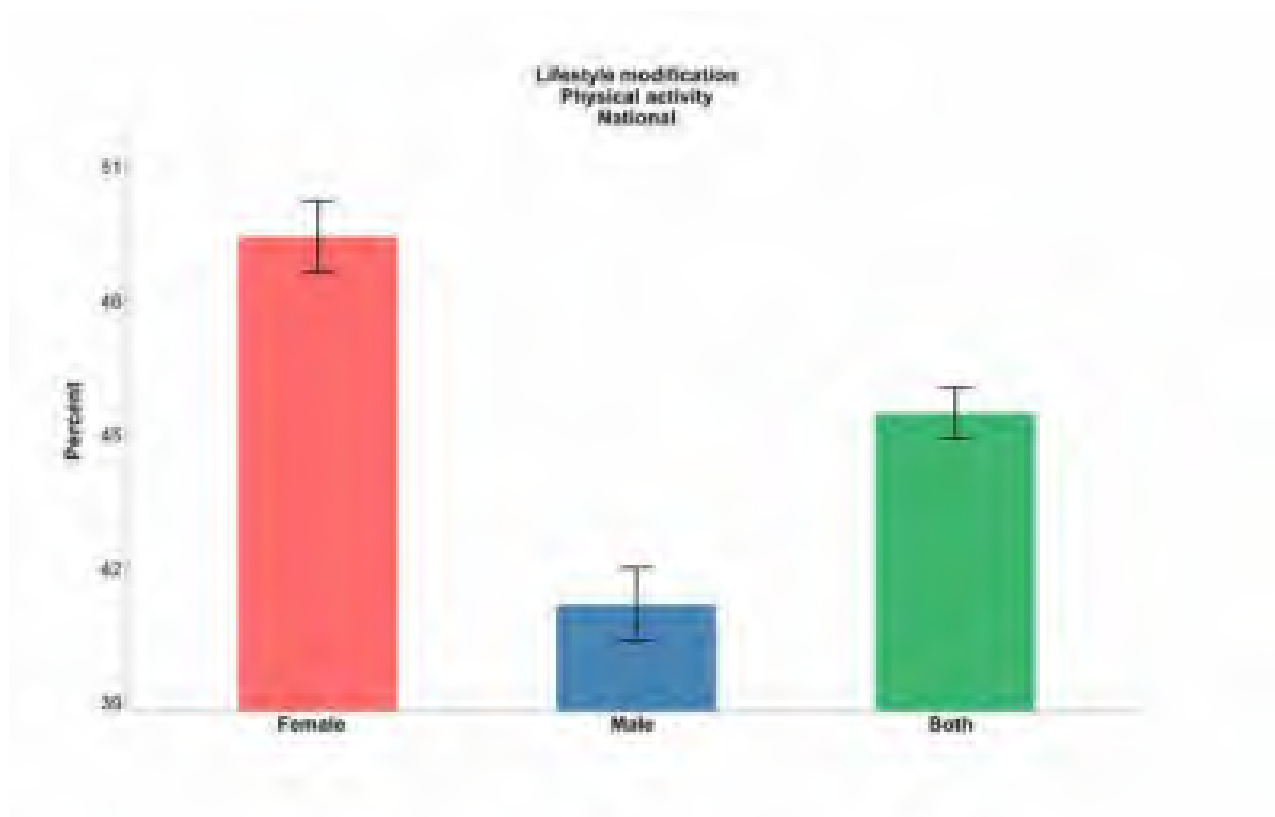


Figure 6.2.62. Percentage of people who had been recommended to have modification in their lifestyle (exercise or physical activity) by sex at national level

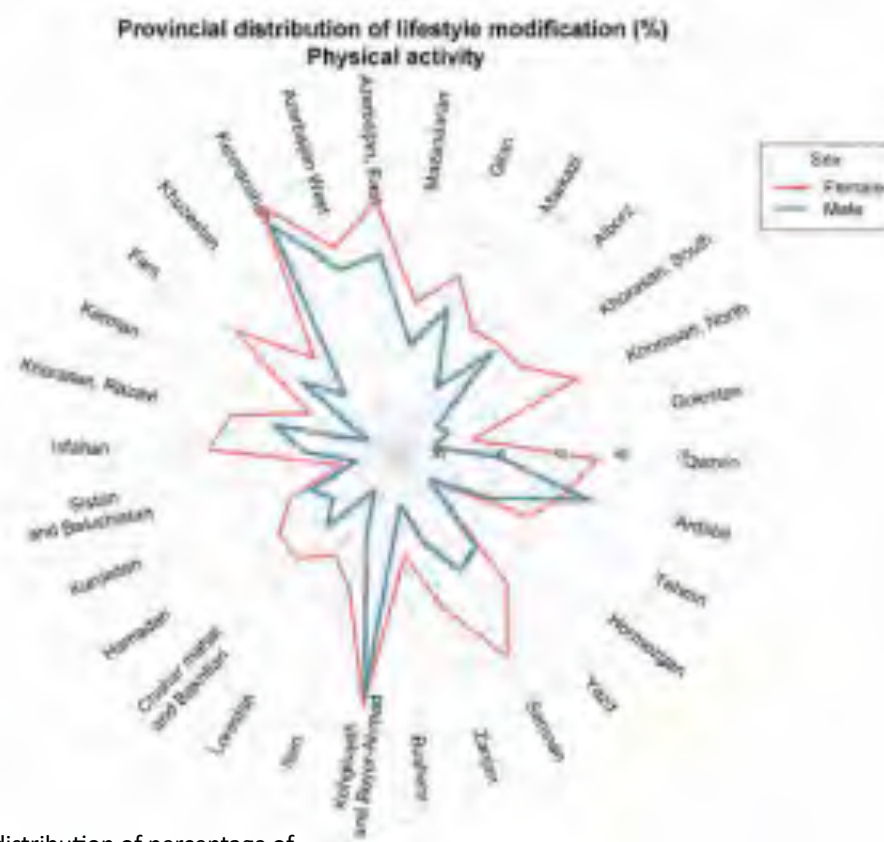


Figure 6.2.63. Provincial distribution of percentage of people who had been recommended to have modification in their lifestyle (exercise or physical activity) by sex

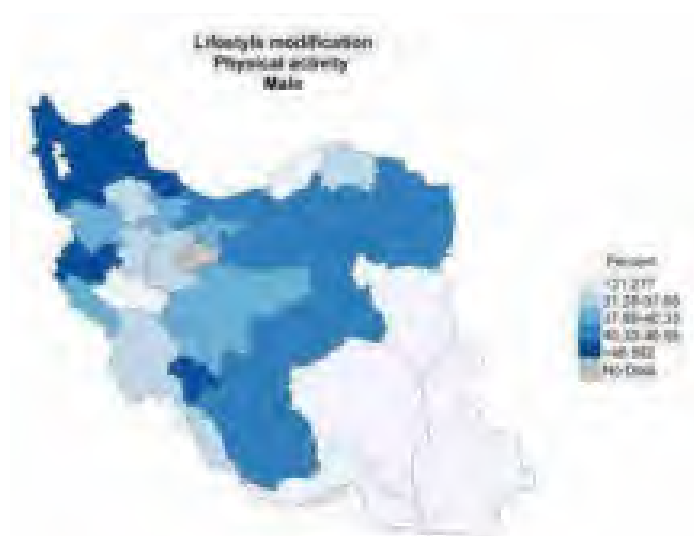


Figure 6.2.64. Geographical distribution of percentage of people who had been recommended to have modification in their lifestyle (exercise or physical activity) in males

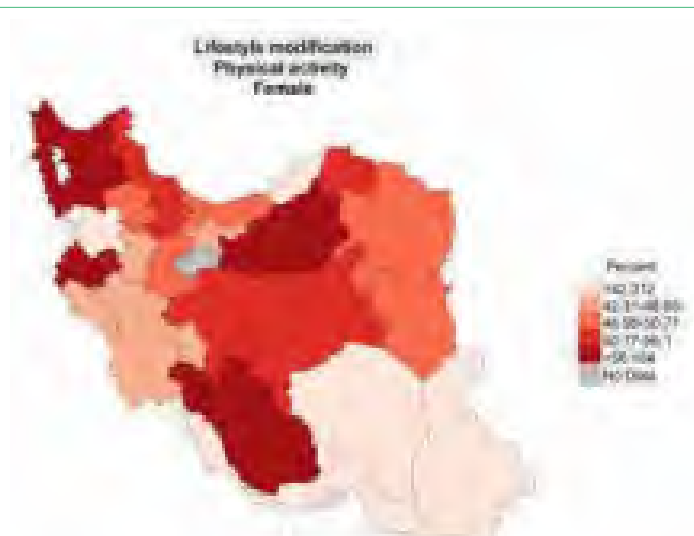


Figure 6.2.65. Geographical distribution of percentage of people who had been recommended to have modification in their lifestyle (exercise or physical activity) in females

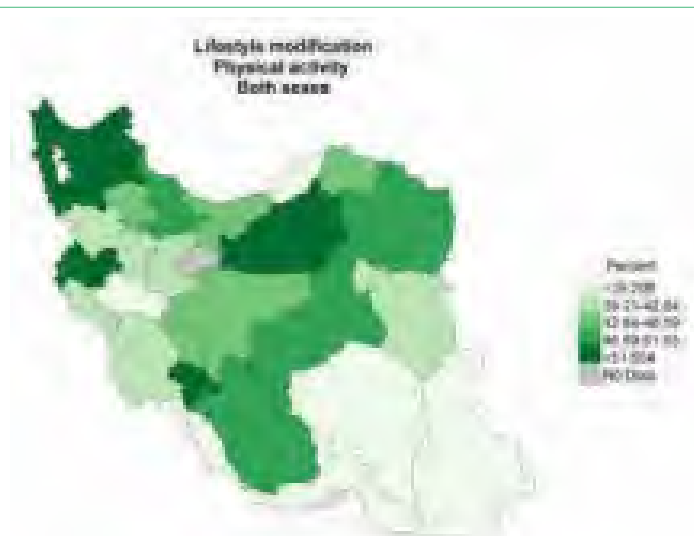


Figure 6.2.66. Geographical distribution of percentage of people who had been recommended to have modification in their lifestyle (exercise or physical activity) in both sexes

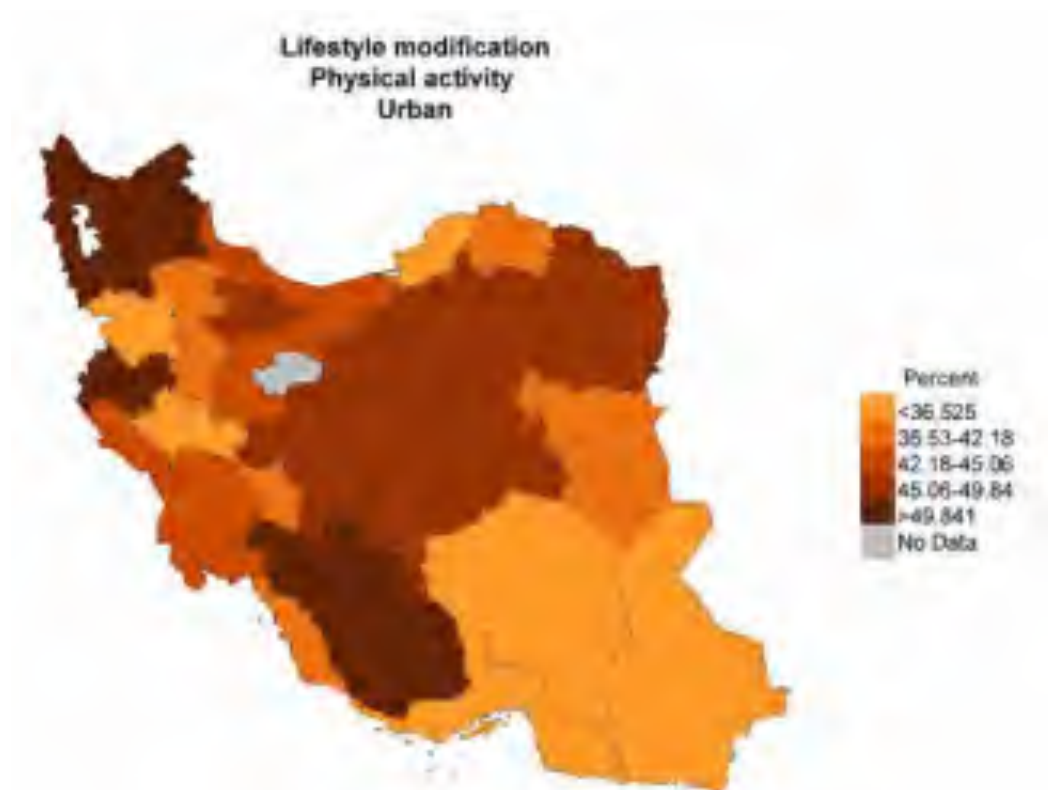


Figure 6.2.69. Geographical distribution of percentage of people who had been recommended to have modification in their lifestyle (exercise or physical activity) in urban area of residency

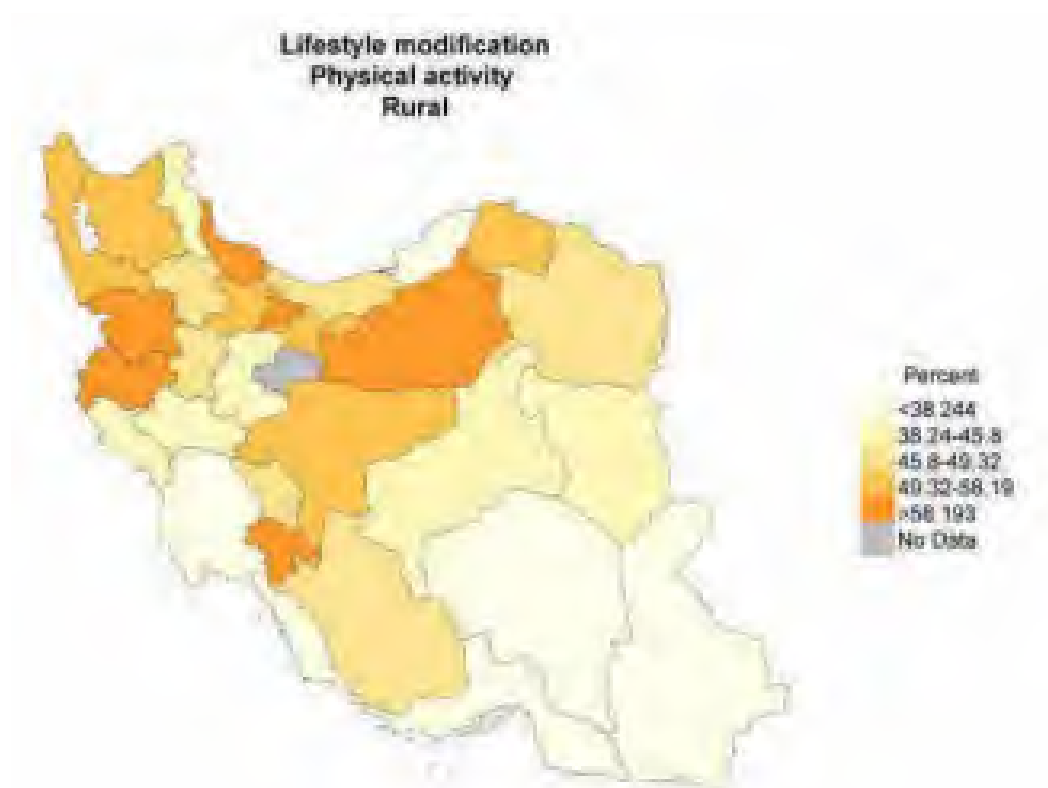


Figure 6.2.70. Geographical distribution of percentage of people who had been recommended to have modification in their lifestyle (exercise or physical activity) in rural area of residency

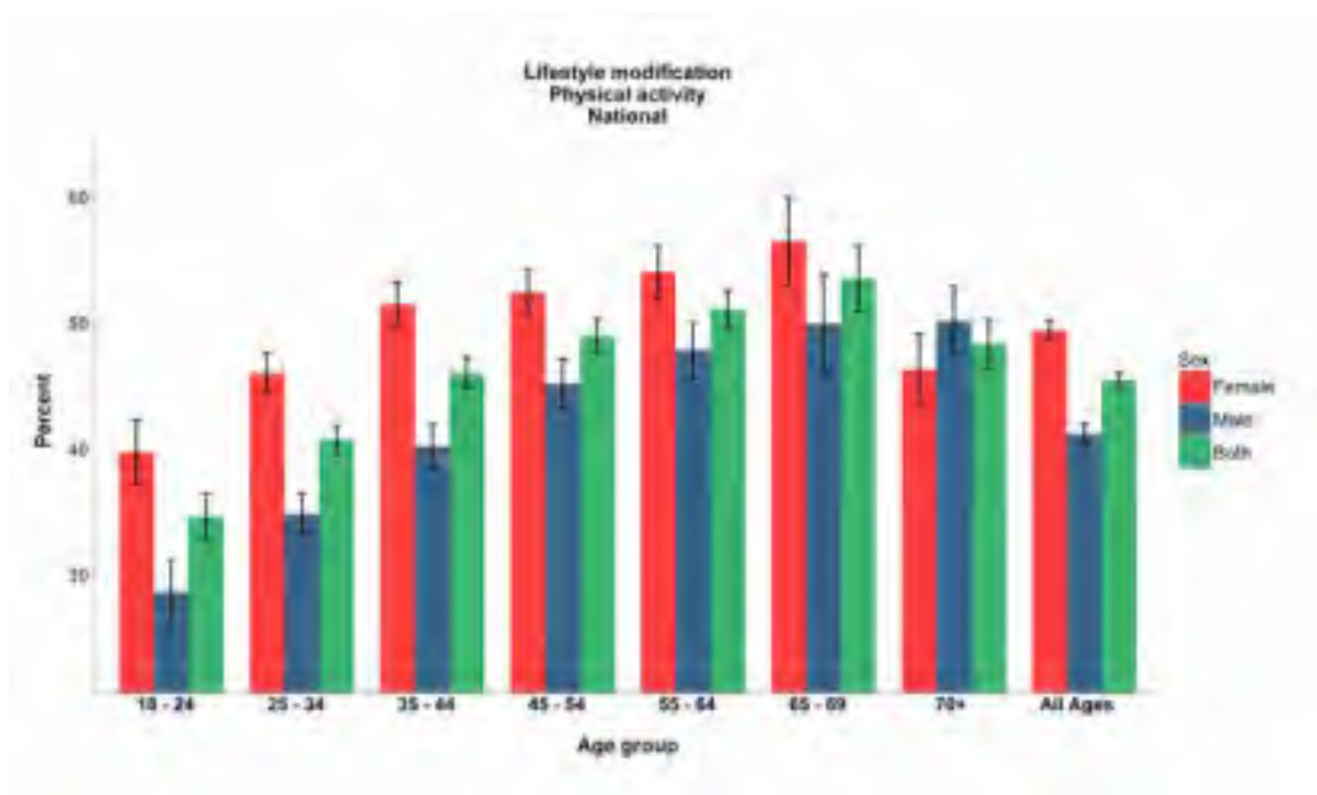


Figure 6.2.71. Percentage of people who had been recommended to have modification in their lifestyle (exercise or physical activity) by age and sex at national level

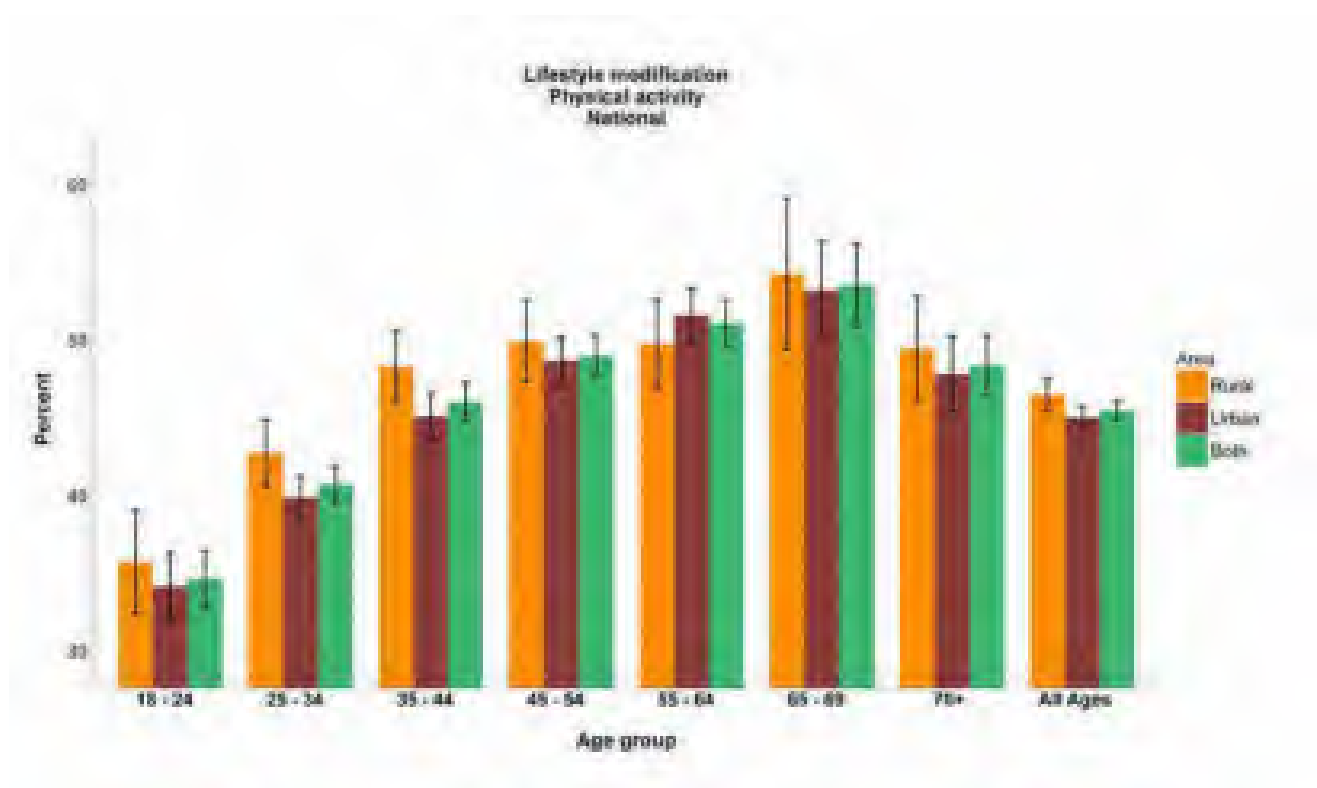


Figure 6.2.72. Percentage of people who had been recommended to have modification in their lifestyle (exercise or physical activity) by age and area of residency at national level

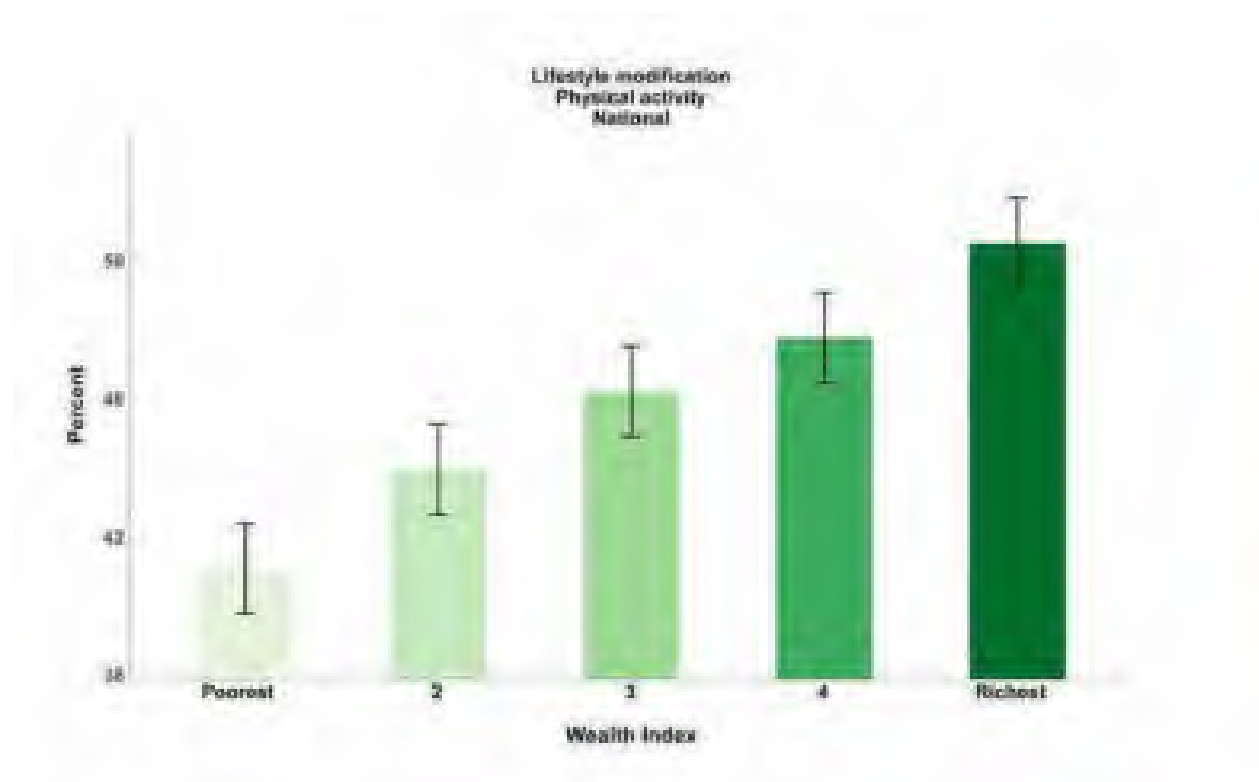


Figure 6.2.73. Percentage of people who had been recommended to have modification in their lifestyle (exercise or physical activity) by wealth index quantiles at national level

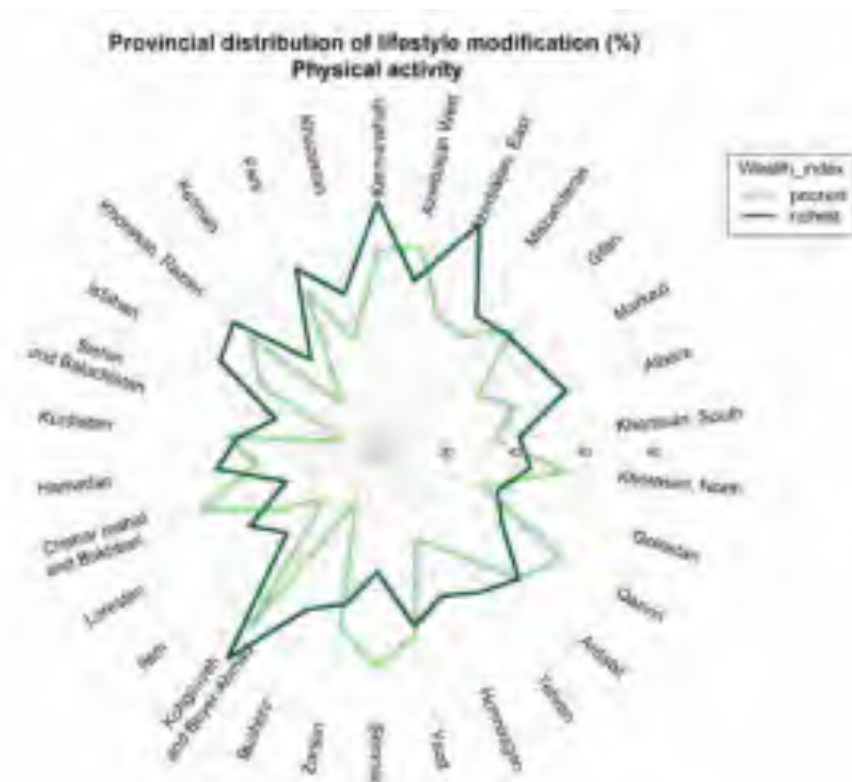


Figure 6.2.74. Provincial distribution of percentage of people who had been recommended to have modification in their lifestyle (exercise or physical activity) by wealth index

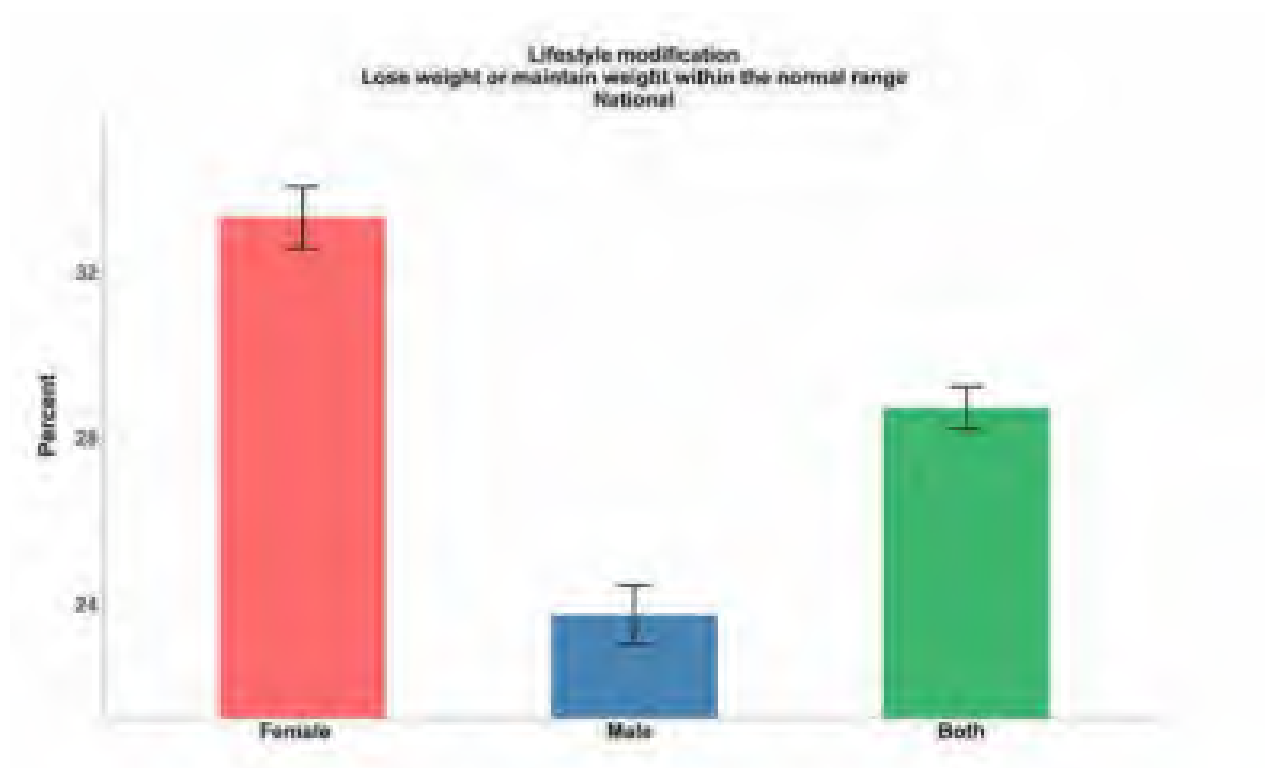


Figure 6.2.75. Percentage of people who had been recommended to have modification in their lifestyle (lose weight or maintain weight within the normal range) by sex at national level

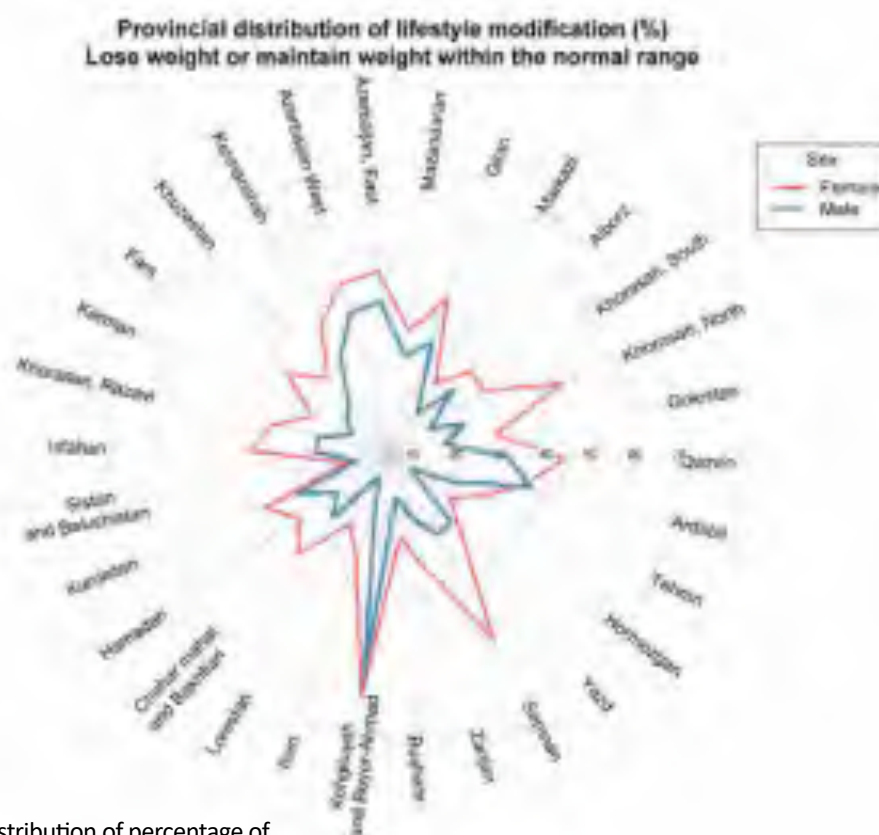


Figure 6.2.76. Provincial distribution of percentage of people who had been recommended to have modification in their lifestyle (lose weight or maintain weight within the normal range) by sex

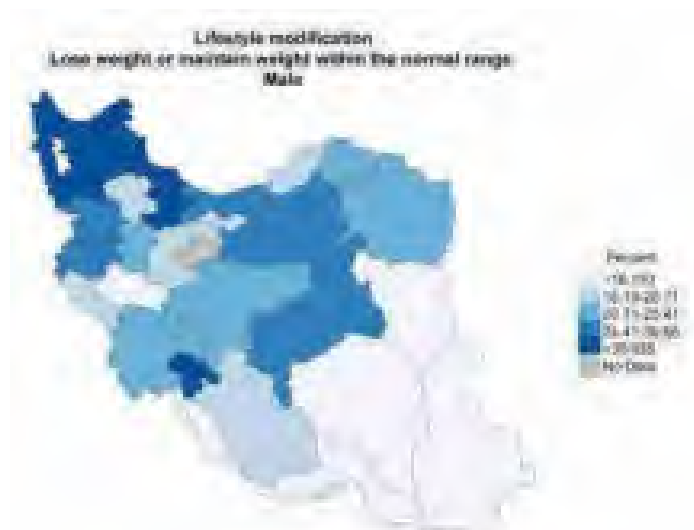


Figure 6.2.77. Geographical distribution of percentage of people who had been recommended to have modification in their lifestyle (lose weight or maintain weight within the normal range) in males

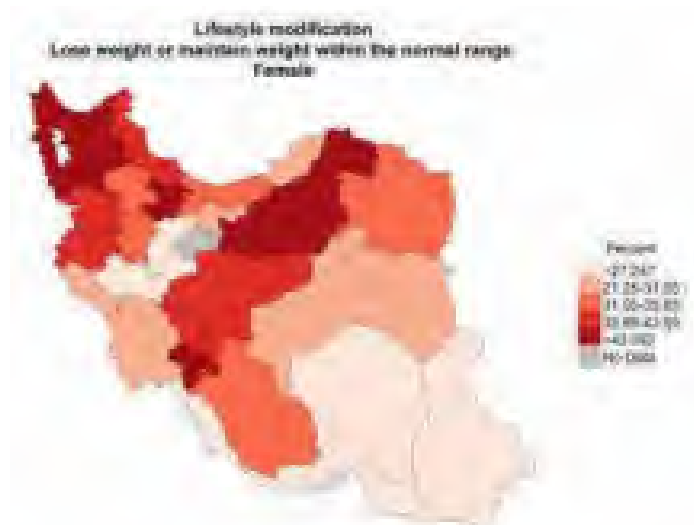


Figure 6.2.78. Geographical distribution of percentage of people who had been recommended to have modification in their lifestyle (lose weight or maintain weight within the normal range) in females

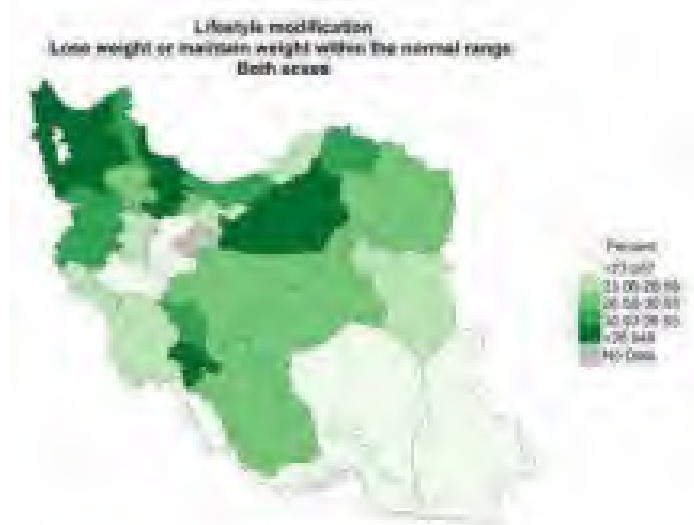


Figure 6.2.79. Geographical distribution of percentage of people who had been recommended to have modification in their lifestyle (lose weight or maintain weight within the normal range) in both sexes

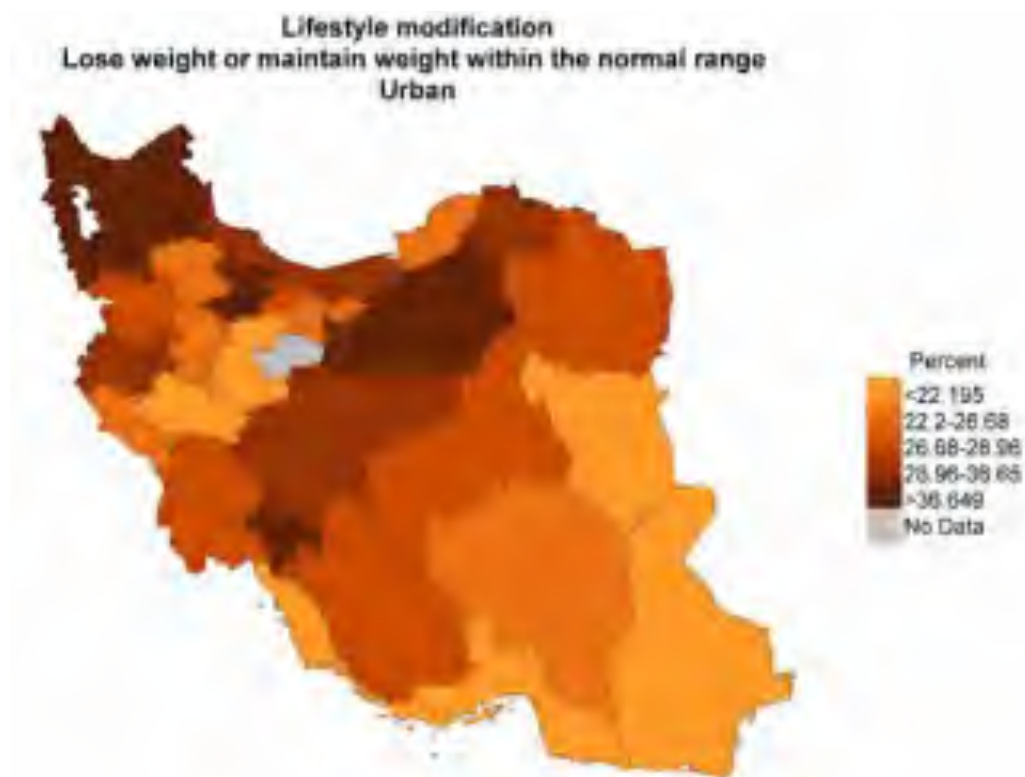


Figure 6.2.82. Geographical distribution of percentage of people who had been recommended to have modification in their lifestyle (lose weight or maintain weight within the normal range) in urban area of residency

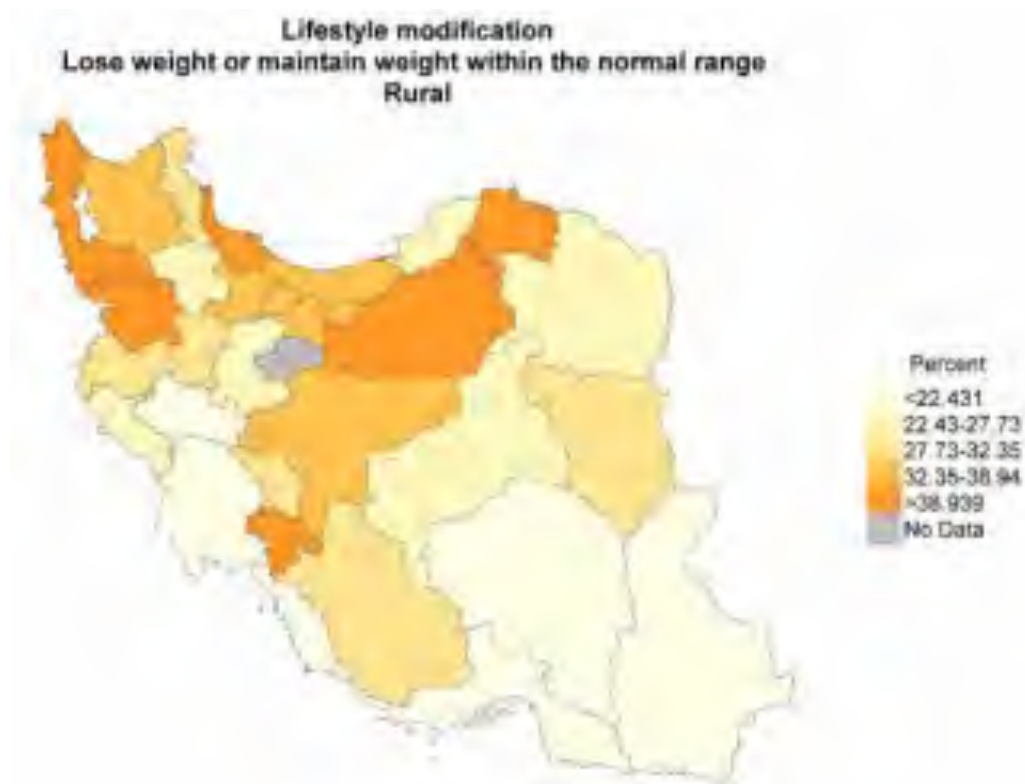


Figure 6.2.83. Geographical distribution of percentage of people who had been recommended to have modification in their lifestyle (lose weight or maintain weight within the normal range) in rural area of residency

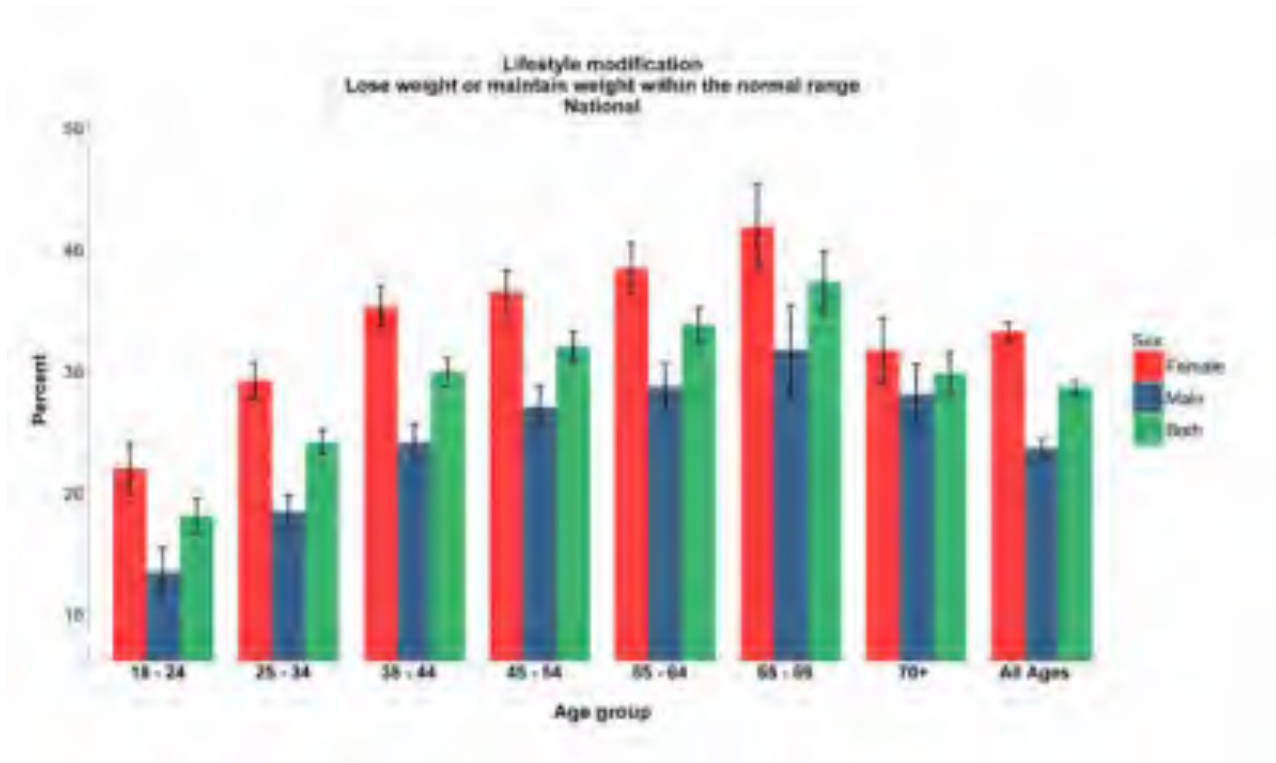


Figure 6.2.84. Percentage of people who had been recommended to have modification in their lifestyle (lose weight or maintain weight within the normal range) by age and sex at national level

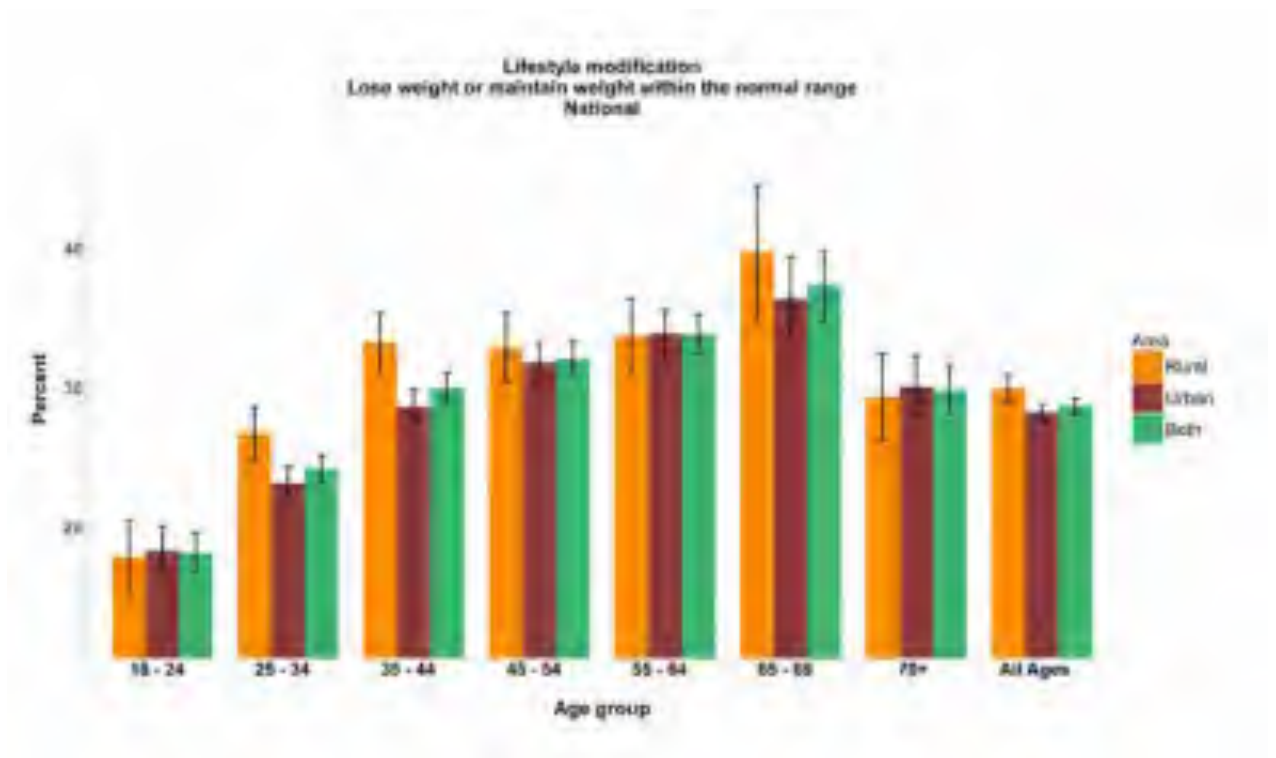


Figure 6.2.85. Percentage of people who had been recommended to have modification in their lifestyle (lose weight or maintain weight within the normal range) by age and area of residency at national level

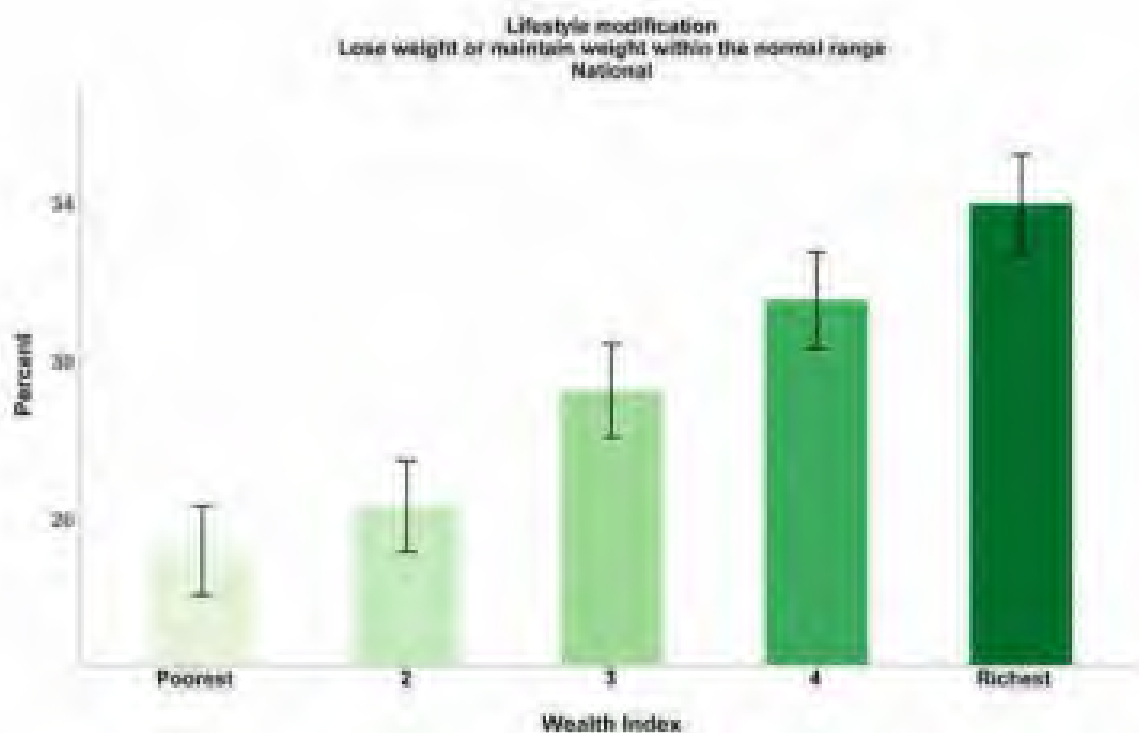


Figure 6.2.86. Percentage of people who had been recommended to have modification in their lifestyle (lose weight or maintain weight within the normal range) by wealth index quantiles at national level

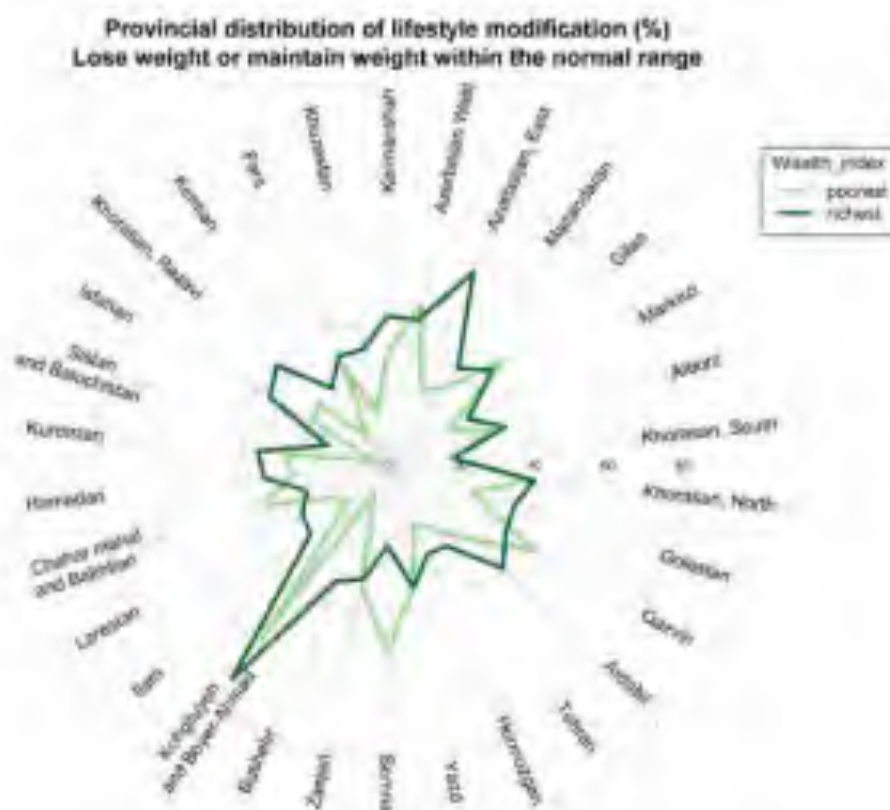


Figure 6.2.87. Provincial distribution of percentage of people who had been recommended to have modification in their lifestyle (lose weight or maintain weight within the normal range) by wealth index

CHAPTER 2

Results

Section 7

Anthropometric Measurements

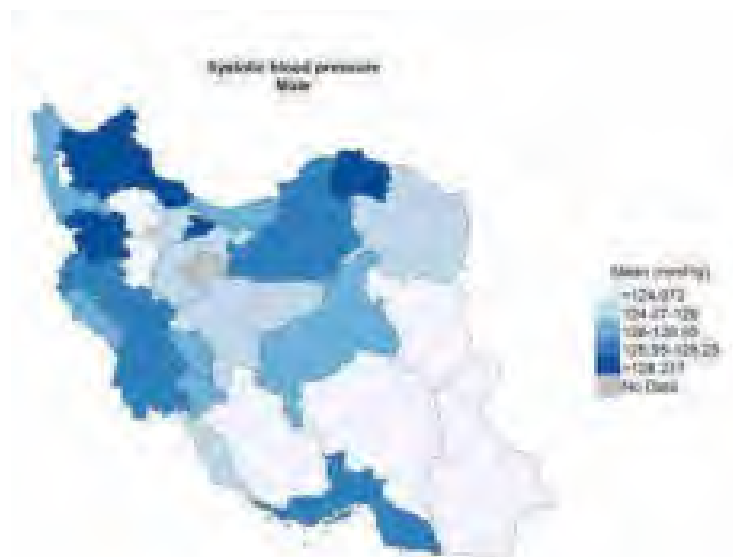


Figure 7.3. Geographical distribution of mean of systolic blood pressure in males

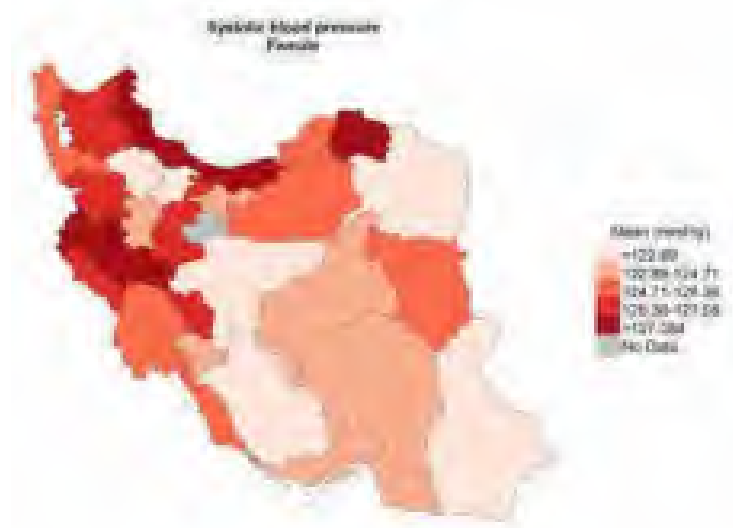


Figure 7.4. Geographical distribution of mean of systolic blood pressure in females

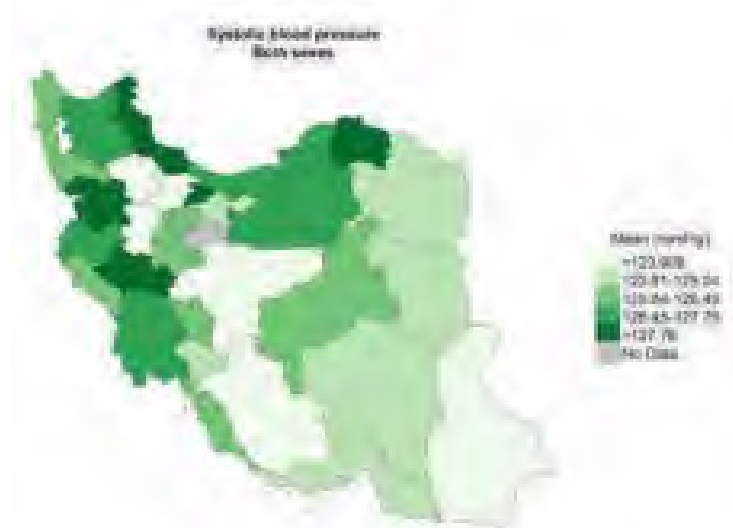


Figure 7.5. Geographical distribution of mean of systolic blood pressure in both sexes

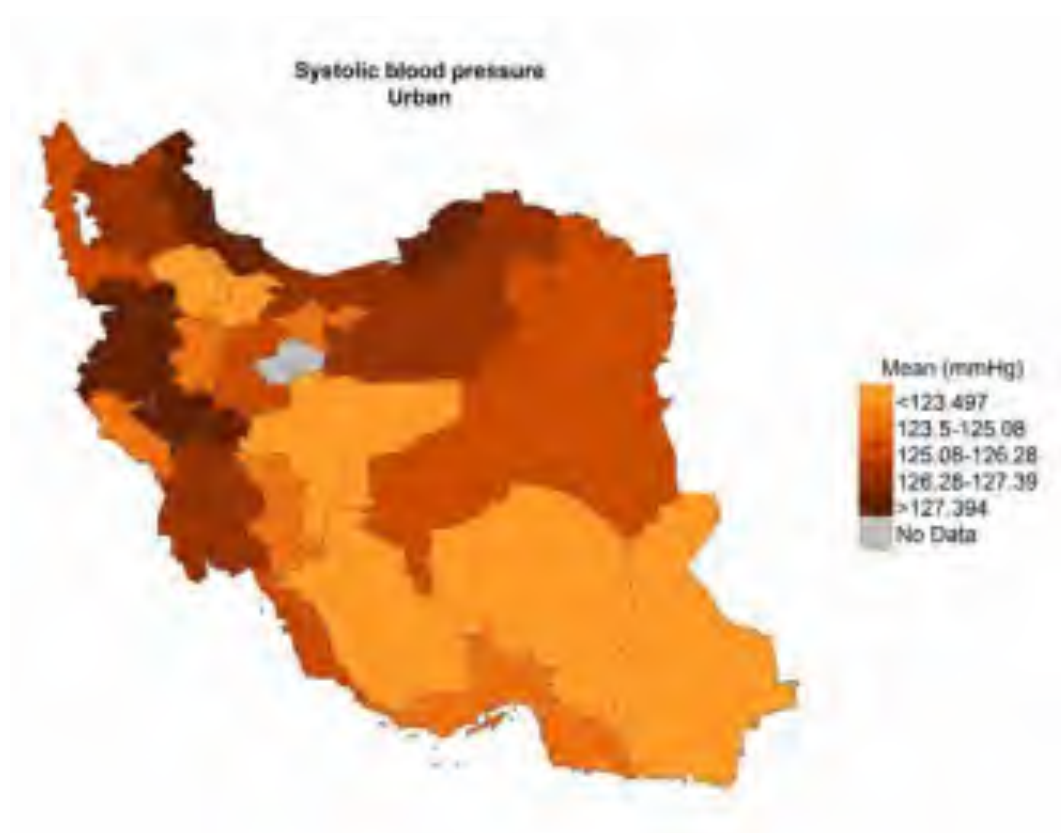


Figure 7.8. Geographical distribution of mean of systolic blood pressure in urban area of residency

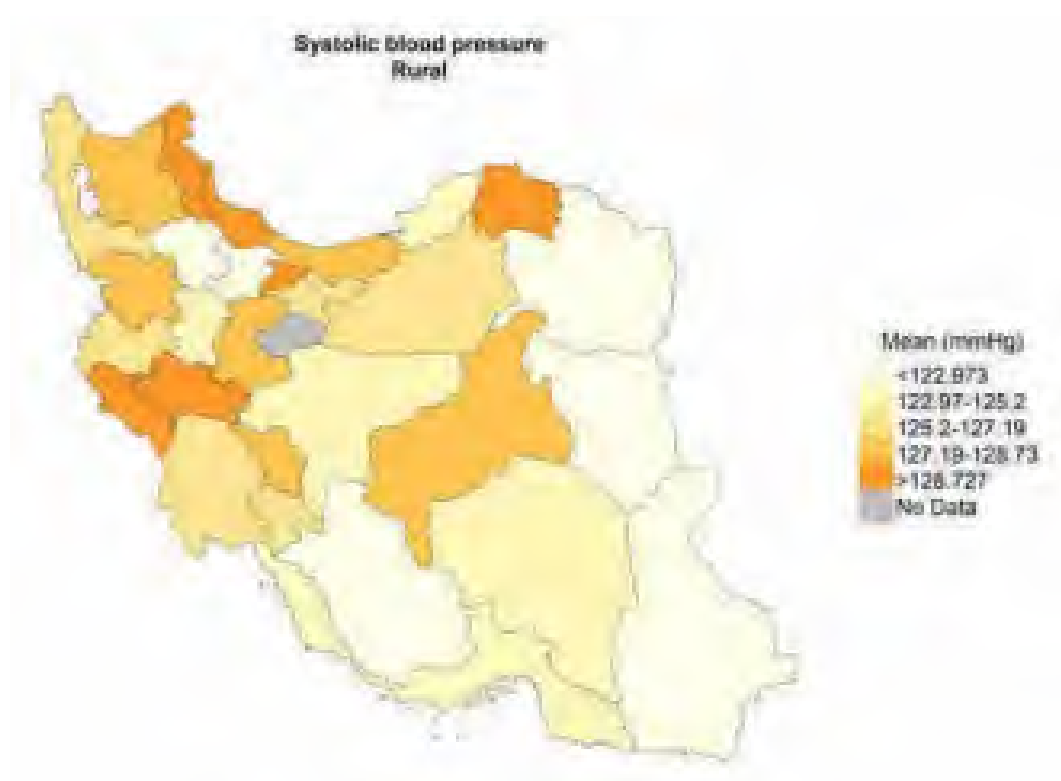


Figure 7.9. Geographical distribution of mean of systolic blood pressure in rural area of residency

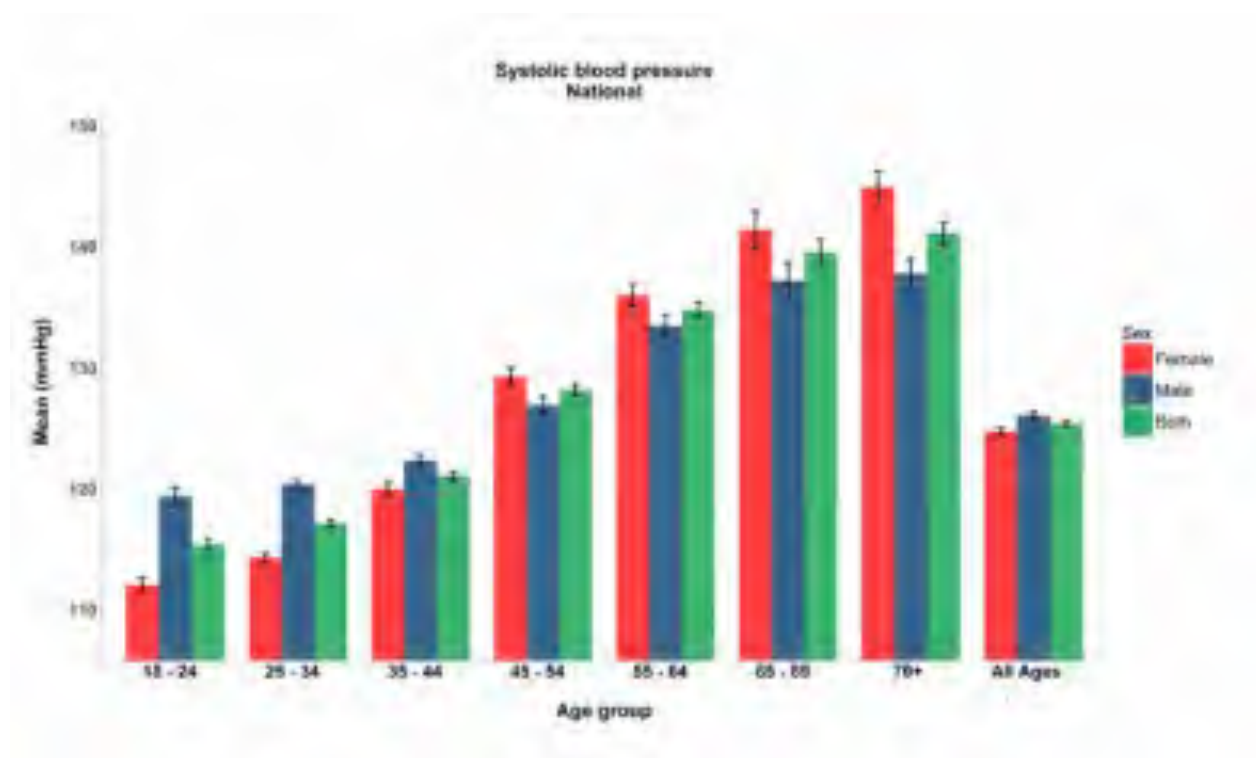


Figure 7.10. Mean of systolic blood pressure by age and sex at national level

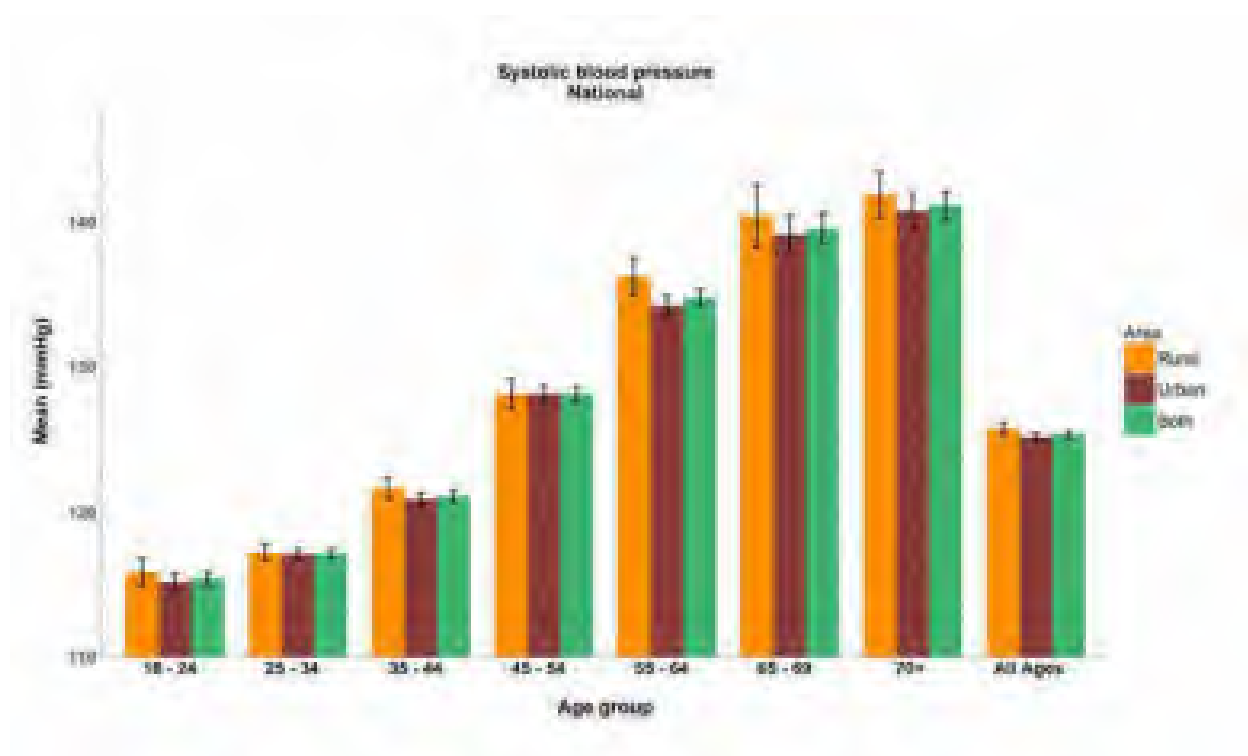


Figure 7.11. Mean of systolic blood pressure by age and area of residency at national level

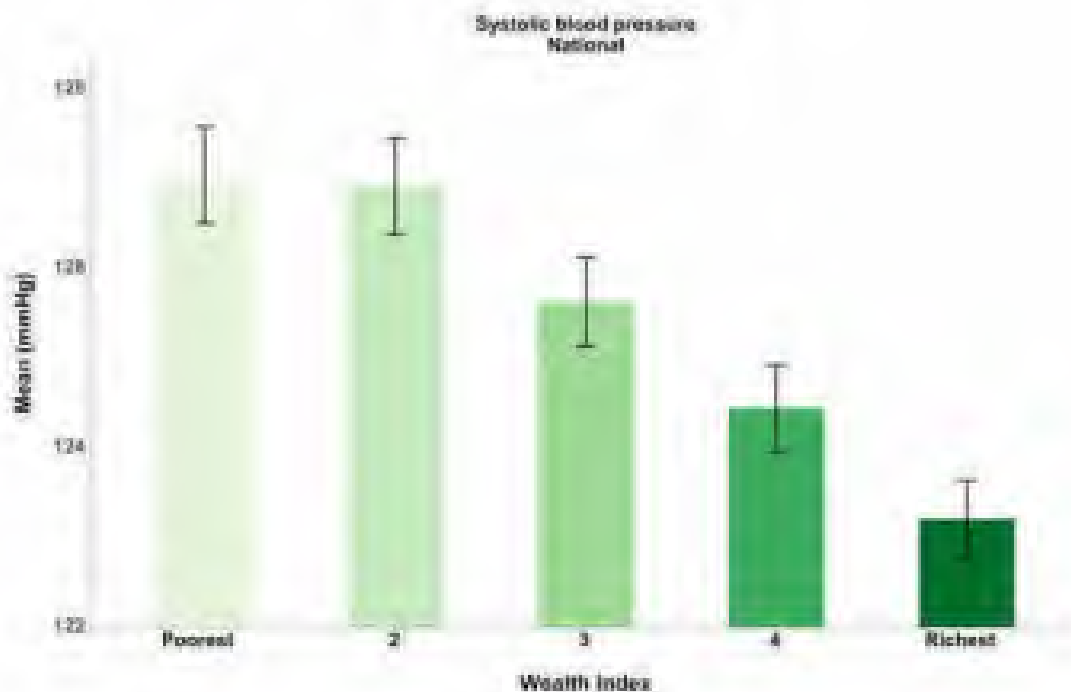


Figure 7.12. Mean of systolic blood pressure by wealth index quantiles at national level

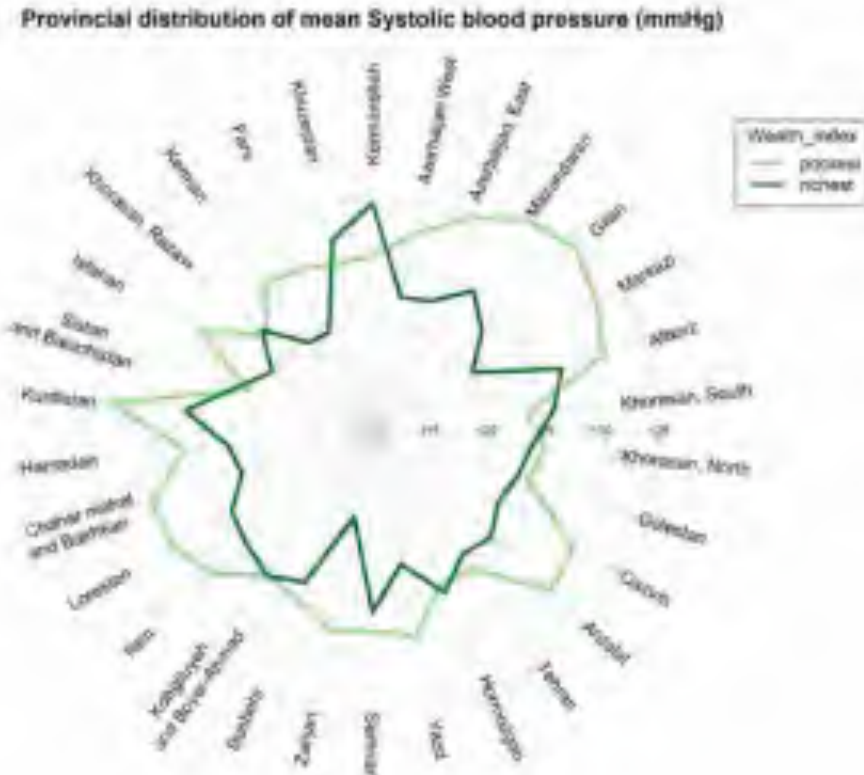


Figure 7.13. Provincial distribution of mean of systolic blood pressure by wealth index

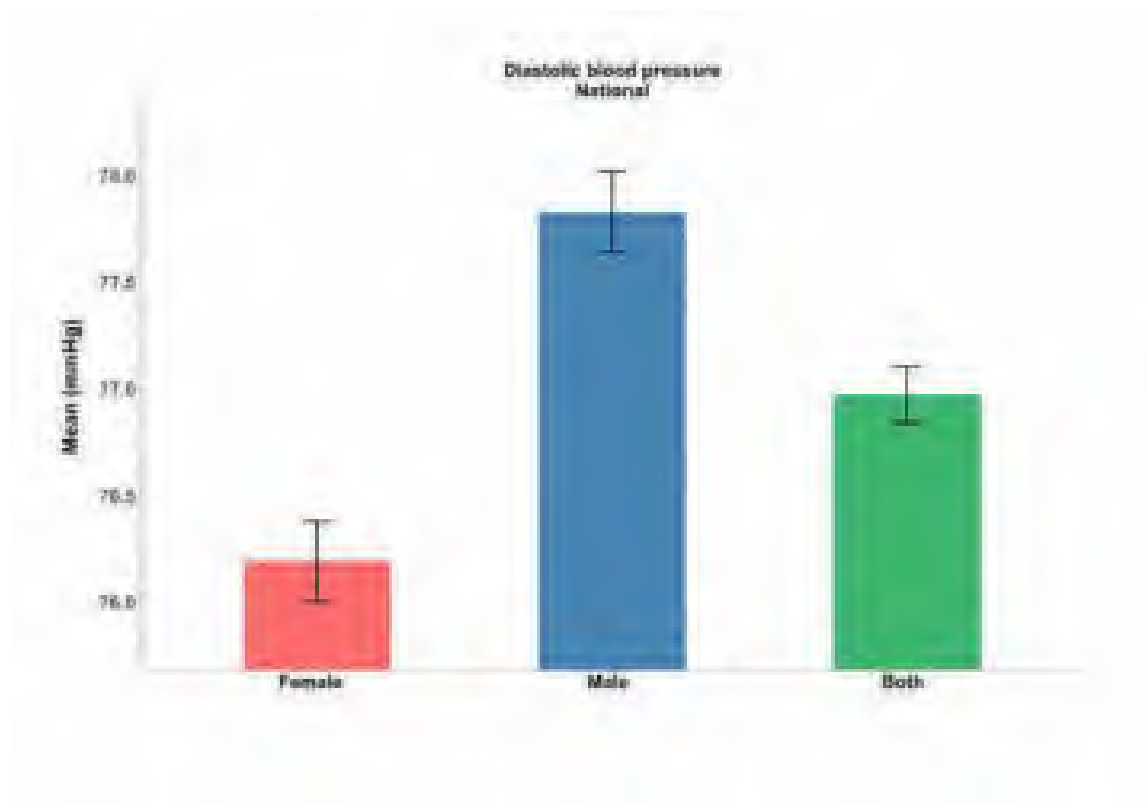


Figure 7.14. Mean of diastolic blood pressure by sex at national level

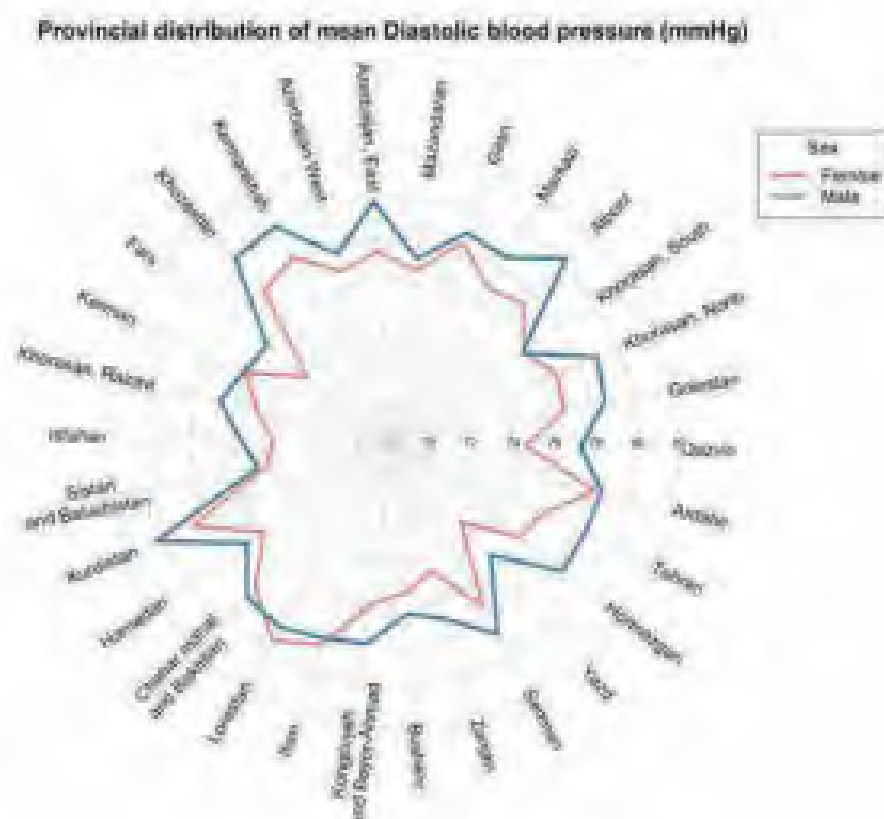


Figure 7.15. Provincial distribution of mean of diastolic blood pressure by sex

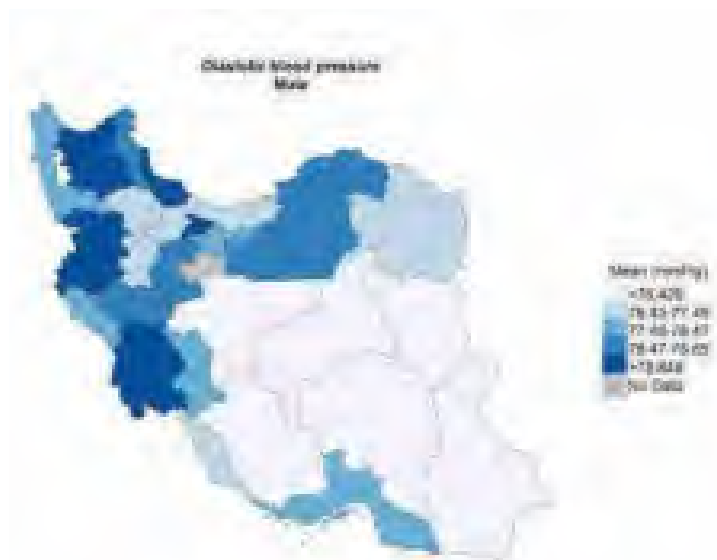


Figure 7.16. Geographical distribution of mean of diastolic blood pressure in males

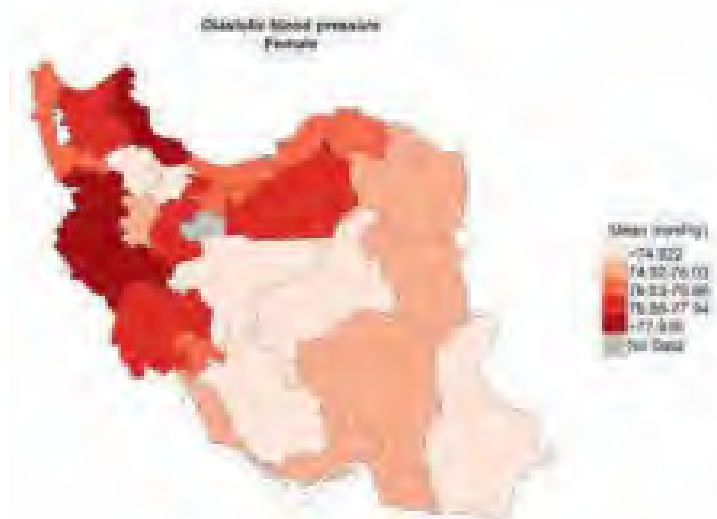


Figure 7.17. Geographical distribution of mean of diastolic blood pressure in females

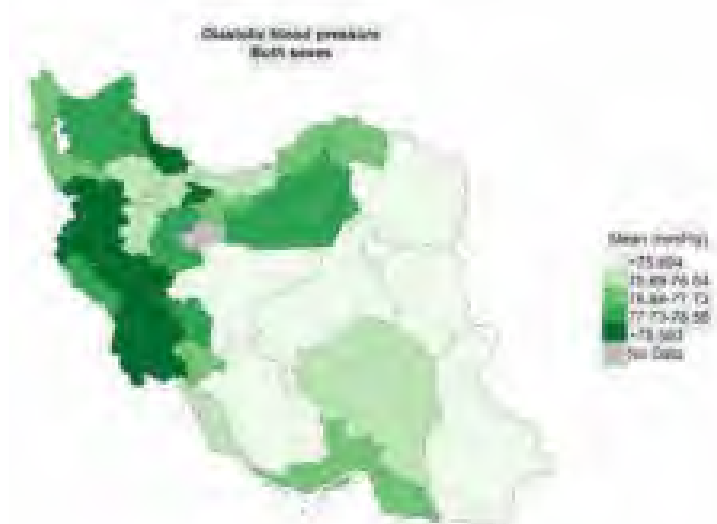


Figure 7.18. Geographical distribution of mean of diastolic blood pressure in both sexes

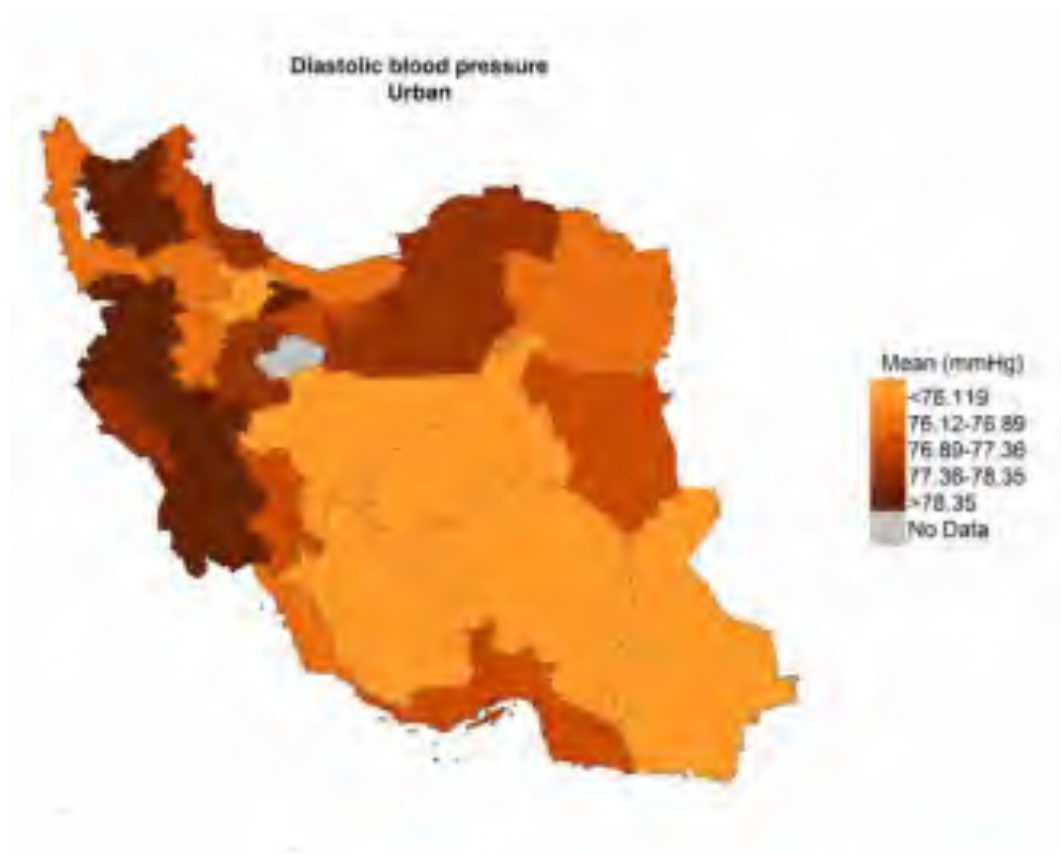


Figure 7.21. Geographical distribution of mean of diastolic blood pressure in urban area of residency

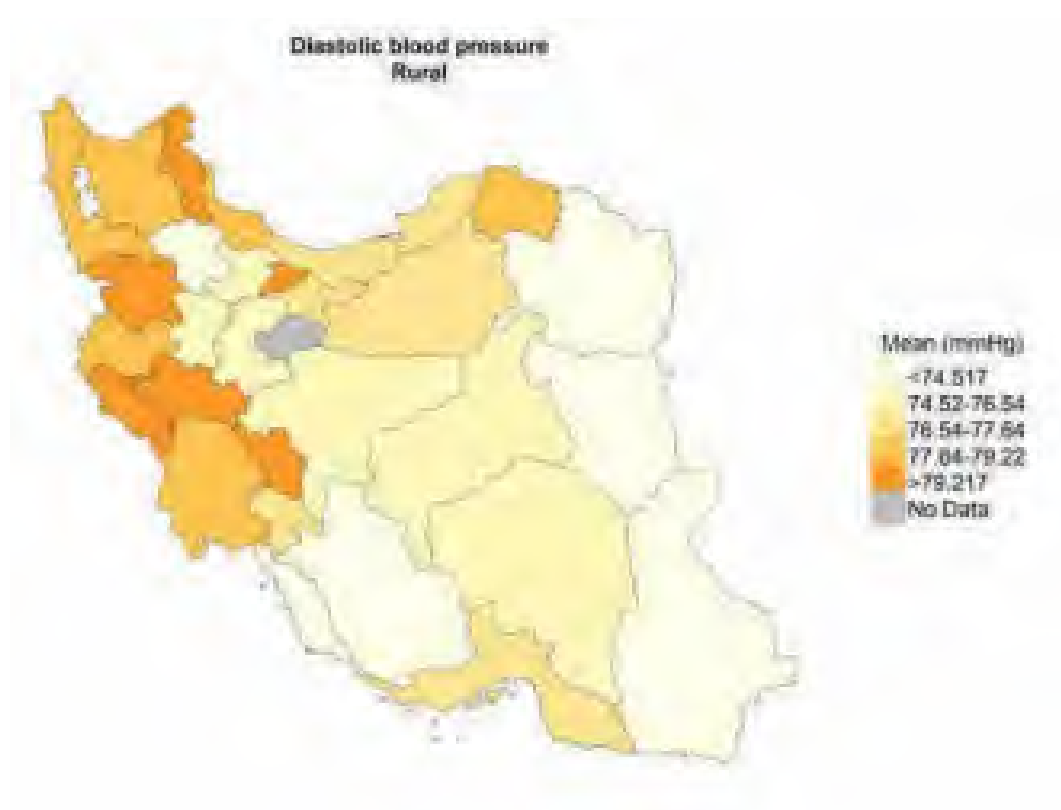


Figure 7.22. Geographical distribution of mean of diastolic blood pressure in rural area of residency

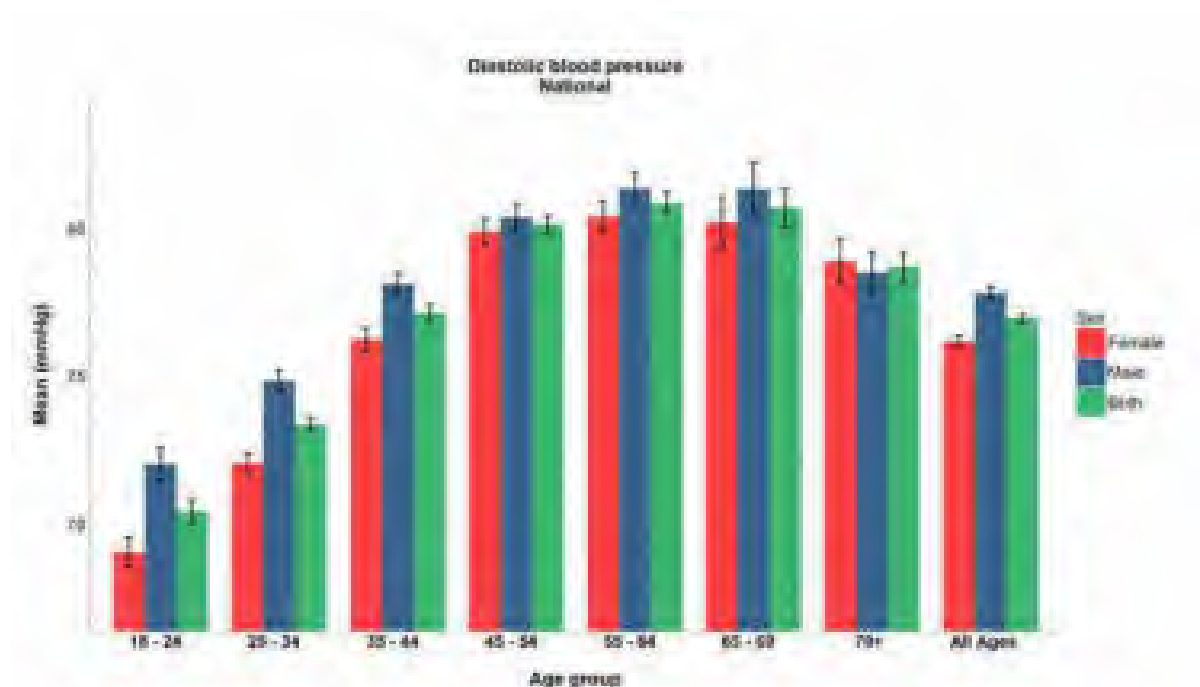


Figure 7.23. Mean of diastolic blood pressure by age and sex at national level

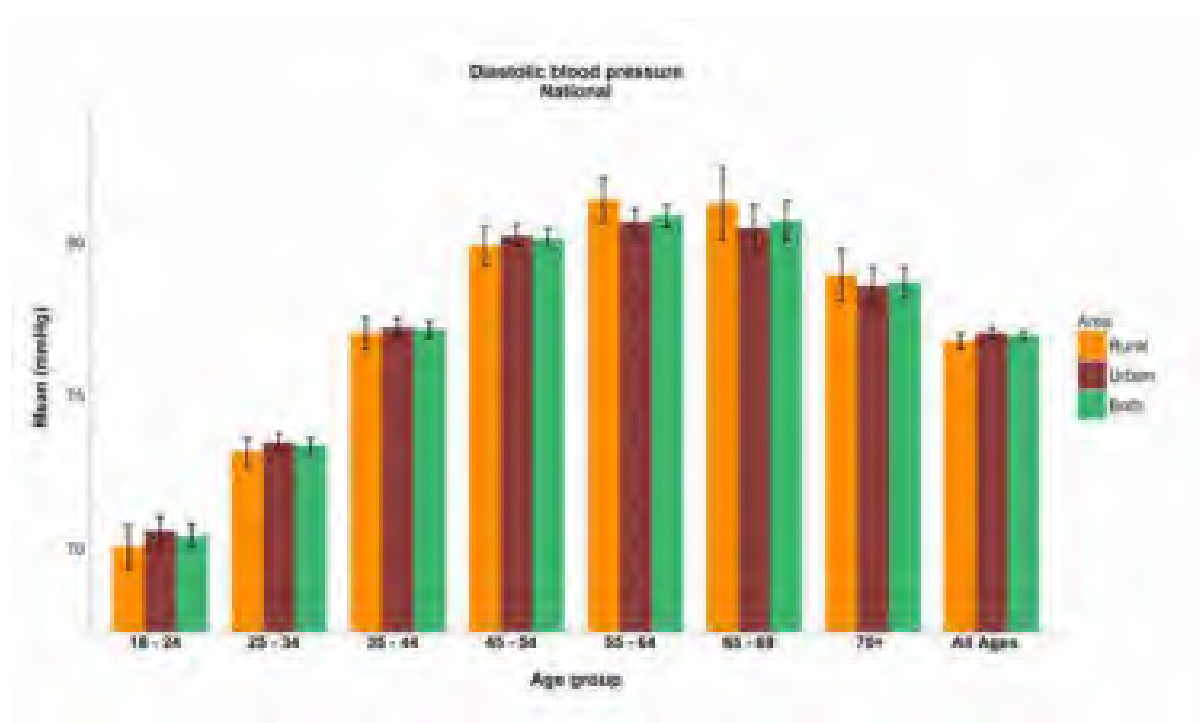
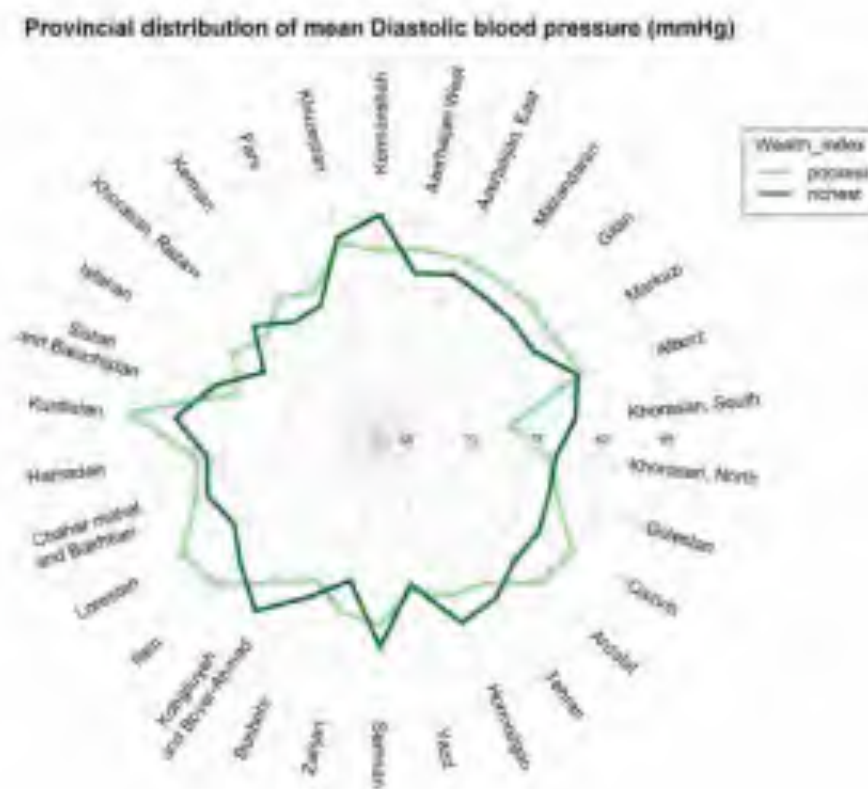
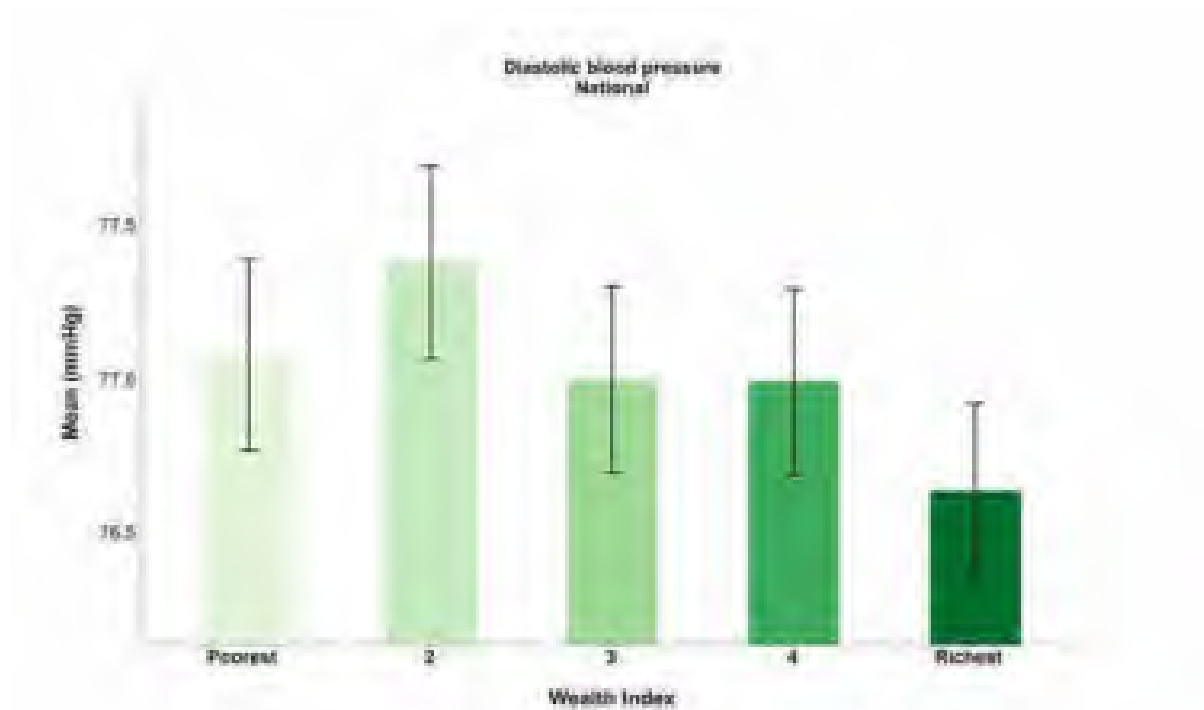


Figure 7.24. Mean of diastolic blood pressure by age and area of residency at national level



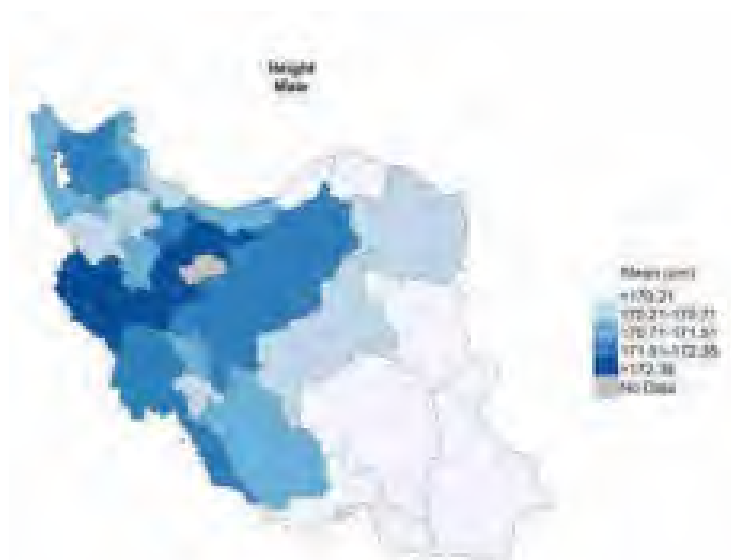


Figure 7.29. Geographical distribution of mean of height in males

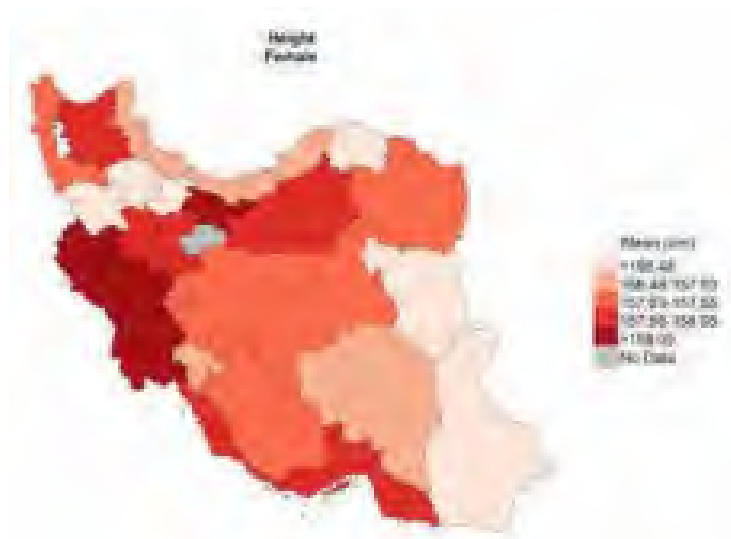


Figure 7.30. Geographical distribution of mean of height in females

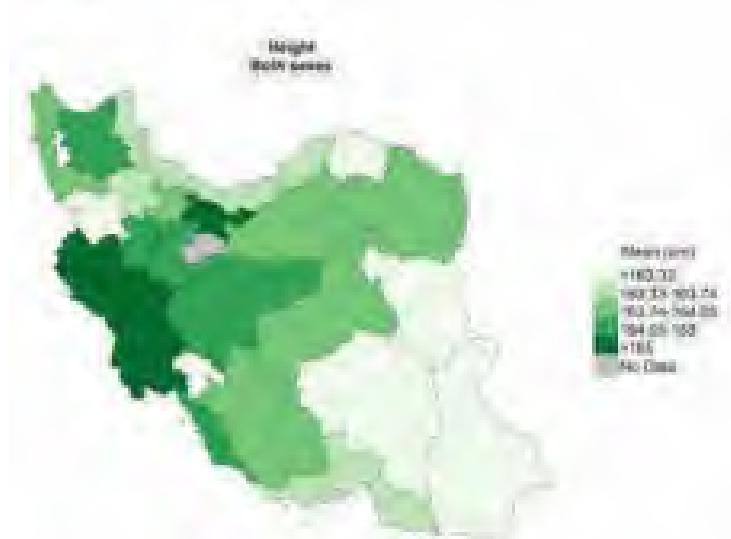


Figure 7.31. Geographical distribution of mean of height in both sexes

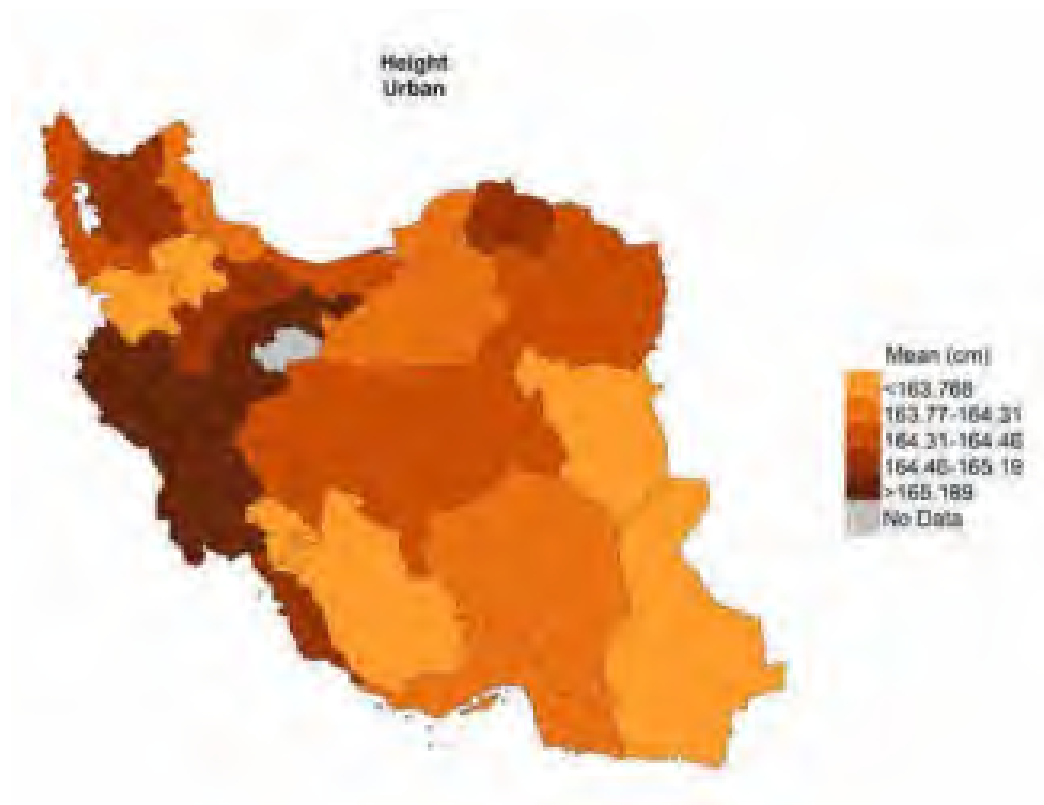


Figure 7.34. Geographical distribution of mean of height in urban area of residency

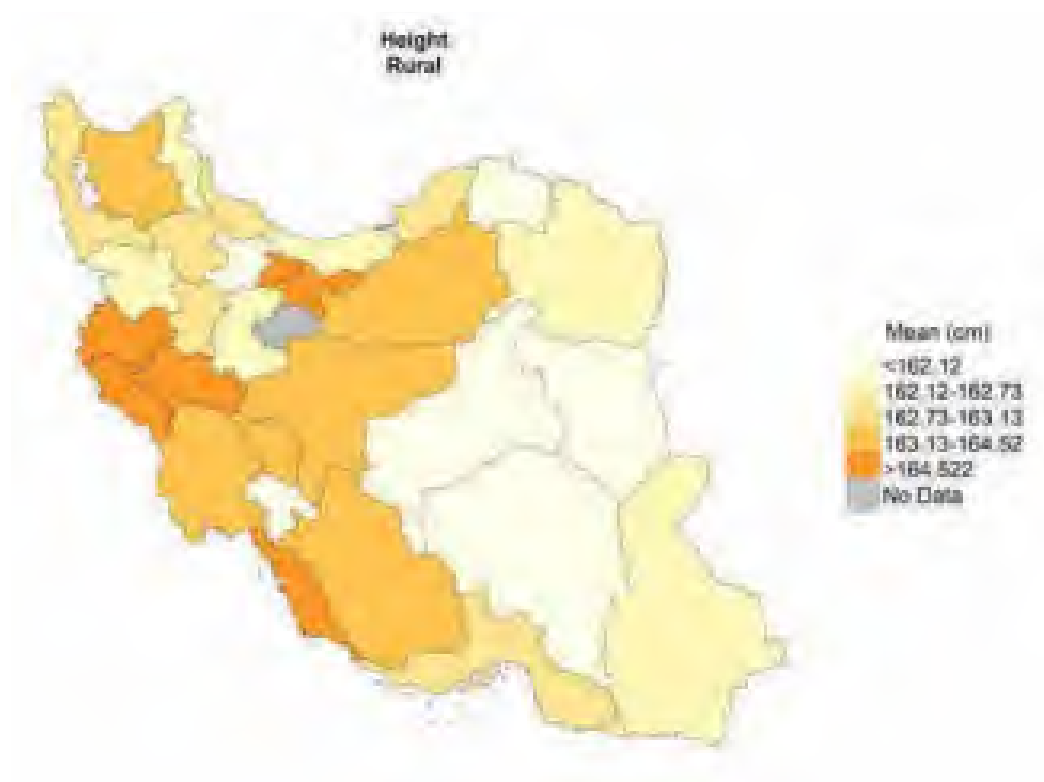


Figure 7.35. Geographical distribution of mean of height in rural area of residency

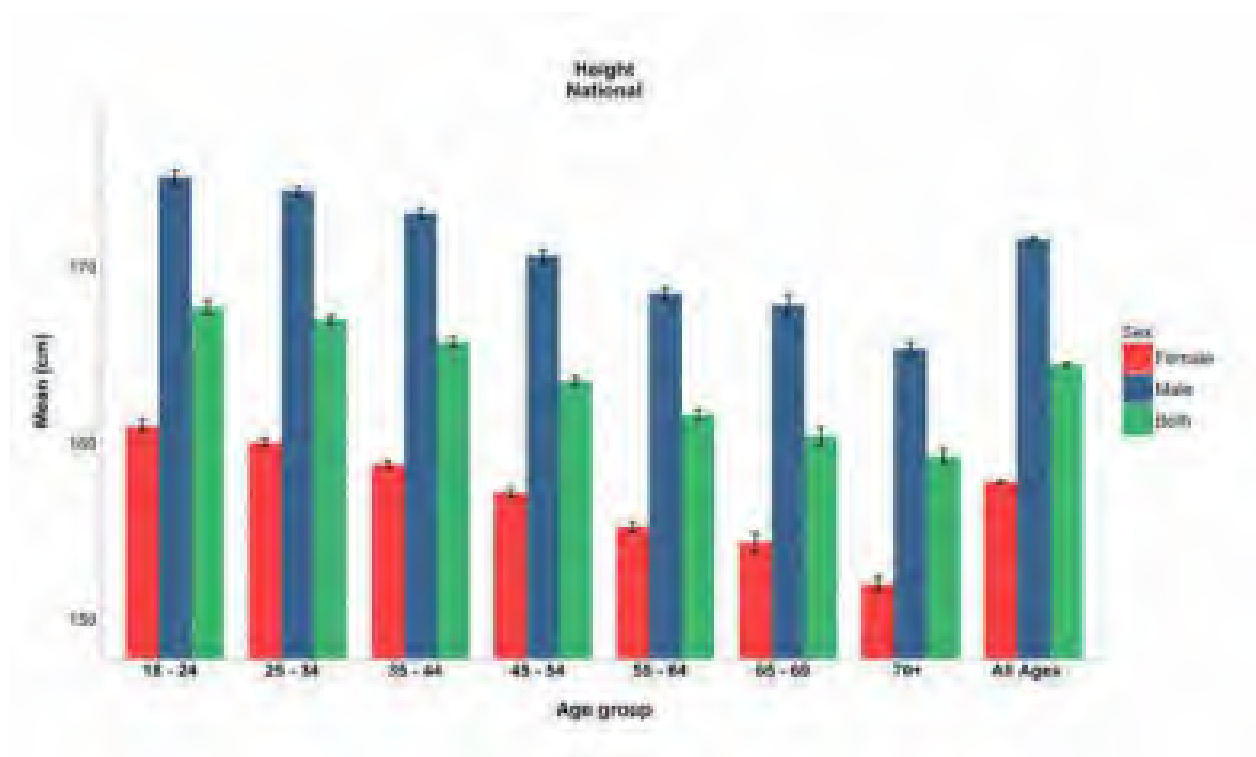


Figure 7.36. Mean of height by age and sex at national level

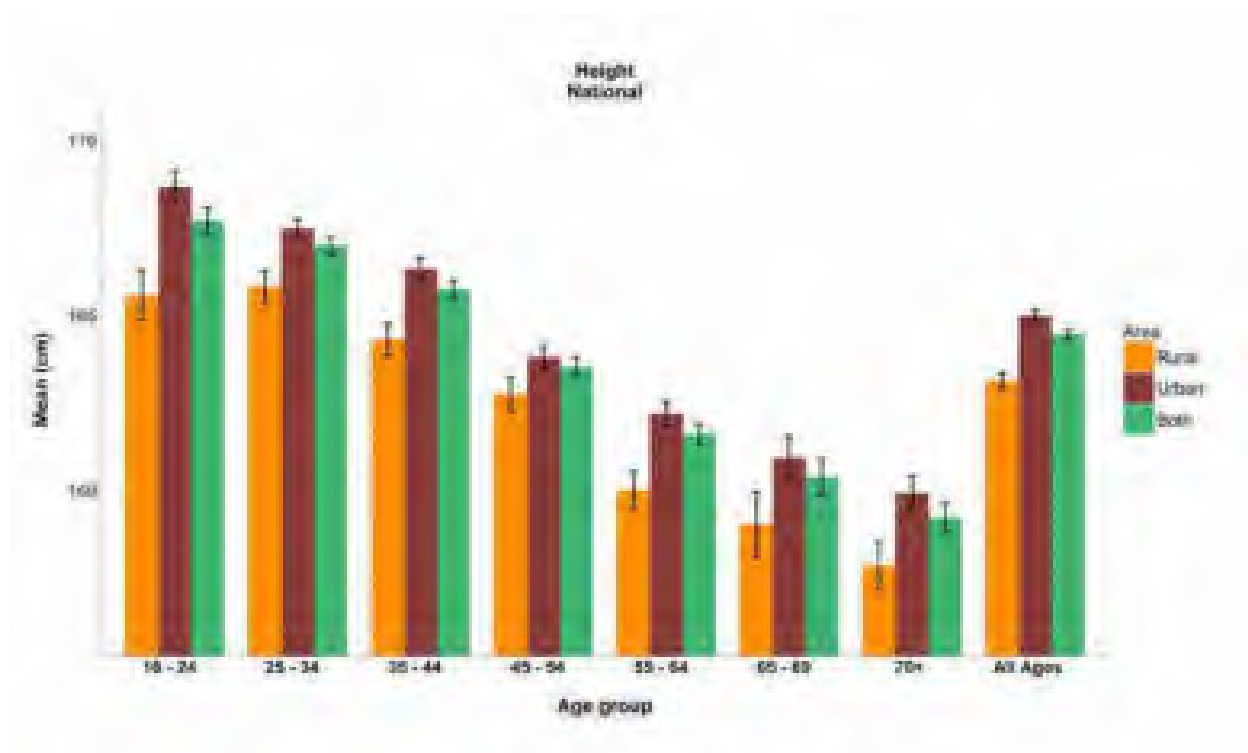
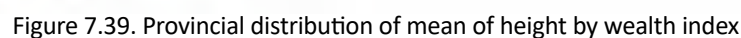


Figure 7.37. Mean of height by age and area of residency at national level



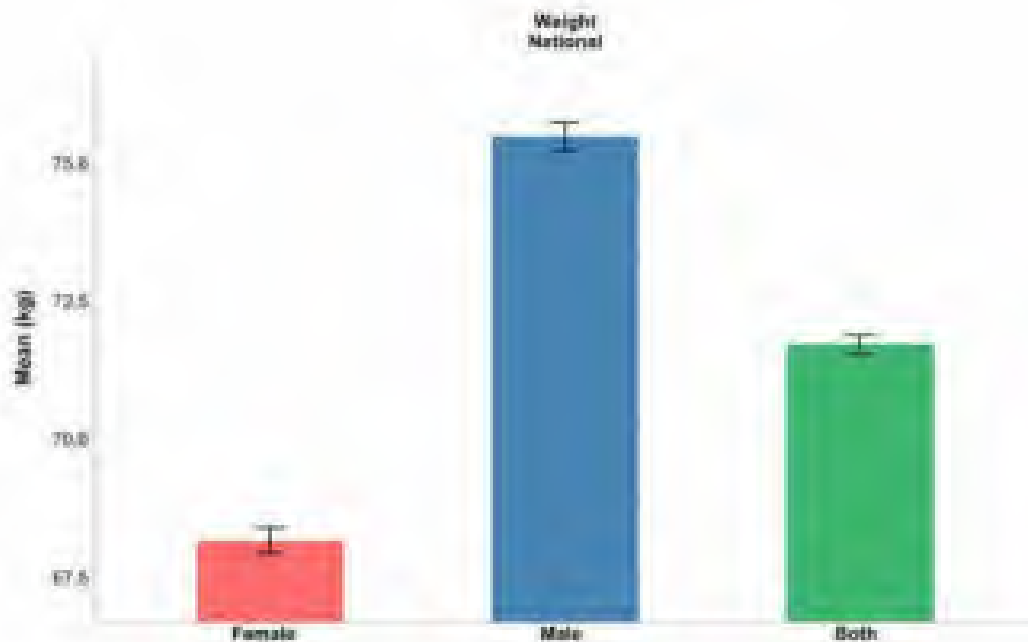


Figure 7.40. Mean of weight by sex at national level

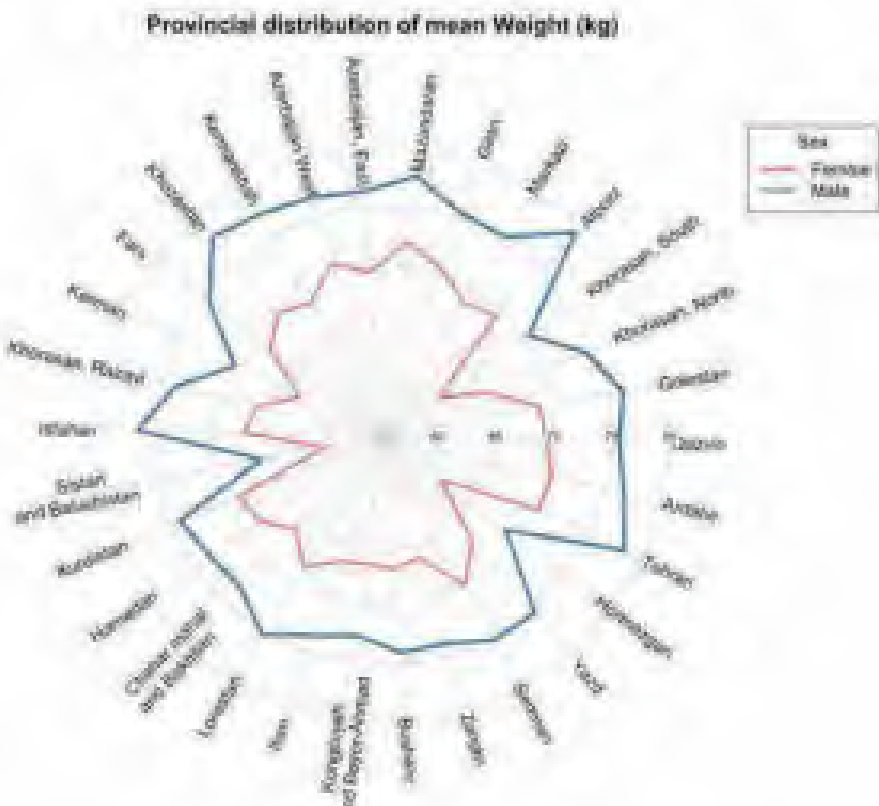


Figure 7.41. Provincial distribution of mean of weight by sex

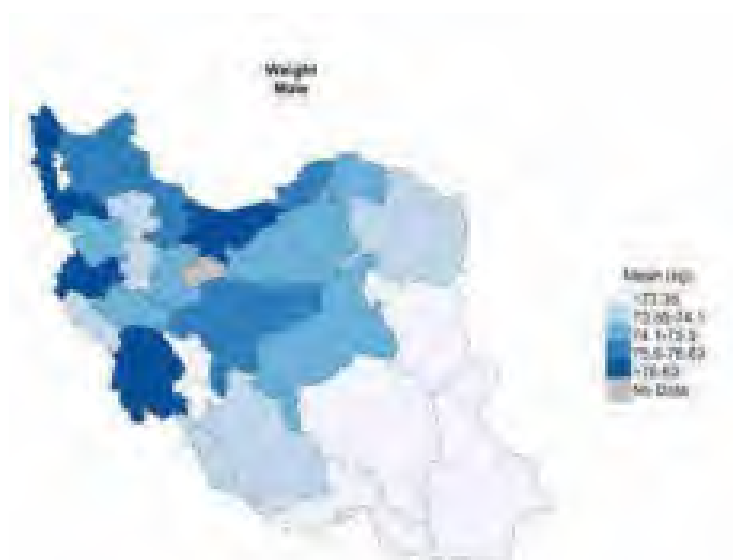


Figure 7.42. Geographical distribution of mean of weight in males

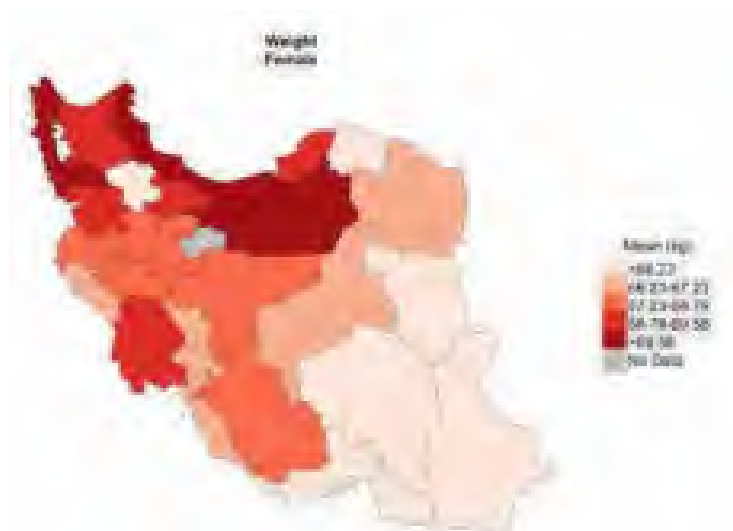


Figure 7.43. Geographical distribution of mean of weight in females

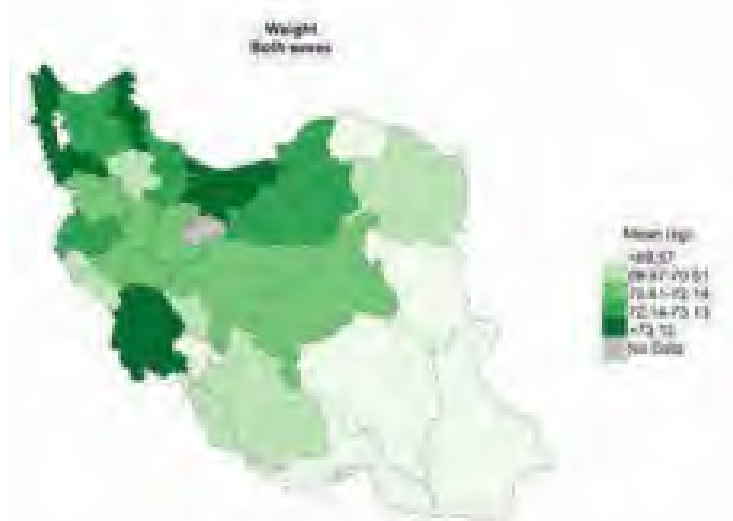


Figure 7.44. Geographical distribution of mean of weight in both sexes

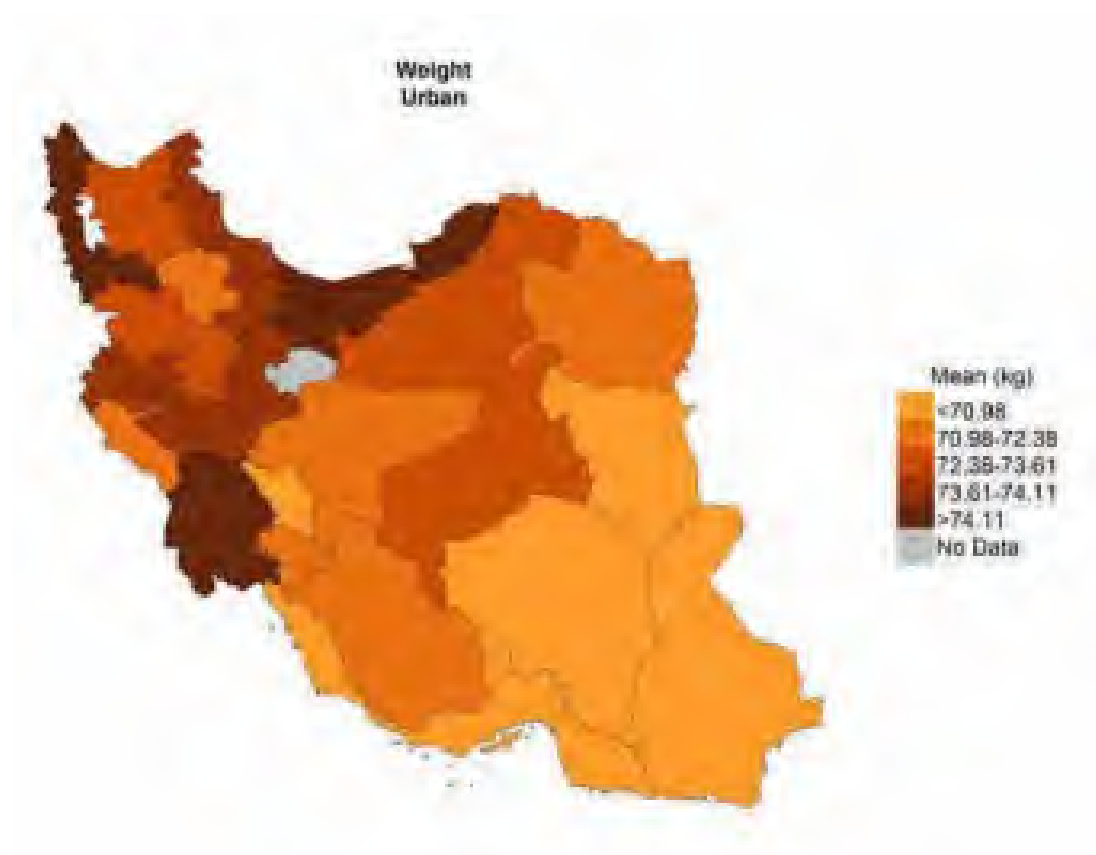


Figure 7.47. Geographical distribution of mean of weight in urban area of residency

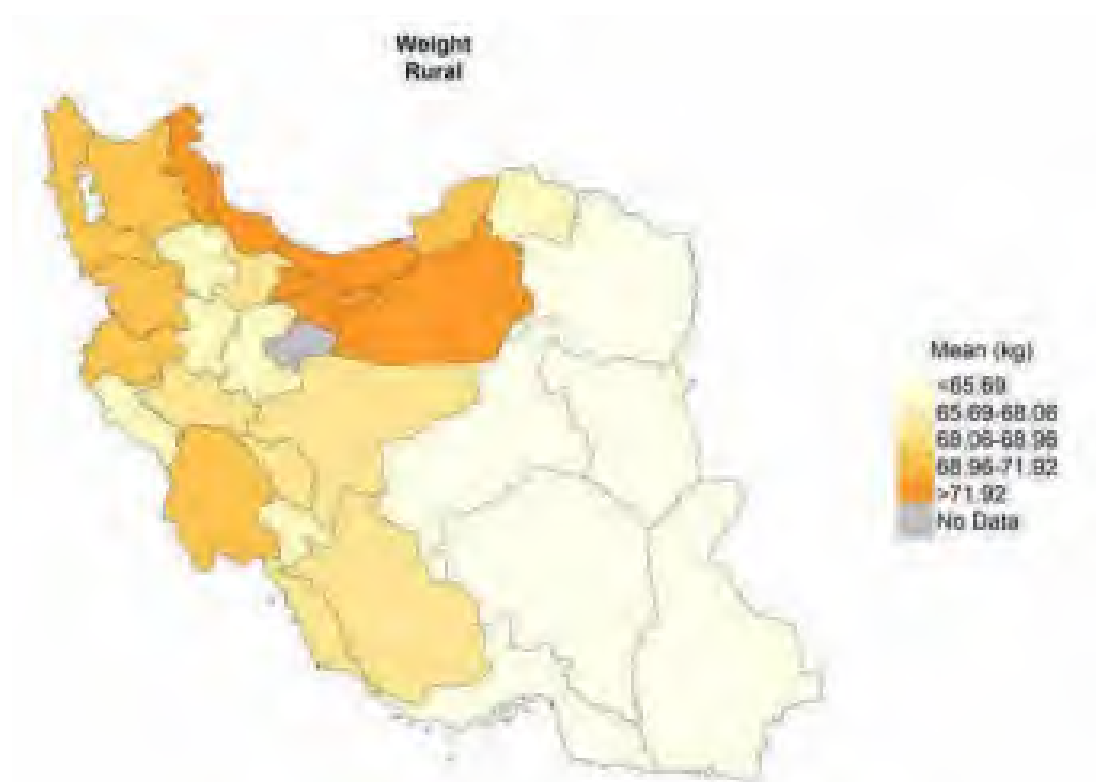


Figure 7.48. Geographical distribution of mean of weight in rural area of residency

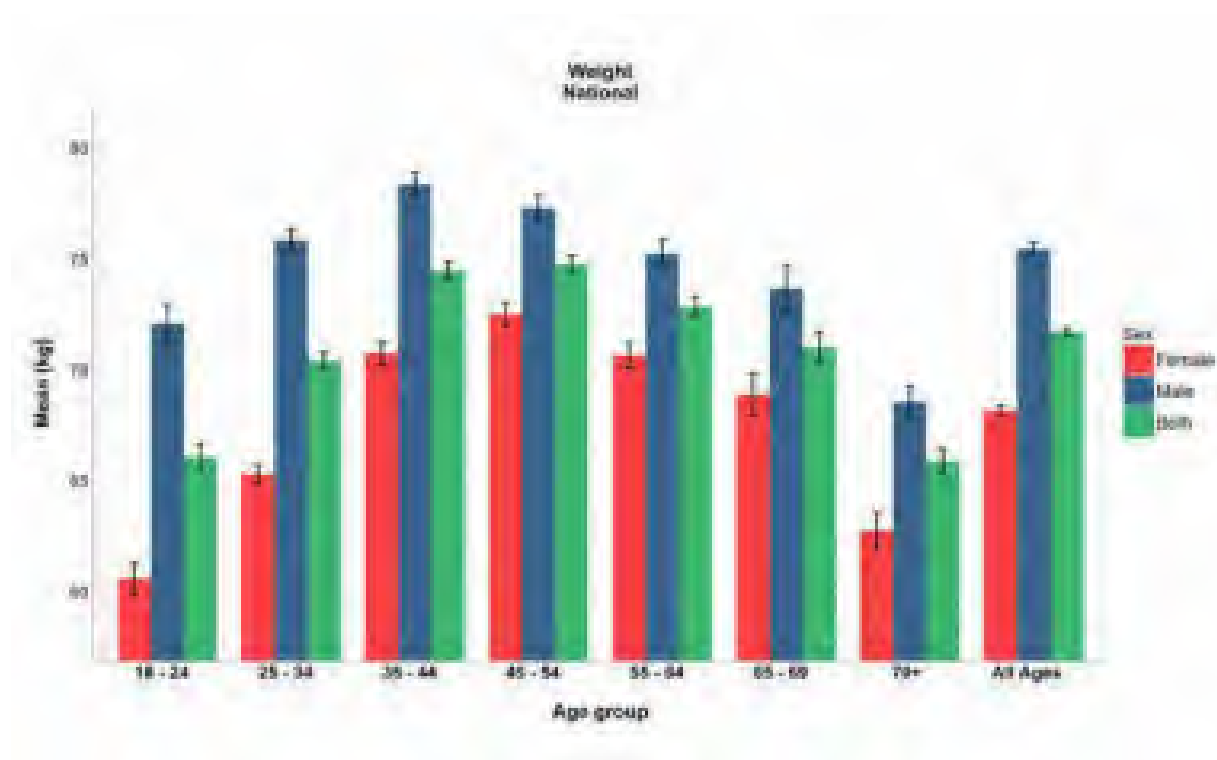


Figure 7.49. Mean of weight by age and sex at national level

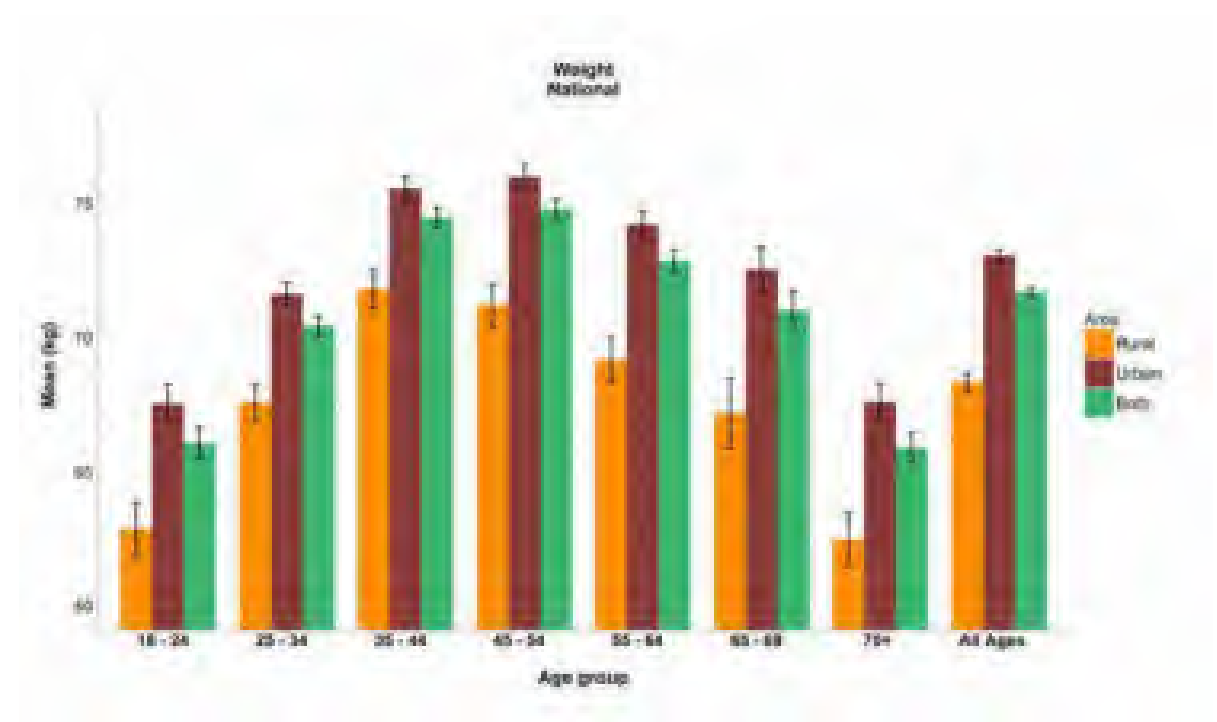


Figure 7.50. Mean of weight by age and area of residency at national level

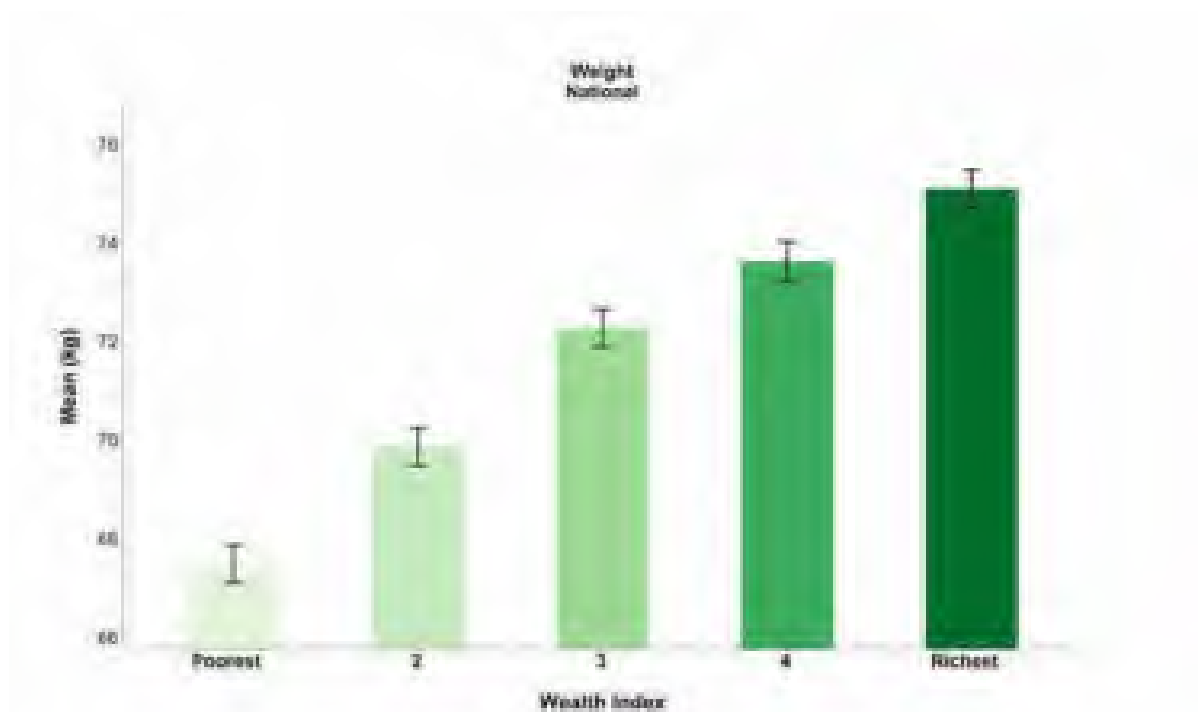
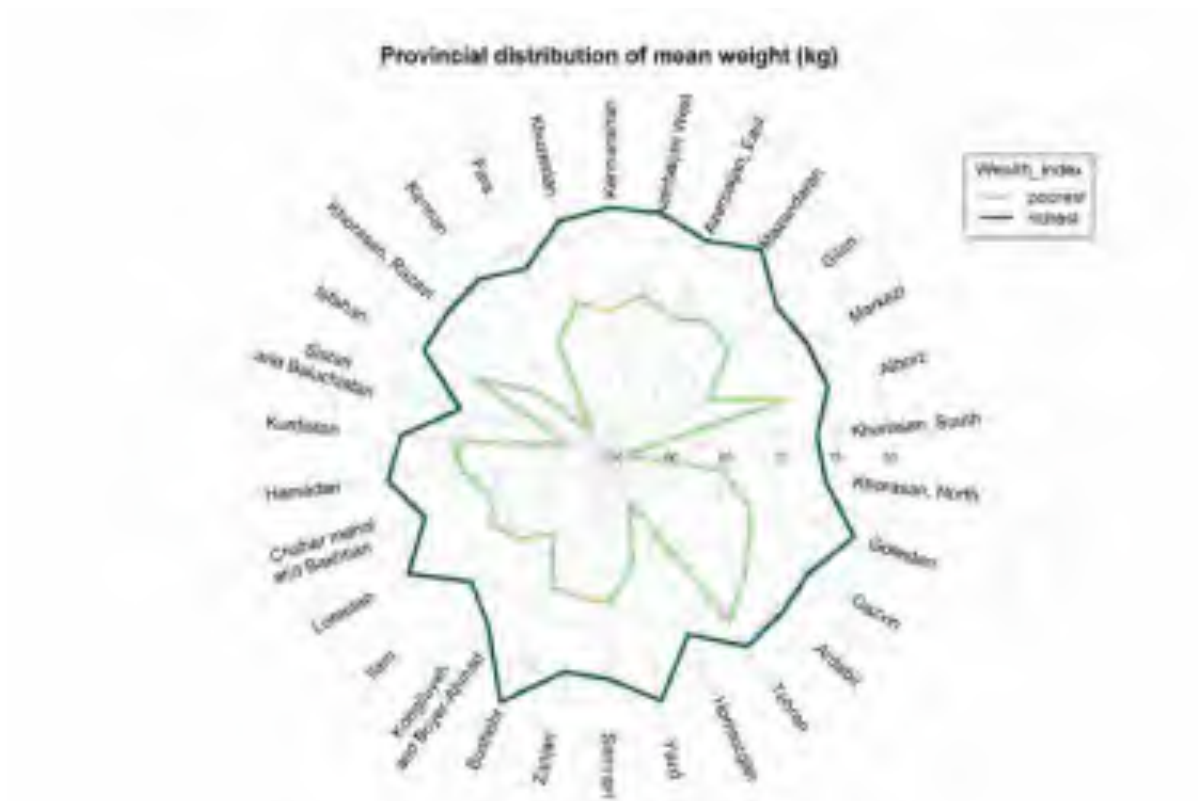


Figure 7.51. Mean of weight by wealth index quantiles at national level



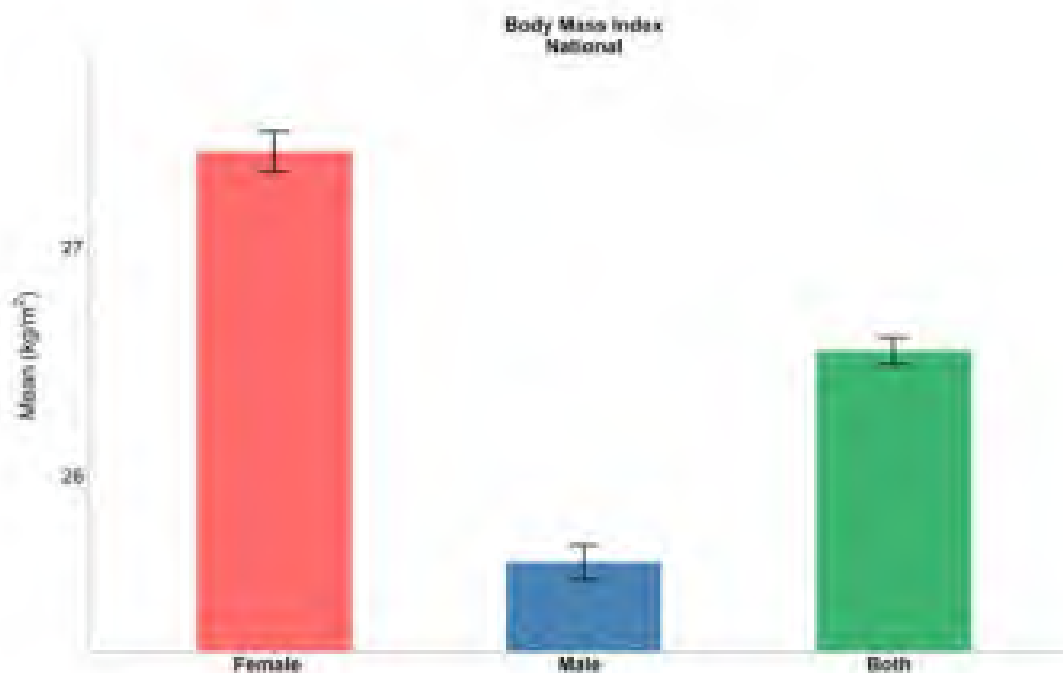


Figure 7.53. Mean of body mass index by sex at national level

Provincial distribution of mean Body Mass Index (kg/meter squared)

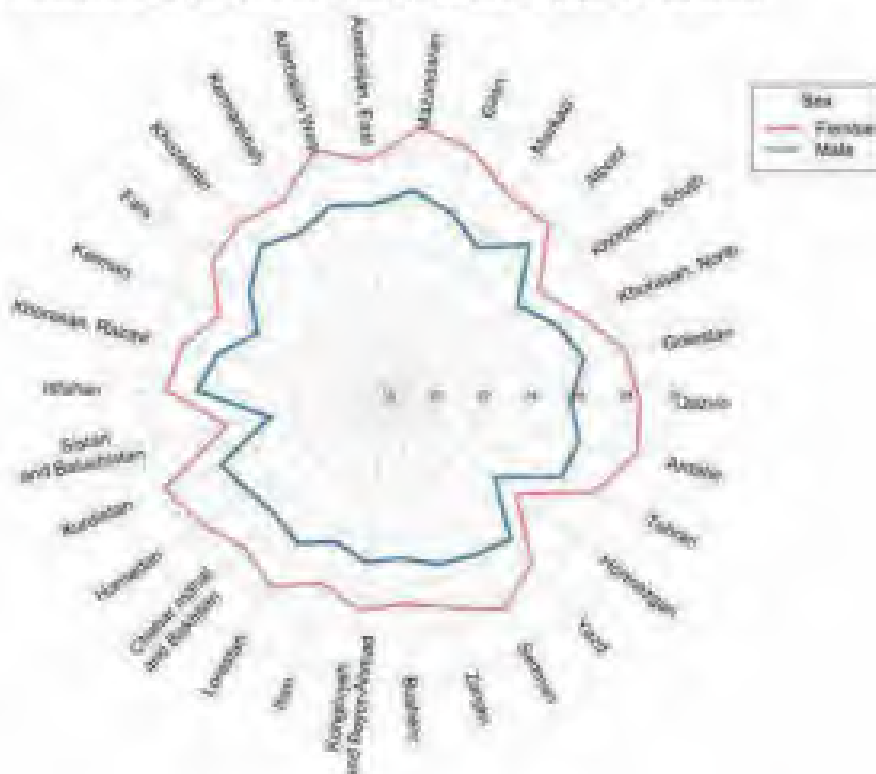


Figure 7.54. Provincial distribution of mean of body mass index by sex

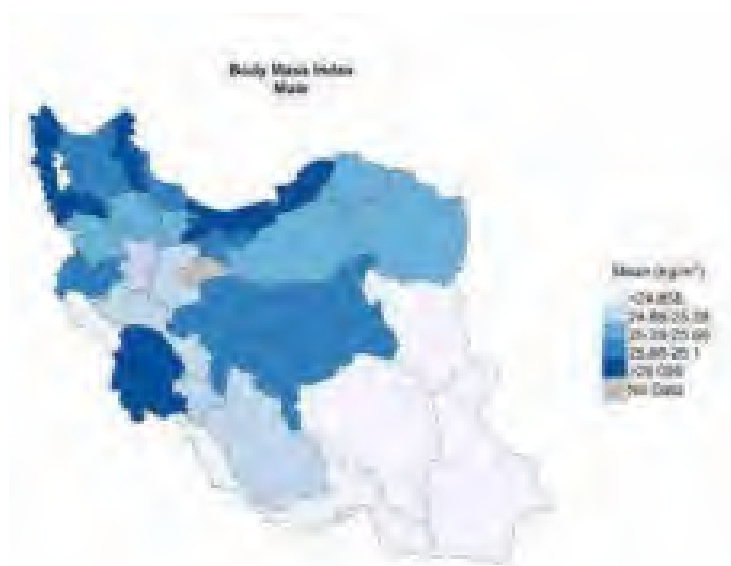


Figure 7.55. Geographical distribution of mean of body mass index in males

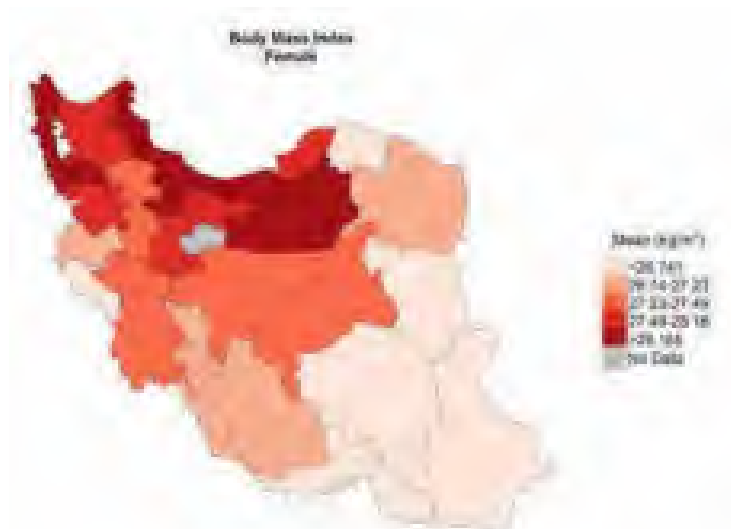


Figure 7.56. Geographical distribution of mean of body mass index in females

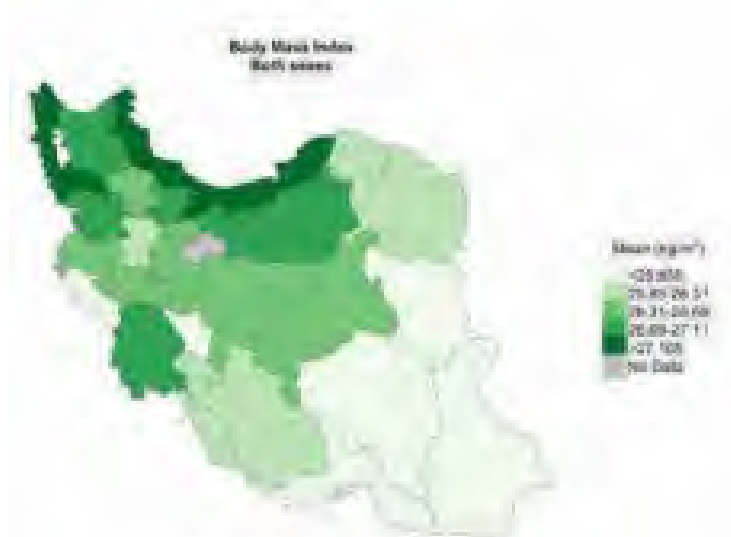


Figure 7.57. Geographical distribution of mean of body mass index in both sexes

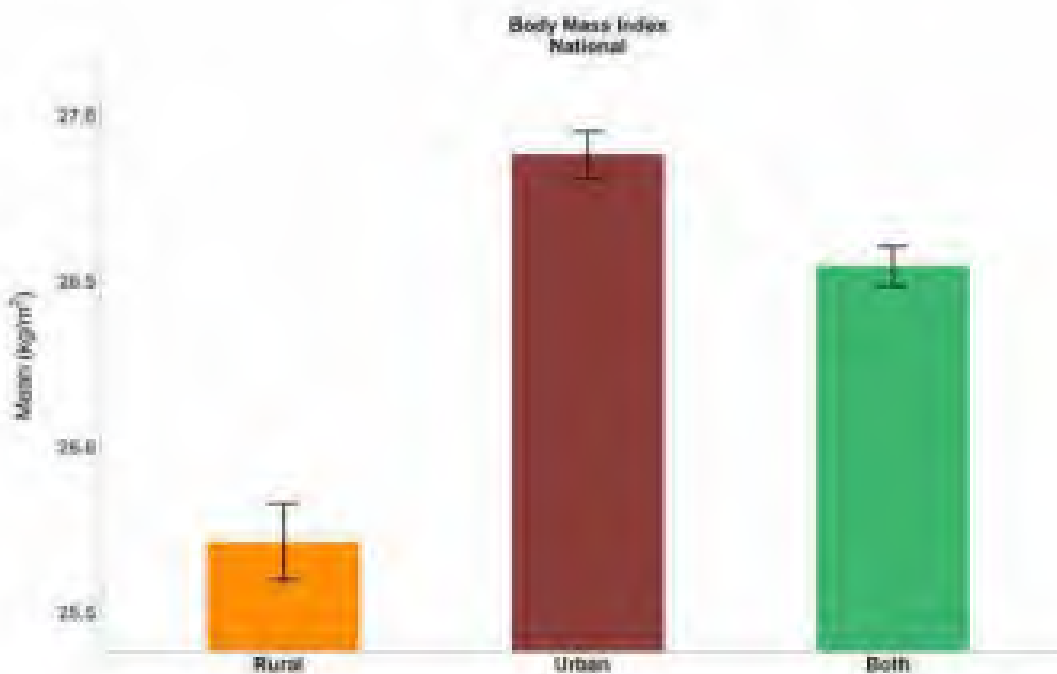


Figure 7.58. Mean of body mass index by area of residency at national level

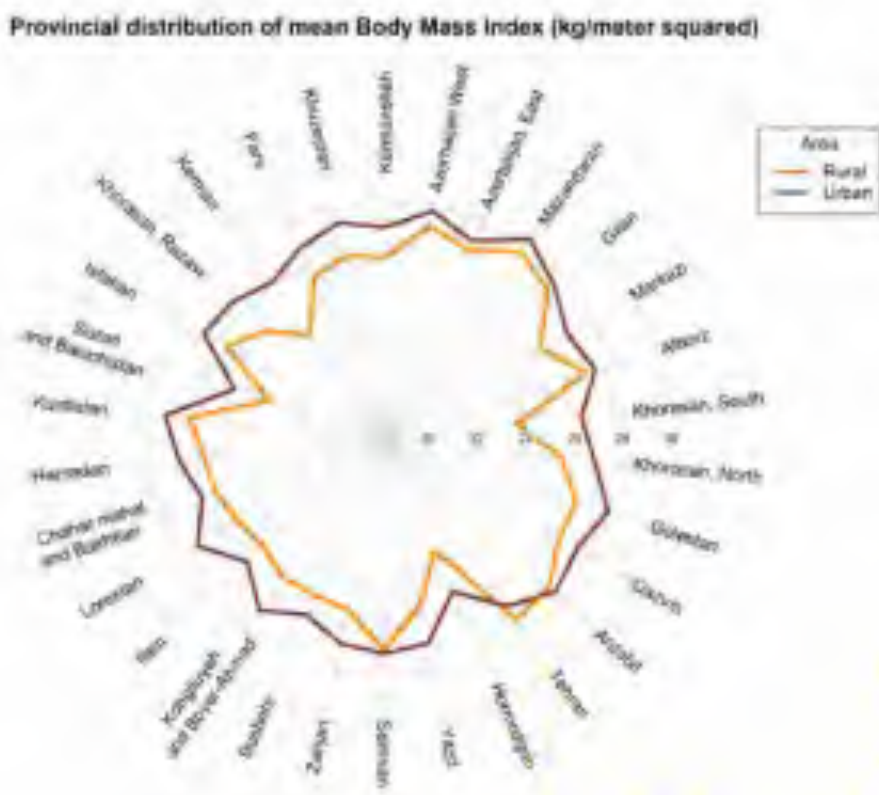


Figure 7.59. Provincial distribution of mean of body mass index by area of residency

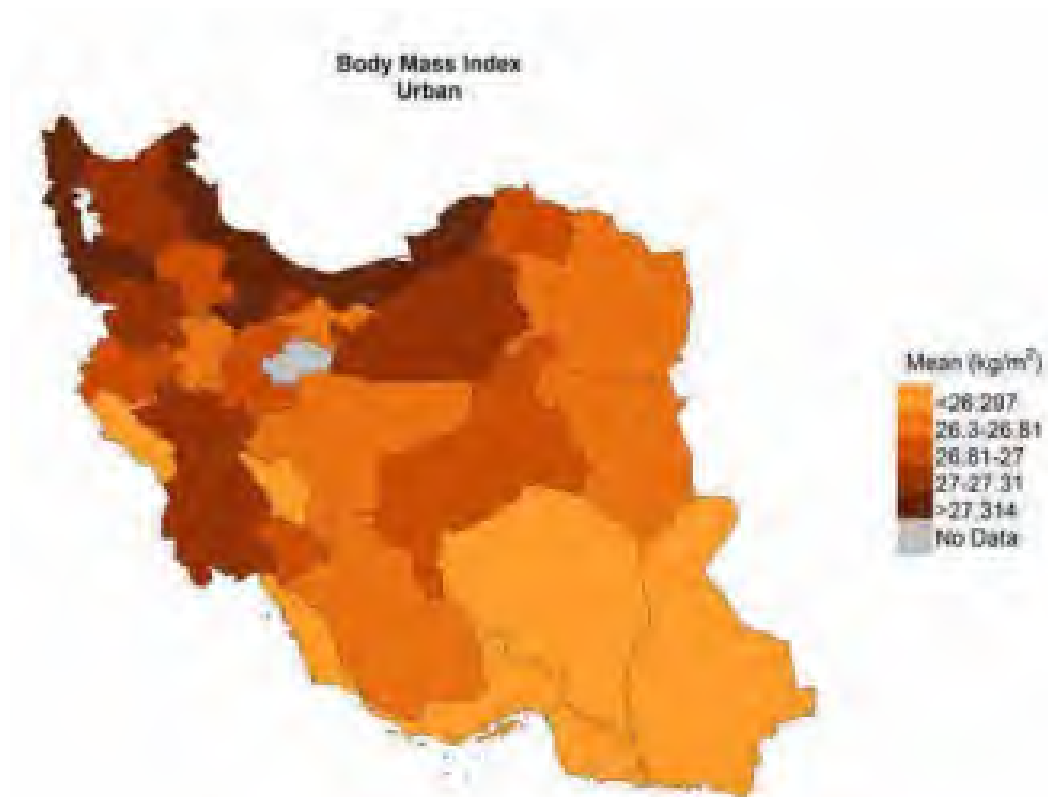


Figure 7.60. Geographical distribution of mean of body mass index in urban area of residency

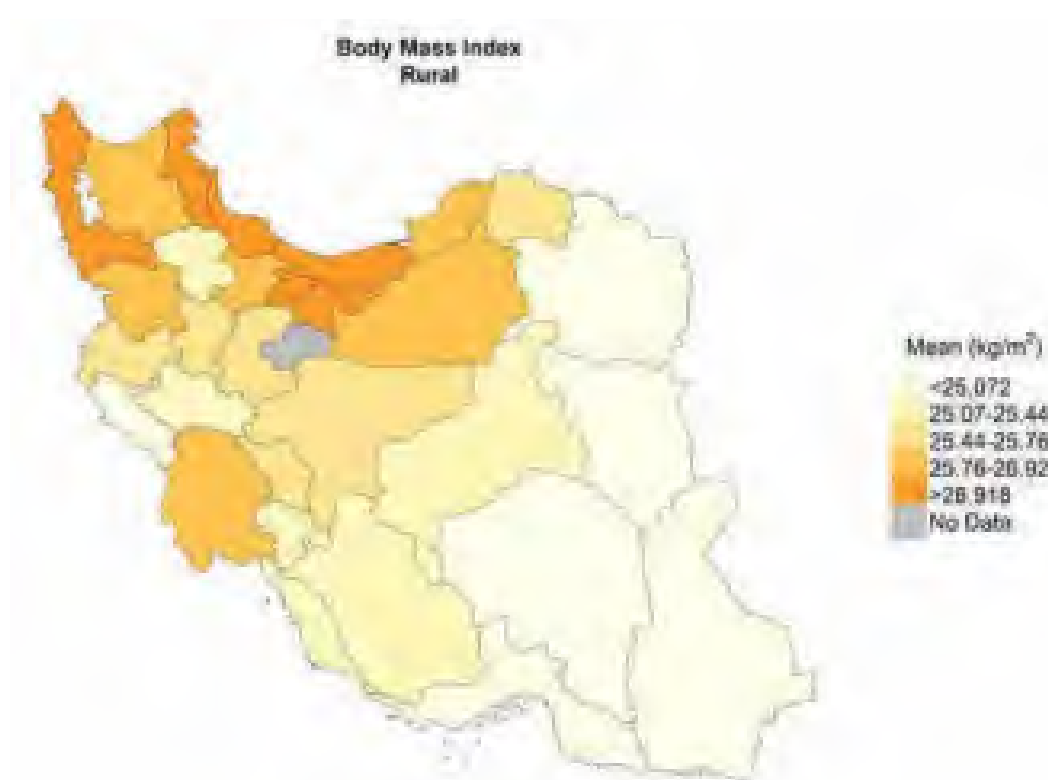


Figure 7.61. Geographical distribution of mean of body mass index in rural area of residency

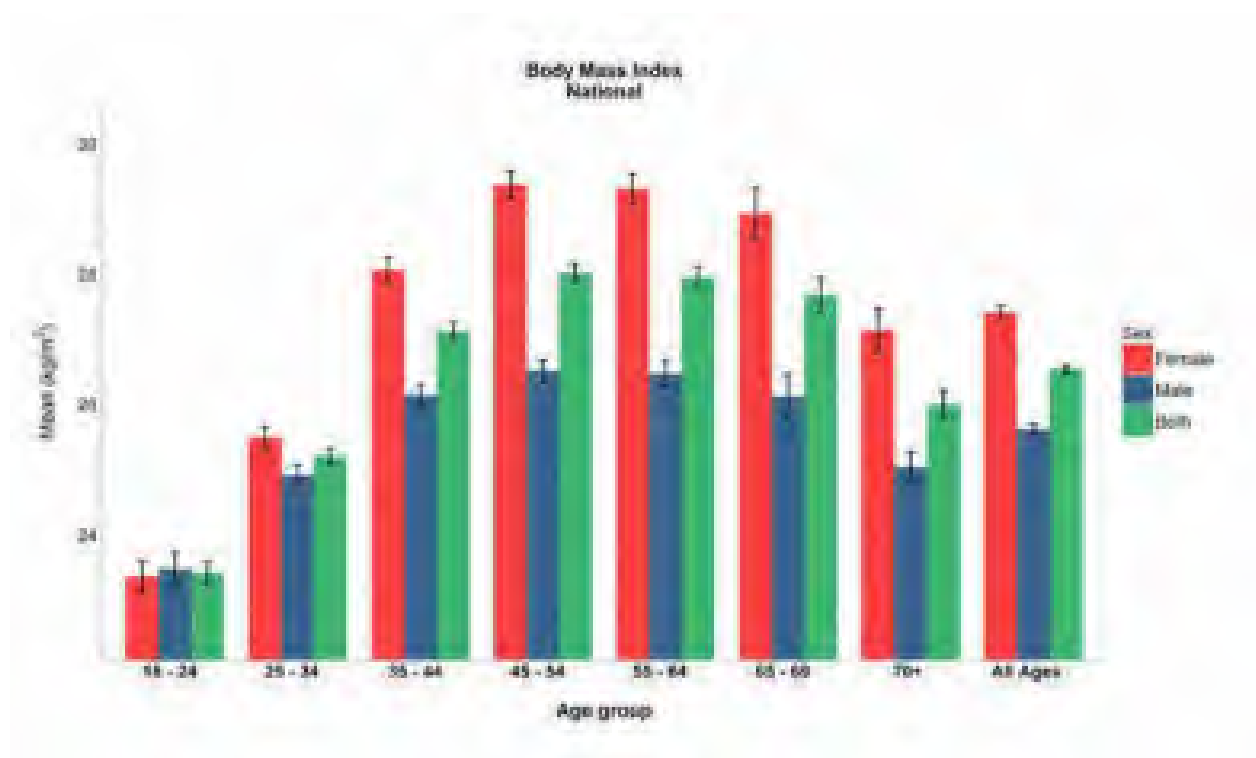


Figure 7.62. Mean of body mass index by age and sex at national level

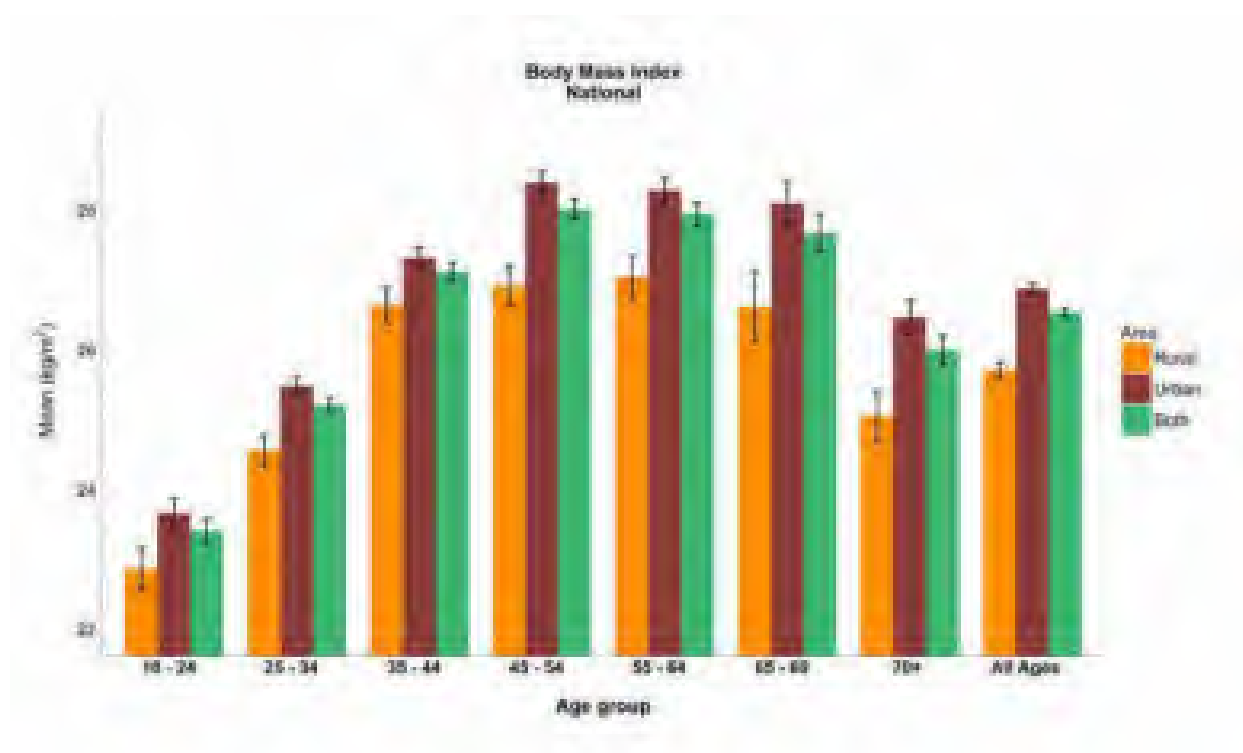


Figure 7.63. Mean of body mass index by age and area of residency at national level

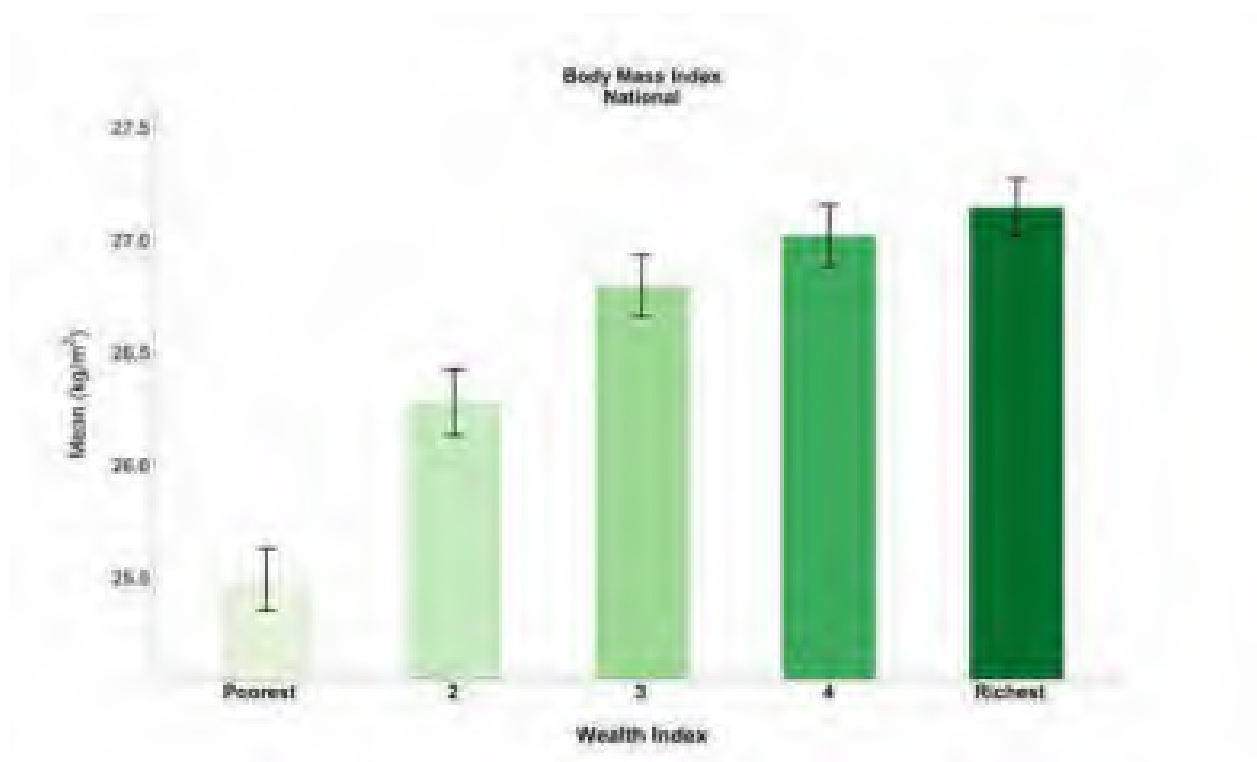


Figure 7.64. Mean of body mass index by wealth index quantiles at national level

Provincial distribution of mean Body Mass Index (kg/meter squared)

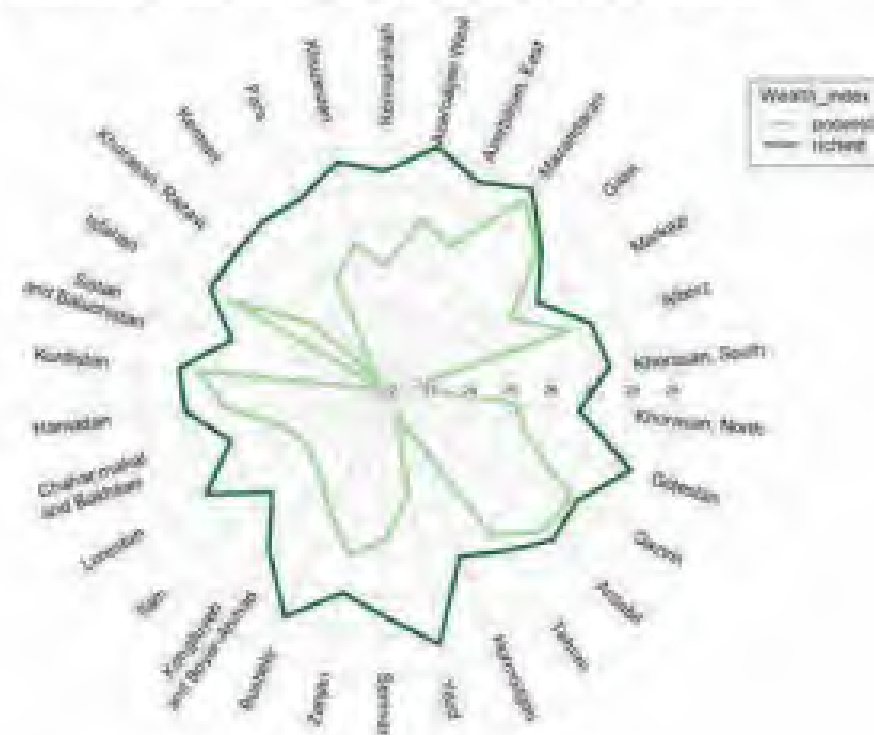


Figure 7.65. Provincial distribution of mean of body mass index by wealth index

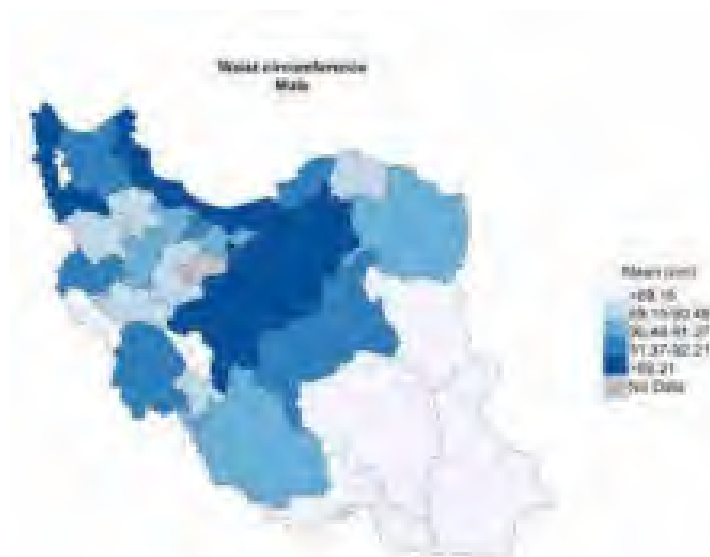


Figure 7.68. Geographical distribution of mean of waist circumference in males

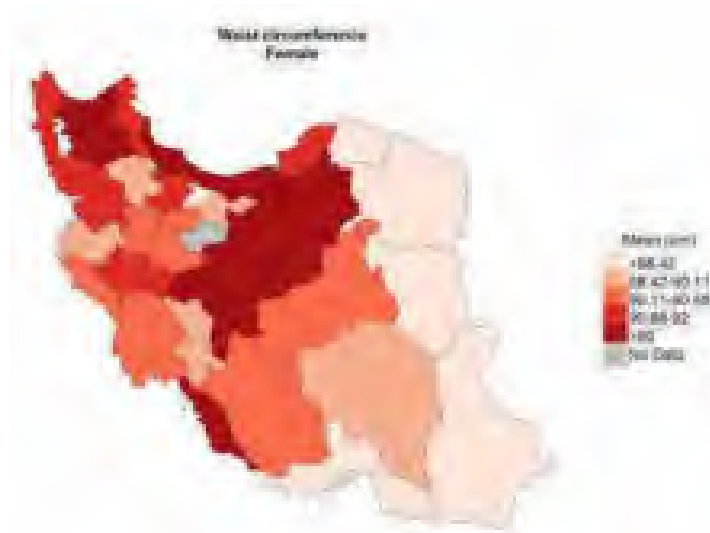


Figure 7.69. Geographical distribution of mean of waist circumference in females

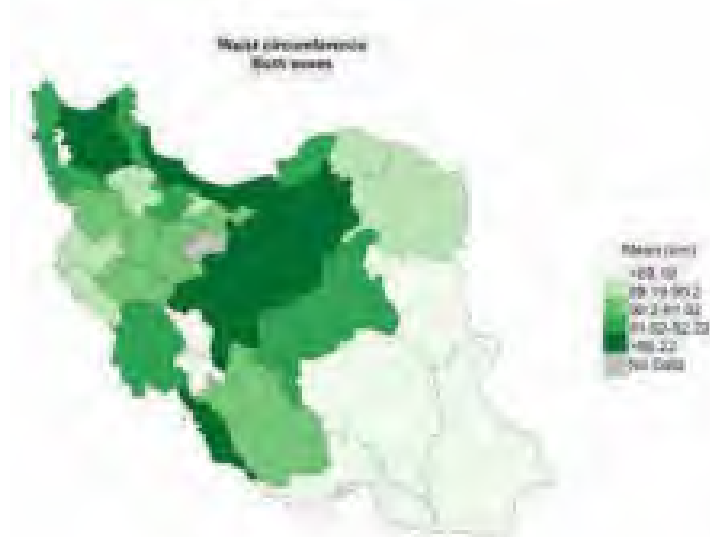


Figure 7.70. Geographical distribution of mean of waist circumference in both sexes

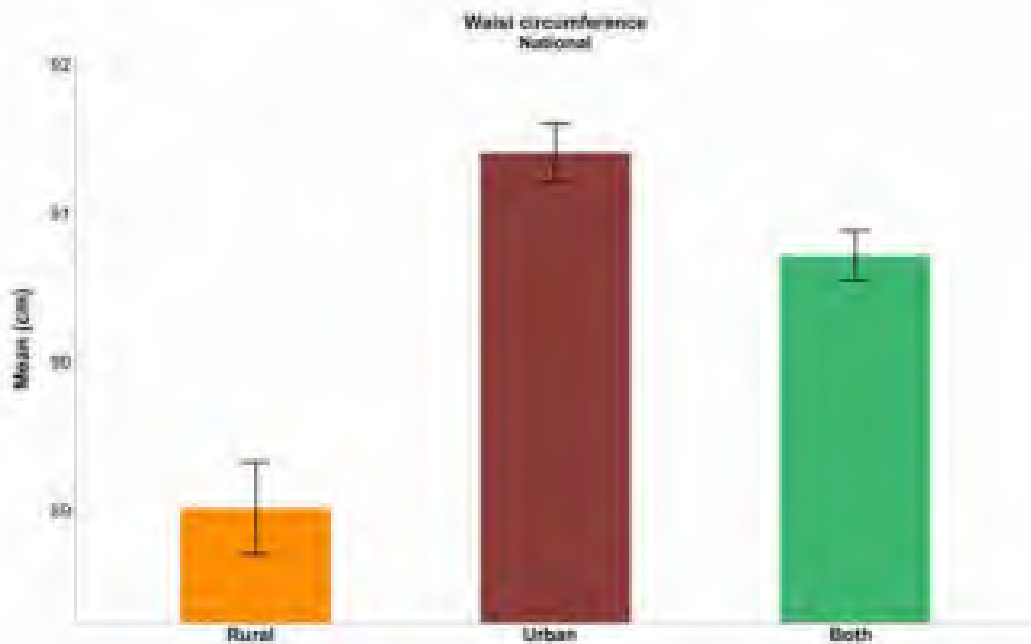


Figure 7.71. Mean of waist circumference by area of residency at national level

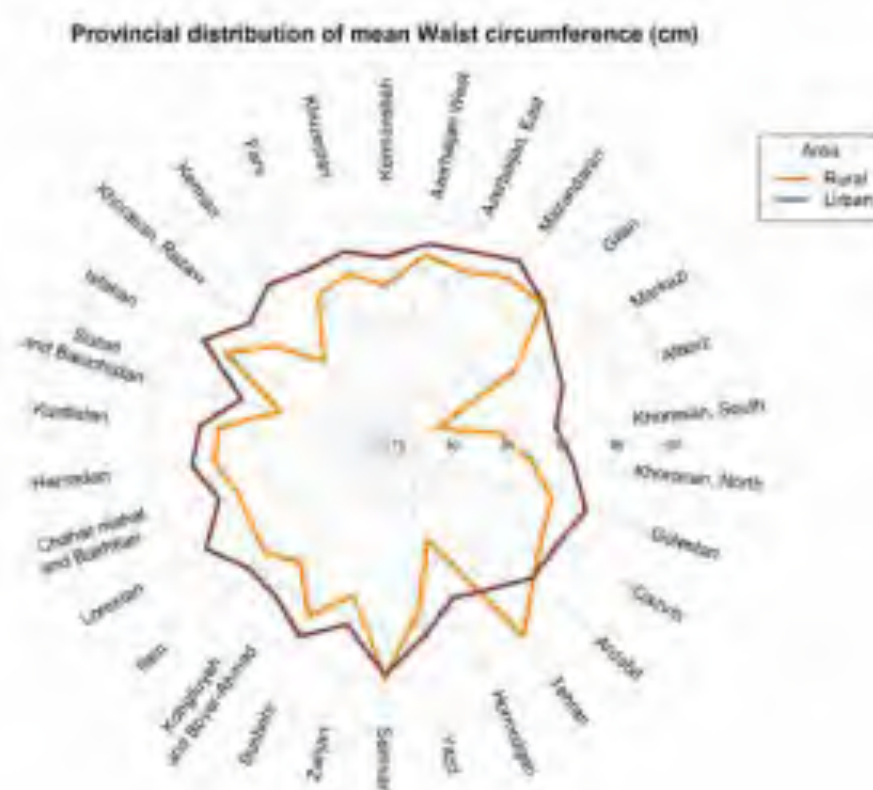


Figure 7.72. Provincial distribution of mean of waist circumference by area of residency

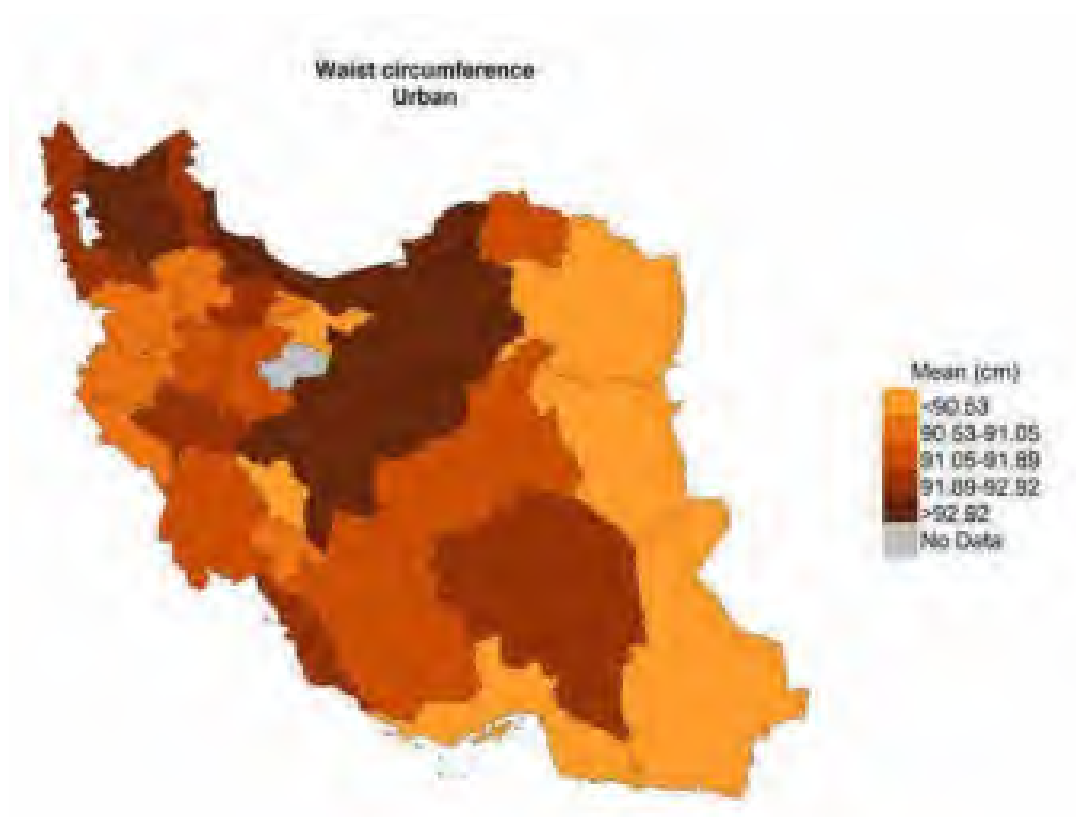


Figure 7.73. Geographical distribution of mean of waist circumference in urban area of residency

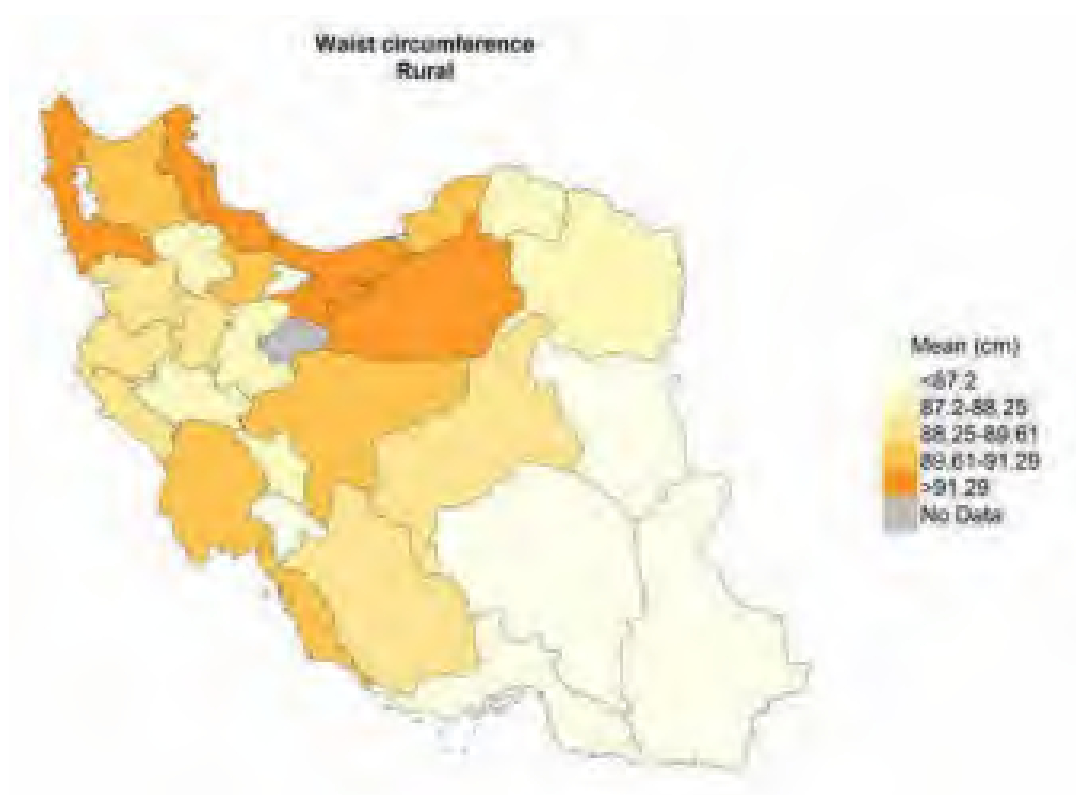


Figure 7.74. Geographical distribution of mean of waist circumference in rural area of residency

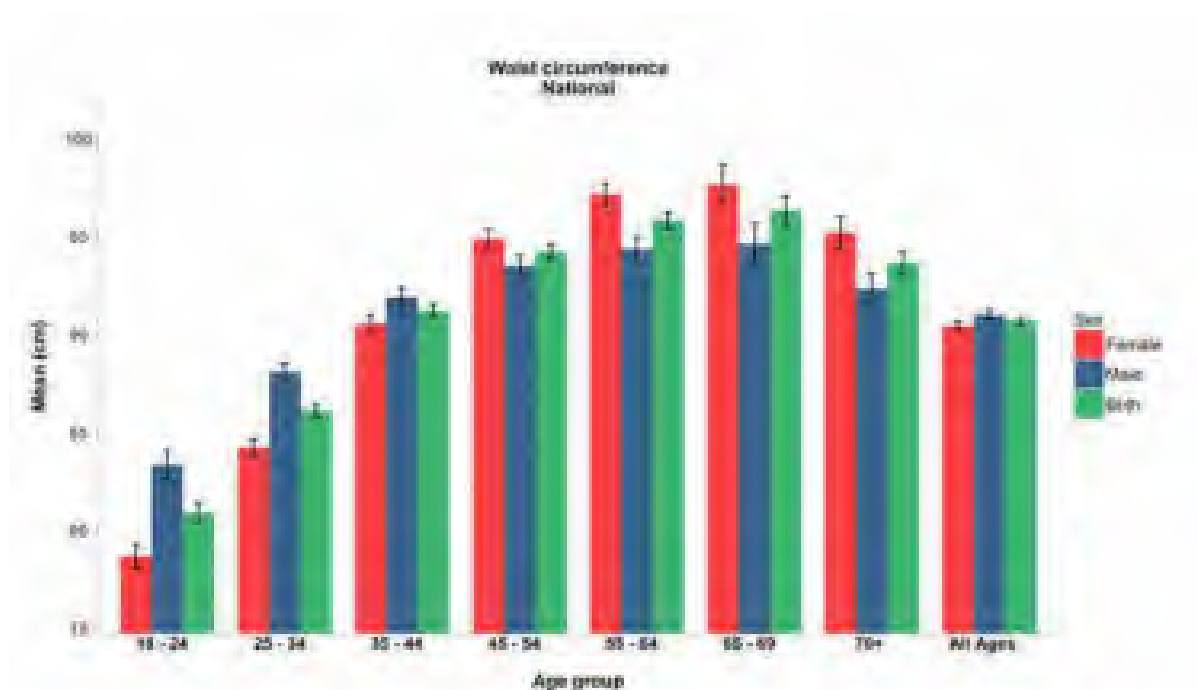


Figure 7.75. Mean of waist circumference by age and sex at national level

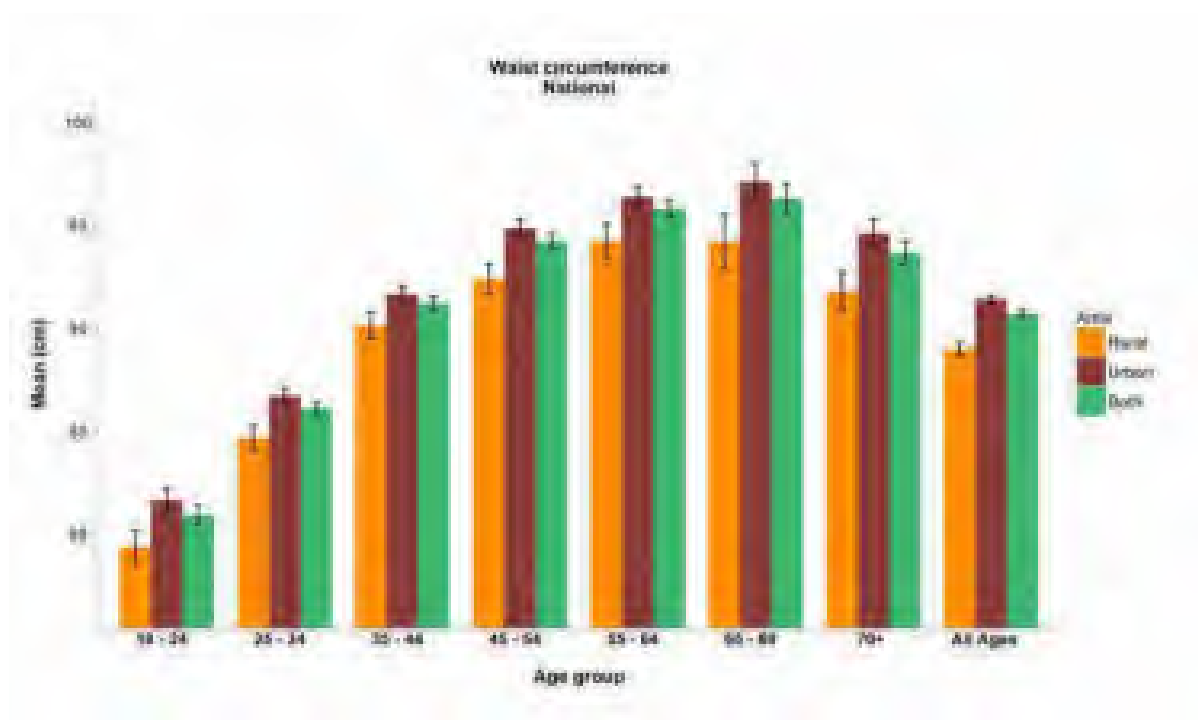


Figure 7.76. Mean of waist circumference by age and area of residency at national level

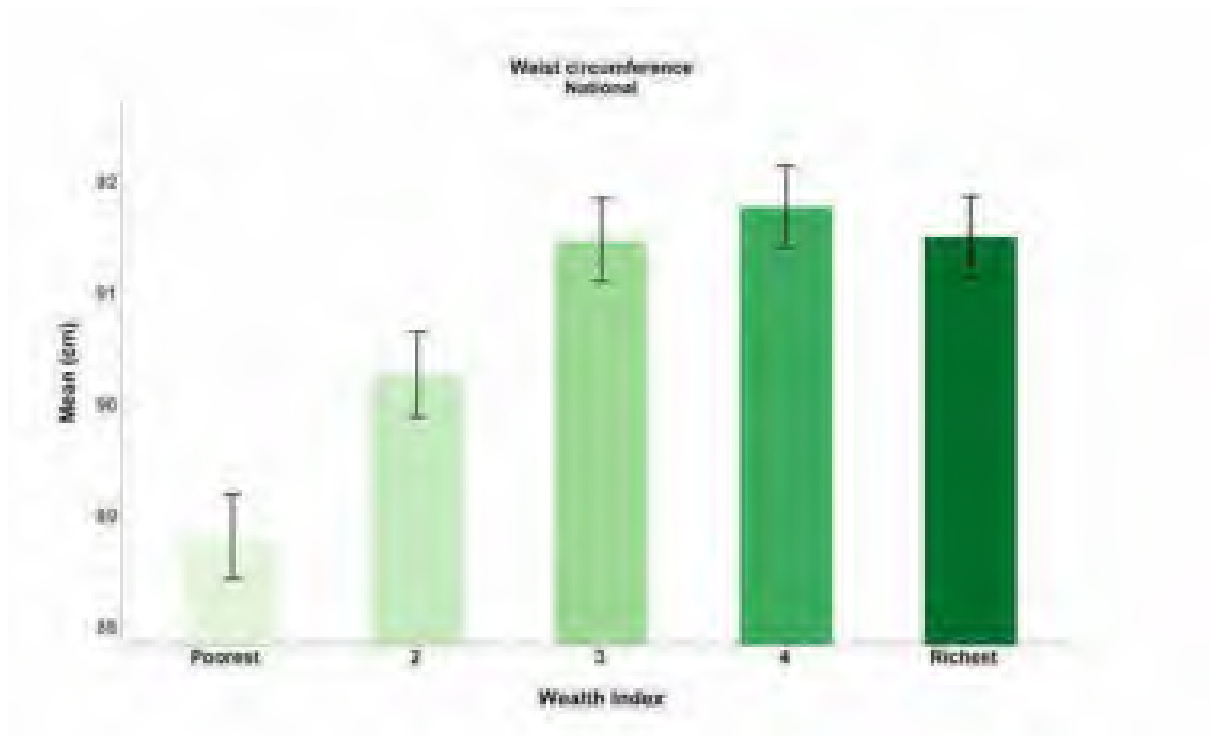


Figure 7.77. Mean of waist circumference by wealth index quantiles at national level

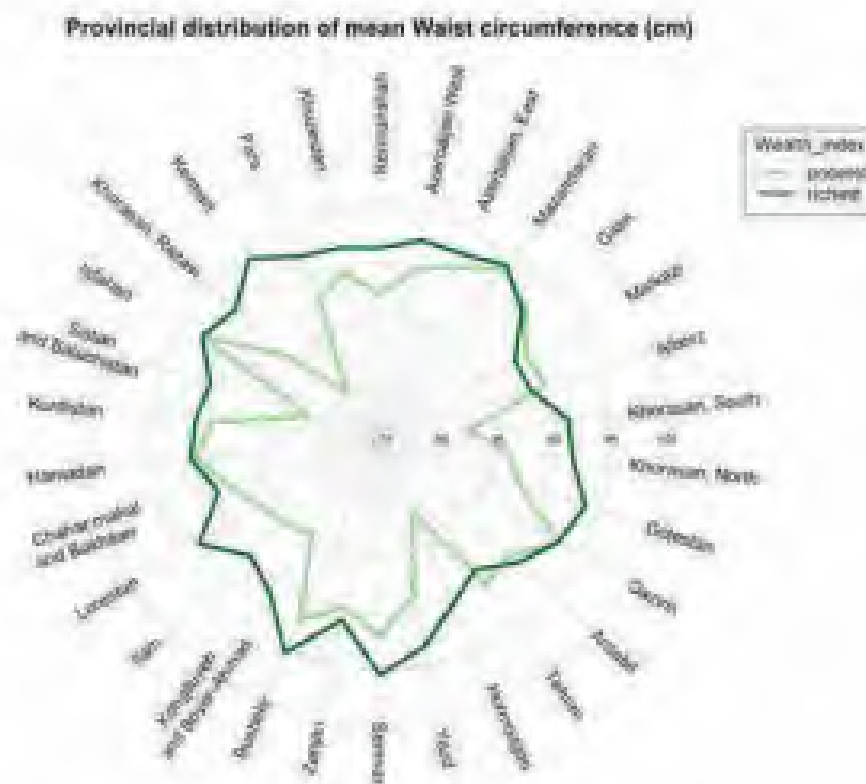


Figure 7.78. Provincial distribution of mean of waist circumference by wealth index

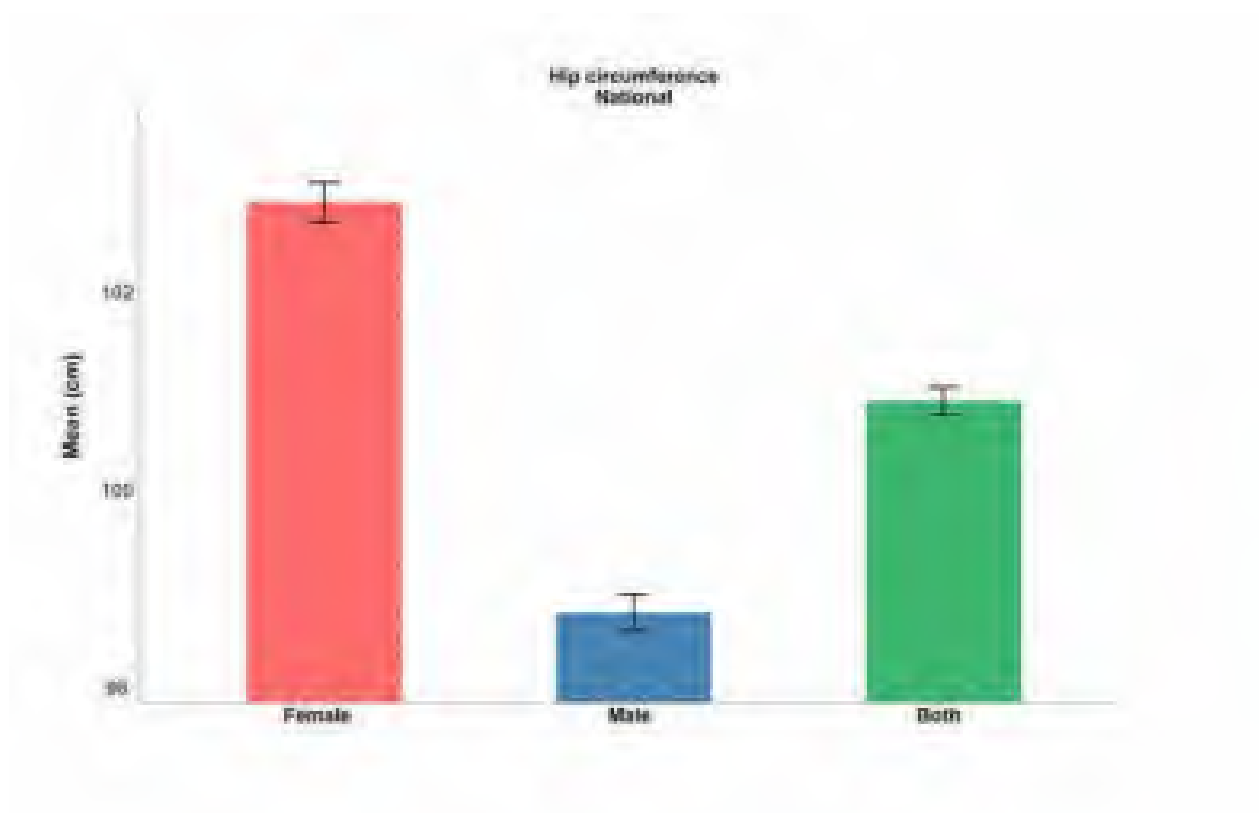


Figure 7.79. Mean of hip circumference by sex at national level

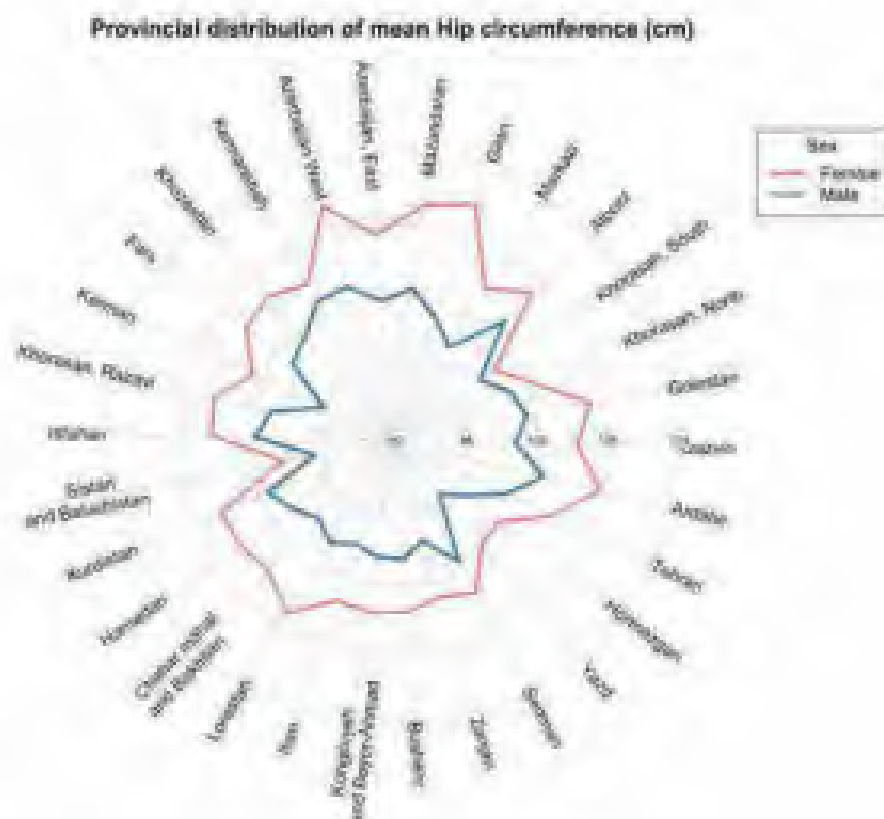


Figure 7.80. Provincial distribution of mean of hip circumference by sex

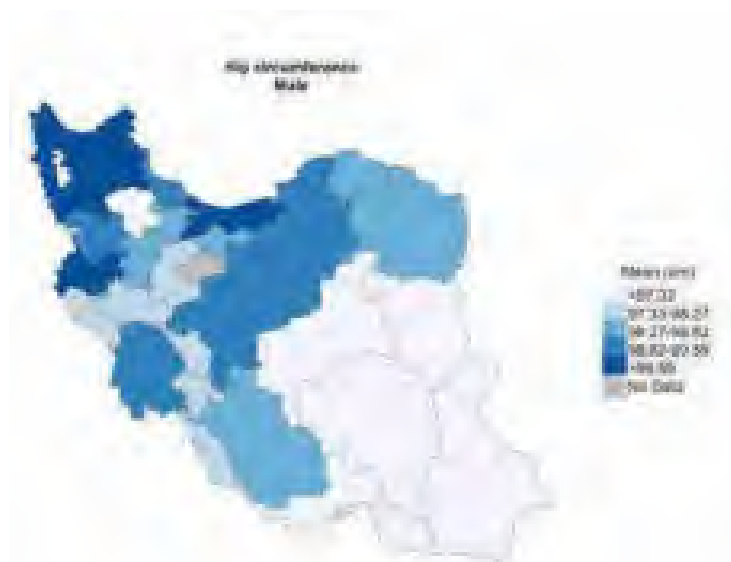


Figure 7.81. Geographical distribution of mean of hip circumference in males

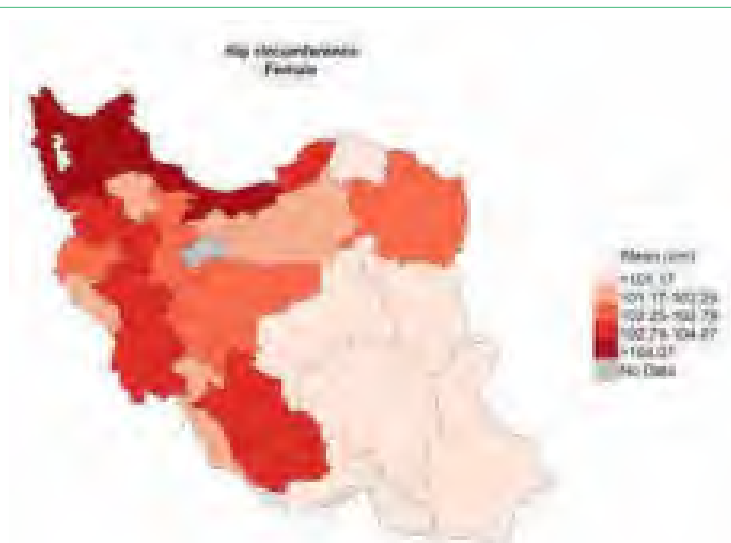


Figure 7.82. Geographical distribution of mean of hip circumference in females

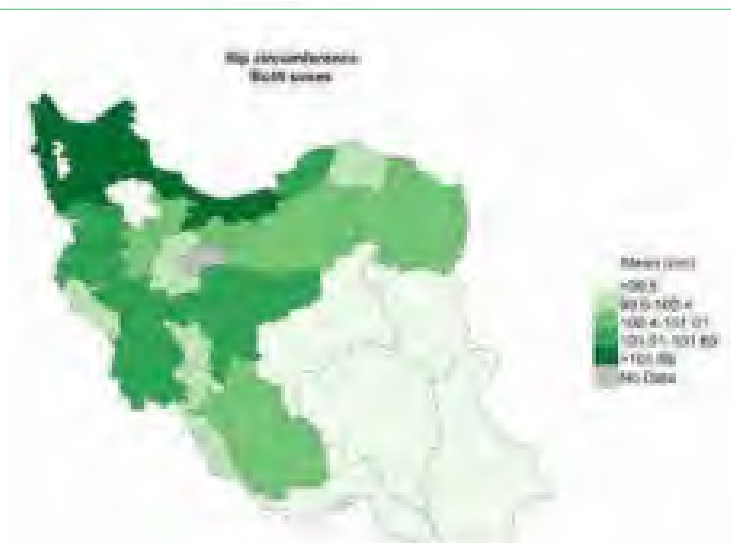


Figure 7.83. Geographical distribution of mean of hip circumference in both sexes

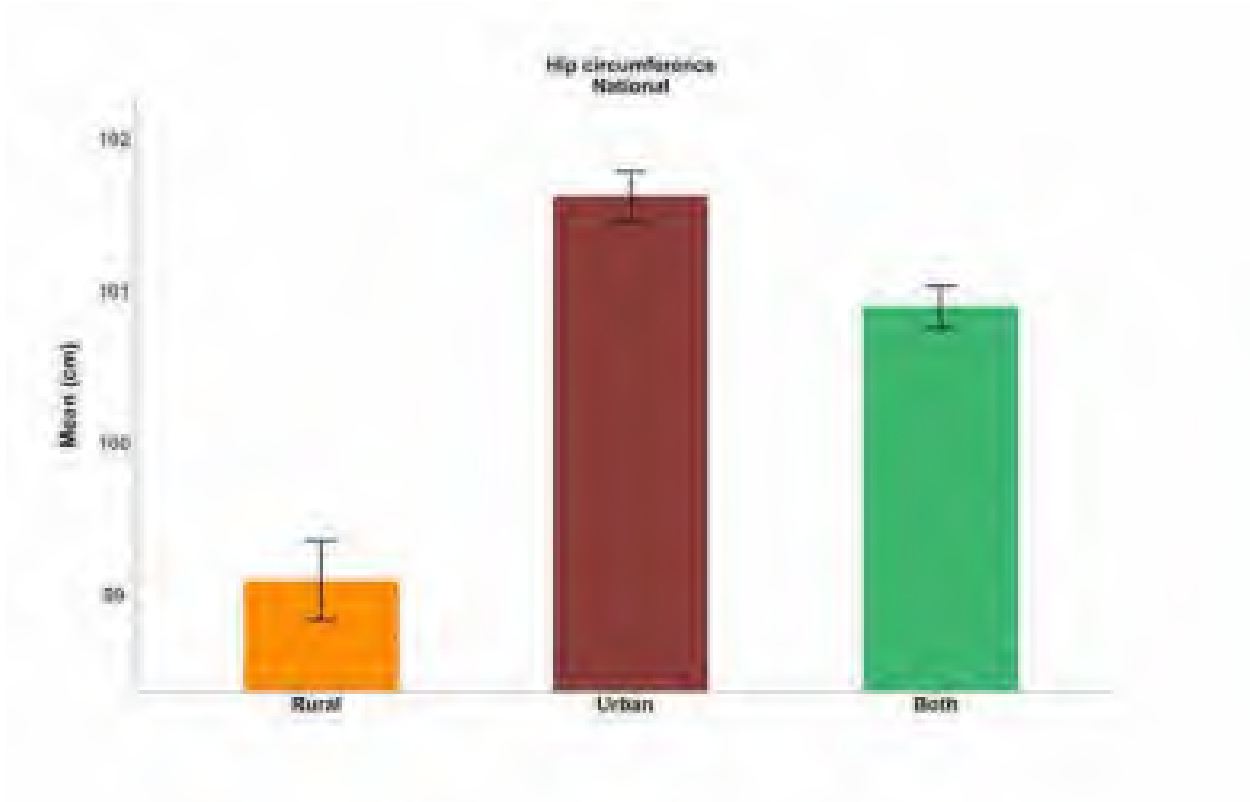


Figure 7.84. Mean of hip circumference by area of residency at national level

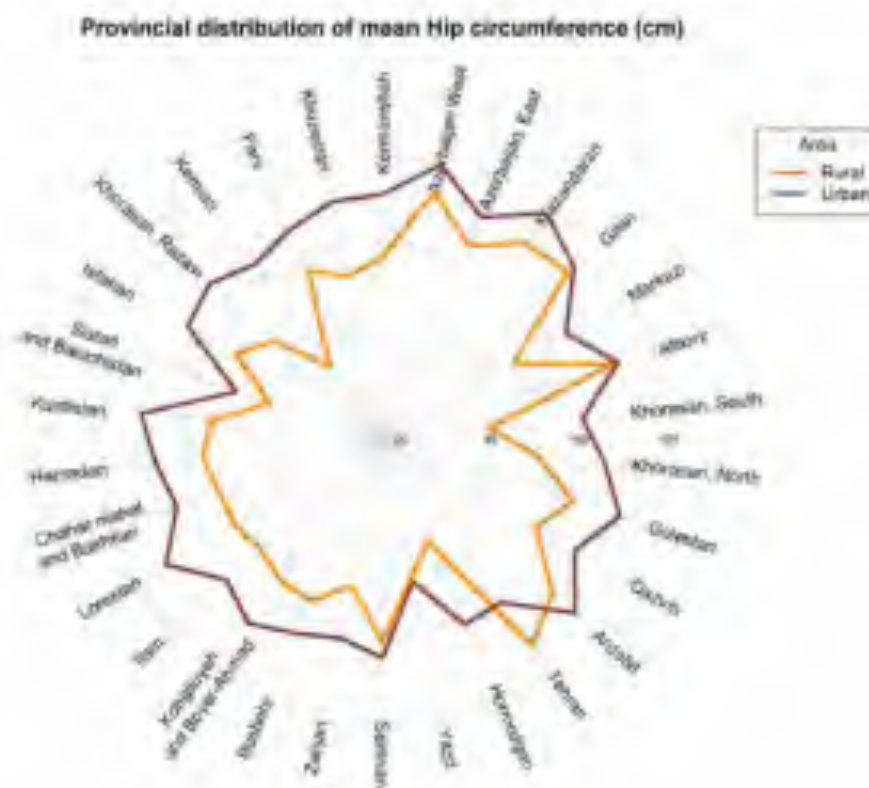


Figure 7.85. Provincial distribution of mean of hip circumference by area of residency

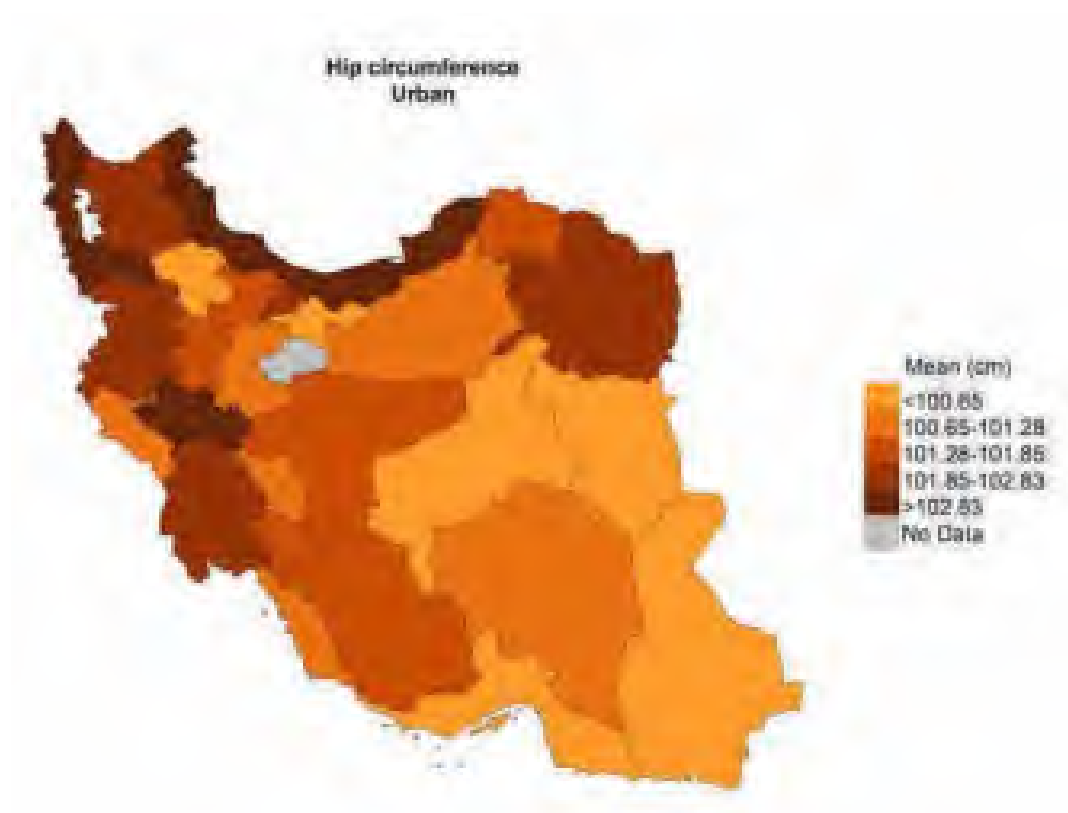


Figure 7.86. Geographical distribution of mean of hip circumference in urban area of residency

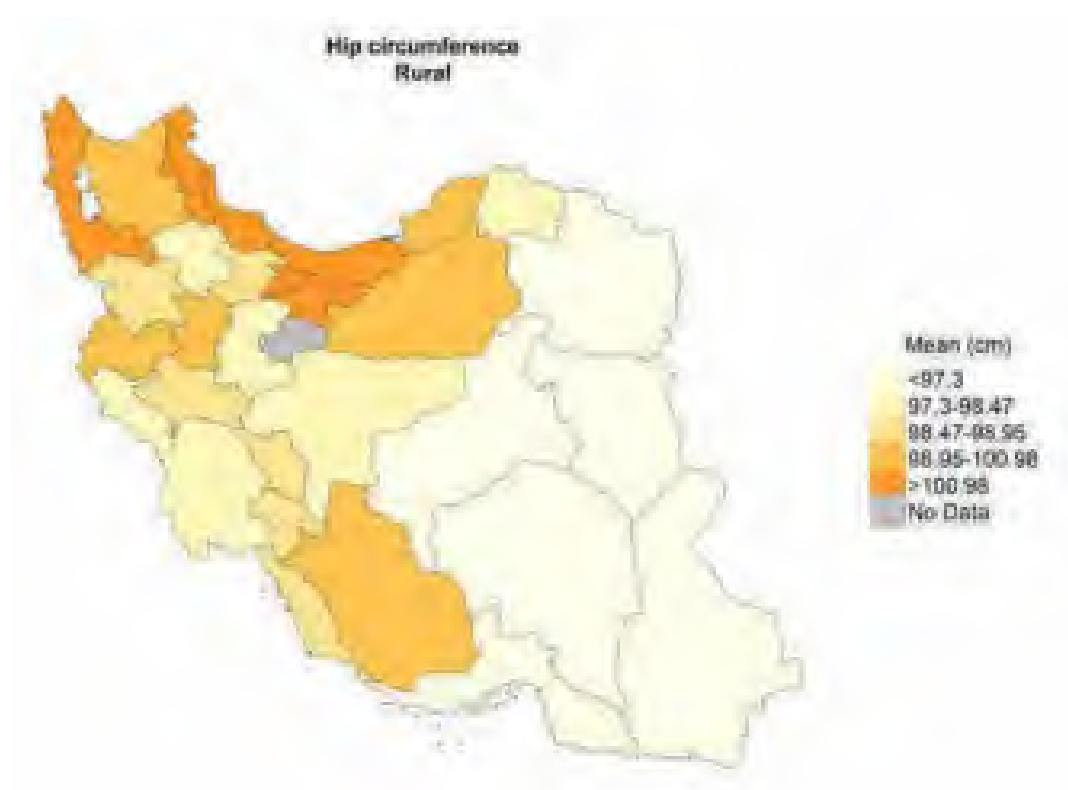


Figure 7.87. Geographical distribution of mean of hip circumference in rural area of residency

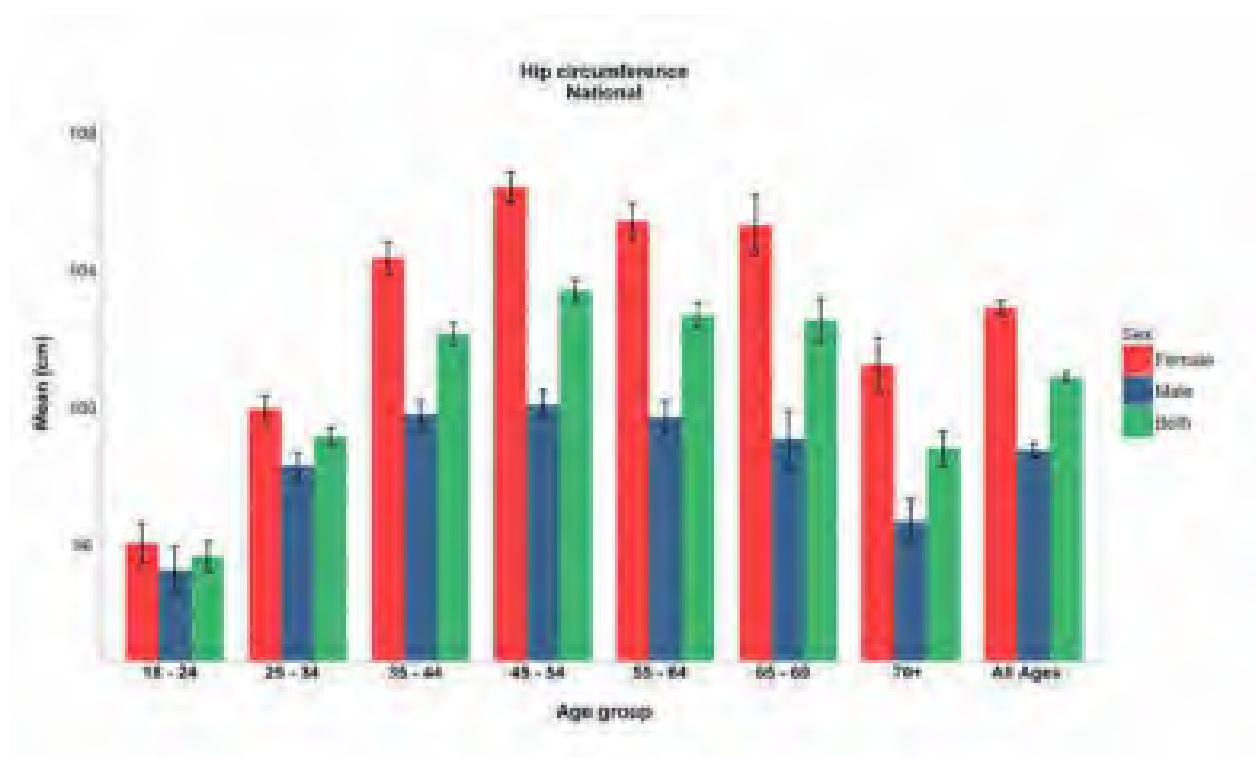


Figure 7.88. Mean of hip circumference by age and sex at national level

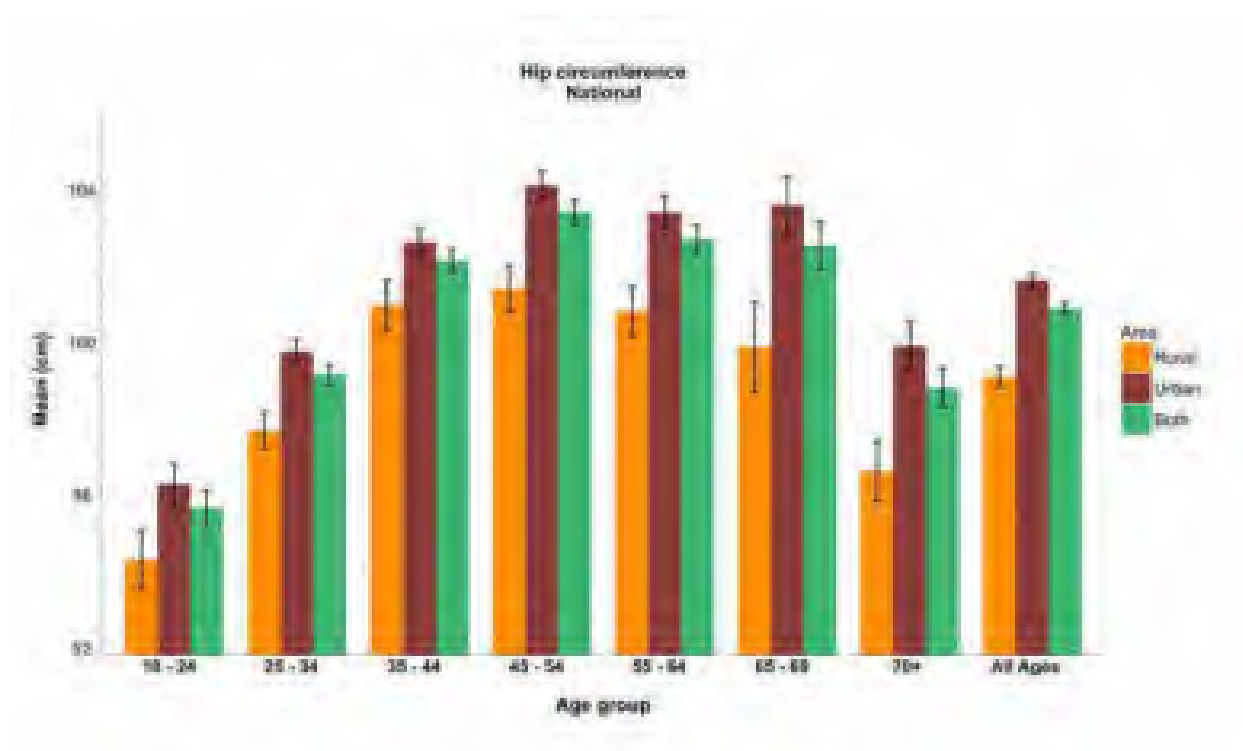


Figure 7.89. Mean of hip circumference by age and area of residency at national level

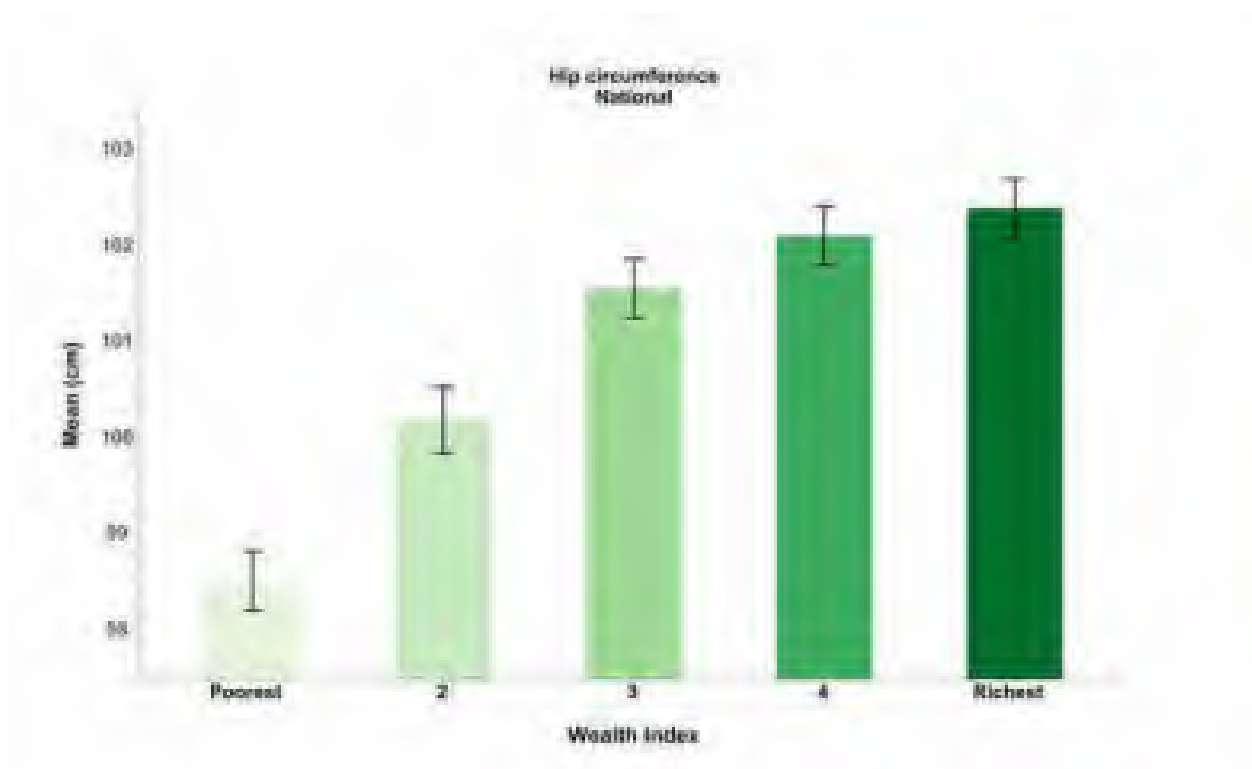


Figure 7.90. Mean of hip circumference by wealth index quantiles at national level

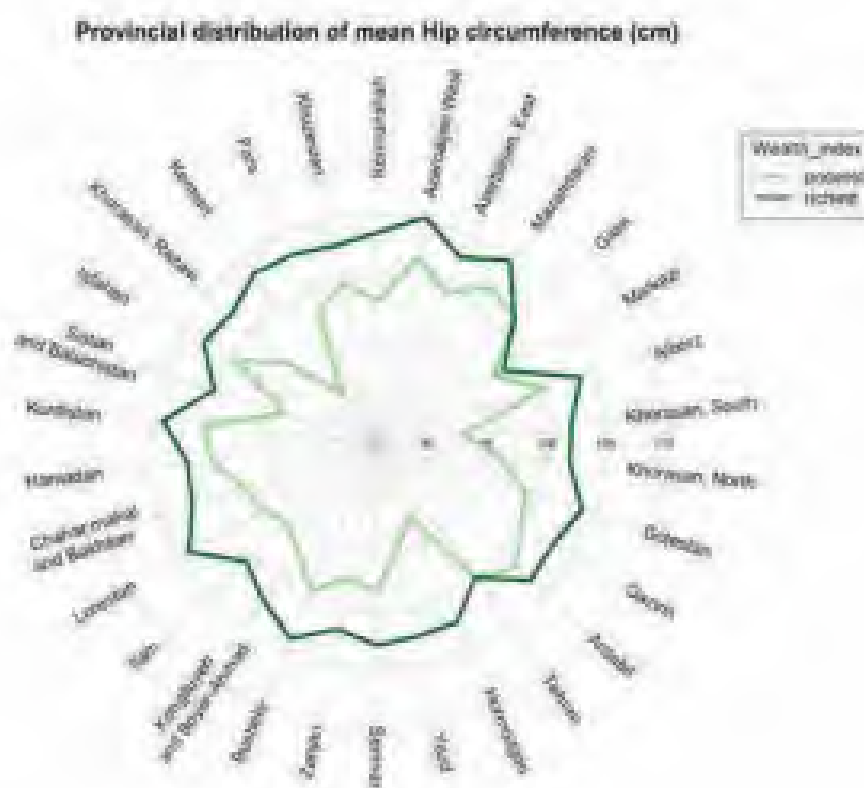


Figure 7.91. Provincial distribution of mean of hip circumference by wealth index

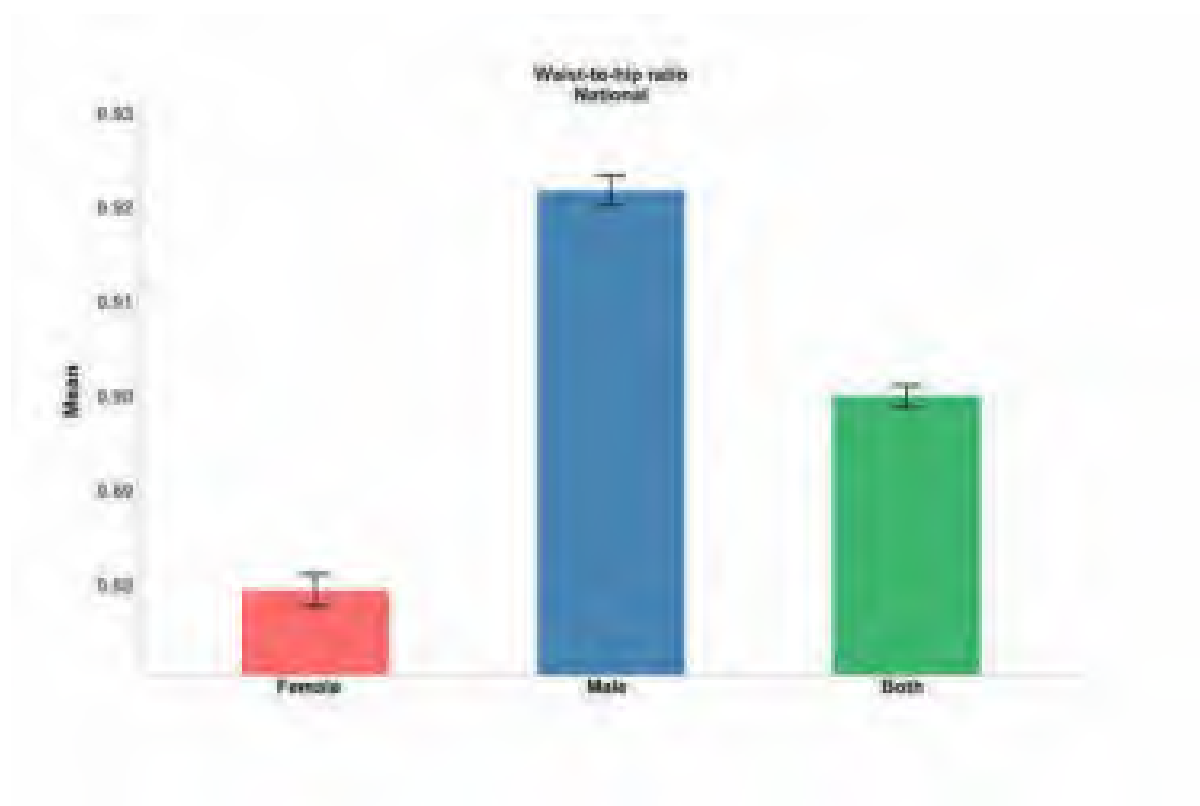


Figure 7.92. Mean of waist-to-hip ratio by sex at national level

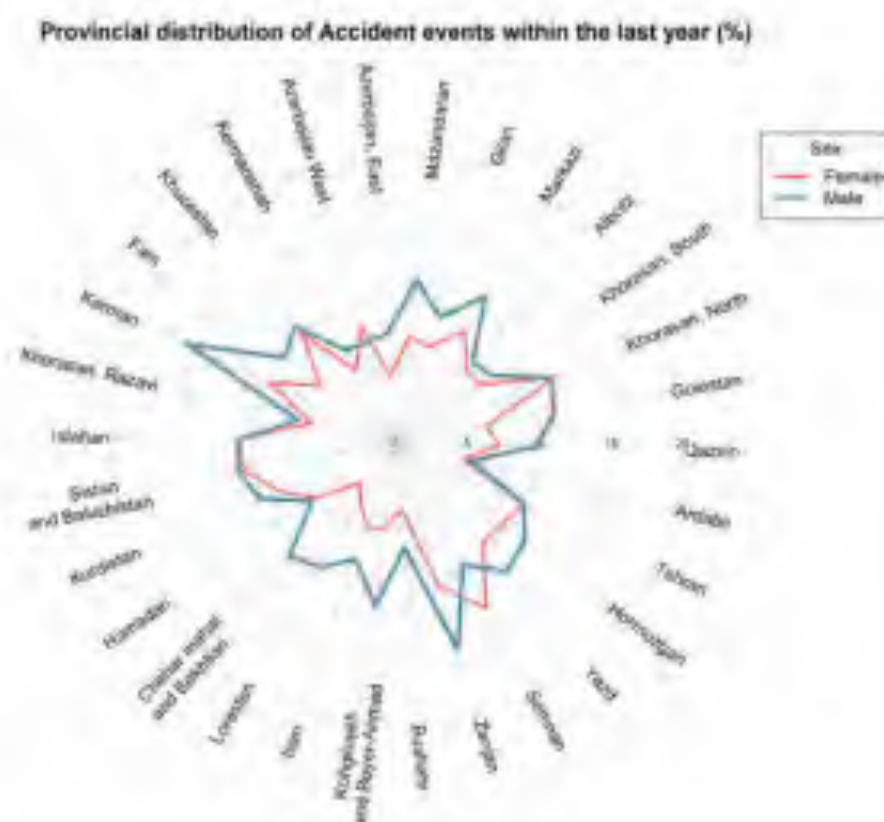


Figure 7.93. Provincial distribution of mean of waist-to-hip ratio by sex

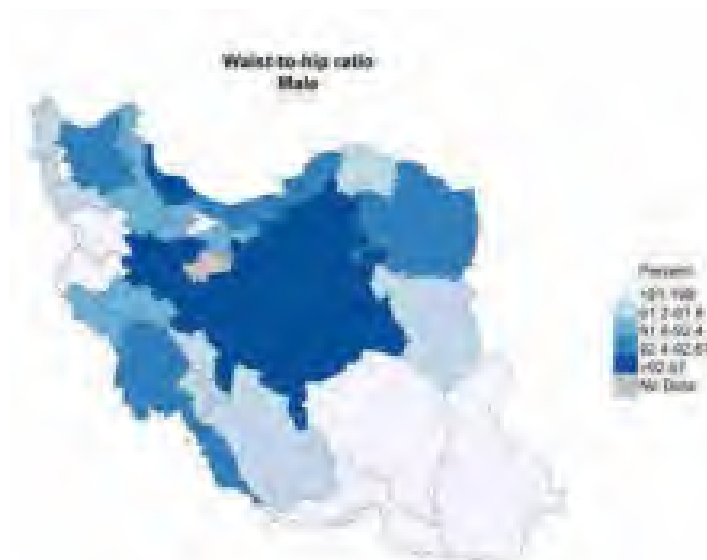


Figure 7.94. Geographical distribution of mean of waist-to-hip ratio in males

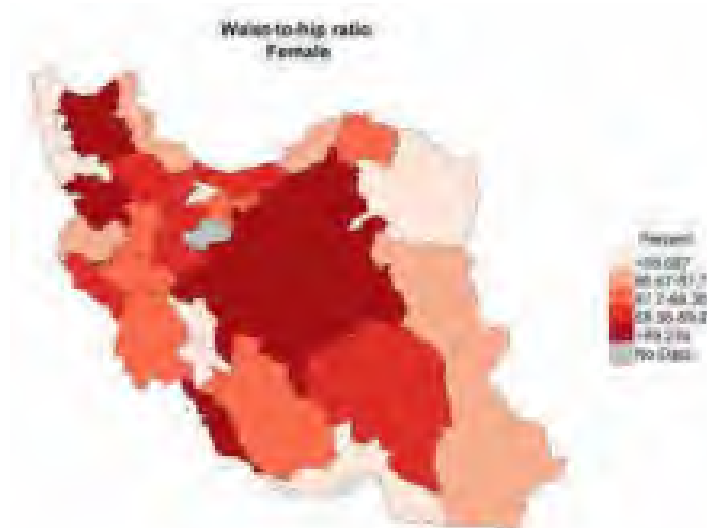


Figure 7.95. Geographical distribution of mean of waist-to-hip ratio in females

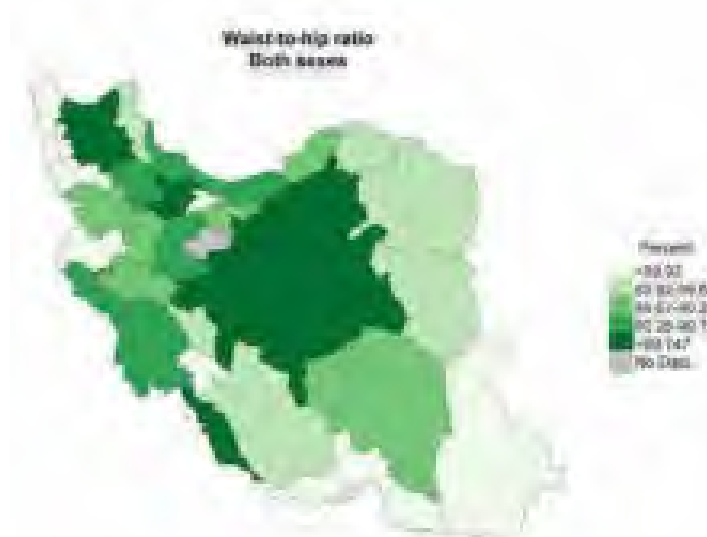


Figure 7.96. Geographical distribution of mean of waist-to-hip ratio in both sexes

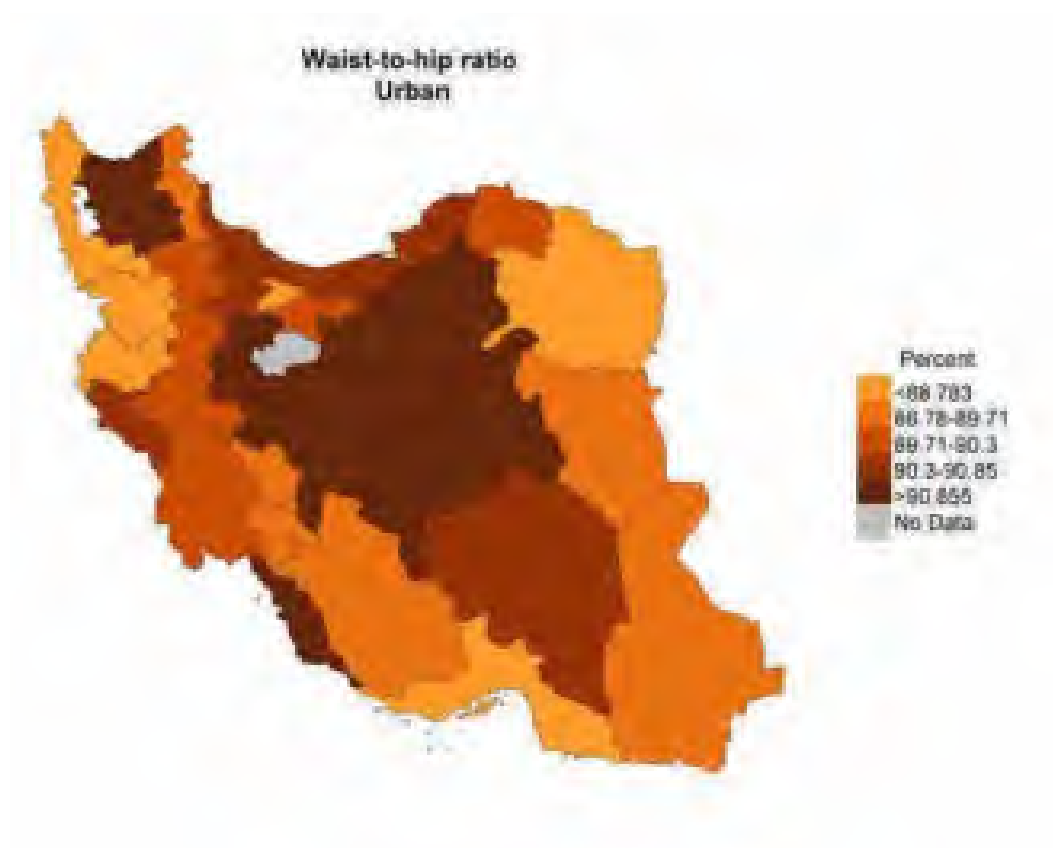


Figure 7.99. Geographical distribution of mean of waist-to-hip ratio in urban area of residency

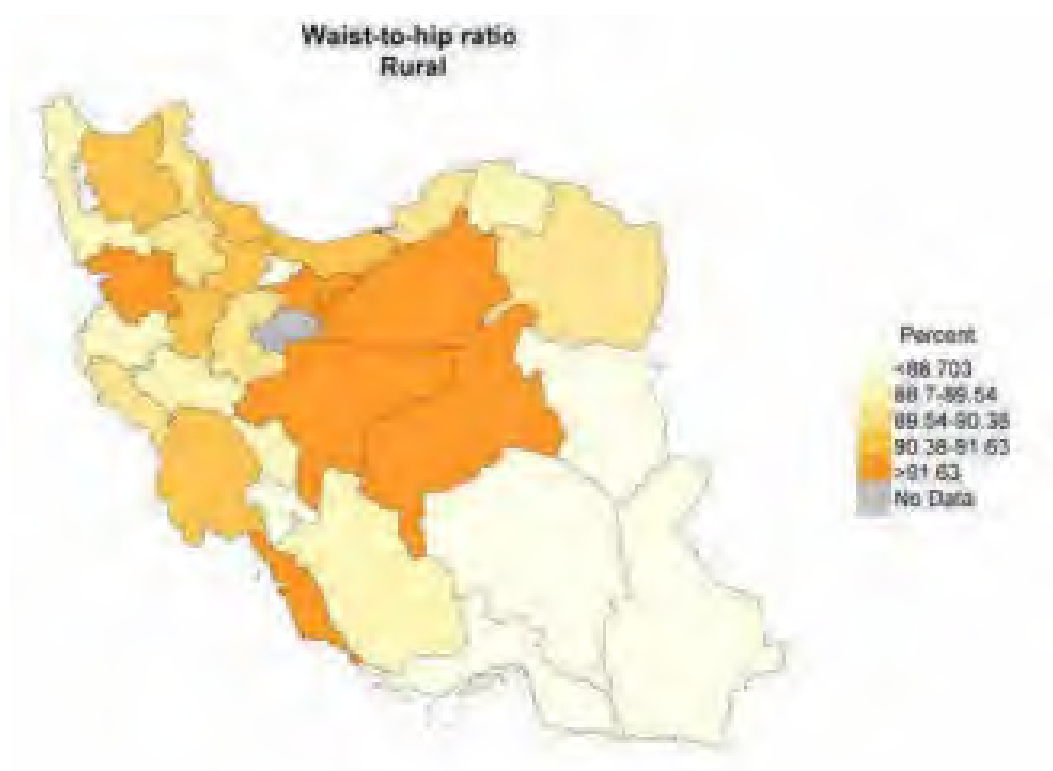


Figure 7.100. Geographical distribution of mean of waist-to-hip ratio in rural area of residency

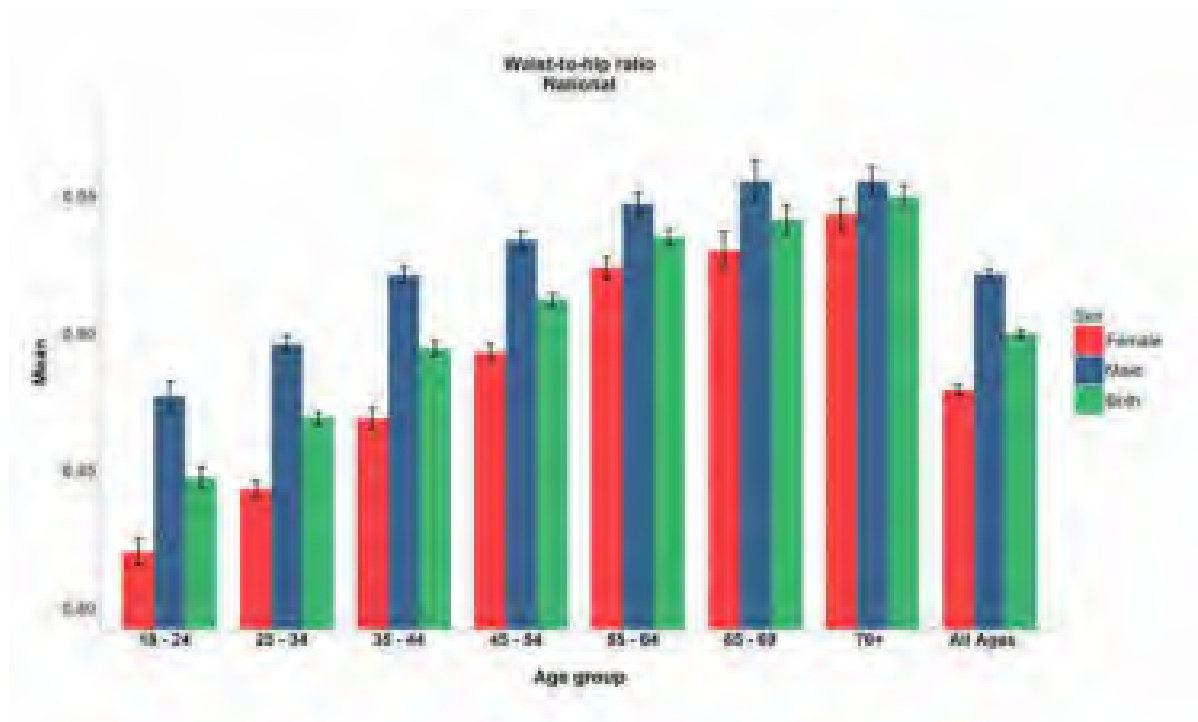


Figure 7.101. Mean of waist-to-hip ratio by age and sex at national level

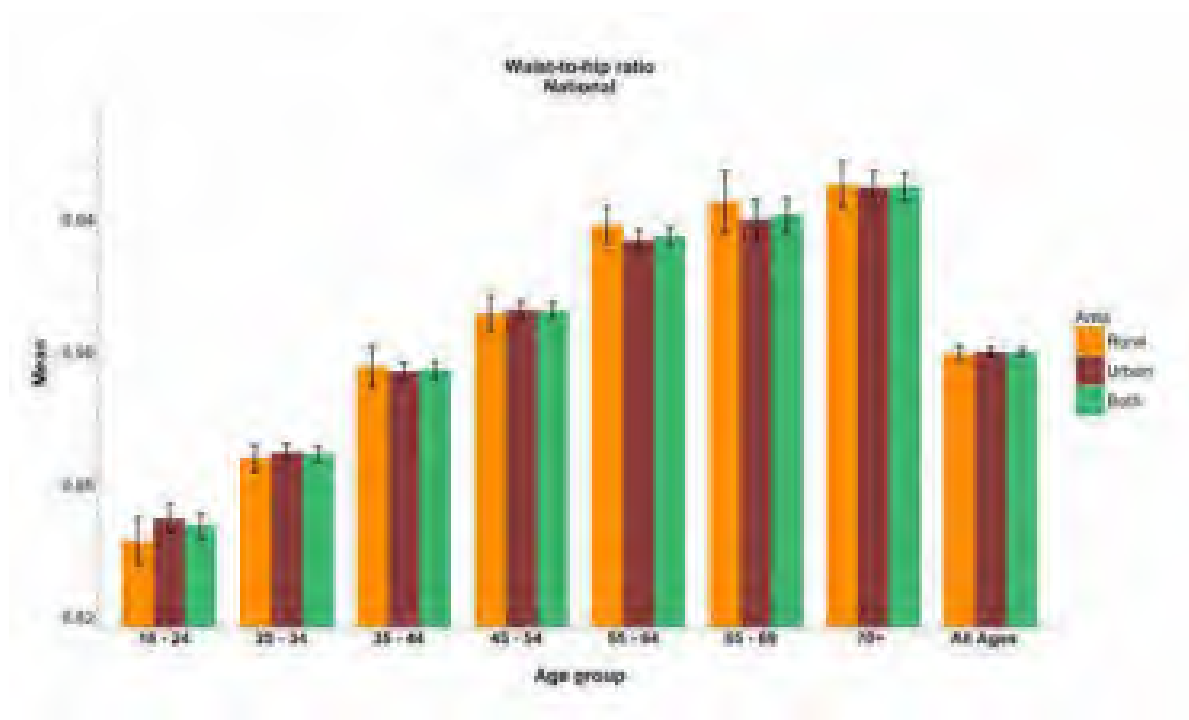


Figure 7.102. Mean of waist-to-hip ratio by age and area of residency at national level

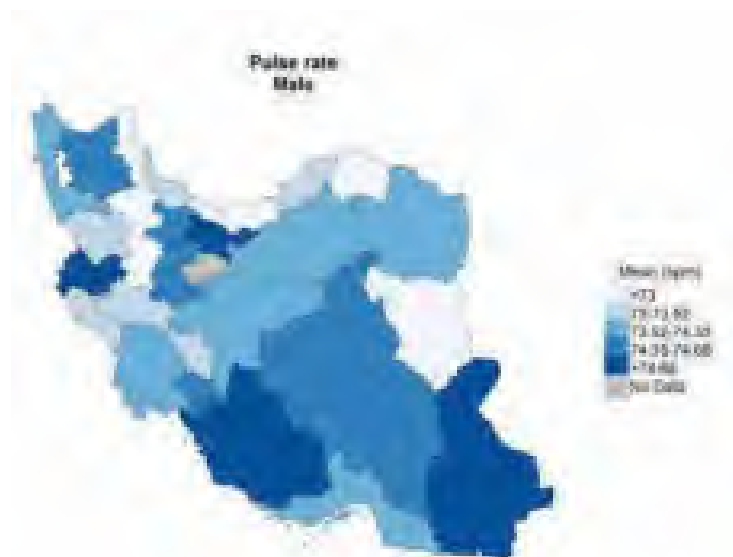


Figure 7.107. Geographical distribution of mean of pulse rate in males

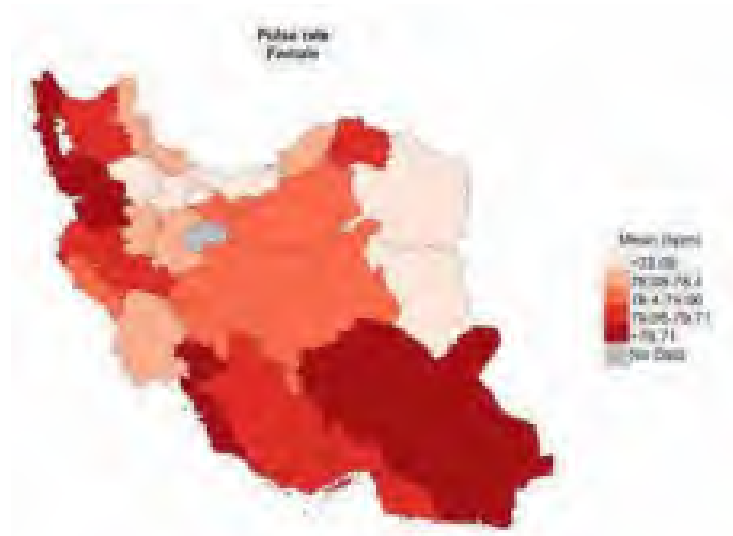


Figure 7.108. Geographical distribution of mean of pulse rate in females

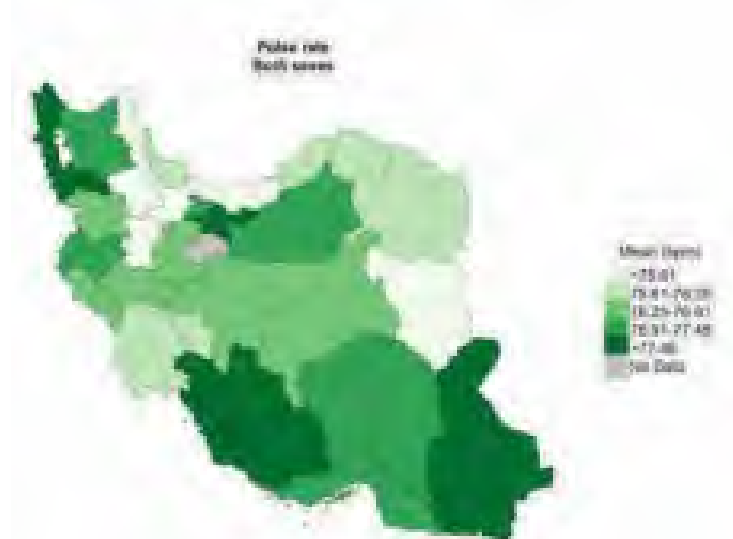


Figure 7.109. Geographical distribution of mean of pulse rate in both sexes

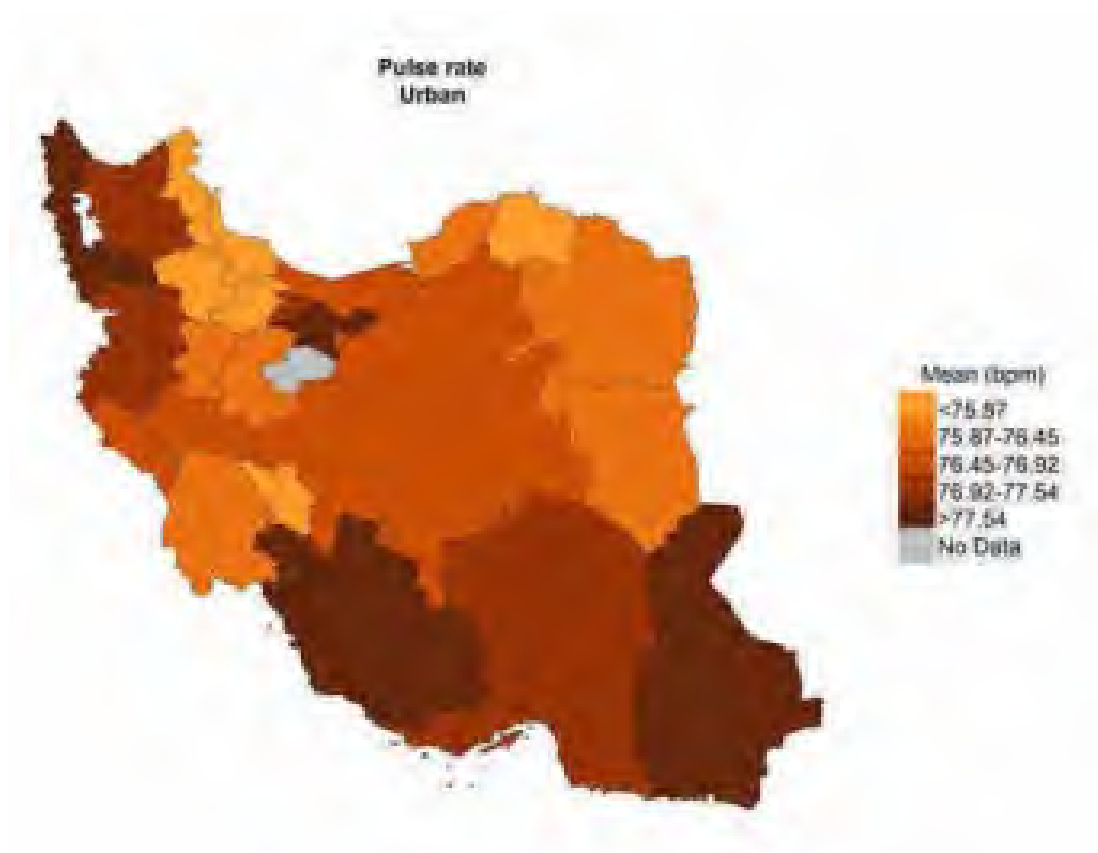


Figure 7.112. Geographical distribution of mean of pulse rate in urban area of residency

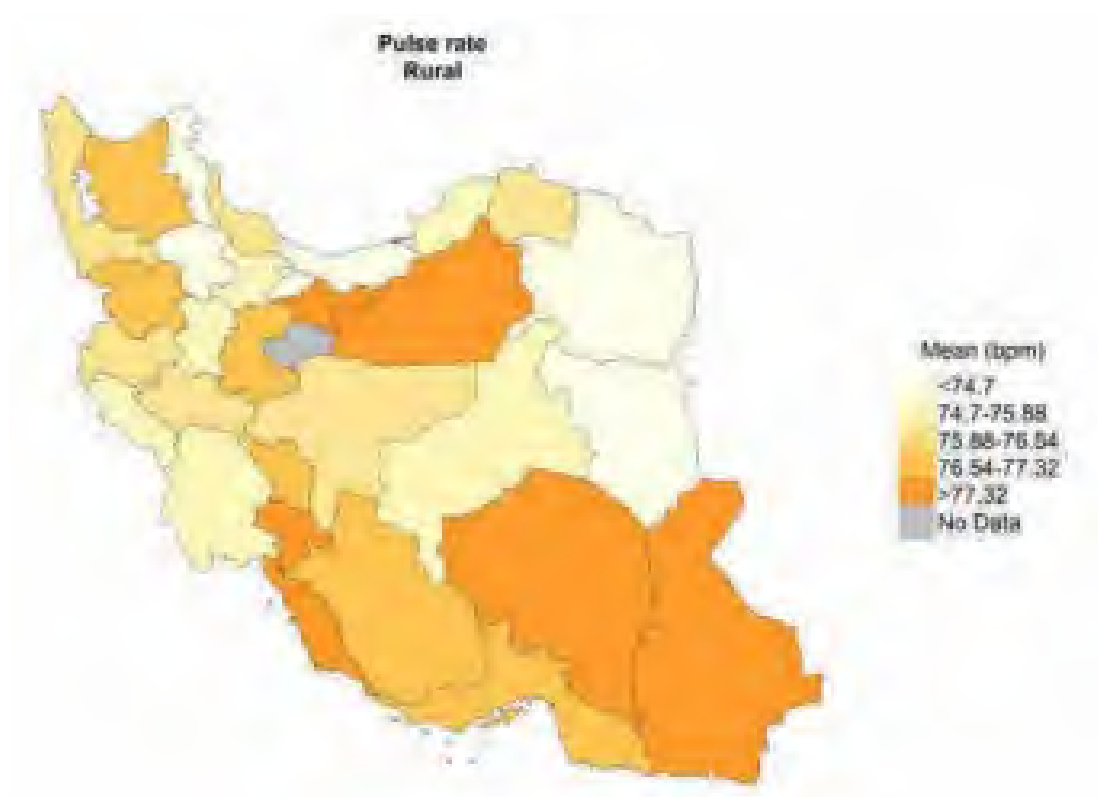


Figure 7.113. Geographical distribution of mean of pulse rate in rural area of residency

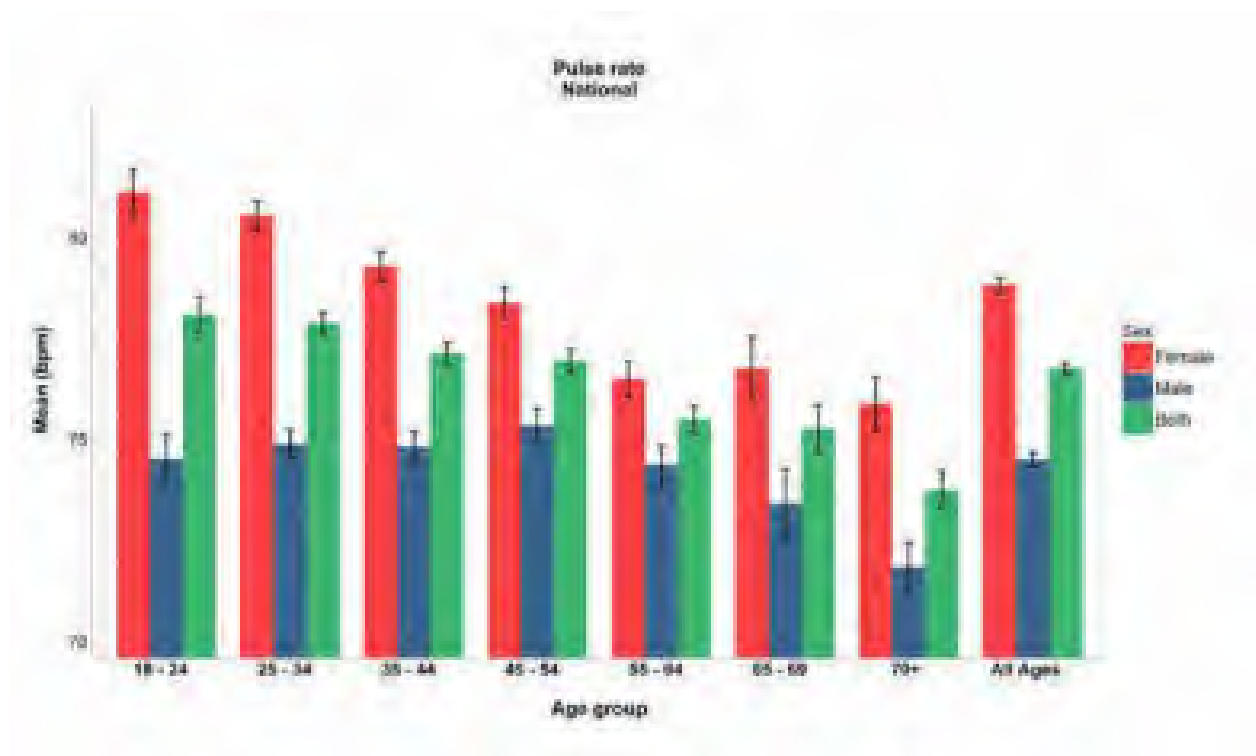


Figure 7.114. Mean of pulse rate by age and sex at national level

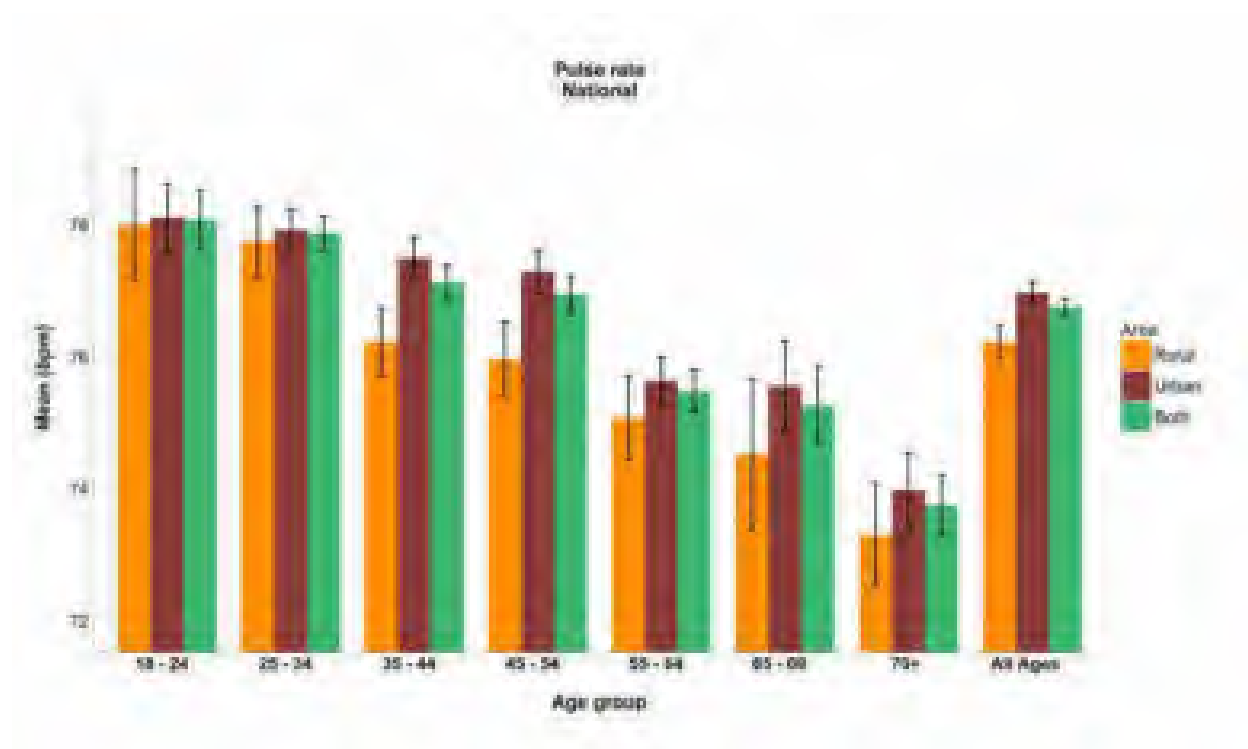


Figure 7.115. Mean of pulse rate by age and area of residency at national level

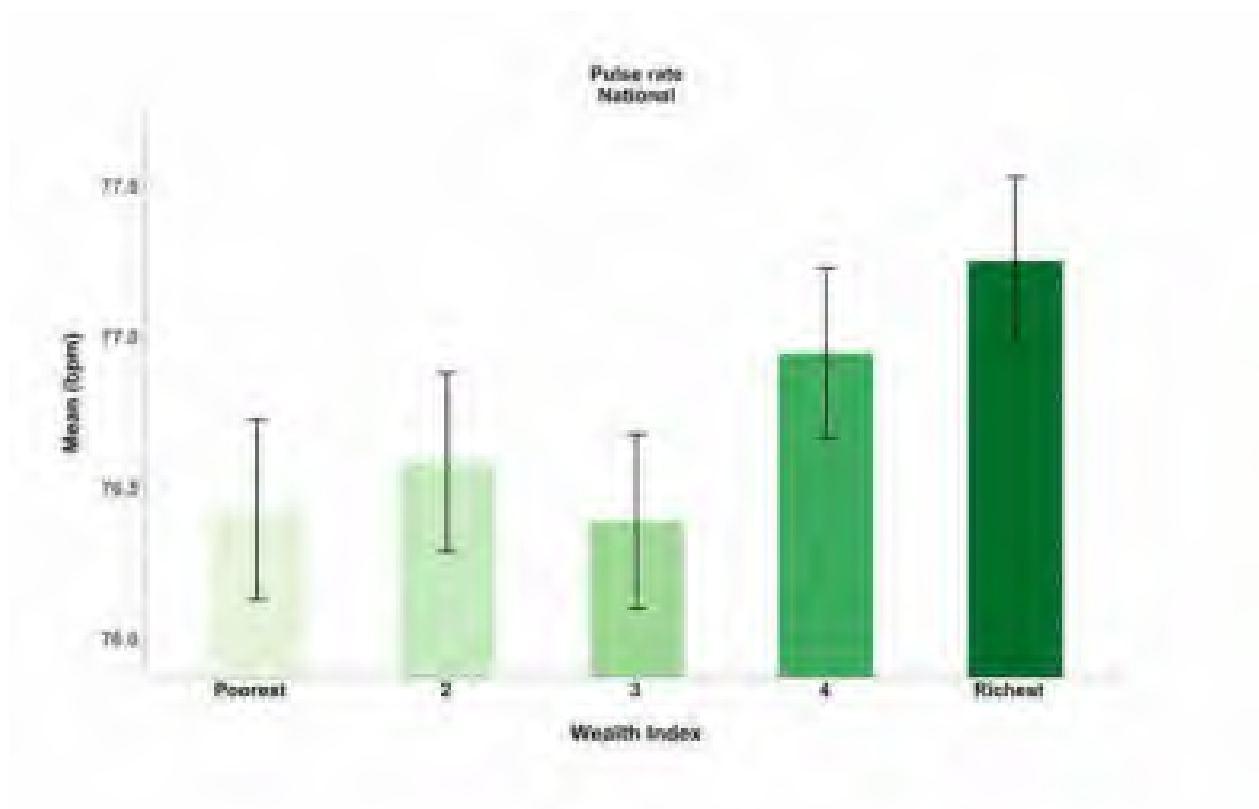


Figure 7.116. Mean of pulse rate by wealth index quantiles at national level

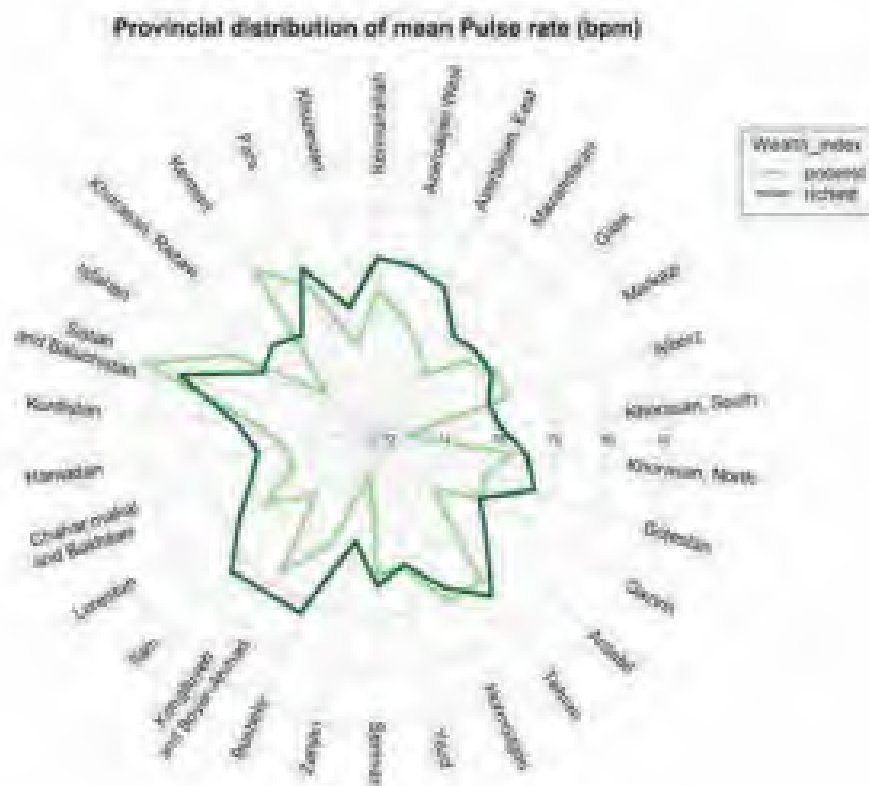


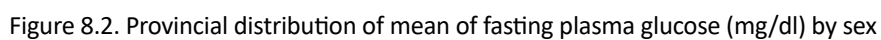
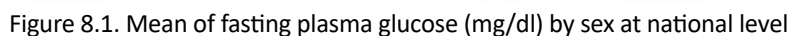
Figure 7.117. Provincial distribution of mean of pulse rate by wealth index

CHAPTER 2

Results

Section 8

Biological Measurements



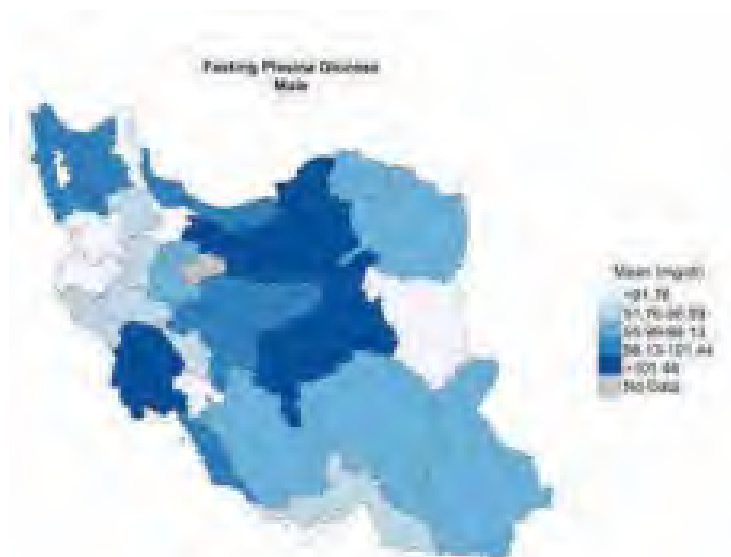


Figure 8.3. Geographical distribution of mean of fasting plasma glucose (mg/dl) in males

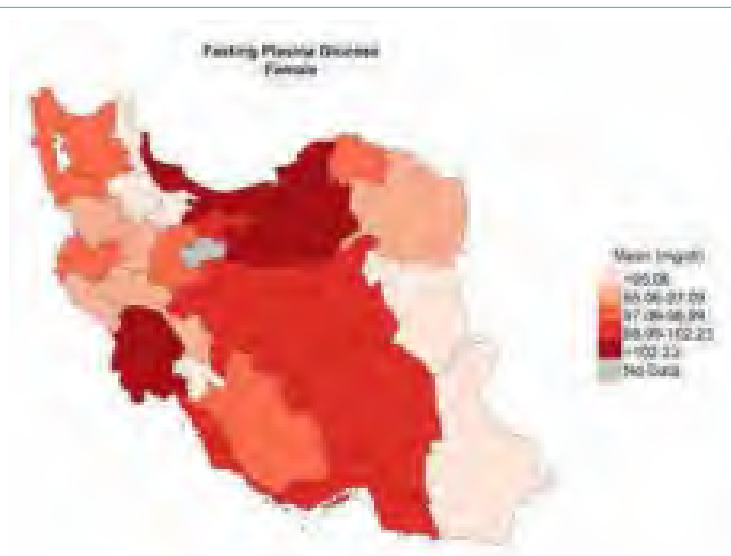


Figure 8.4. Geographical distribution of mean of fasting plasma glucose (mg/dl) in females

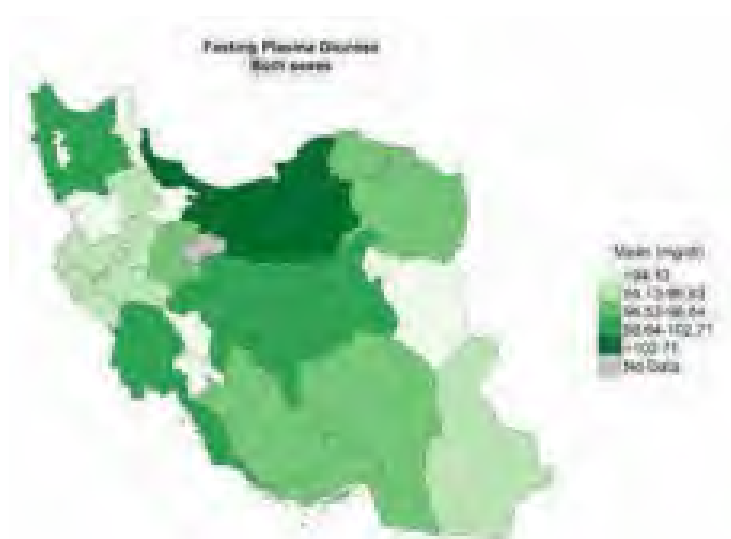


Figure 8.5. Geographical distribution of mean of fasting plasma glucose (mg/dl) in both sexes

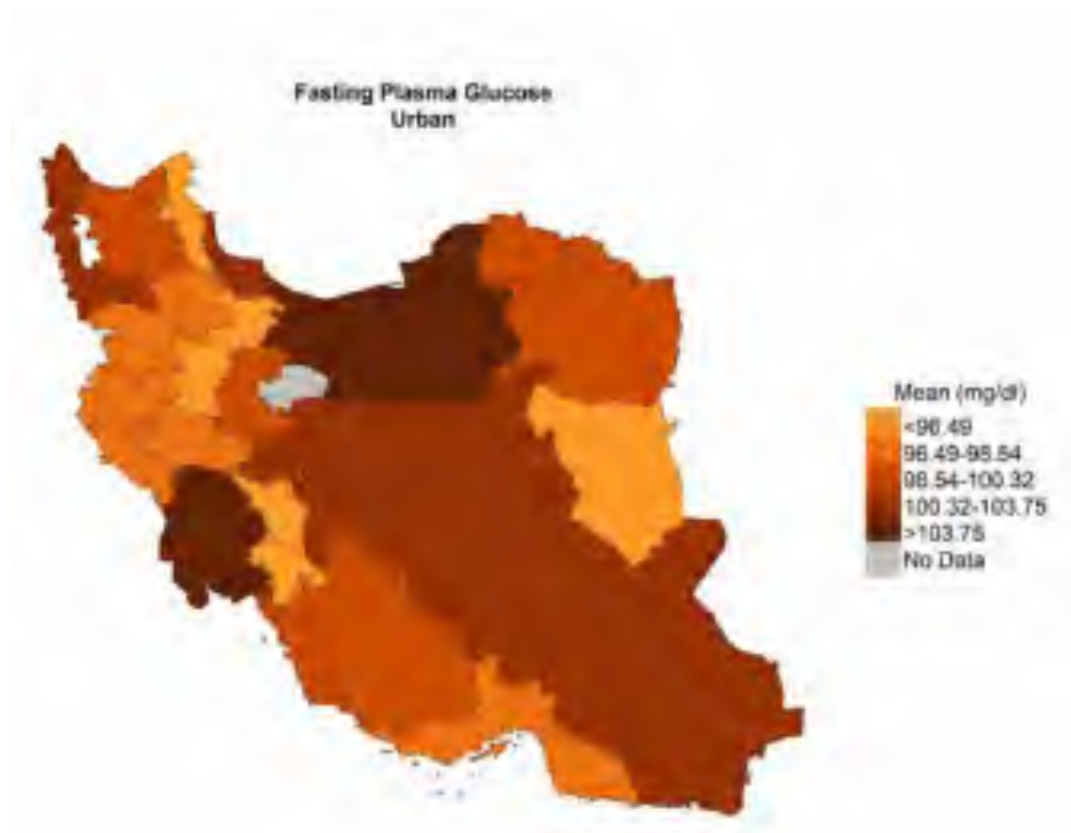


Figure 8.8. Geographical distribution of mean of fasting plasma glucose (mg/dl) in urban area of residency

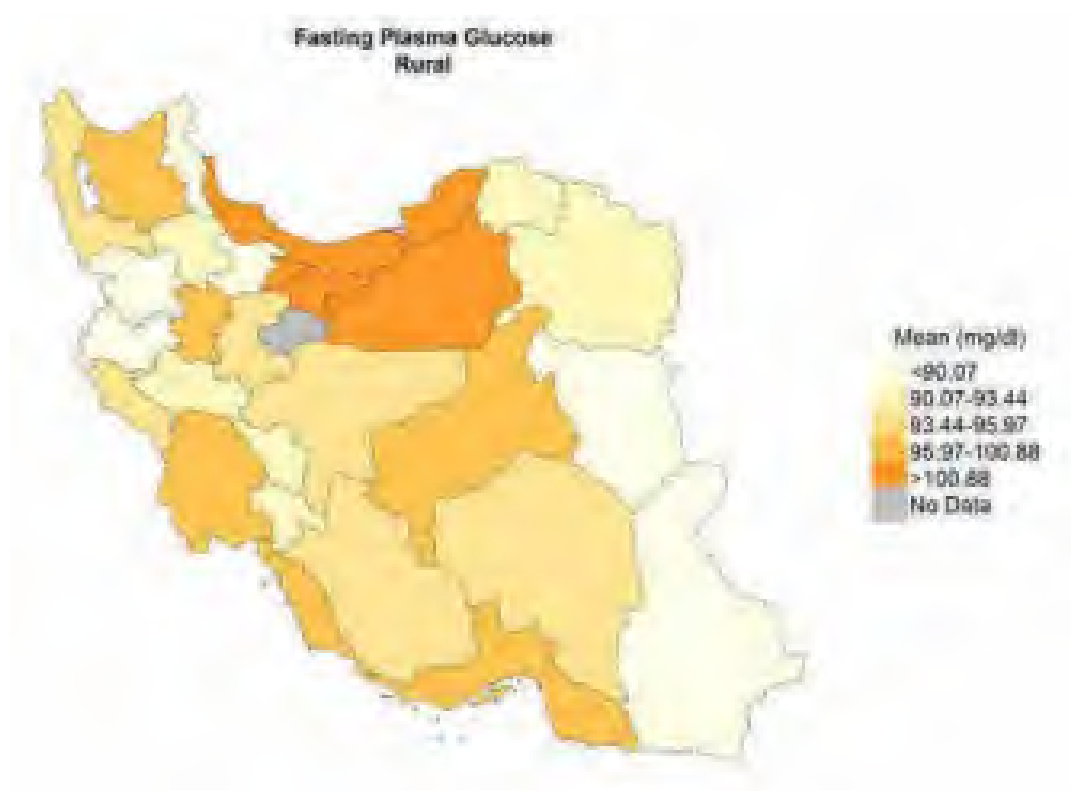


Figure 8.9. Geographical distribution of mean of fasting plasma glucose (mg/dl) in rural area of residency

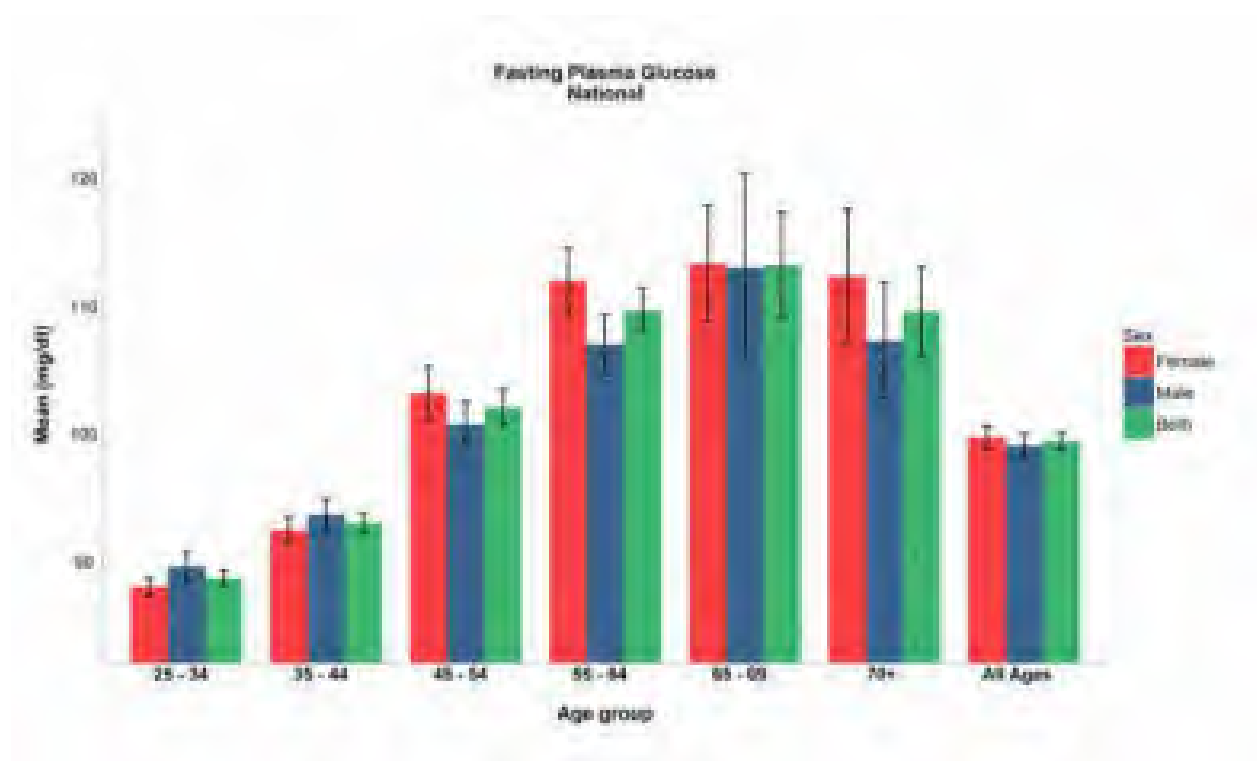


Figure 8.10. Mean of fasting plasma glucose (mg/dl) by age and sex at national level

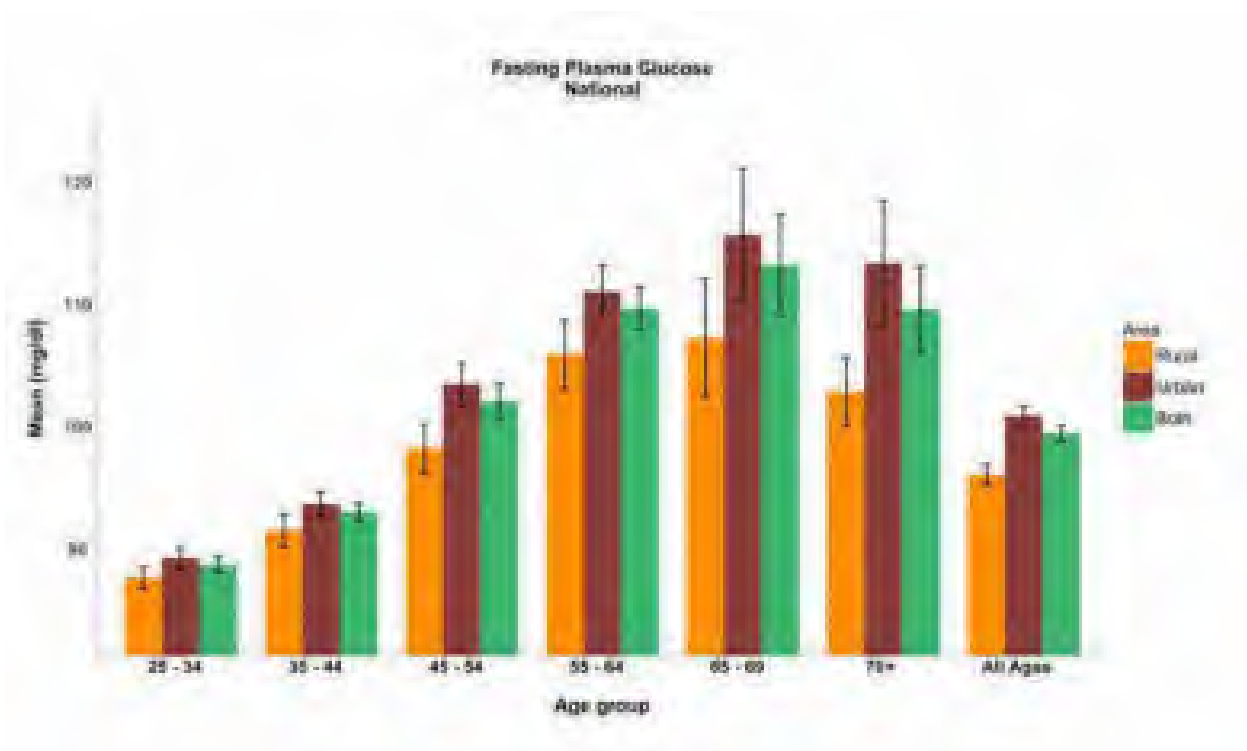


Figure 8.11. Mean of fasting plasma glucose (mg/dl) by age and area of residency at national level

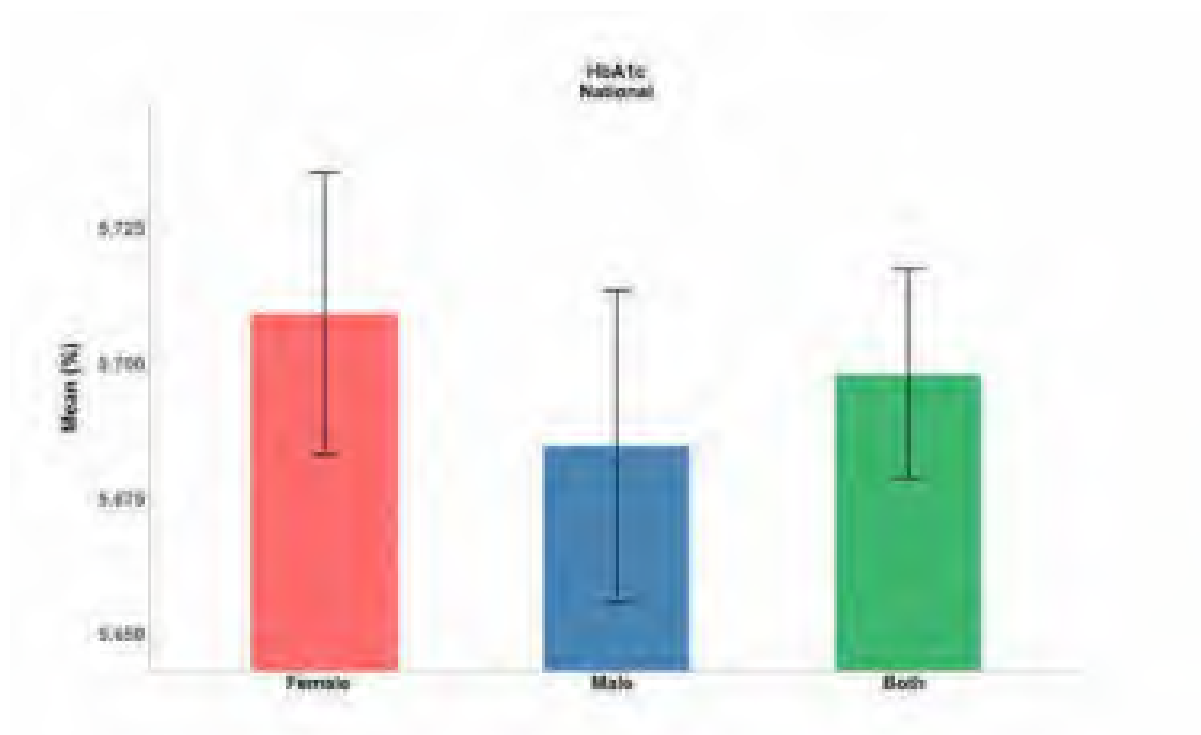


Figure 8.14. Mean of HbA1c (%) by sex at national level

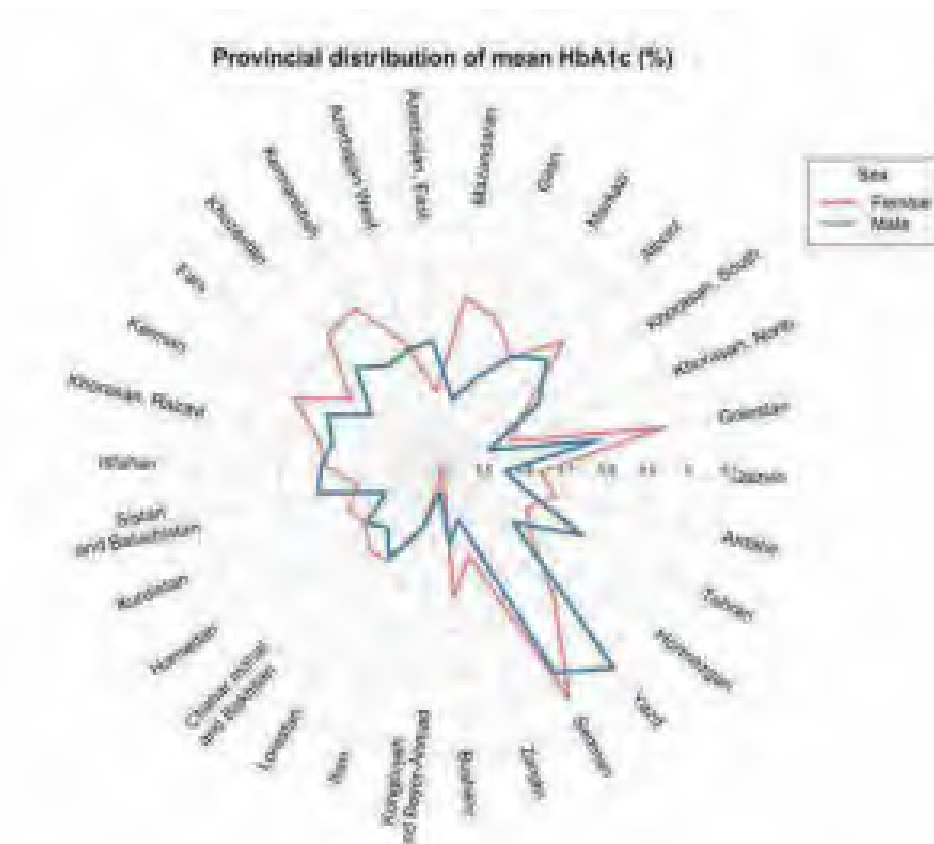


Figure 8.15. Provincial distribution of mean of HbA1c (%) by sex

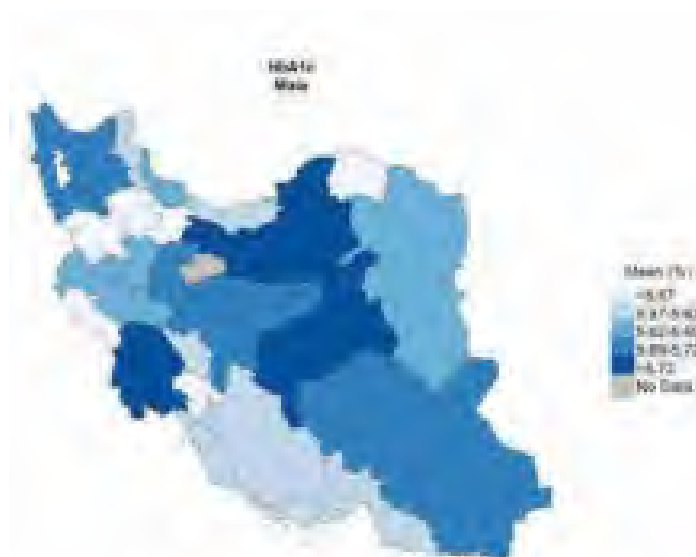


Figure 8.16. Geographical distribution of mean of HbA1c (%) in males

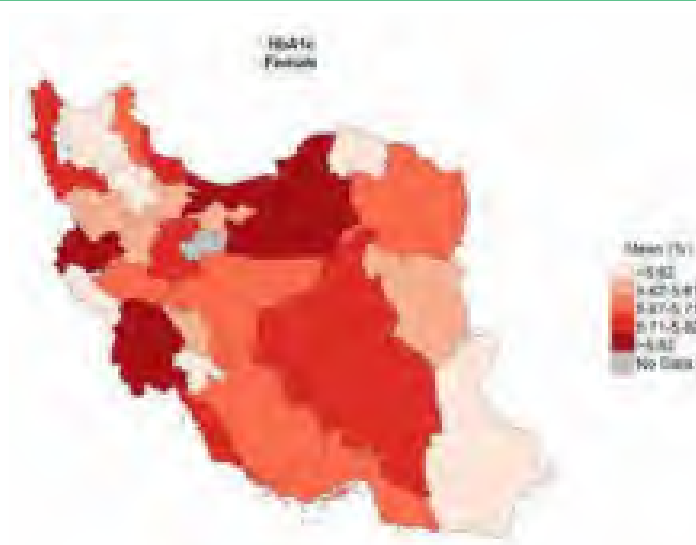


Figure 8.17. Geographical distribution of mean of HbA1c (%) in females

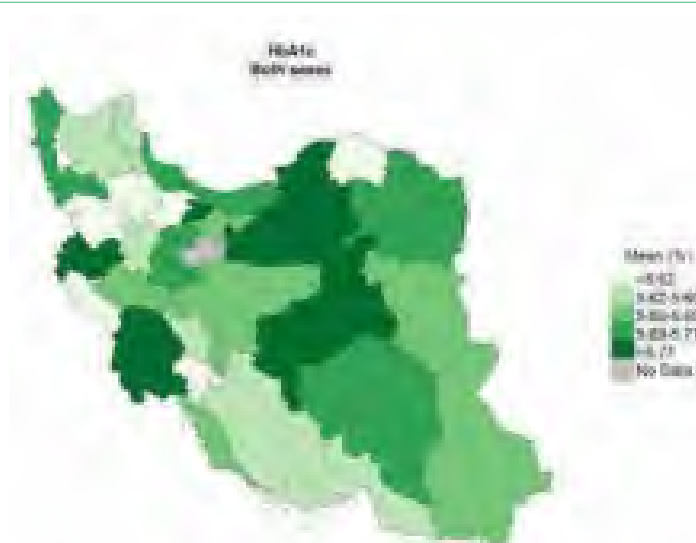


Figure 8.18. Geographical distribution of mean of HbA1c (%) in both sexes

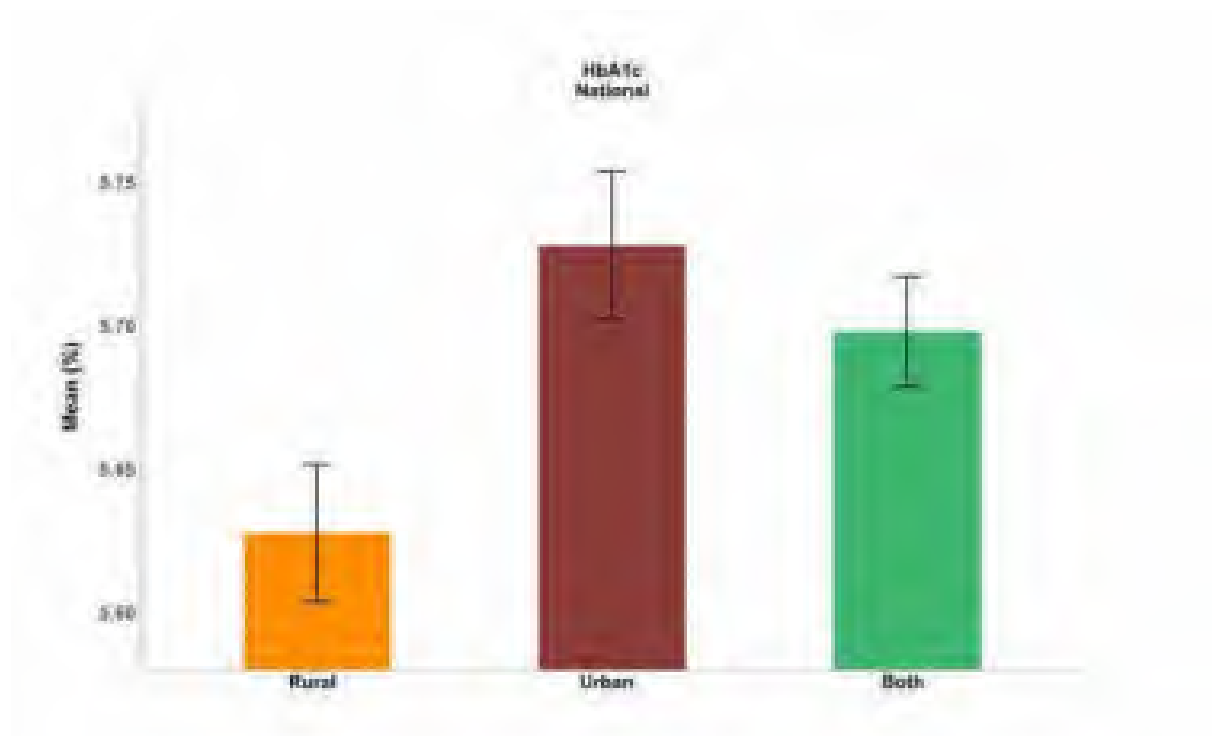


Figure 8.19. Mean of HbA1c (%) by area of residency at national level

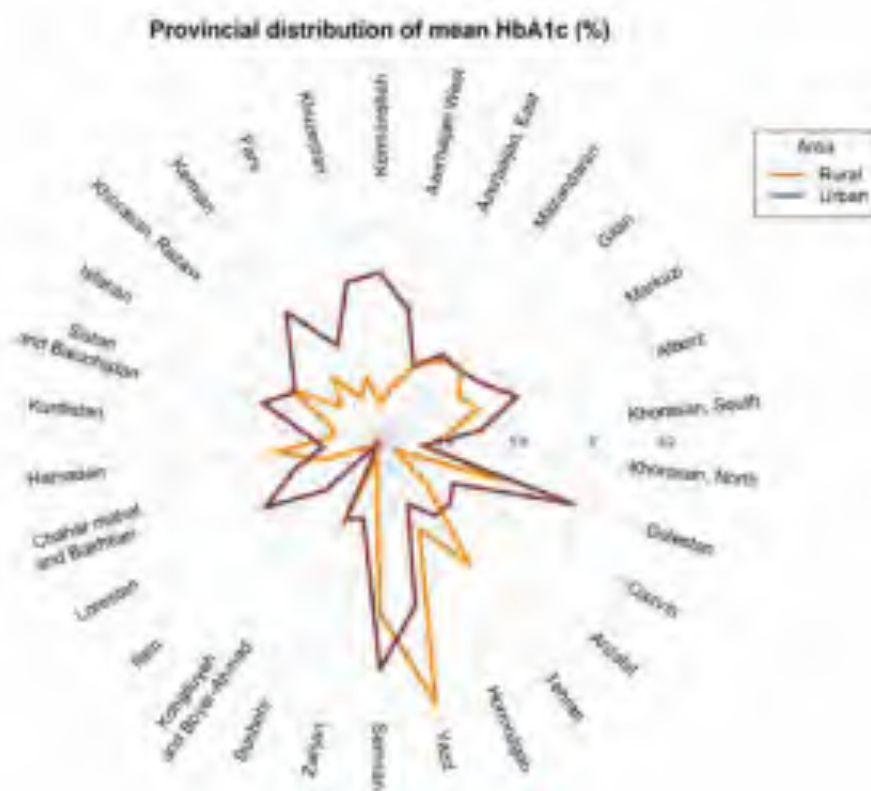


Figure 8.20. Provincial distribution of mean of HbA1c (%) by area of residency

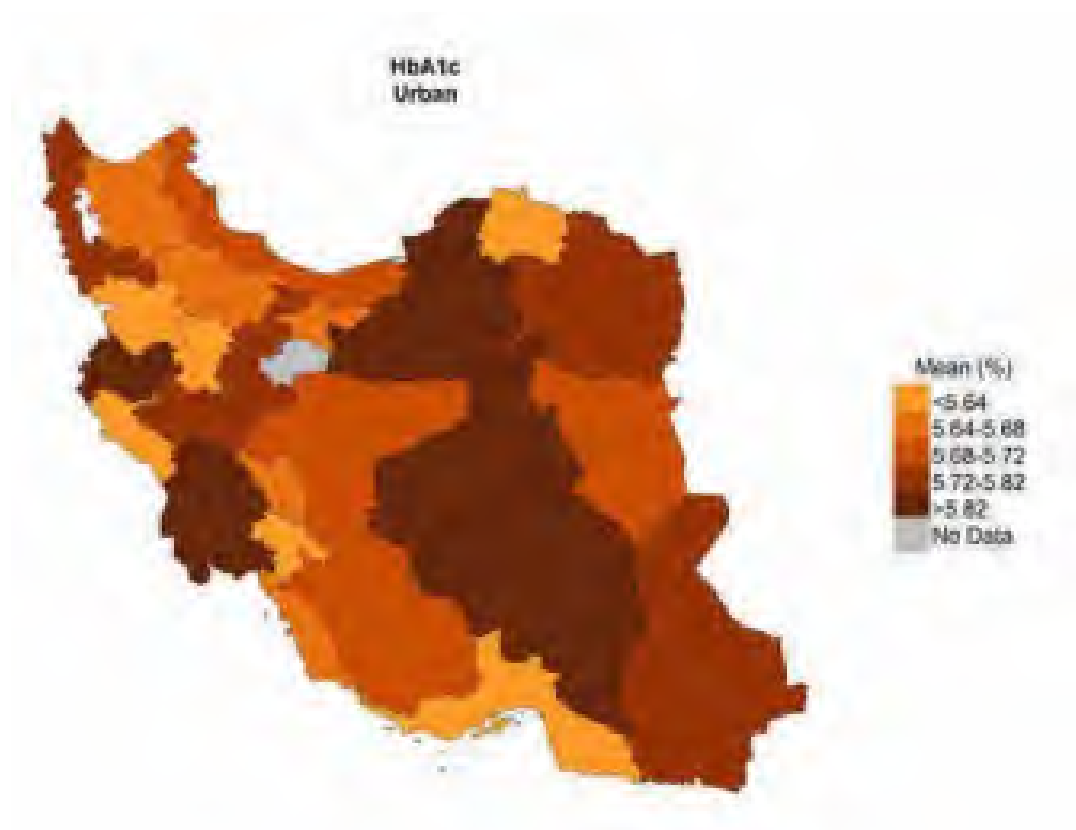


Figure 8.21. Geographical distribution of mean of HbA1c (%) in urban area of residency

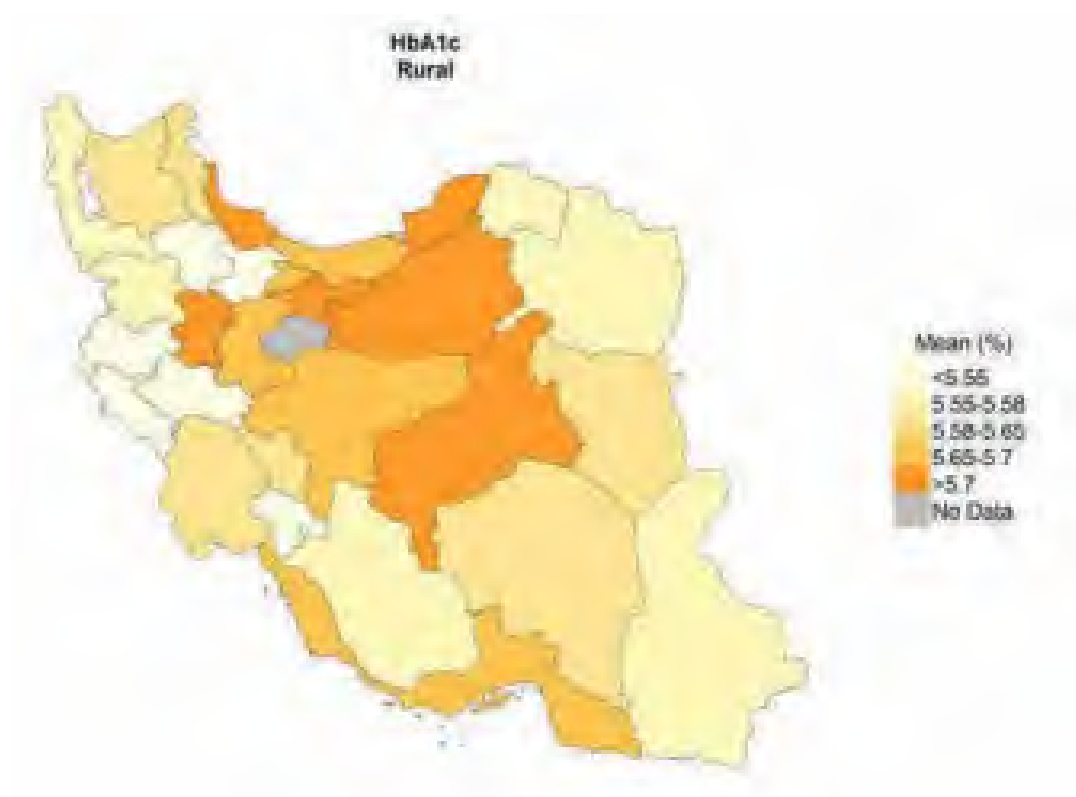


Figure 8.22. Geographical distribution of mean of HbA1c (%) in rural area of residency

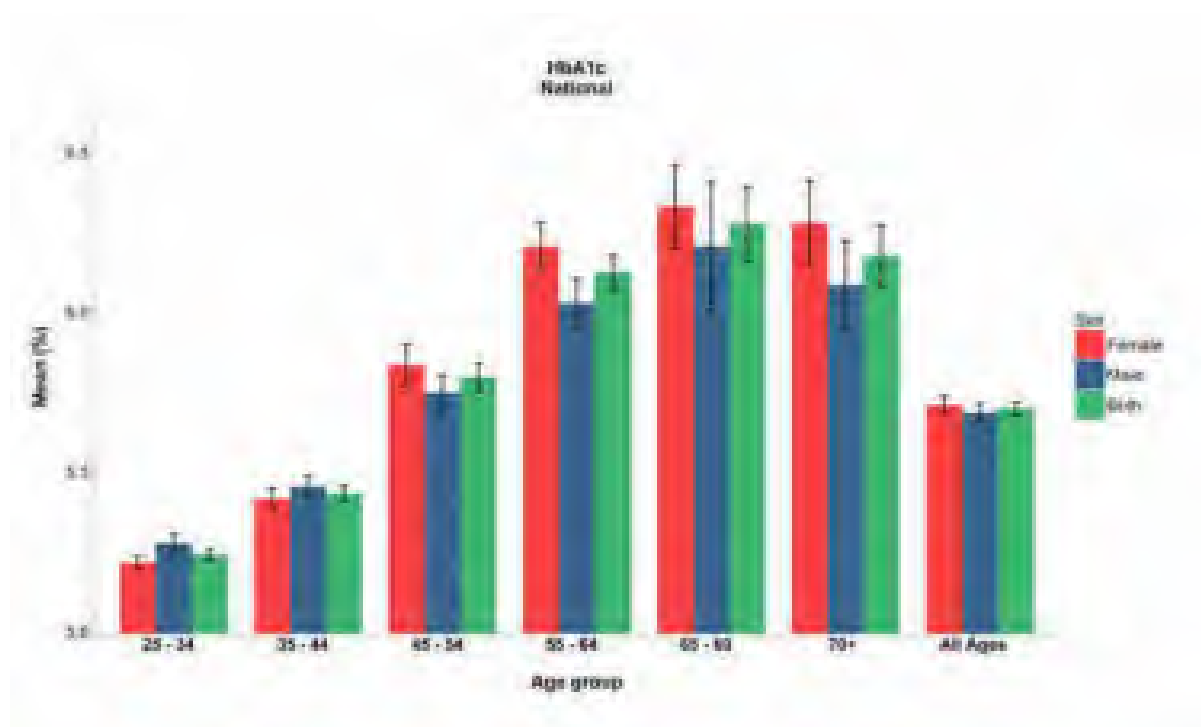


Figure 8.23. Mean of HbA1c (%) by age and sex at national level

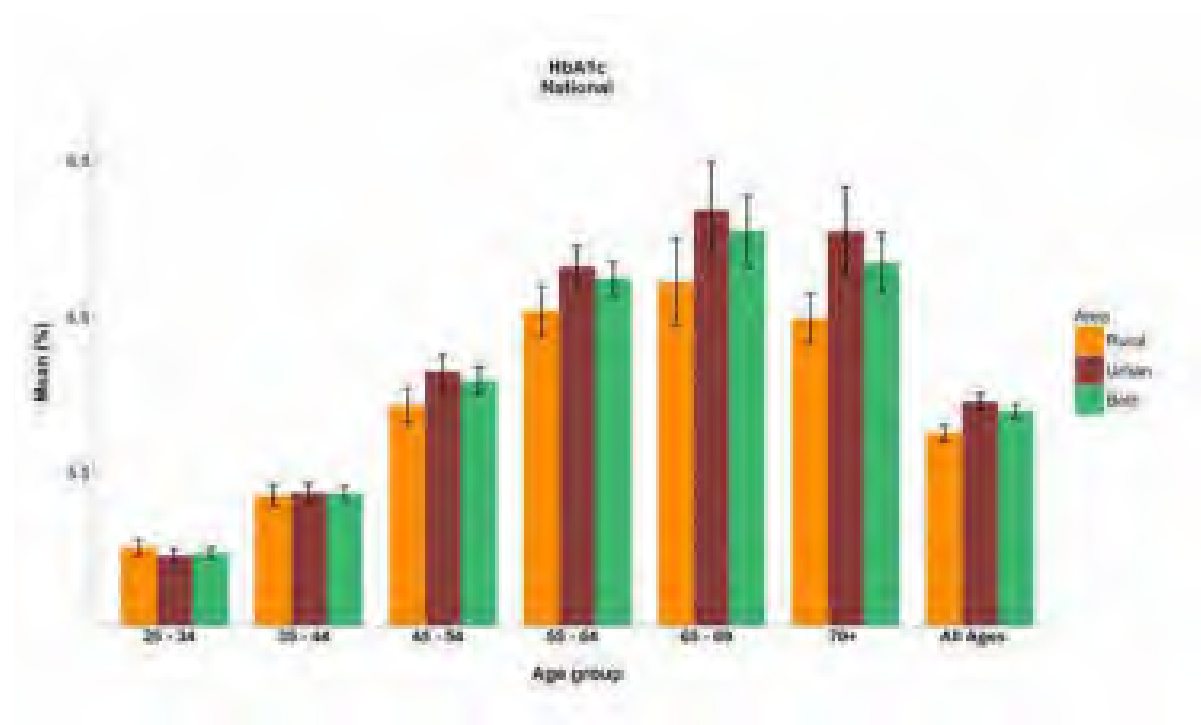


Figure 8.24. Mean of HbA1c (%) by age and area of residency at national level

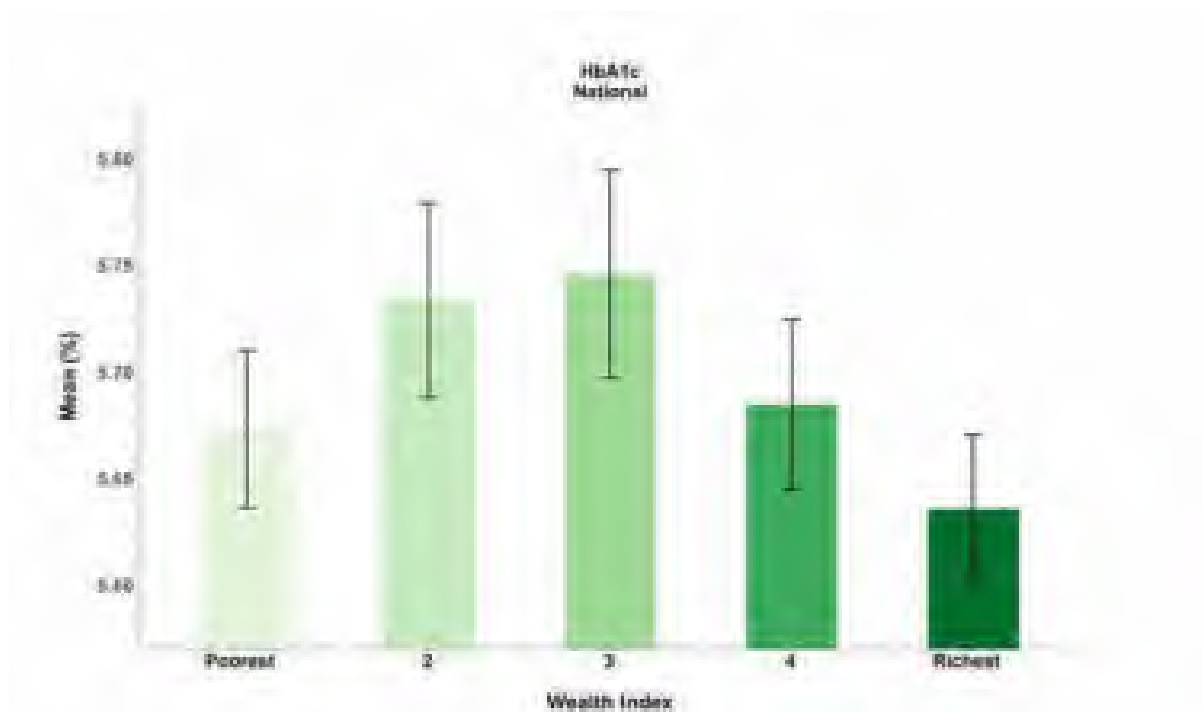


Figure 8.25. Mean of HbA1c (%) by wealth index quantiles at national level

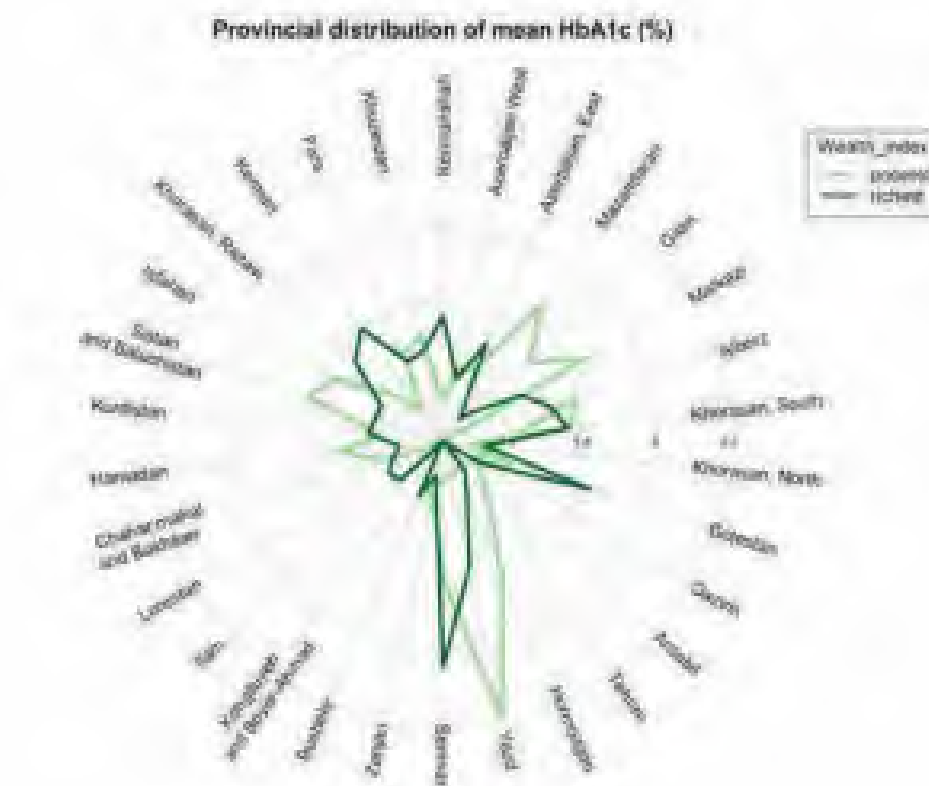


Figure 8.26. Provincial distribution of mean of HbA1c (%) by wealth index

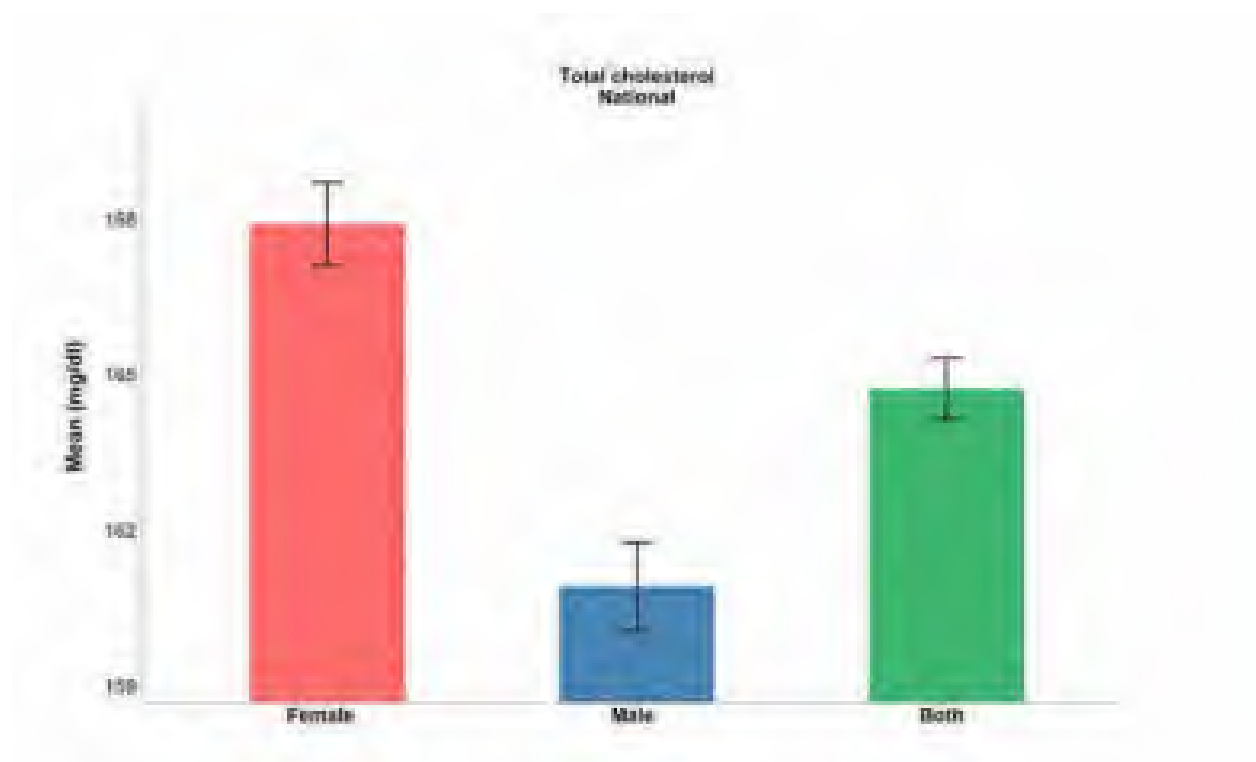


Figure 8.27. Mean of total cholesterol (mg/dl) by sex at national level

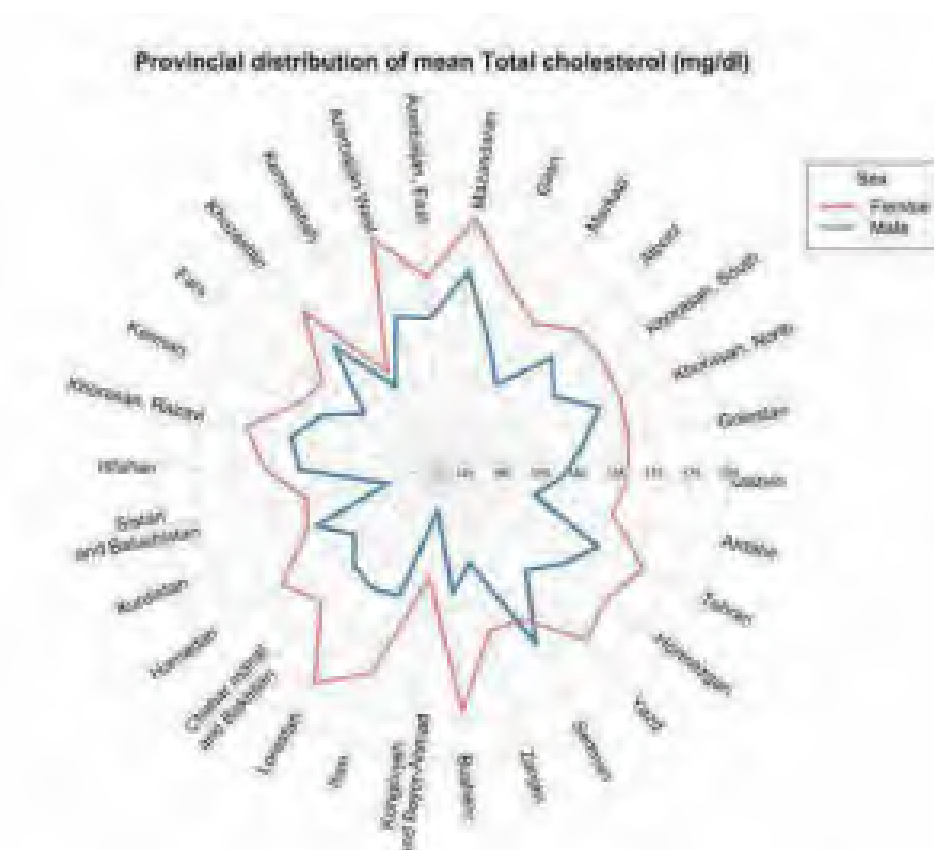


Figure 8.28. Provincial distribution of mean of total cholesterol (mg/dl) by sex

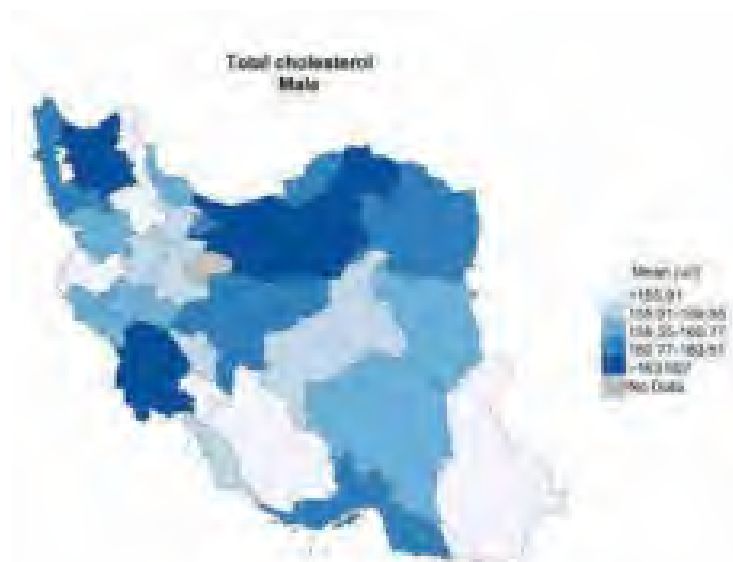


Figure 8.29. Geographical distribution of mean of total cholesterol (mg/dl) in males

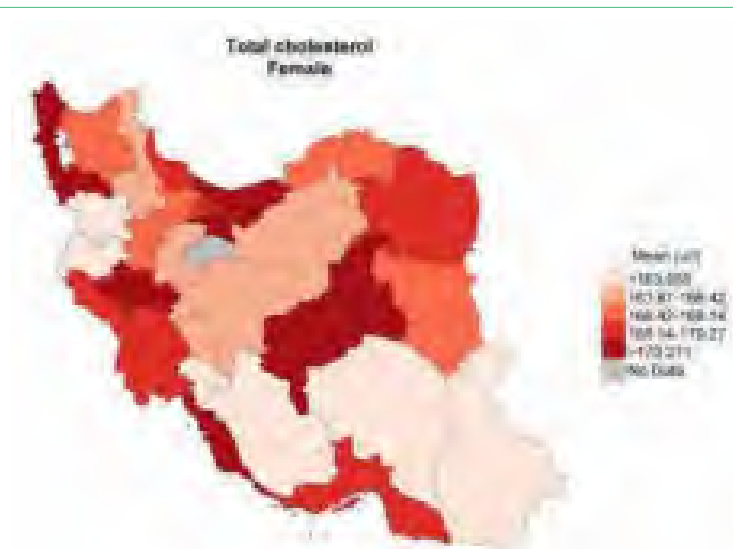


Figure 8.30. Geographical distribution of mean of total cholesterol (mg/dl) in females

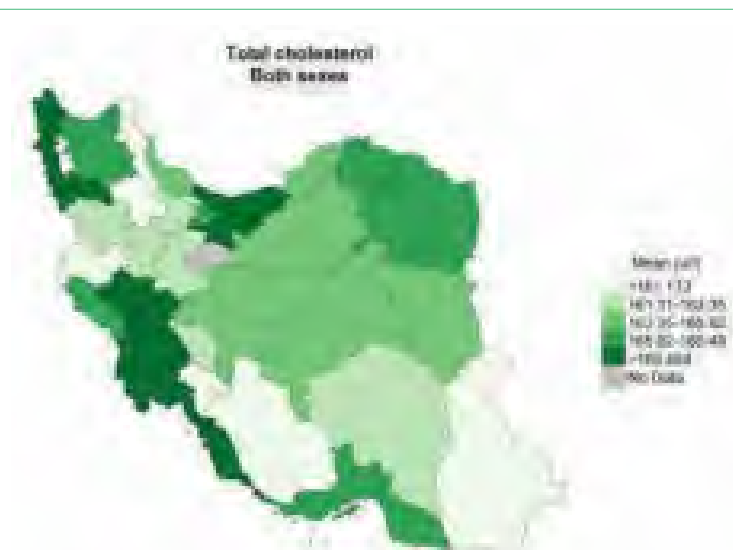


Figure 8.31. Geographical distribution of mean of total cholesterol (mg/dl) in both sexes

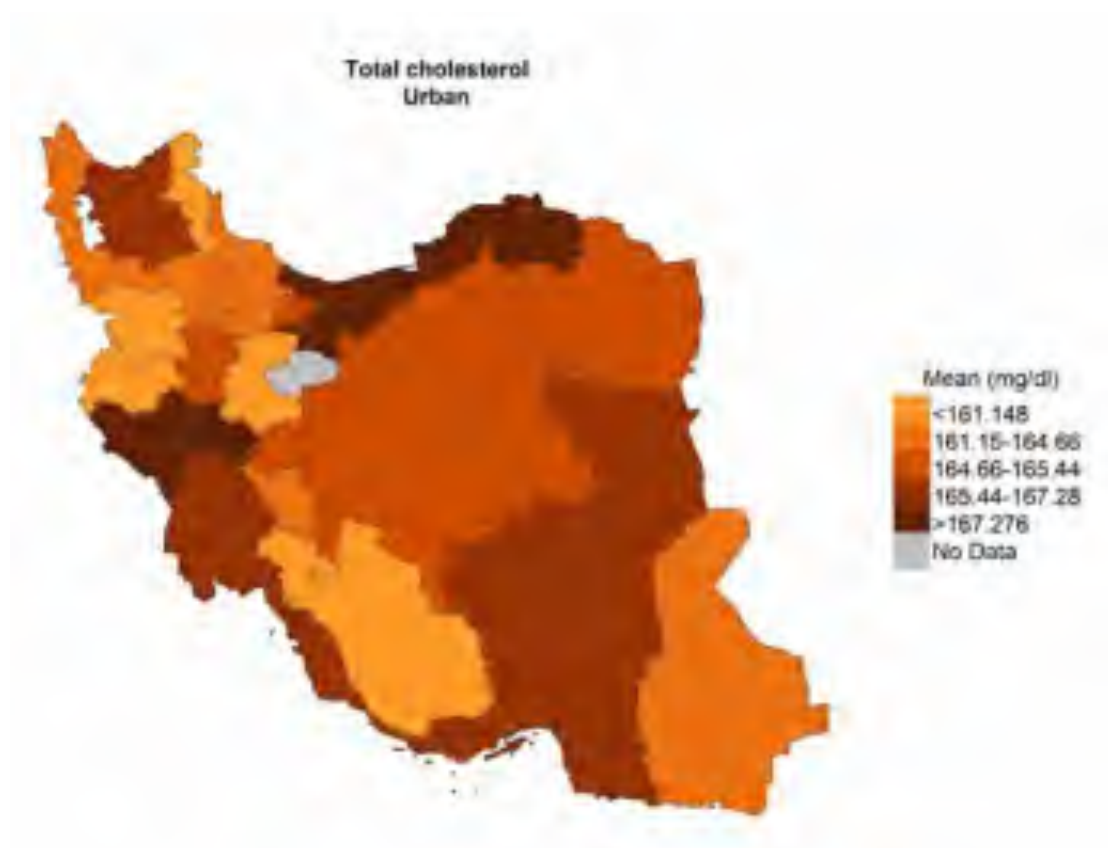


Figure 8.34. Geographical distribution of mean of total cholesterol (mg/dl) in urban area of residency

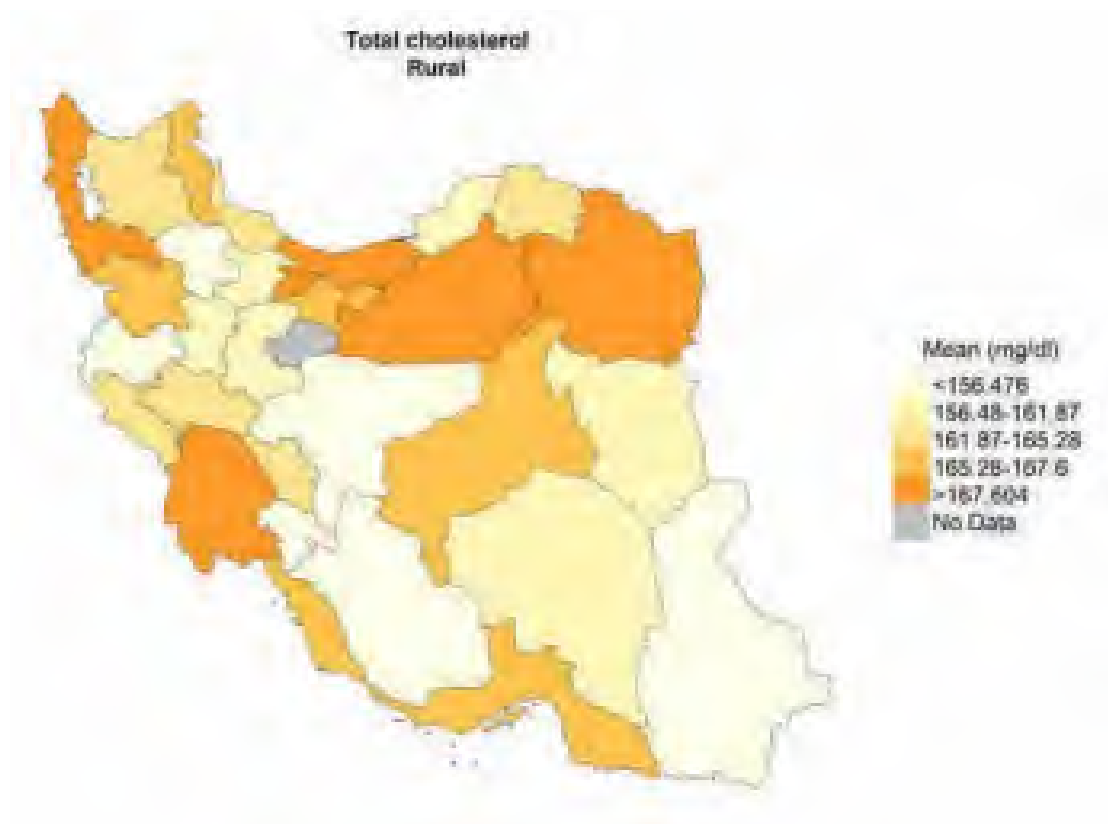


Figure 8.35. Geographical distribution of mean of total cholesterol (mg/dl) in rural area of residency

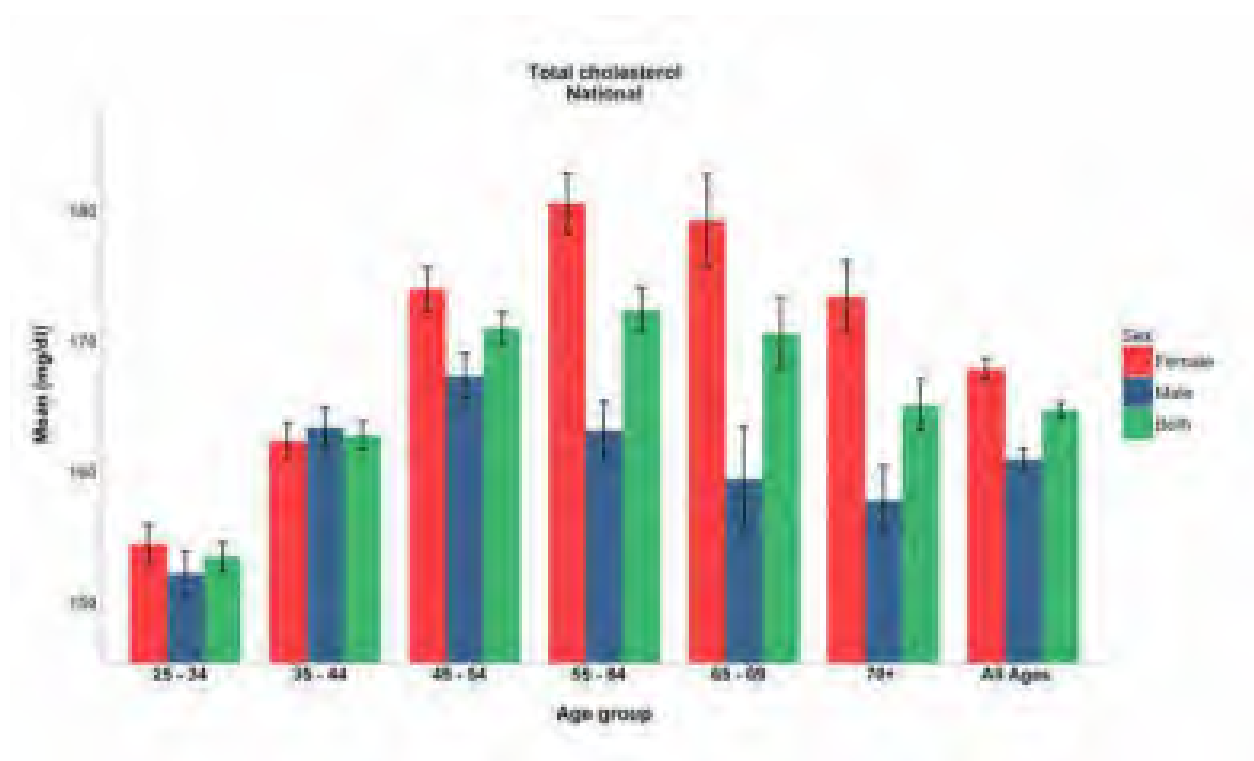


Figure 8.36. Mean of total cholesterol (mg/dl) by age and sex at national level

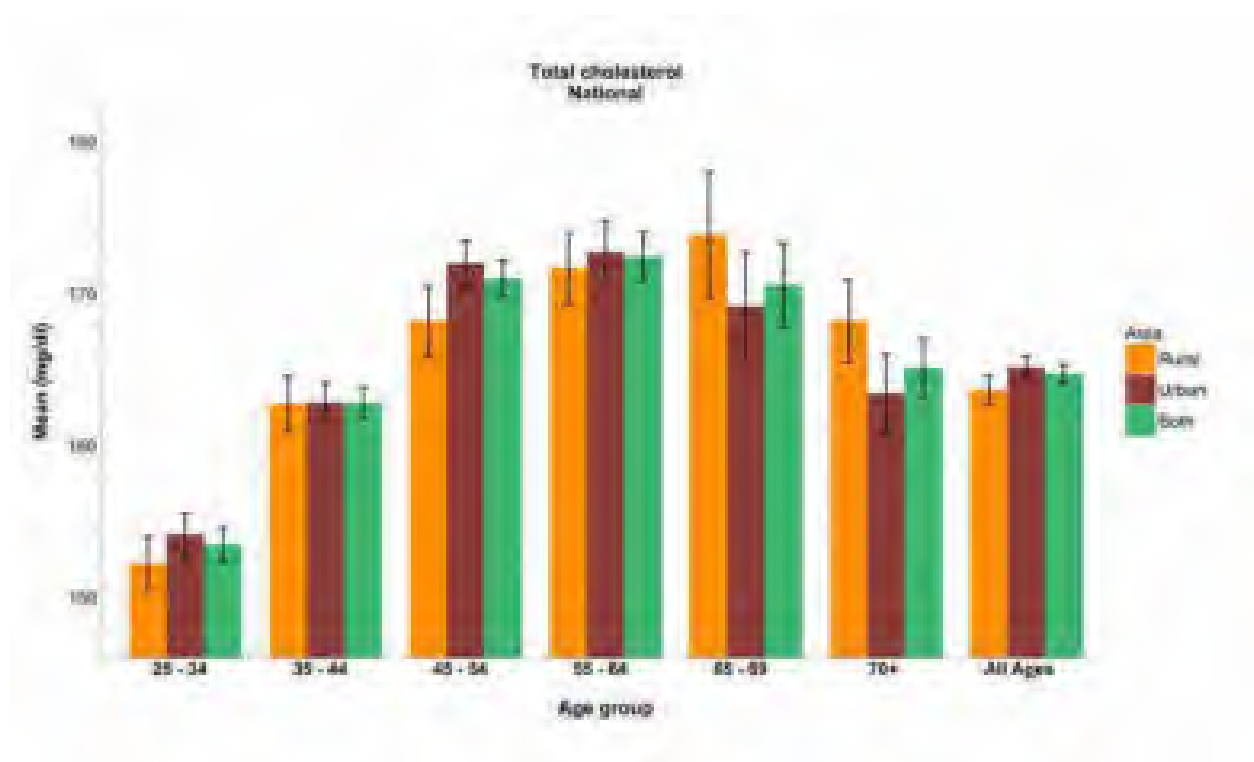


Figure 8.37. Mean of total cholesterol (mg/dl) by age and area of residency at national level

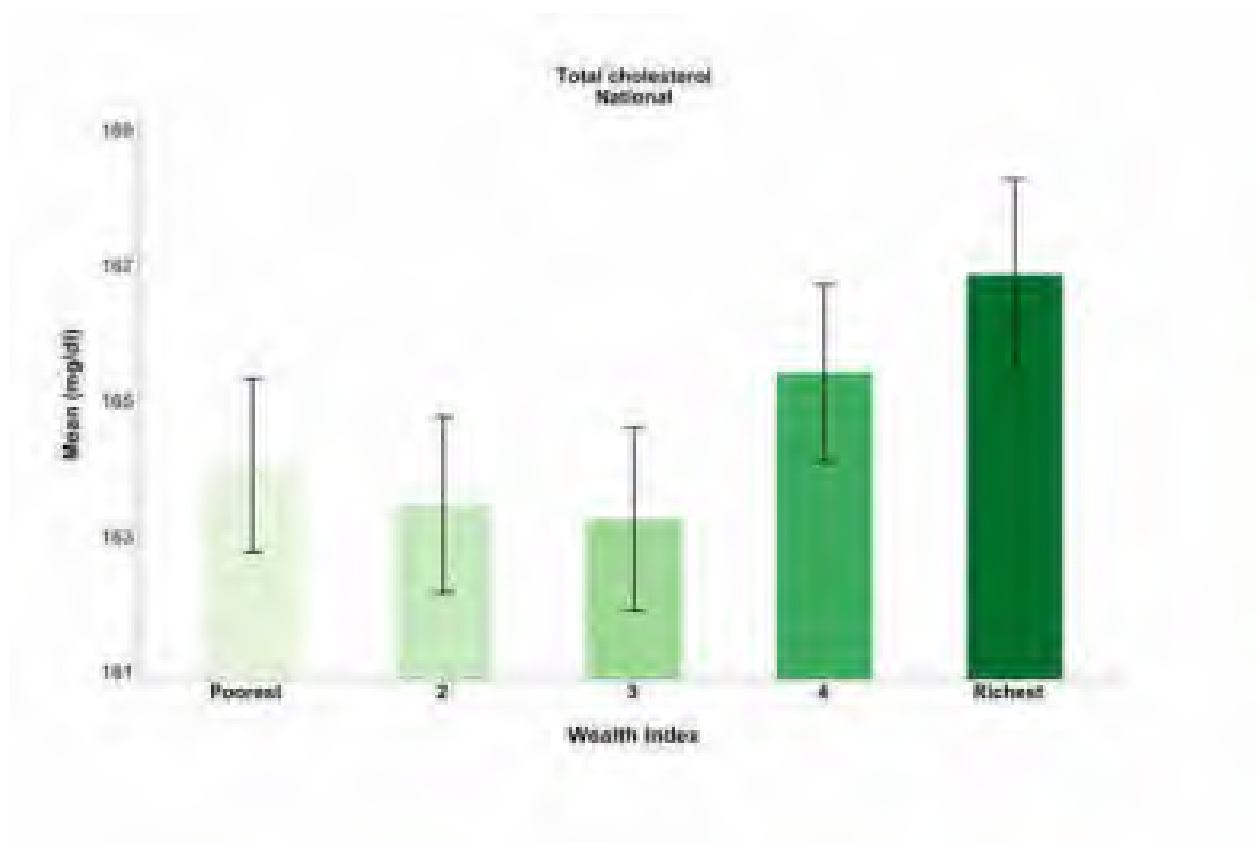


Figure 8.38. Mean of total cholesterol (mg/dl) by wealth index quantiles at national level

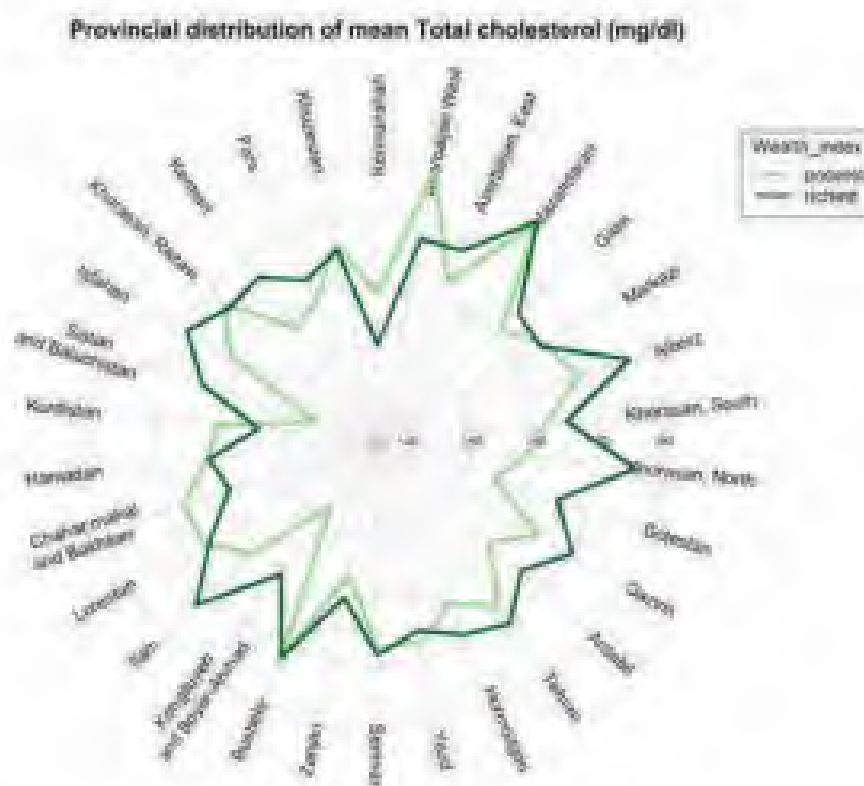


Figure 8.39. Provincial distribution of mean of total cholesterol (mg/dl) by wealth index

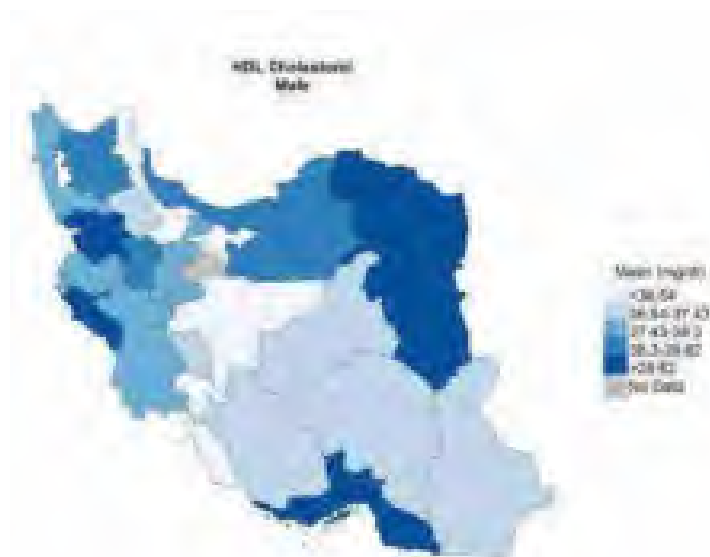


Figure 8.42. Geographical distribution of mean of HDL cholesterol (mg/dl) in males

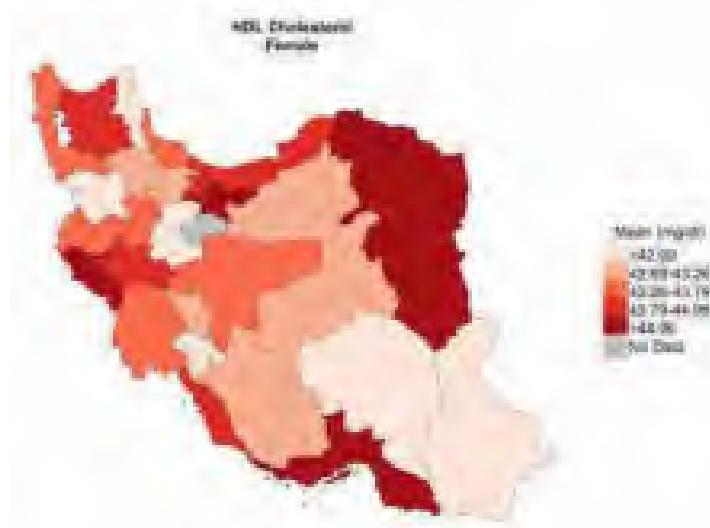


Figure 8.43. Geographical distribution of mean of HDL cholesterol (mg/dl) in females

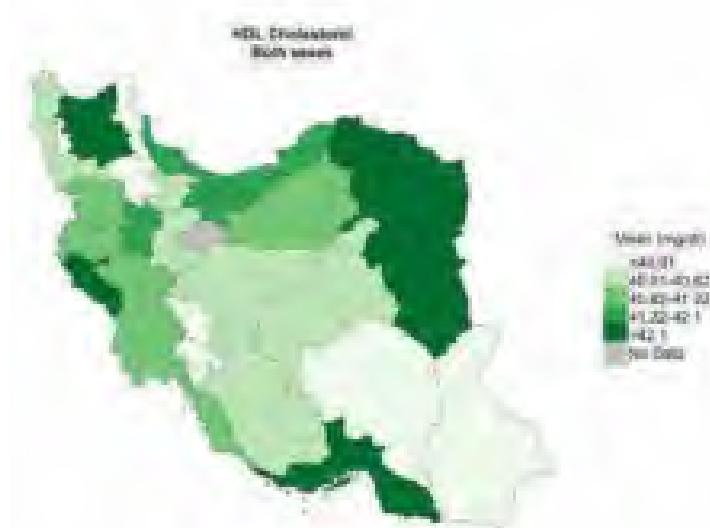


Figure 8.44. Geographical distribution of mean of HDL cholesterol (mg/dl) in both sexes

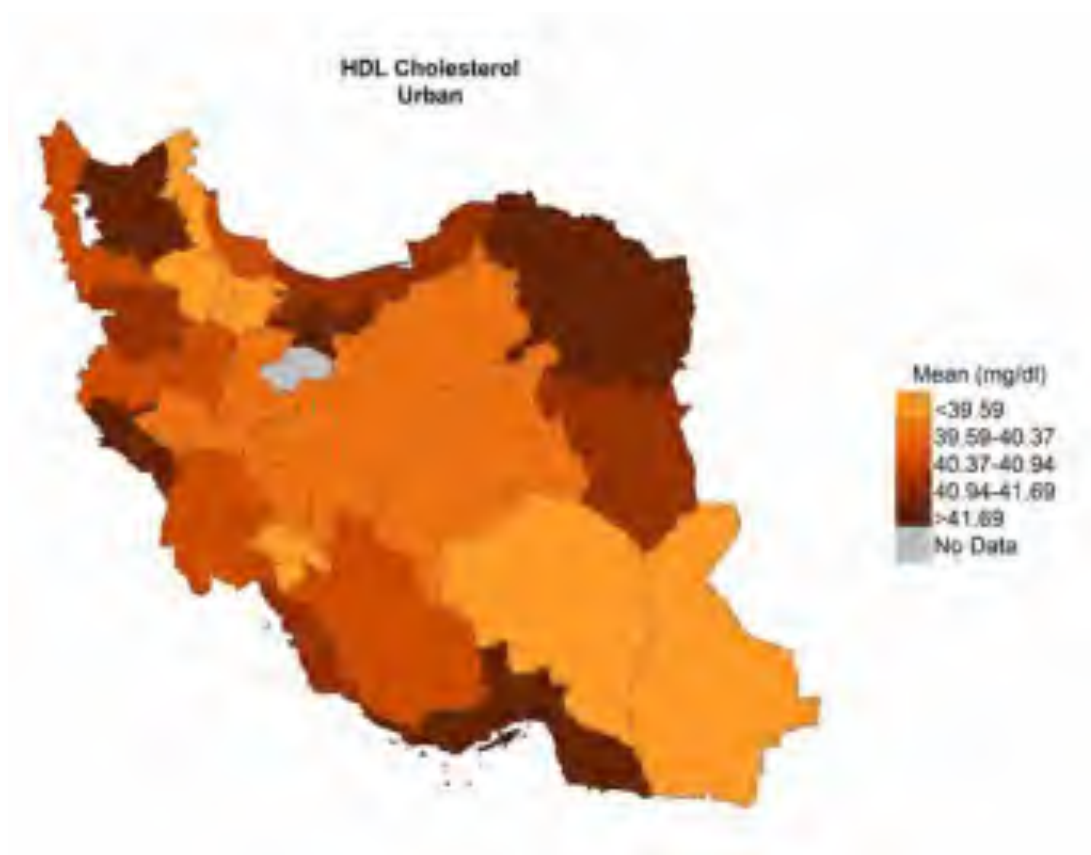


Figure 8.47. Geographical distribution of mean of HDL cholesterol (mg/dl) in urban area of residency

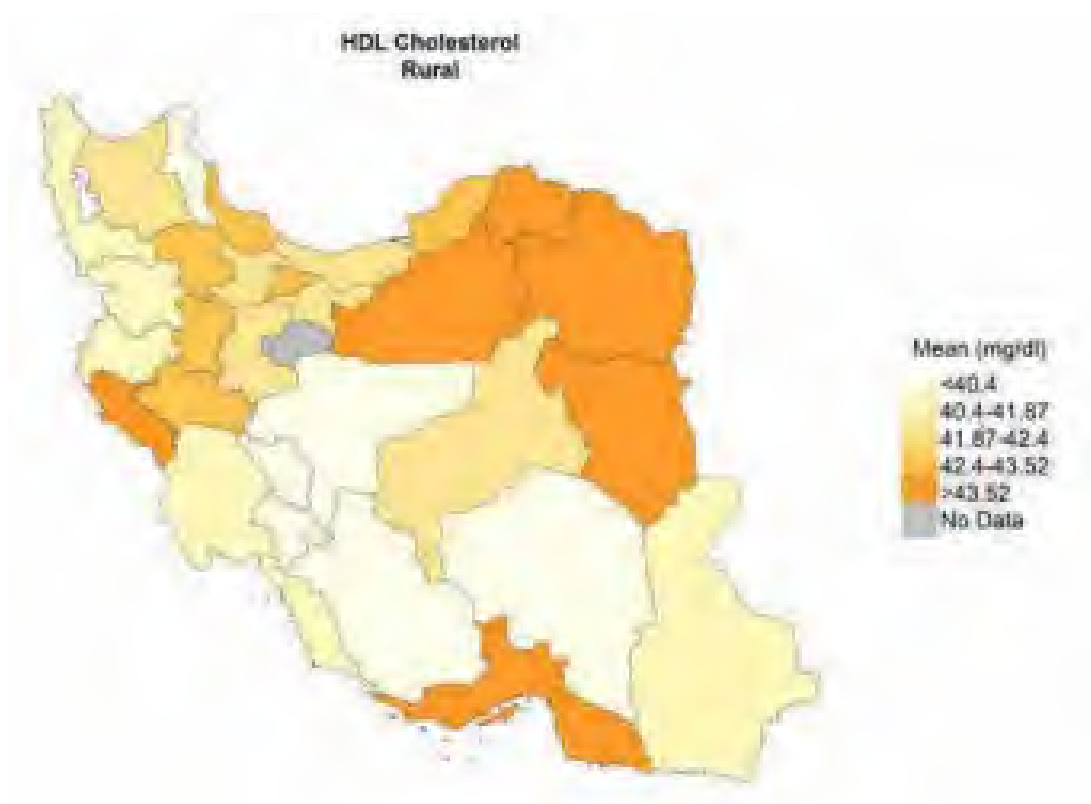


Figure 8.48. Geographical distribution of mean of HDL cholesterol (mg/dl) in rural area of residency

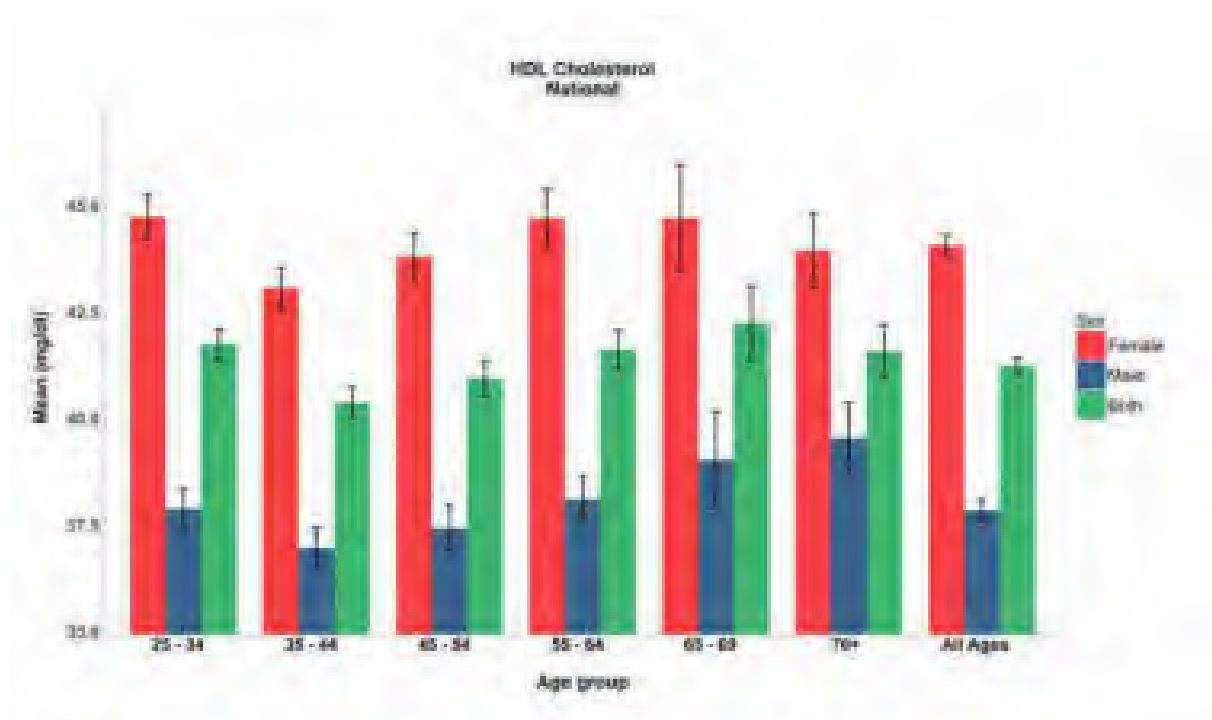


Figure 8.49. Mean of HDL cholesterol (mg/dl) by age and sex at national level

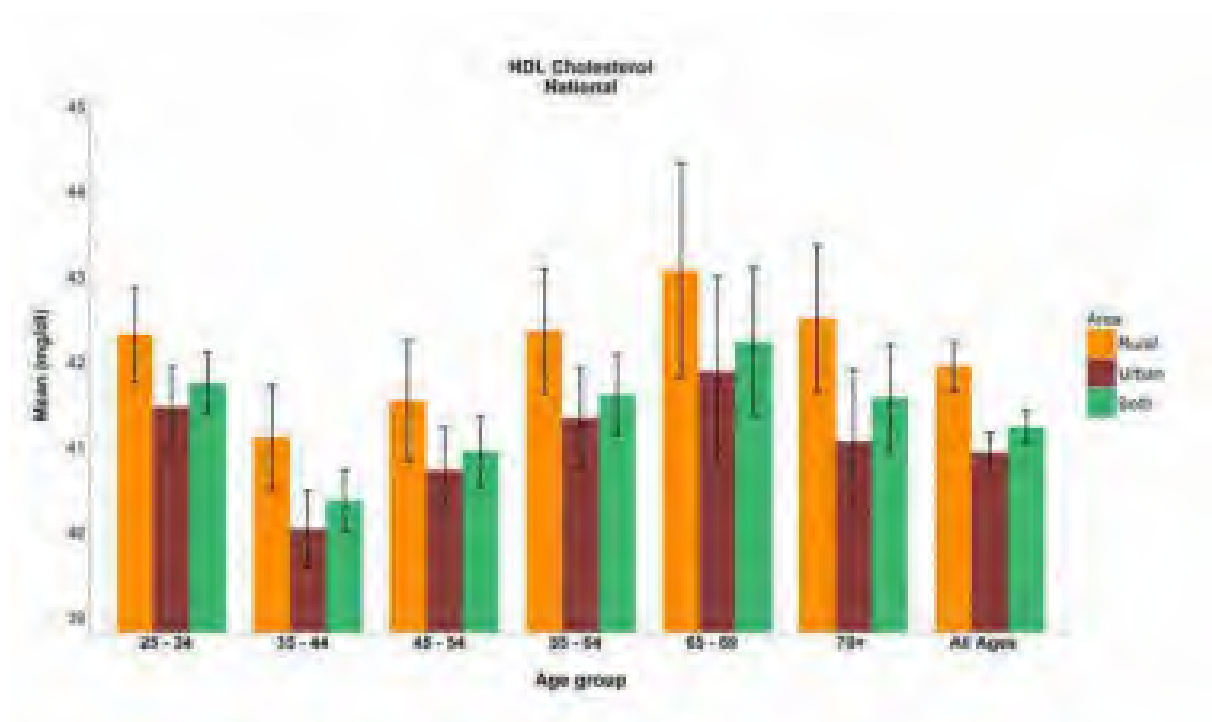


Figure 8.50. Mean of HDL cholesterol (mg/dl) by age and area of residency at national level

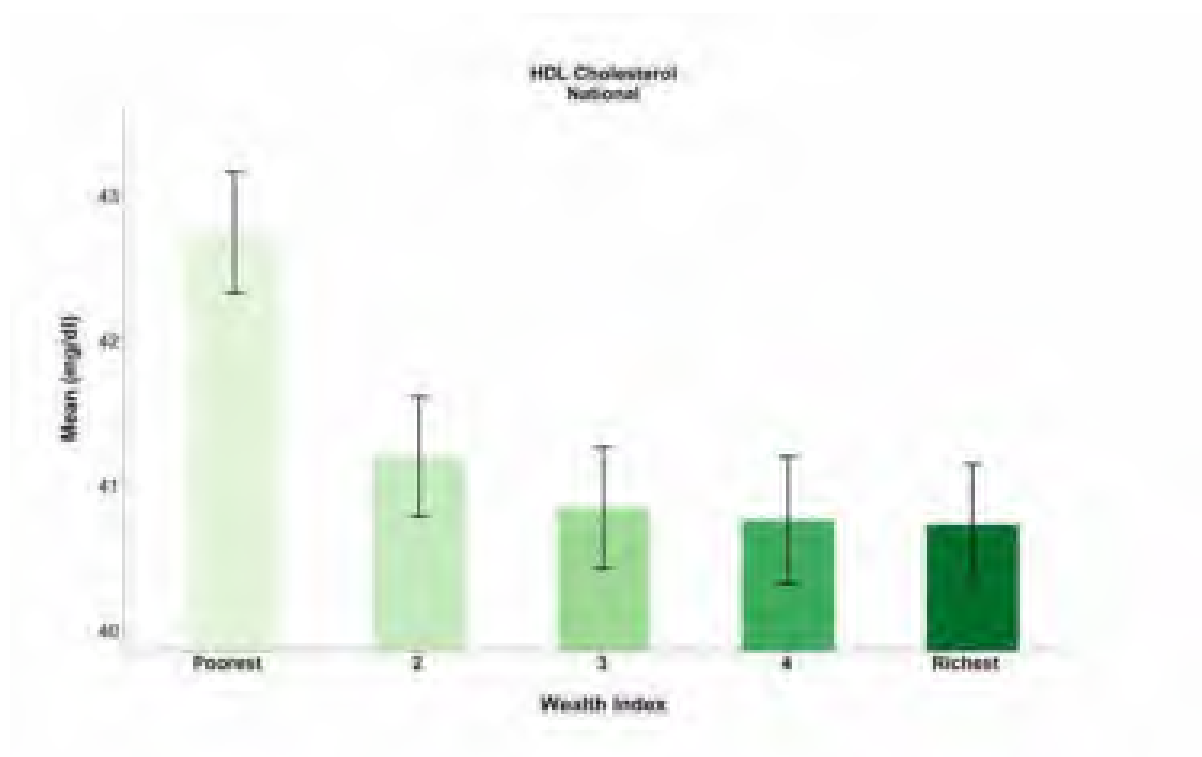


Figure 8.51. Mean of HDL cholesterol (mg/dl) by wealth index quantiles at national level

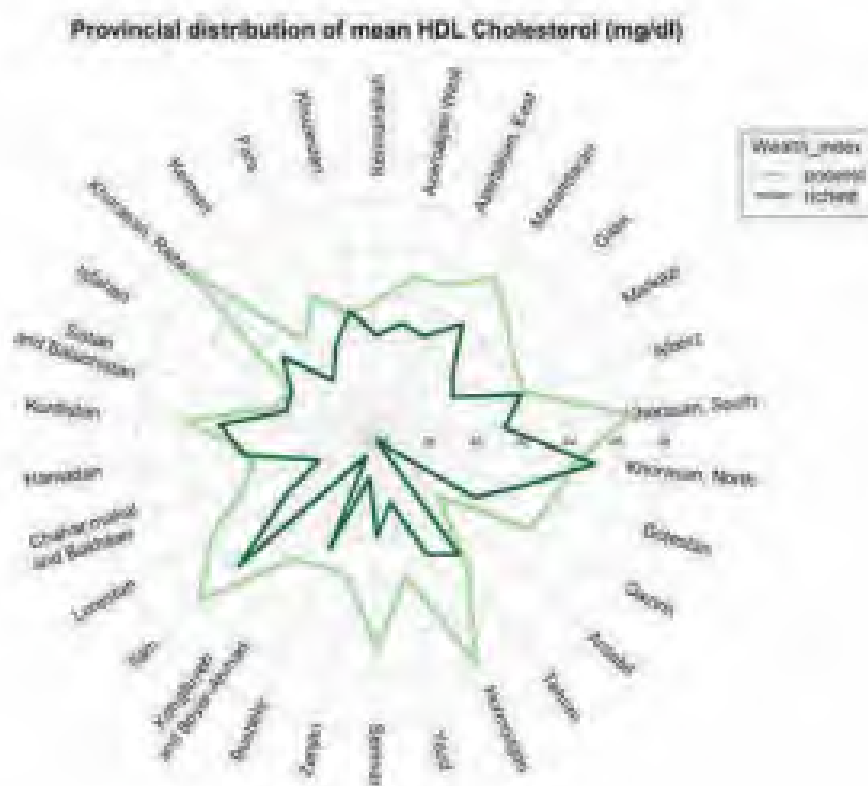


Figure 8.52. Provincial distribution of mean of HDL cholesterol (mg/dl) by wealth index

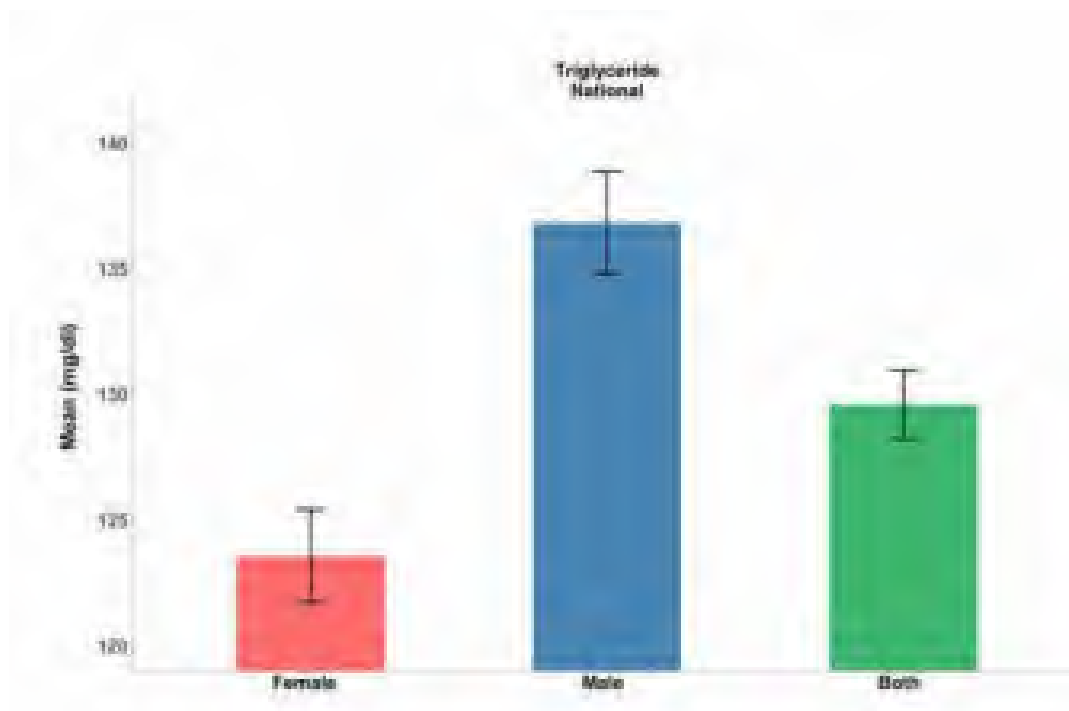


Figure 8.53. Mean of triglyceride (mg/dl) by sex at national level

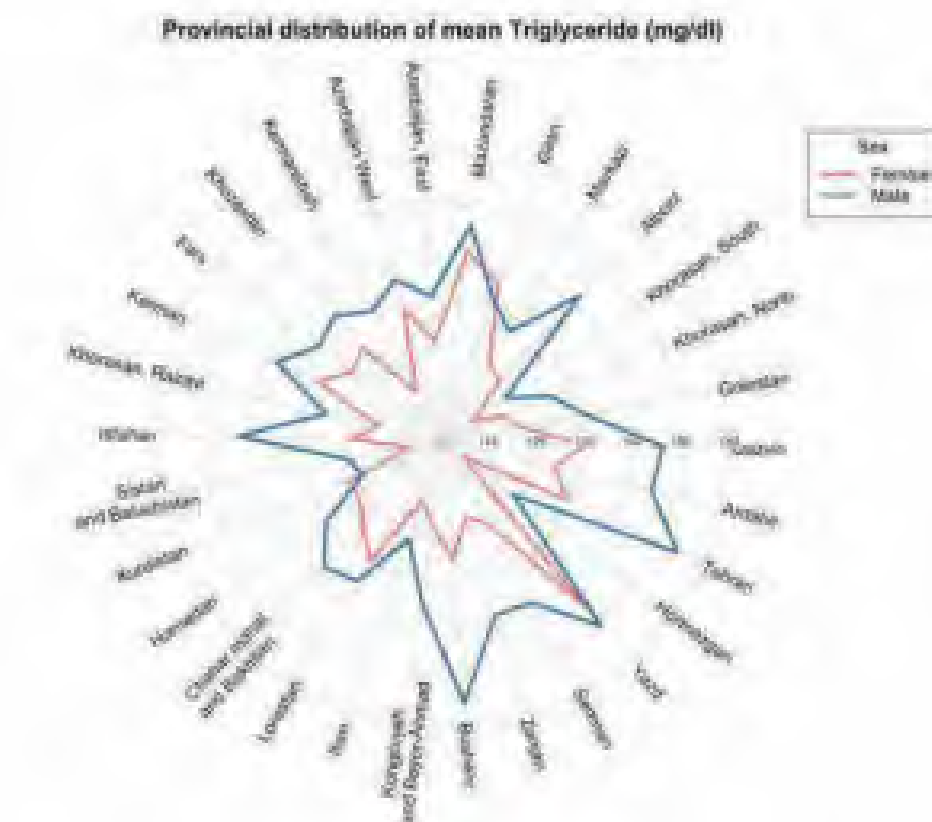


Figure 8.54. Provincial distribution of mean of triglyceride (mg/dl) by sex

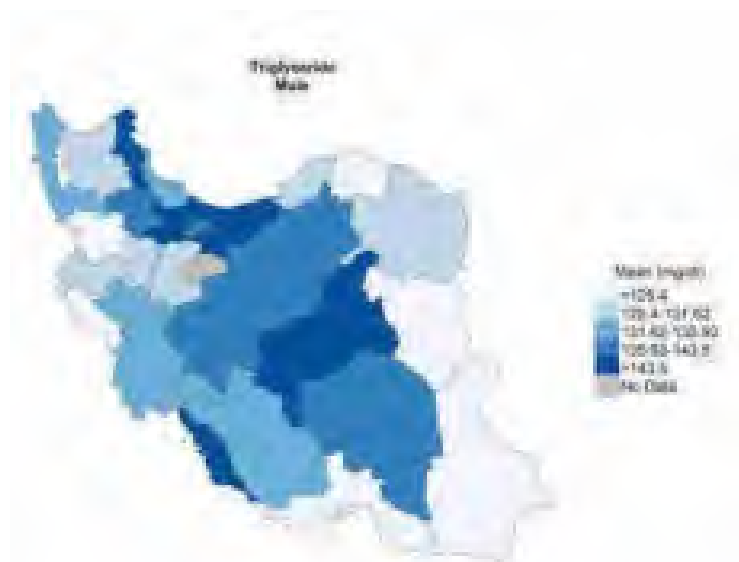


Figure 8.55. Geographical distribution of mean of triglyceride (mg/dl) in males

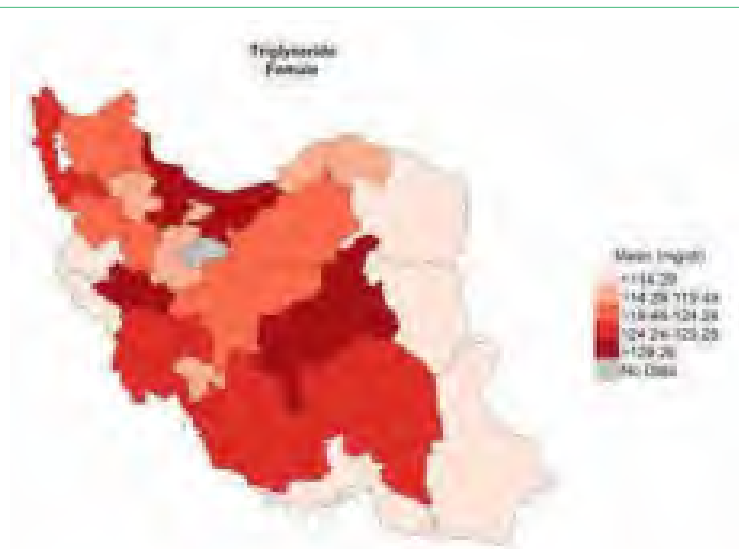


Figure 8.56. Geographical distribution of mean of triglyceride (mg/dl) in females

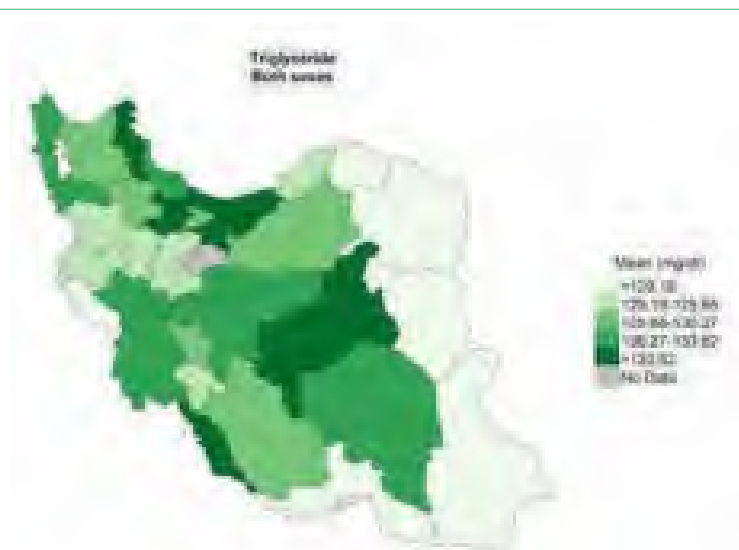


Figure 8.57. Geographical distribution of mean of triglyceride (mg/dl) in both sexes

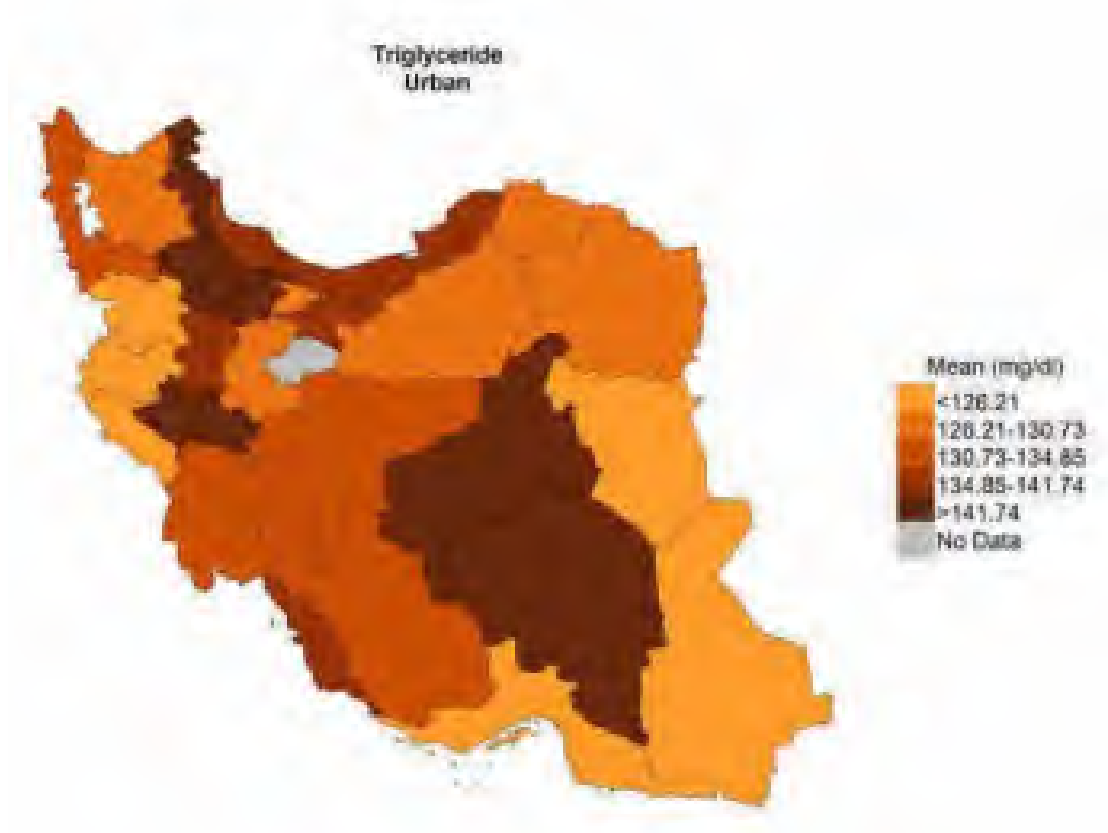


Figure 8.60. Geographical distribution of mean of triglyceride (mg/dl) in urban area of residency

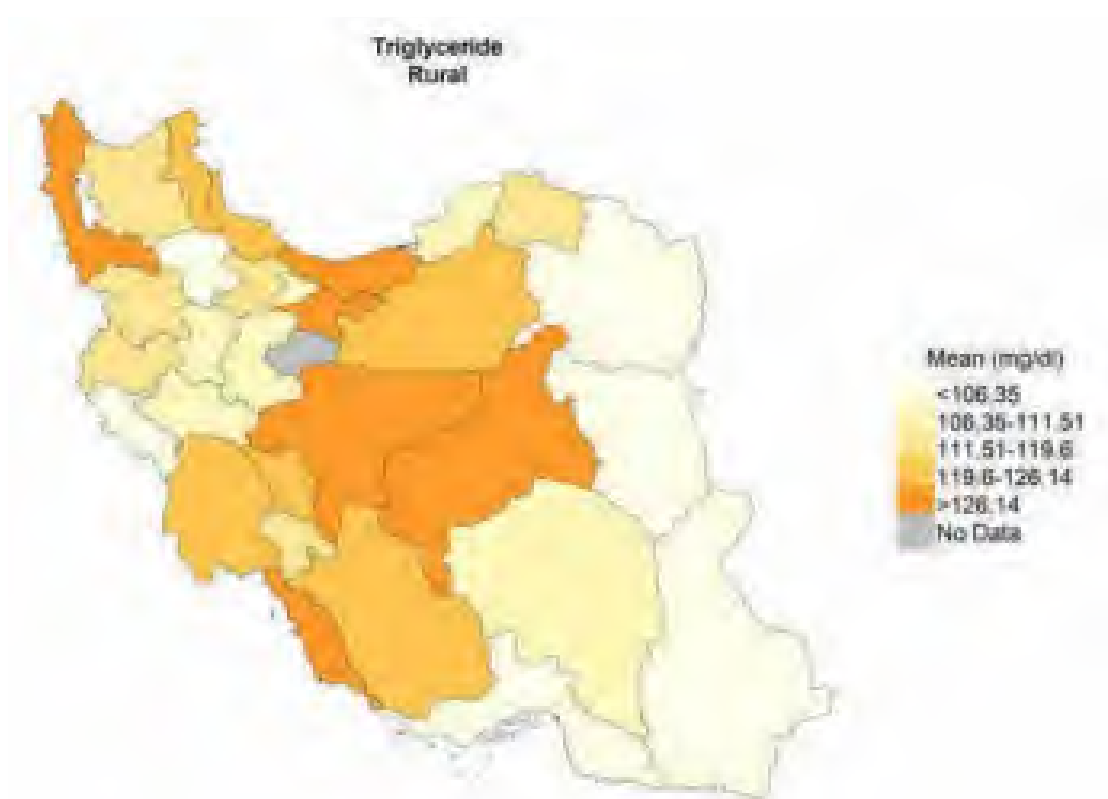


Figure 8.61. Geographical distribution of mean of triglyceride (mg/dl) in rural area of residency

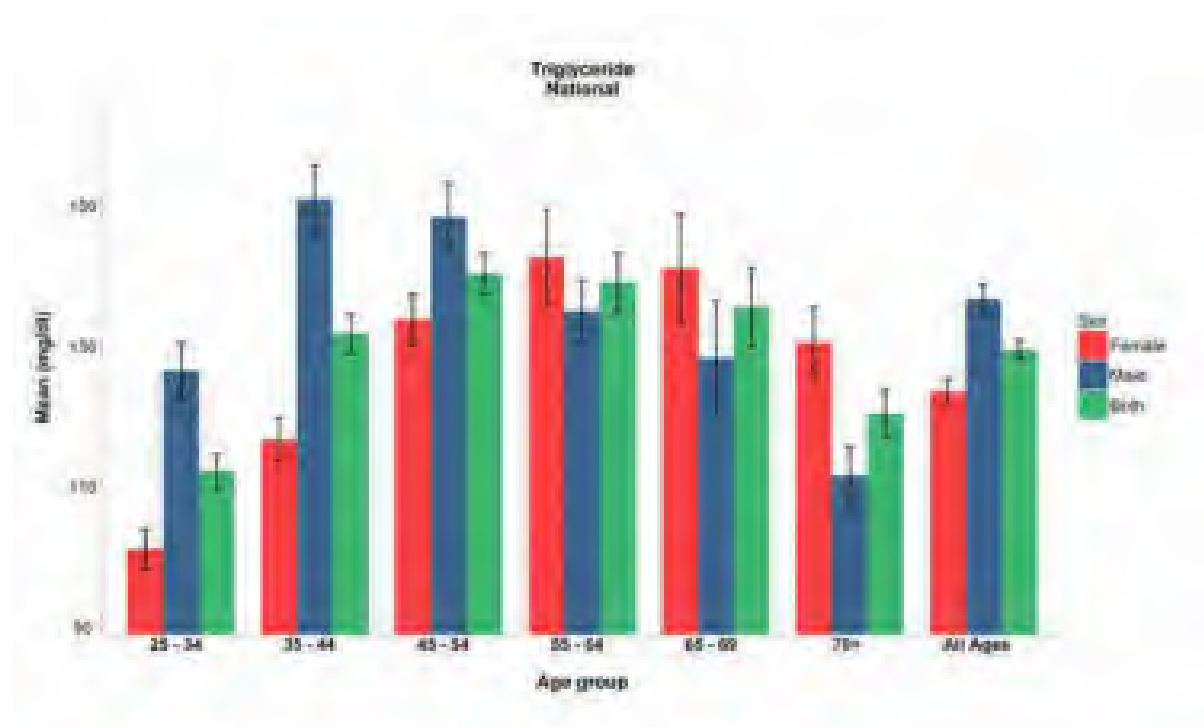


Figure 8.62. Mean of triglyceride (mg/dl) by age and sex at national level

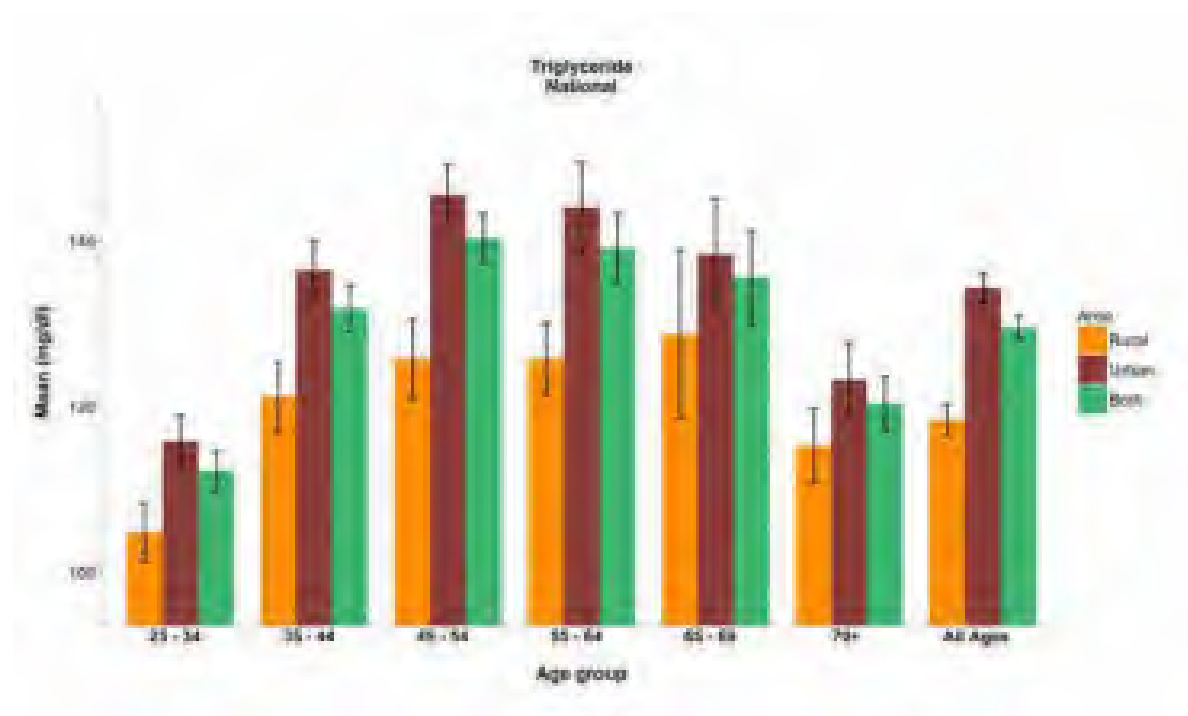


Figure 8.63. Mean of triglyceride (mg/dl) by age and area of residency at national level

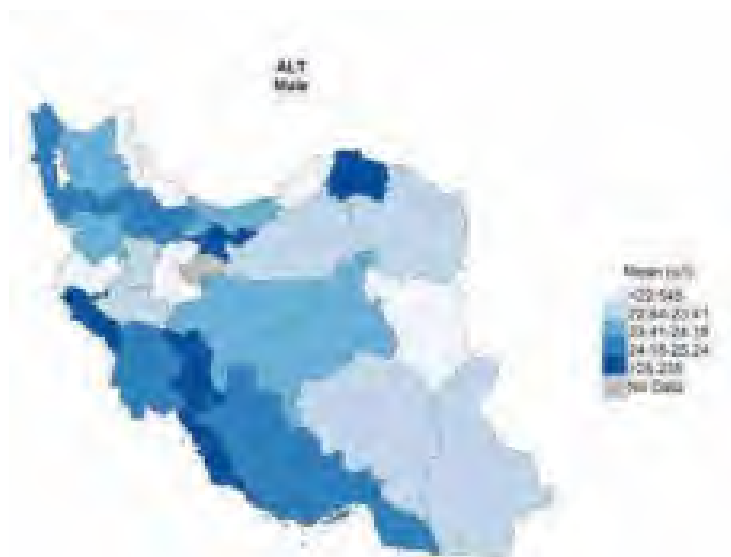


Figure 8.68. Geographical distribution of mean of ALT (u/l) in males

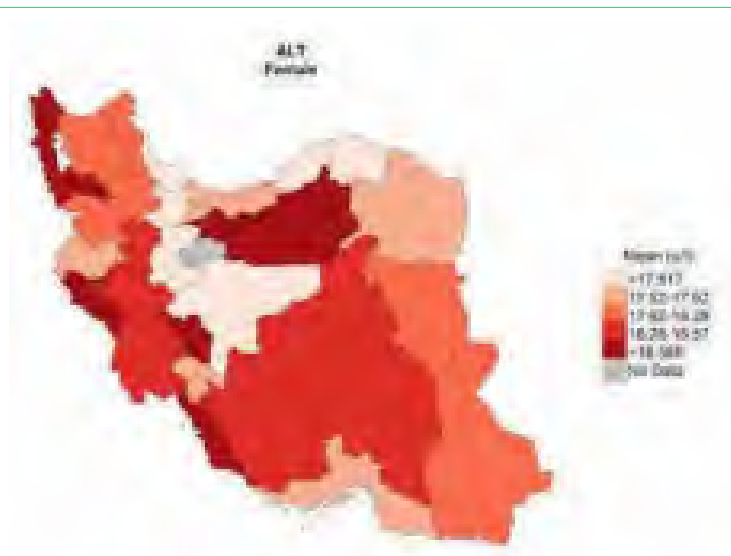


Figure 8.69. Geographical distribution of mean of ALT (u/l) in females

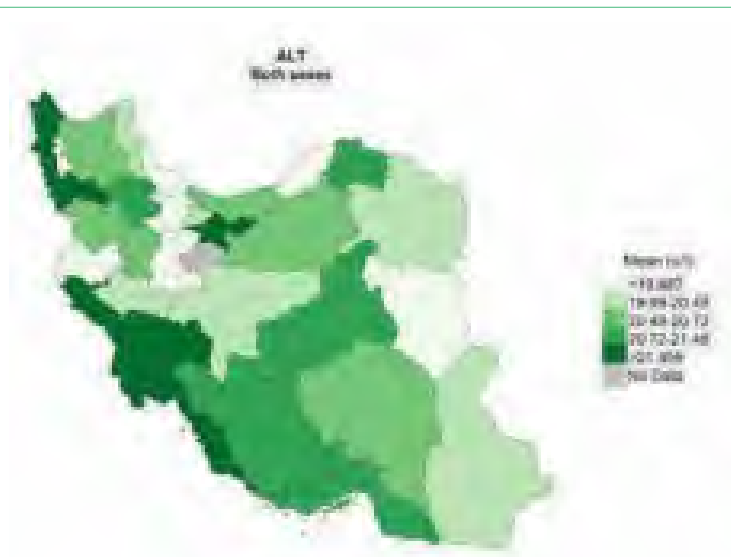


Figure 8.70. Geographical distribution of mean of ALT (u/l) in both sexes

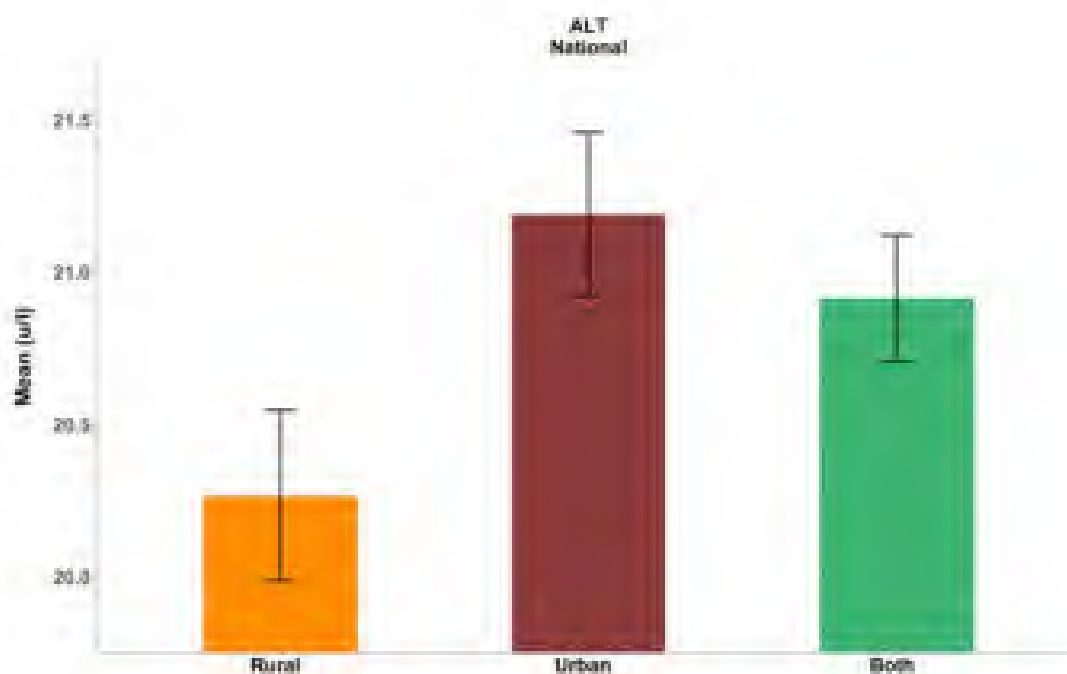


Figure 8.71. Mean of ALT (u/l) by area of residency at national level

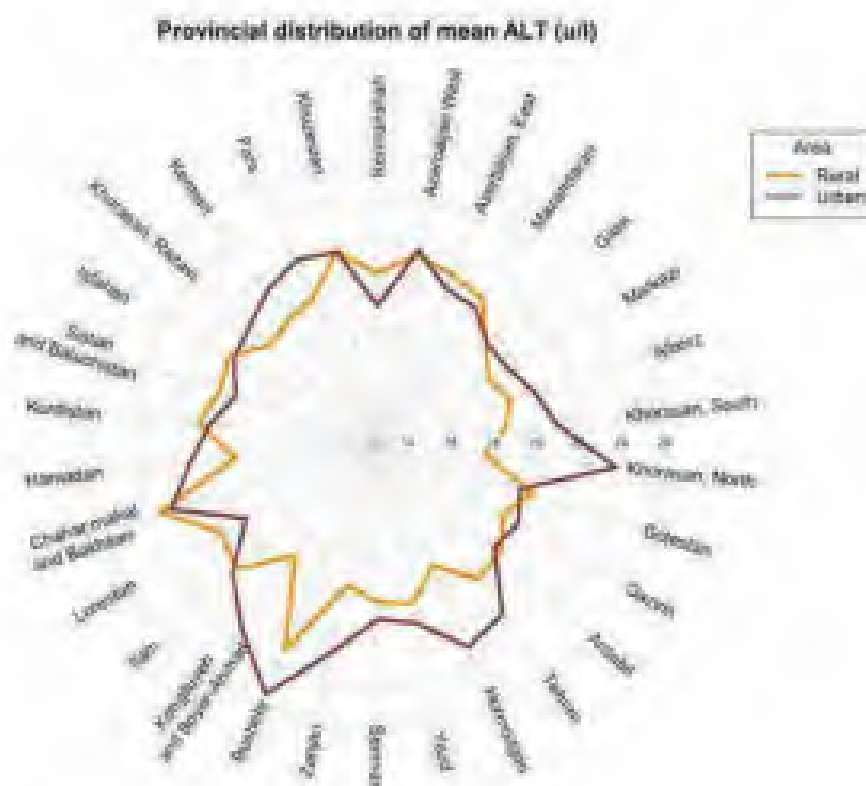


Figure 8.72. Provincial distribution of mean of ALT (u/l) by area of residency

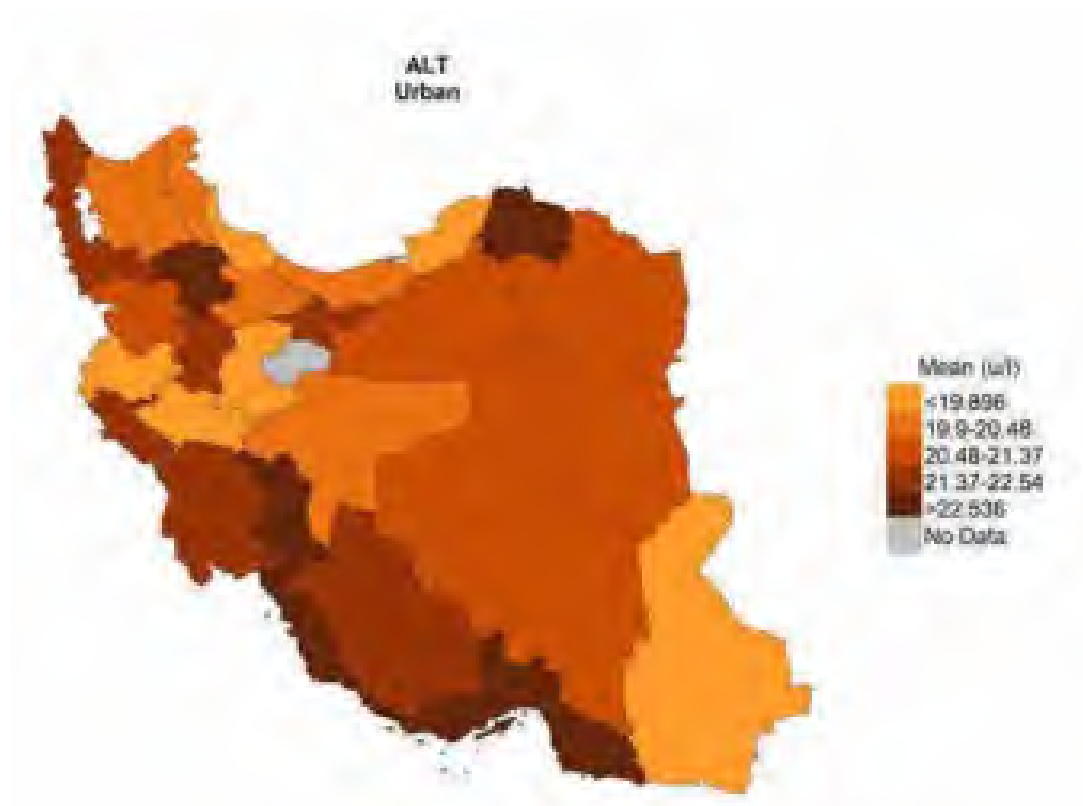


Figure 8.73. Geographical distribution of mean of ALT (u/l) in urban area of residency

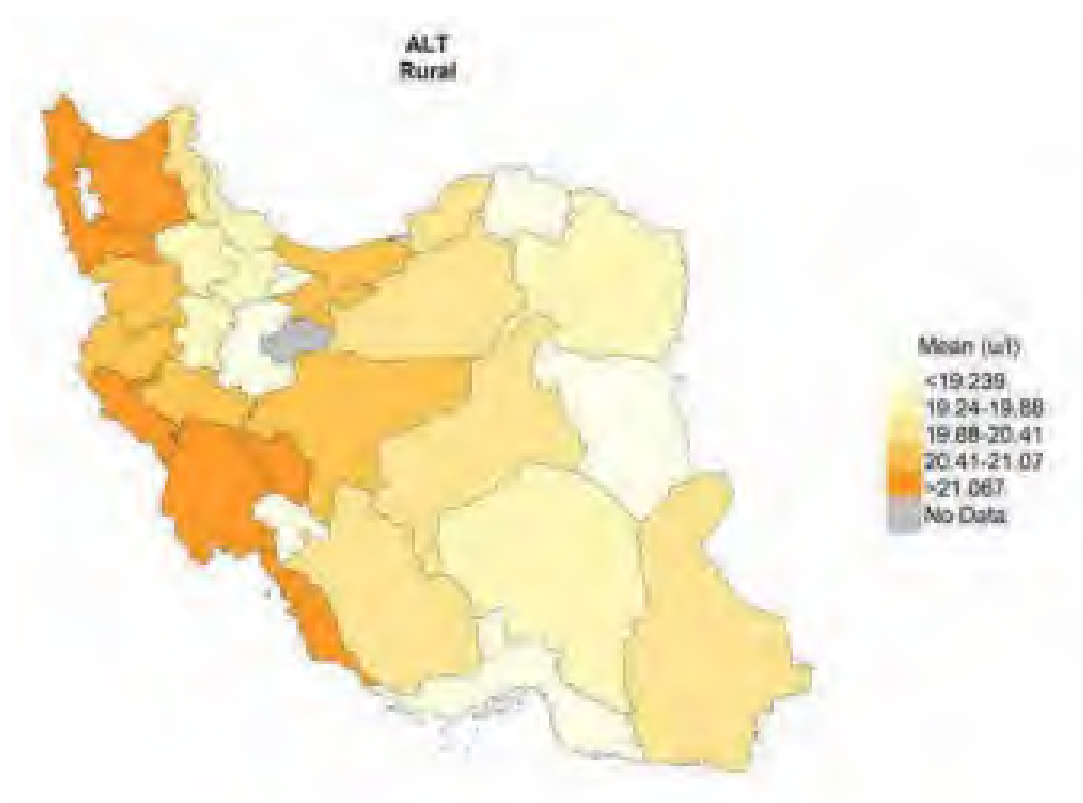


Figure 8.74. Geographical distribution of mean of ALT (u/l) in rural area of residency

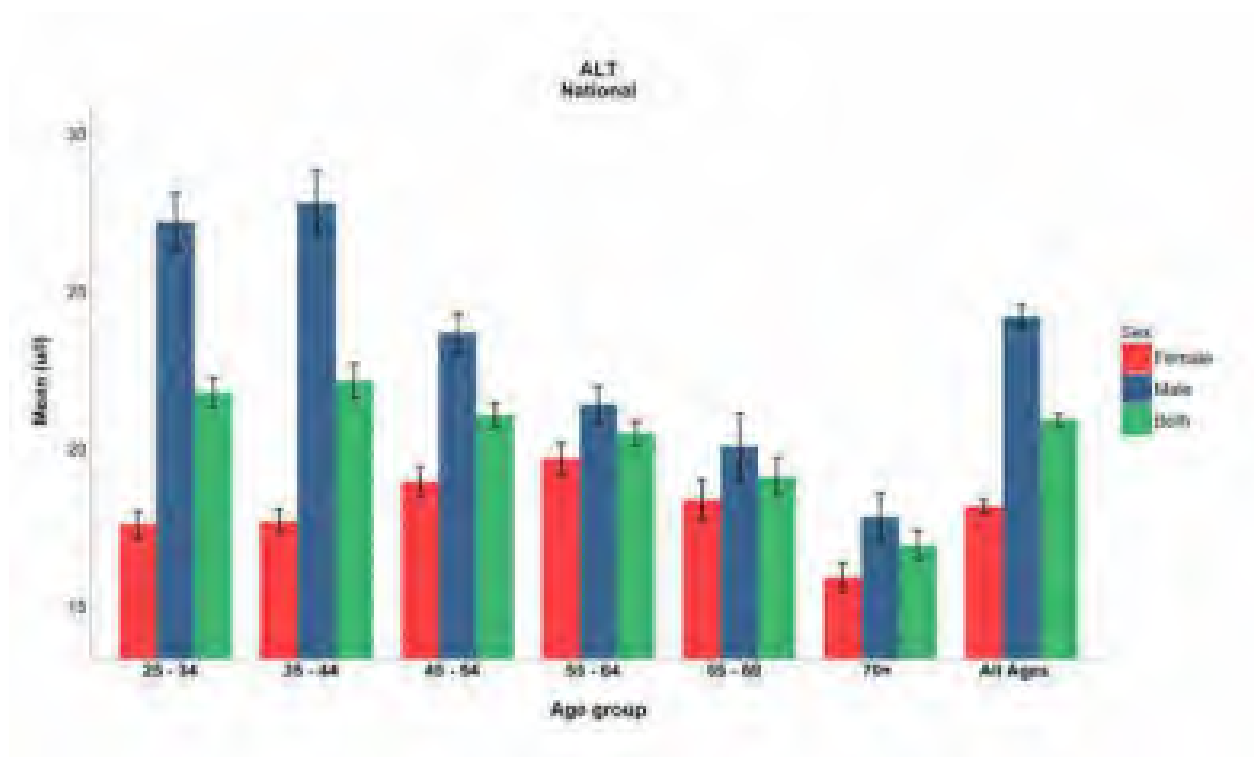


Figure 8.75. Mean of ALT (u/l) by age and sex at national level

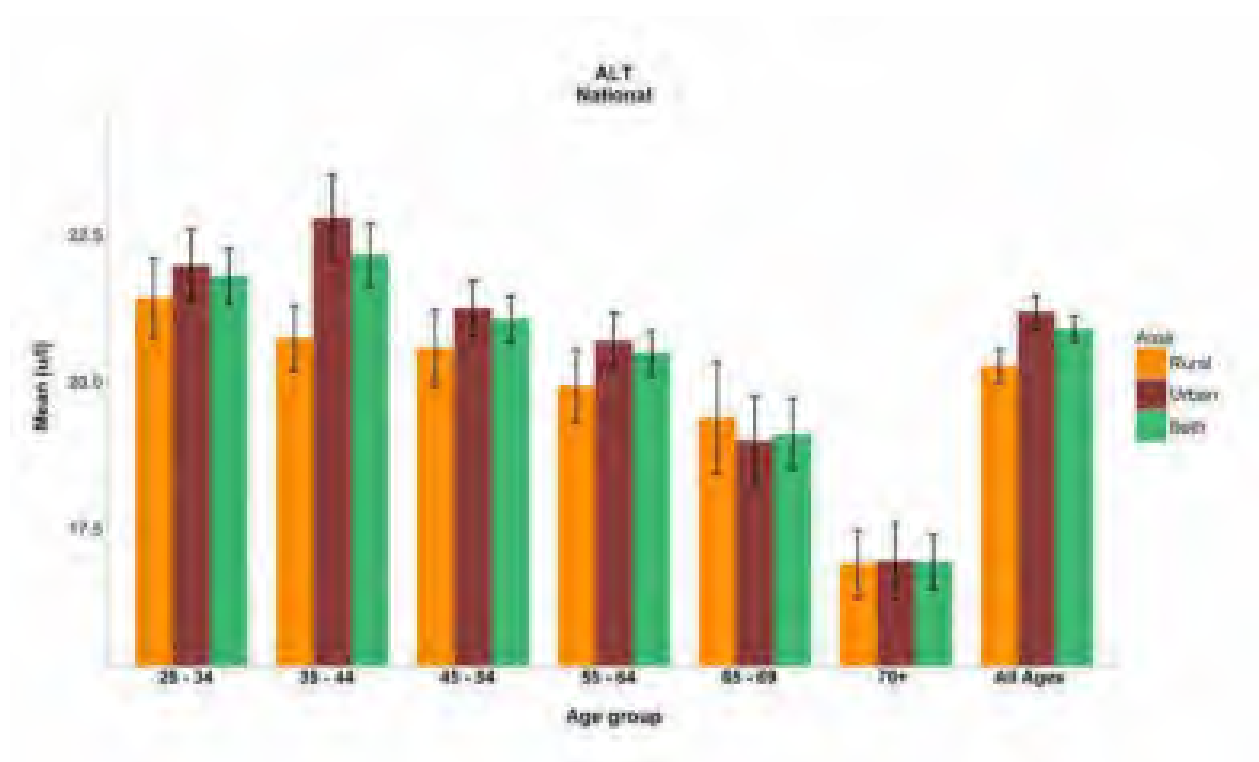


Figure 8.76. Mean of ALT (u/l) by age and area of residency at national level

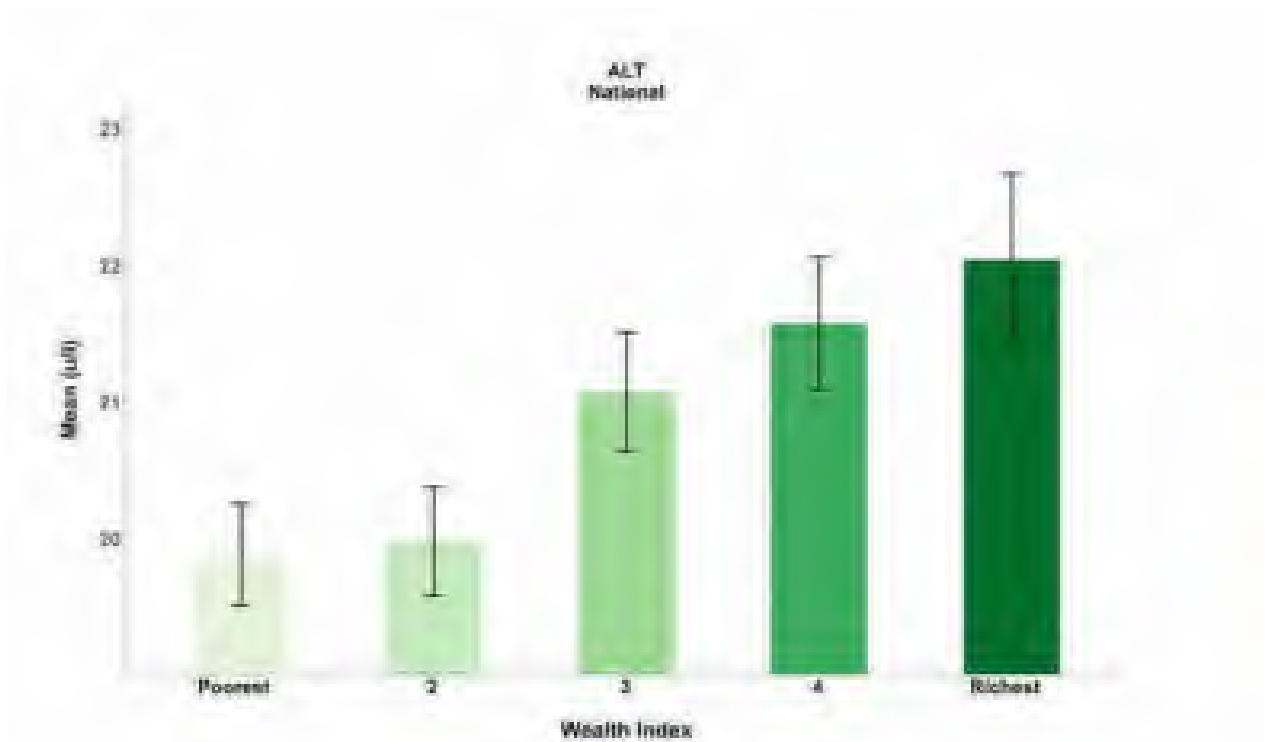


Figure 8.77. Mean of ALT (u/l) by wealth index quantiles at national level

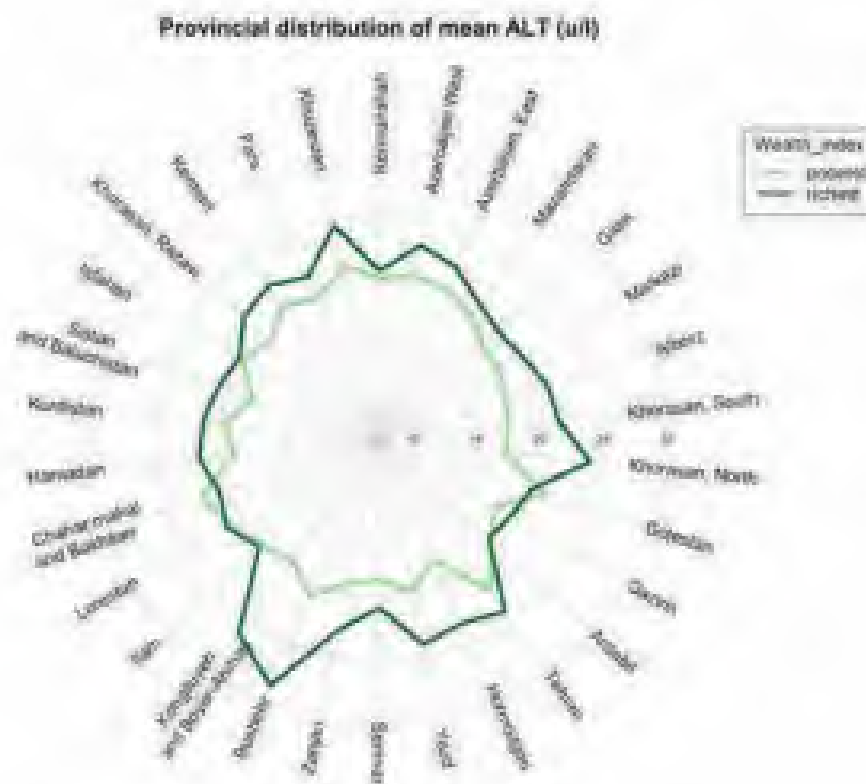


Figure 8.78. Provincial distribution of mean of ALT (u/l) by wealth index

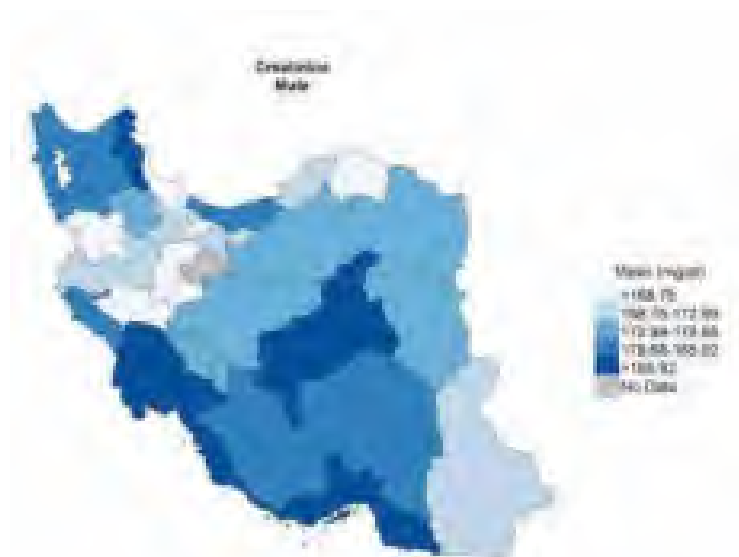


Figure 8.81. Geographical distribution of mean of creatinine (mg/dl) in males

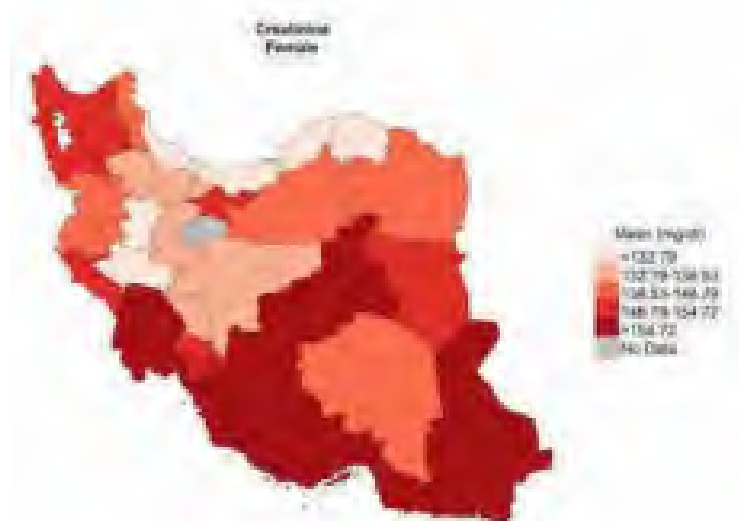


Figure 8.82. Geographical distribution of mean of creatinine (mg/dl) in females

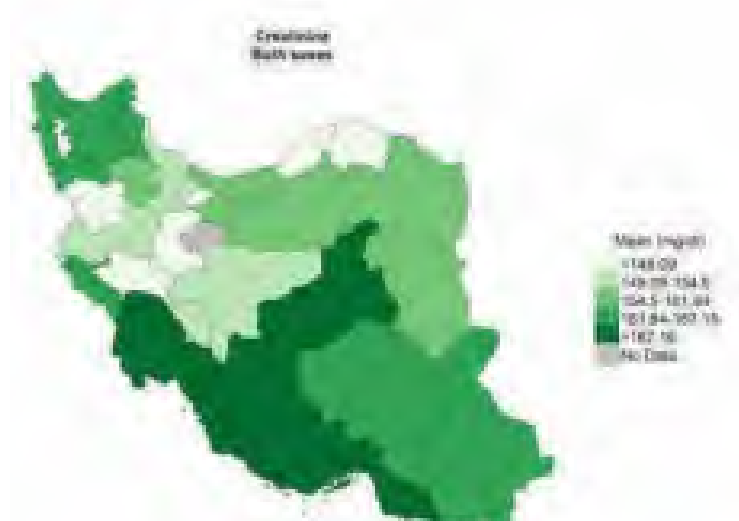


Figure 8.83. Geographical distribution of mean of creatinine (mg/dl) in both sexes

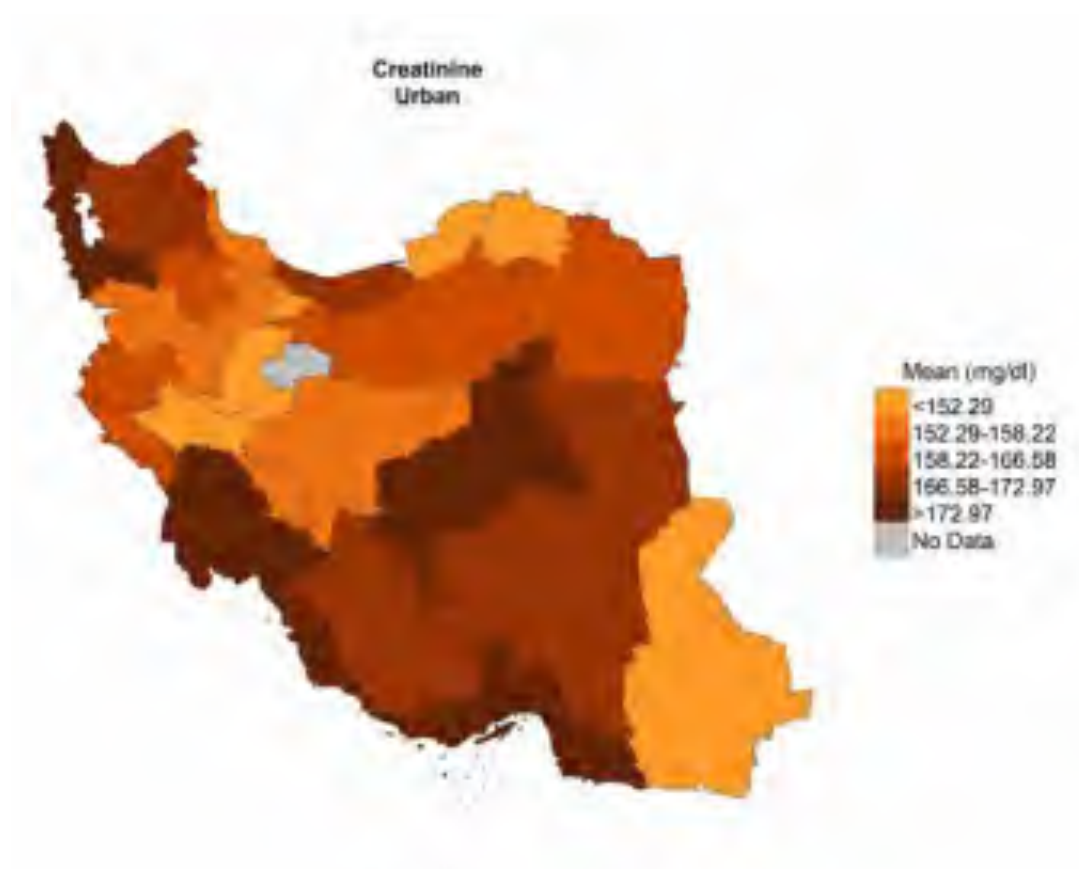


Figure 8.86. Geographical distribution of mean of creatinine (mg/dl) in urban area of residency

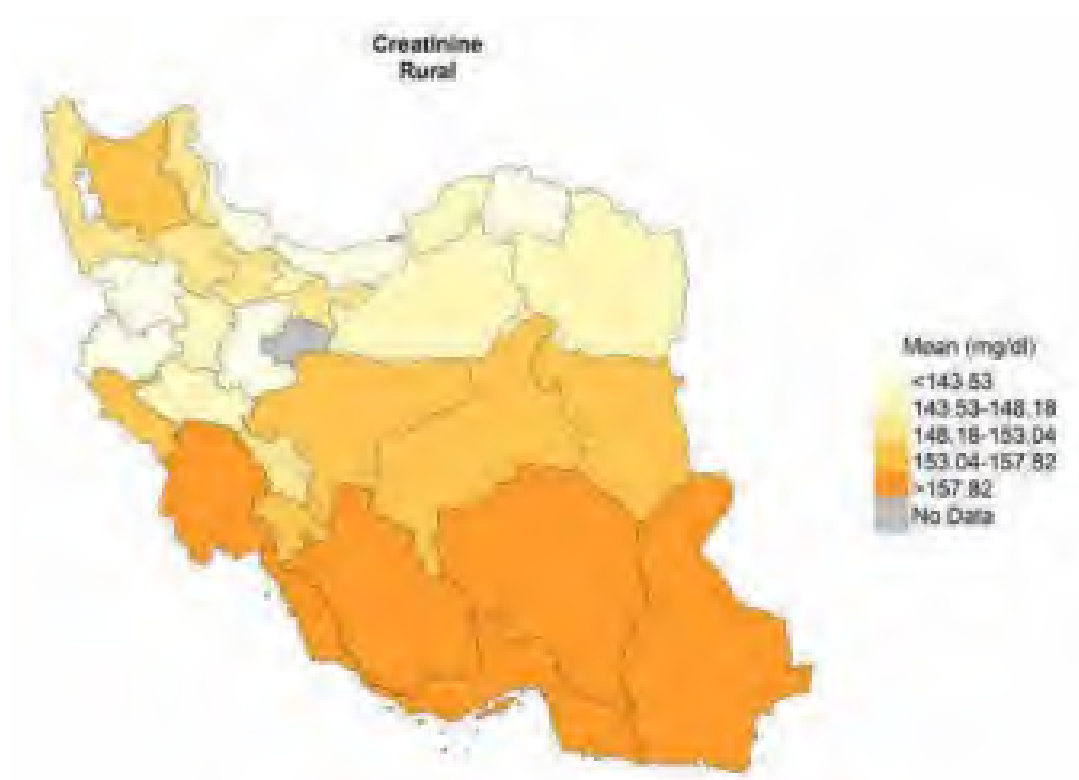


Figure 8.87. Geographical distribution of mean of creatinine (mg/dl) in rural area of residency

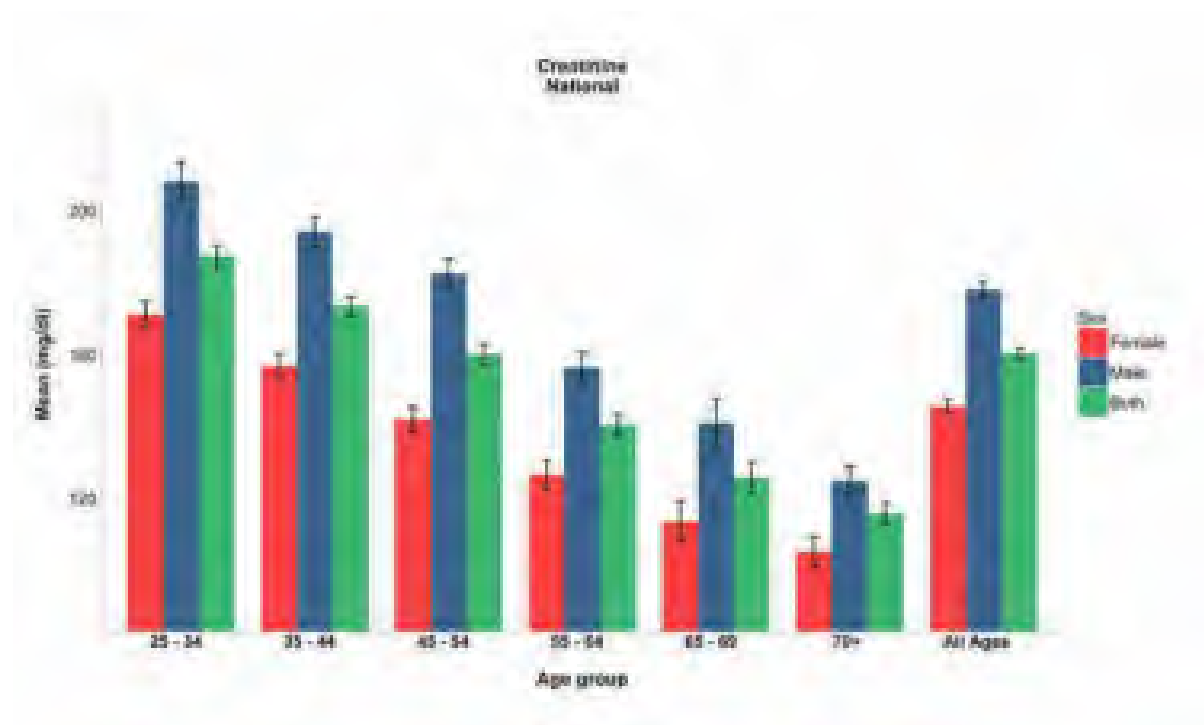


Figure 8.88. Mean of creatinine (mg/dl) by age and sex at national level

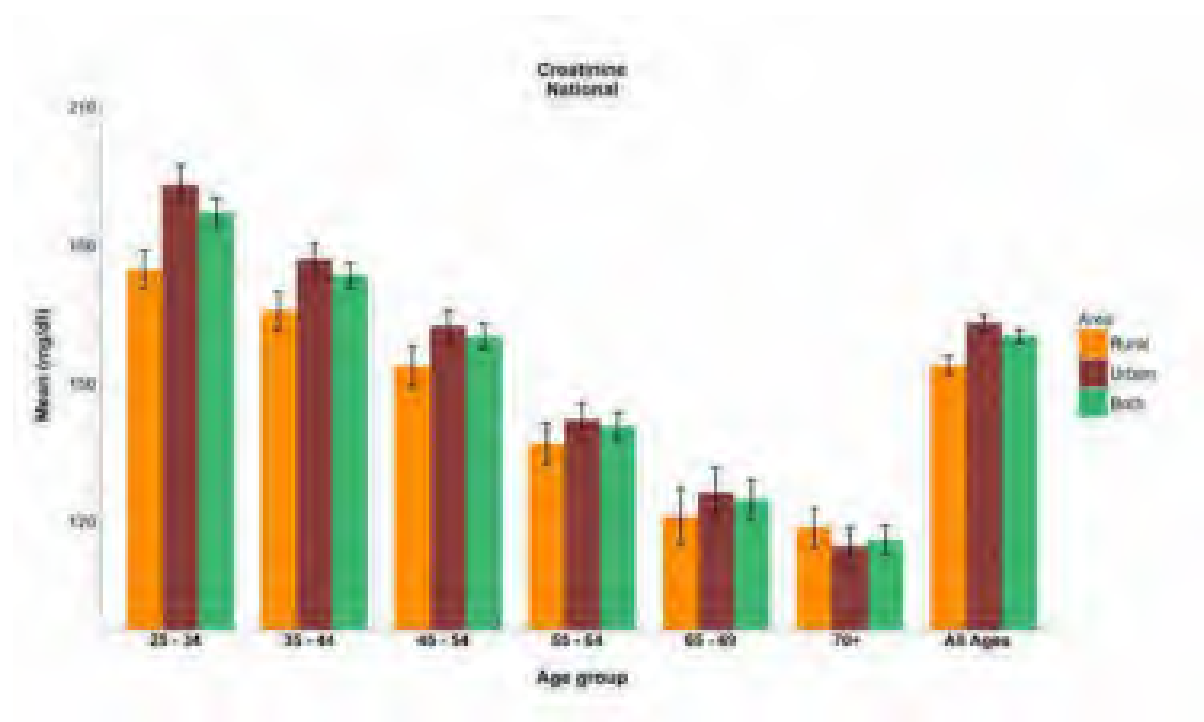


Figure 8.89. Mean of creatinine (mg/dl) by age and area of residency at national level

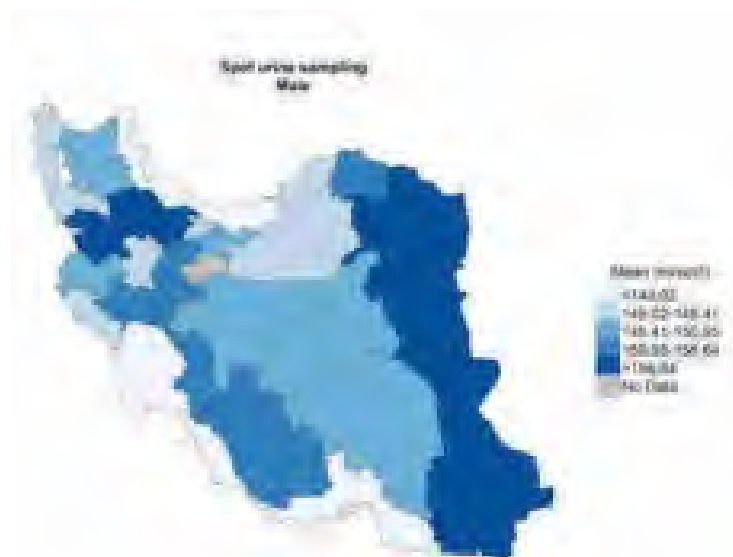


Figure 8.94. Geographical distribution of mean of spot urine sampling (mmol/l) in males

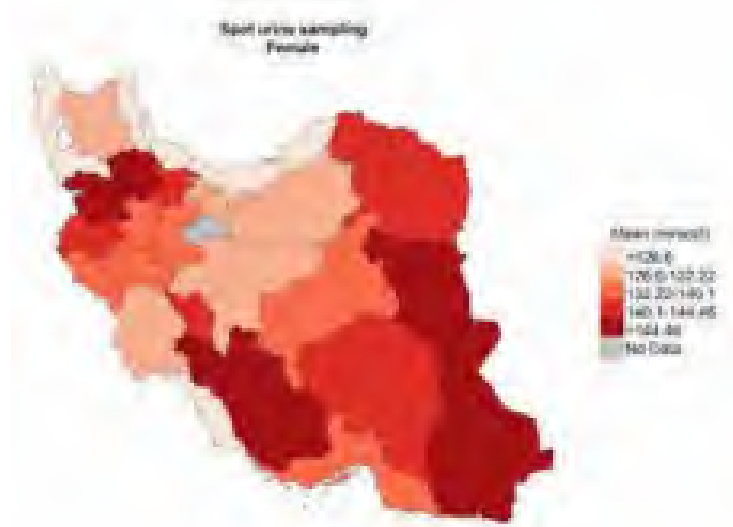


Figure 8.95. Geographical distribution of mean of spot urine sampling (mmol/l) in females

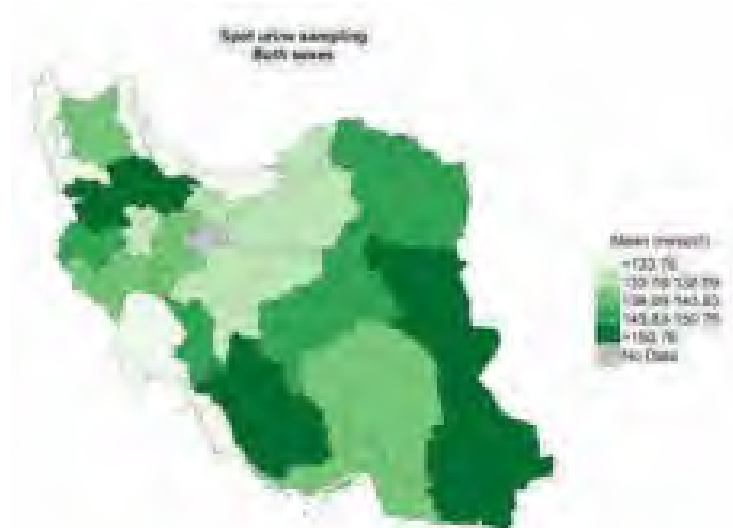


Figure 8.96. Geographical distribution of mean of spot urine sampling (mmol/l) in both sexes

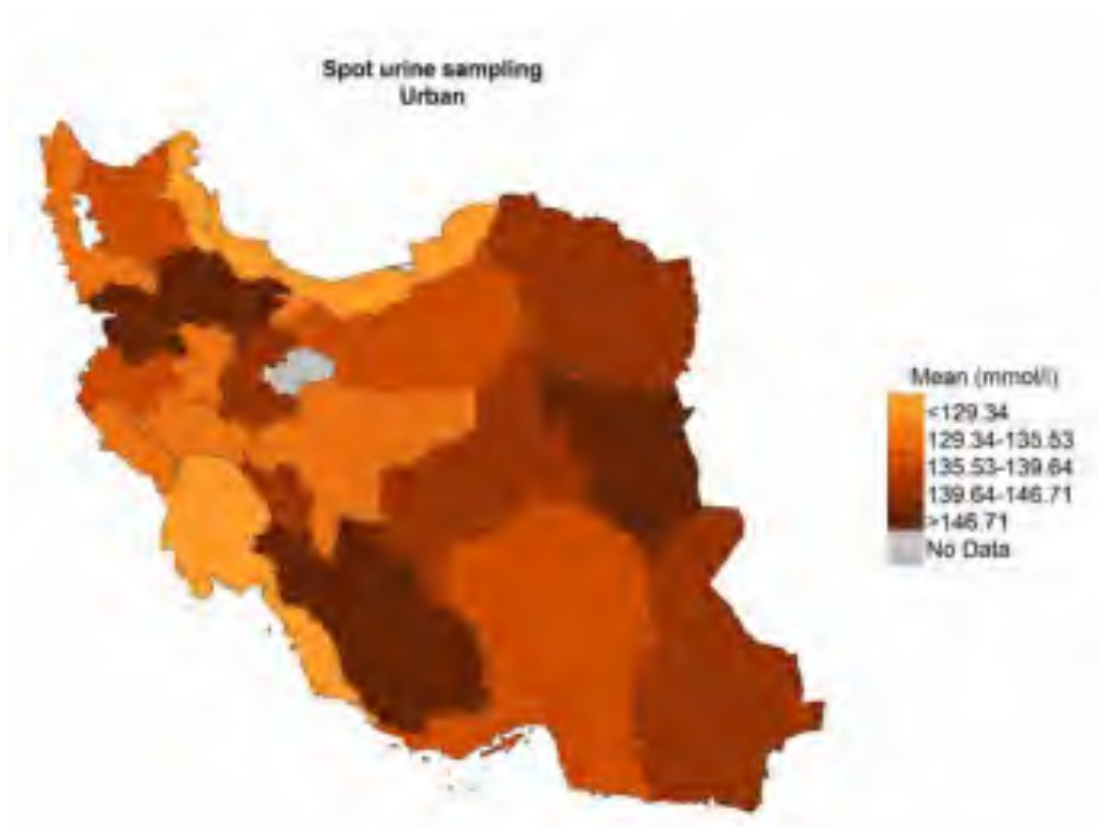


Figure 8.99. Geographical distribution of mean of spot urine sampling (mmol/l) in urban area of residency

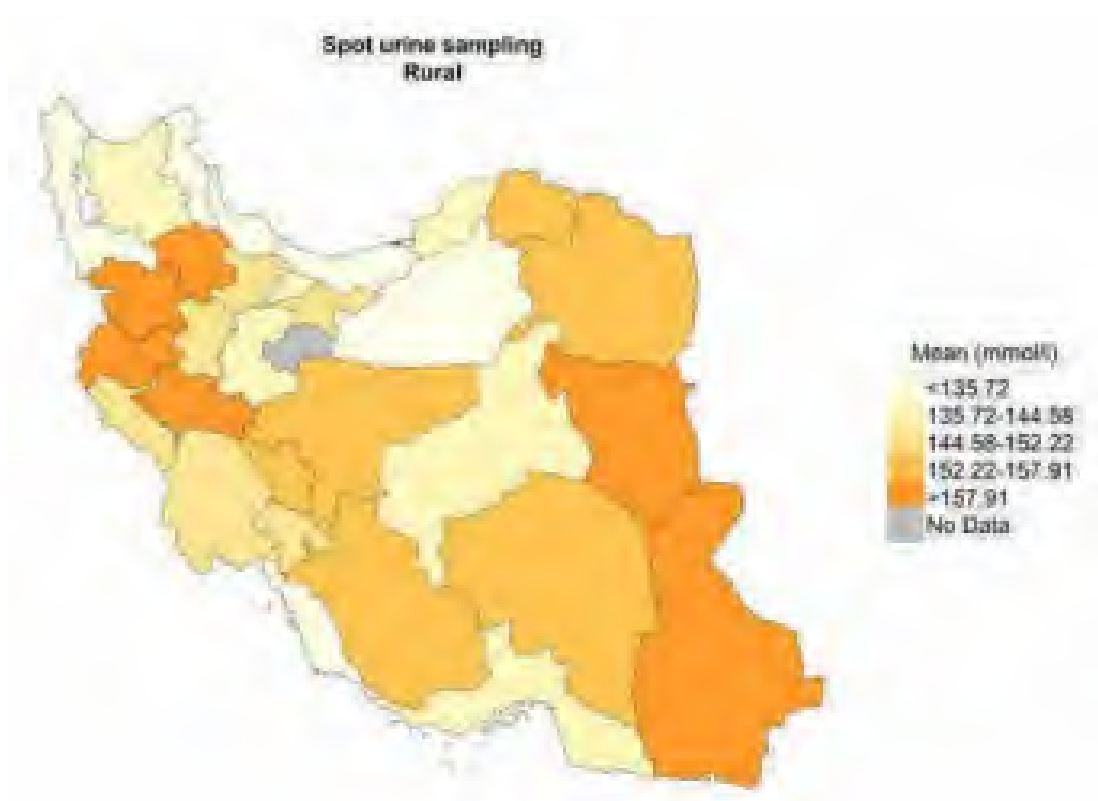


Figure 8.100. Geographical distribution of mean of spot urine sampling (mmol/l) in rural area of residency

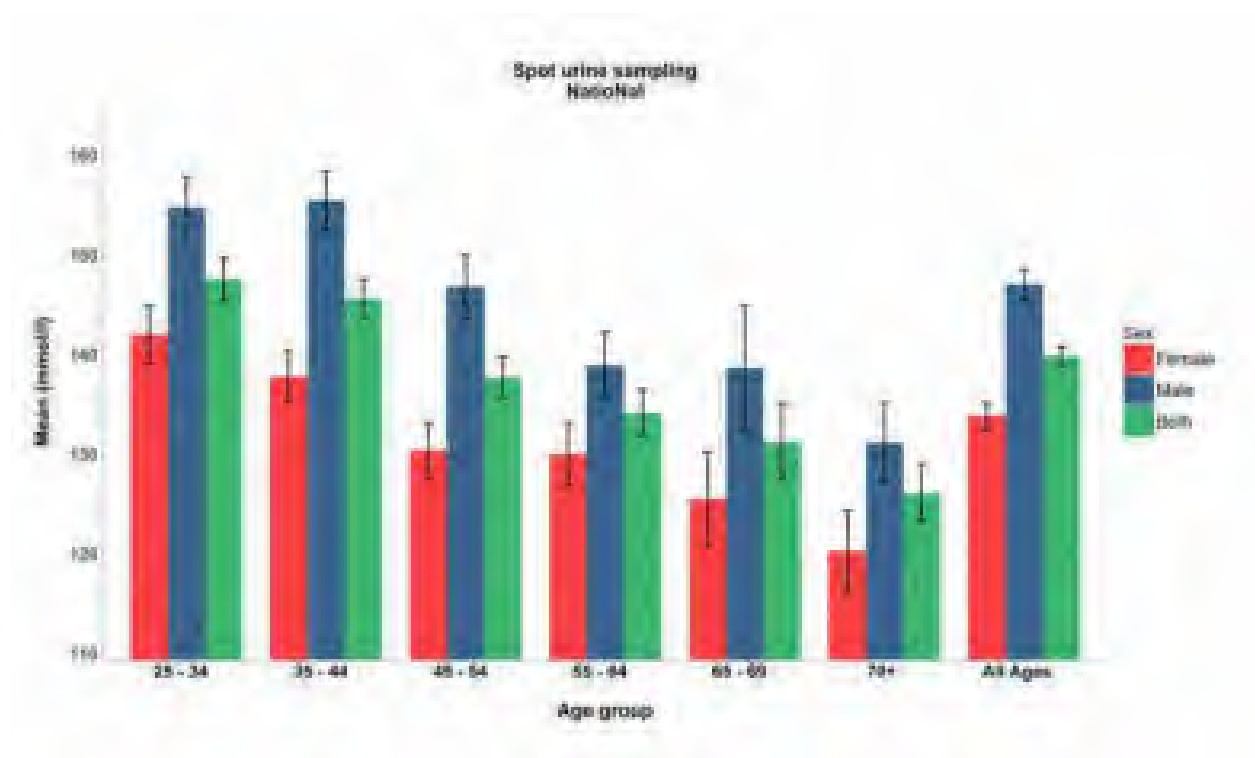


Figure 8.101. Mean of spot urine sampling (mmol/l) by age and sex at national level

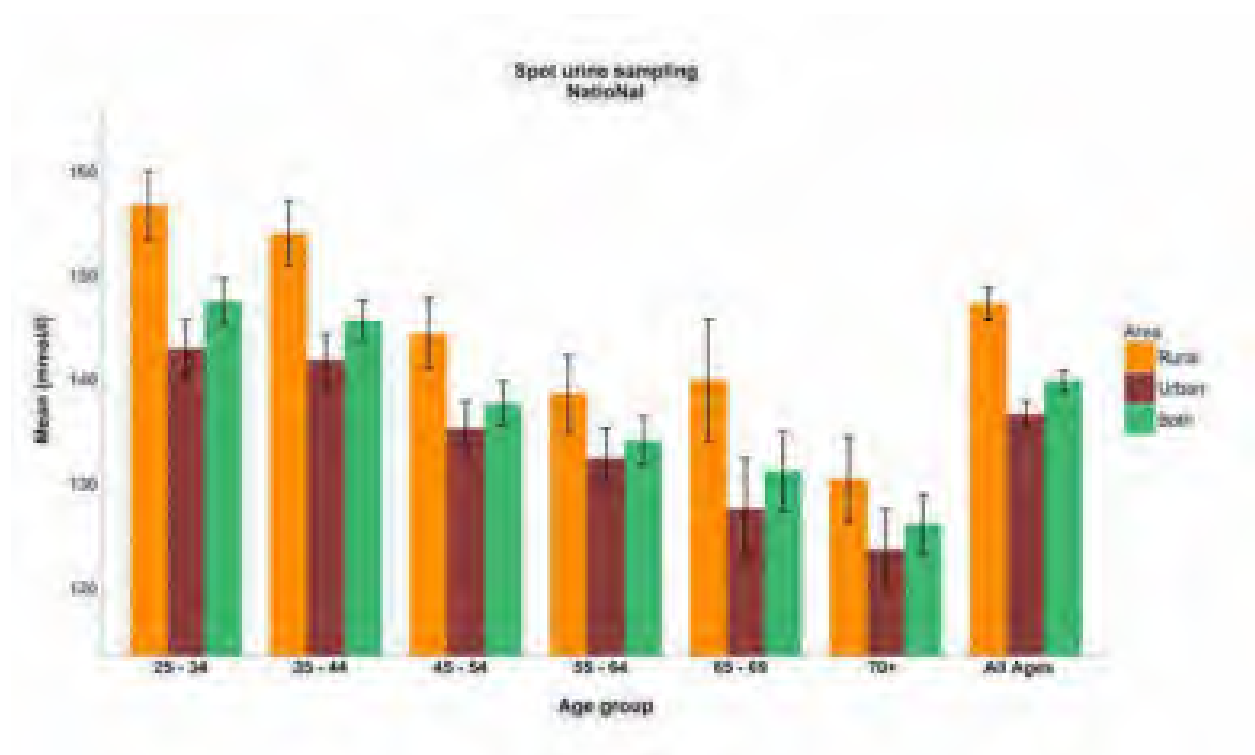


Figure 8.102. Mean of spot urine sampling (mmol/l) by age and area of residency at national level

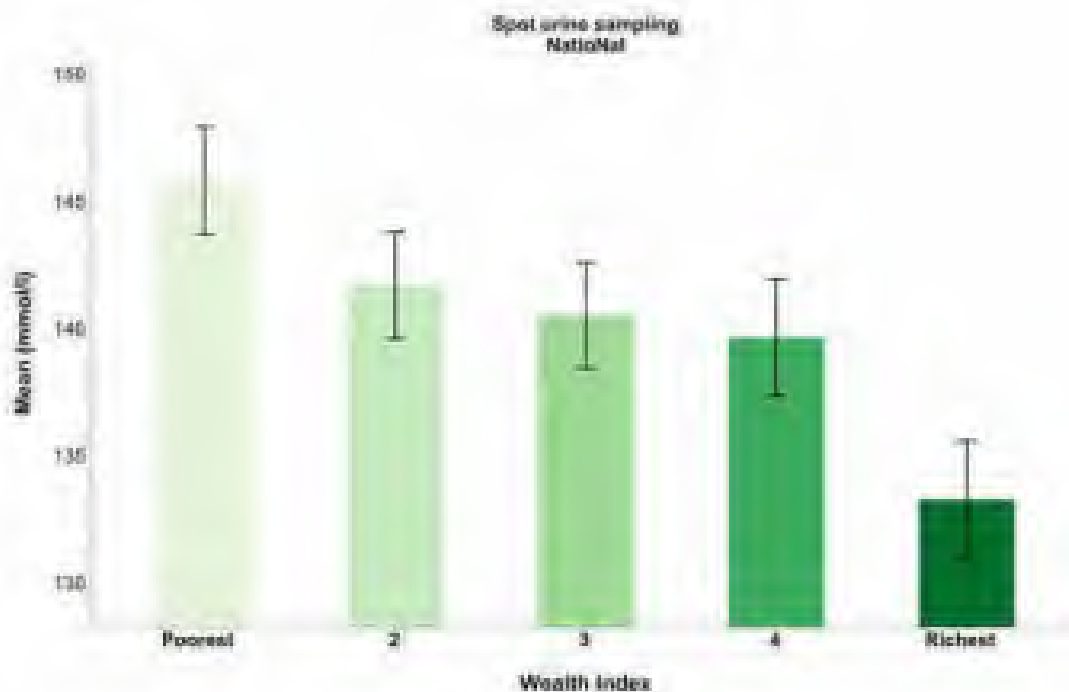


Figure 8.103. Mean of spot urine sampling (mmol/l) by wealth index quantiles at national level

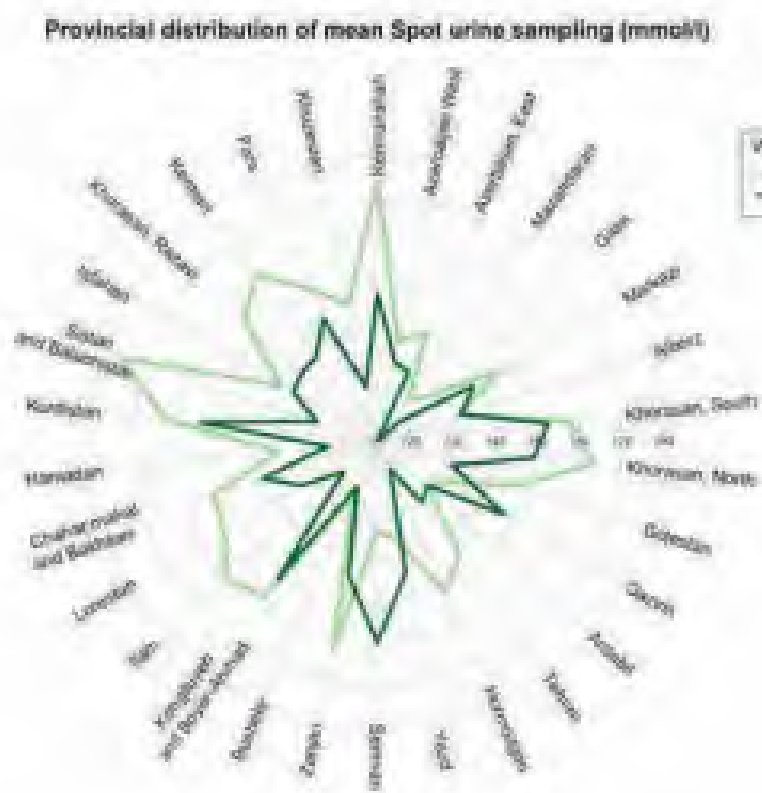


Figure 8.104. Provincial distribution of mean of spot urine sampling (mmol/l) by wealth index

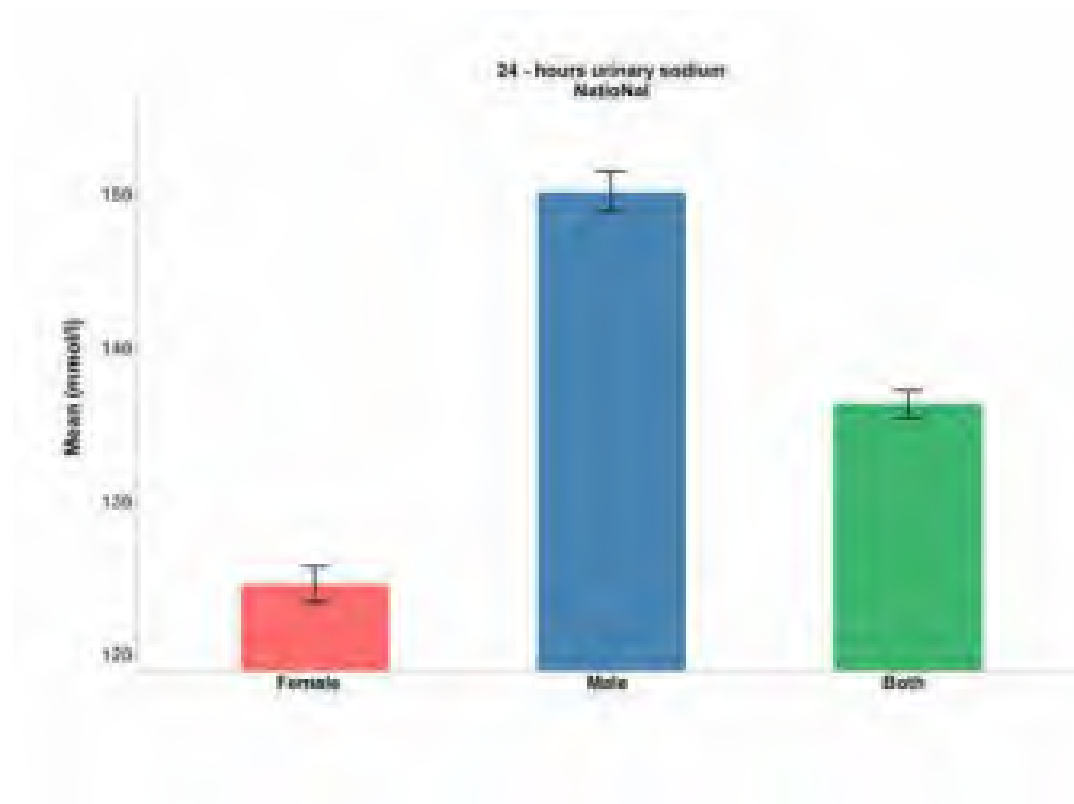


Figure 8.105. Mean of 24-hours urinary sodium (mmol/l) by sex at national level

Provincial distribution of mean 24 - hours urinary sodium (mmol/l)

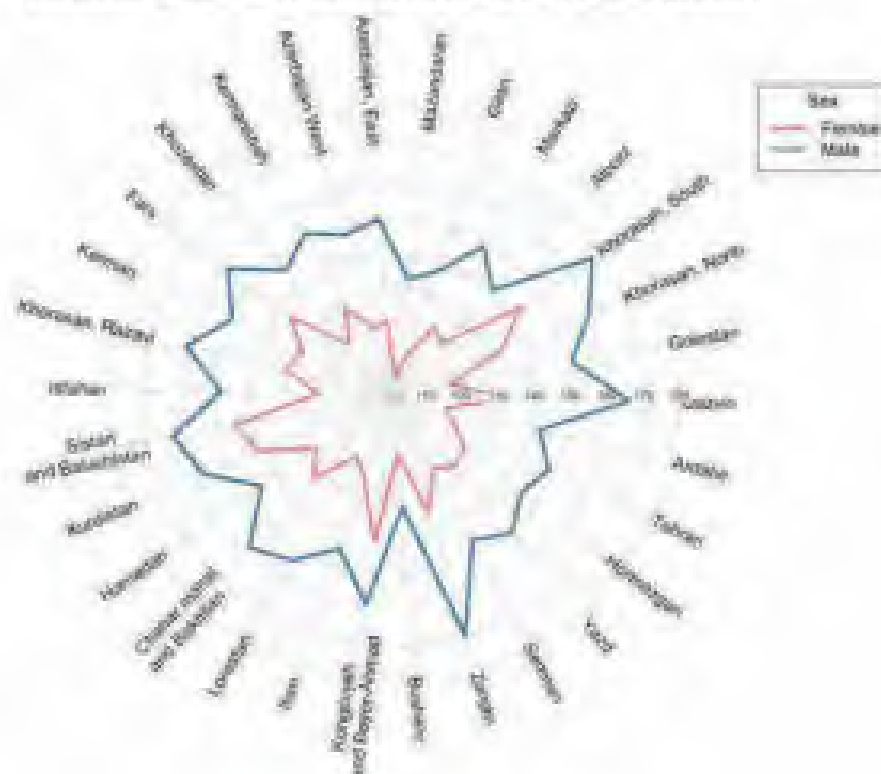


Figure 8.106. Provincial distribution of mean of 24-hours urinary sodium (mmol/l) by sex

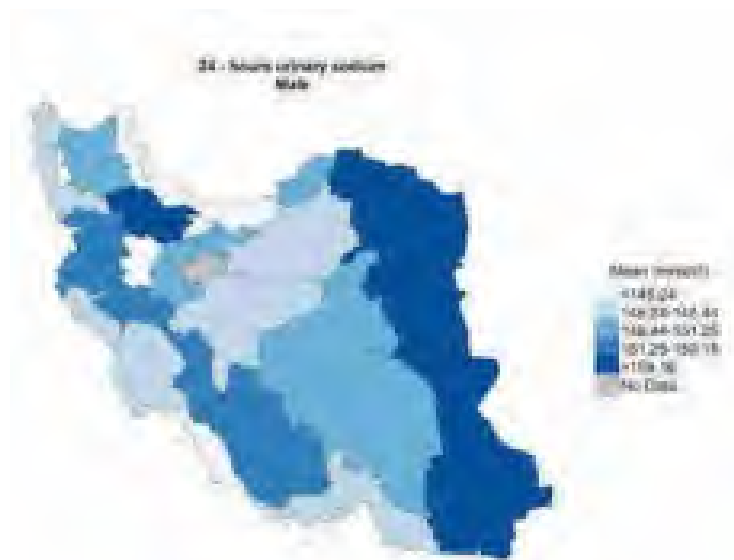


Figure 8.107. Geographical distribution of mean of 24-hours urinary sodium (mmol/l) in males

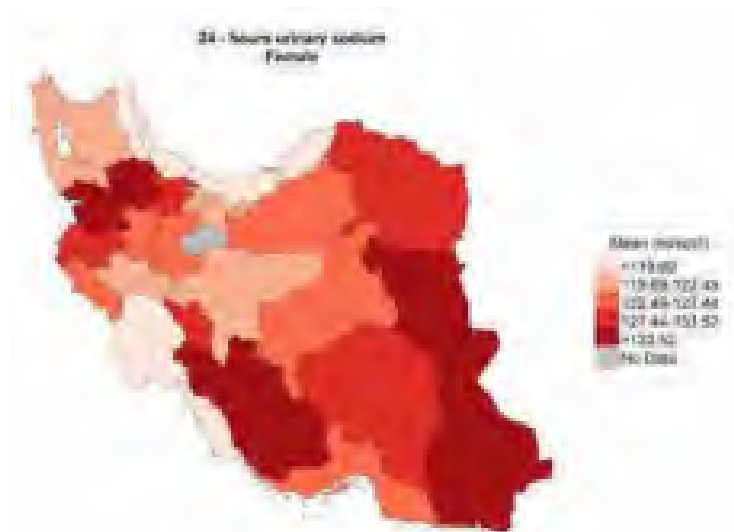


Figure 8.108. Geographical distribution of mean of 24-hours urinary sodium (mmol/l) in females

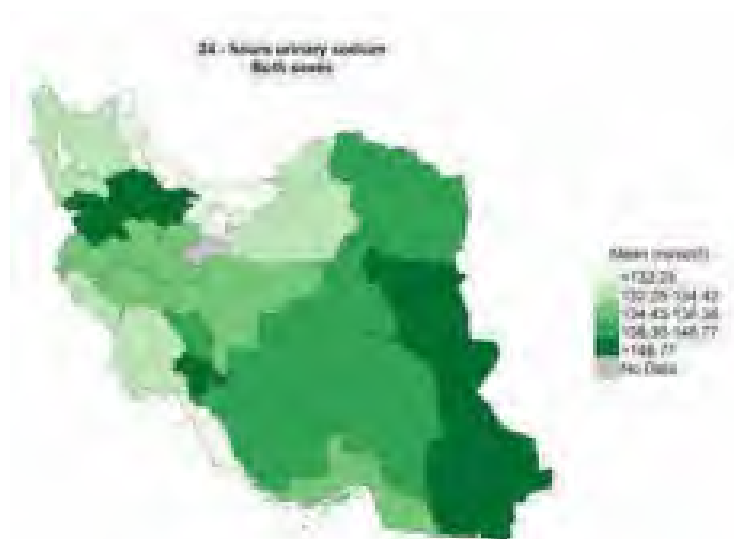


Figure 8.109. Geographical distribution of mean of 24-hours urinary sodium (mmol/l) in both sexes

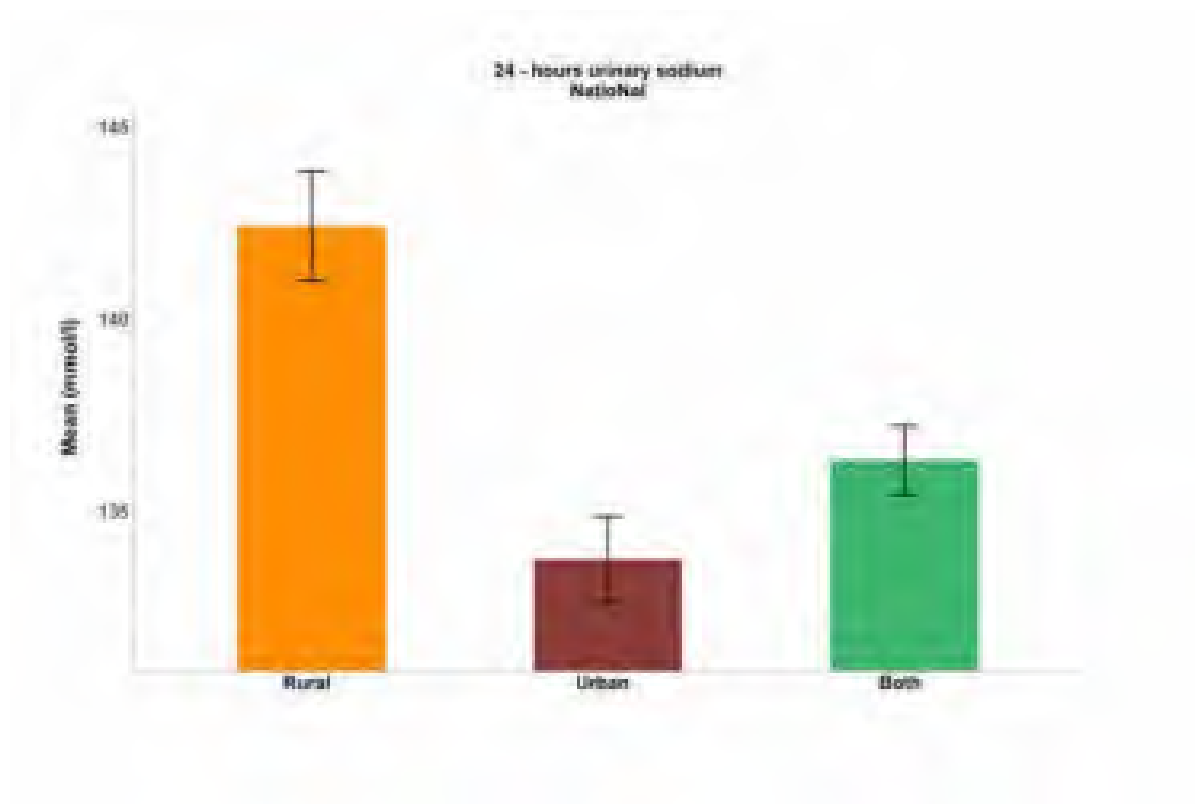


Figure 8.110. Mean of 24-hours urinary sodium (mmol/l) by area of residency at national level

Provincial distribution of mean 24 - hours urinary sodium (mmol/l)

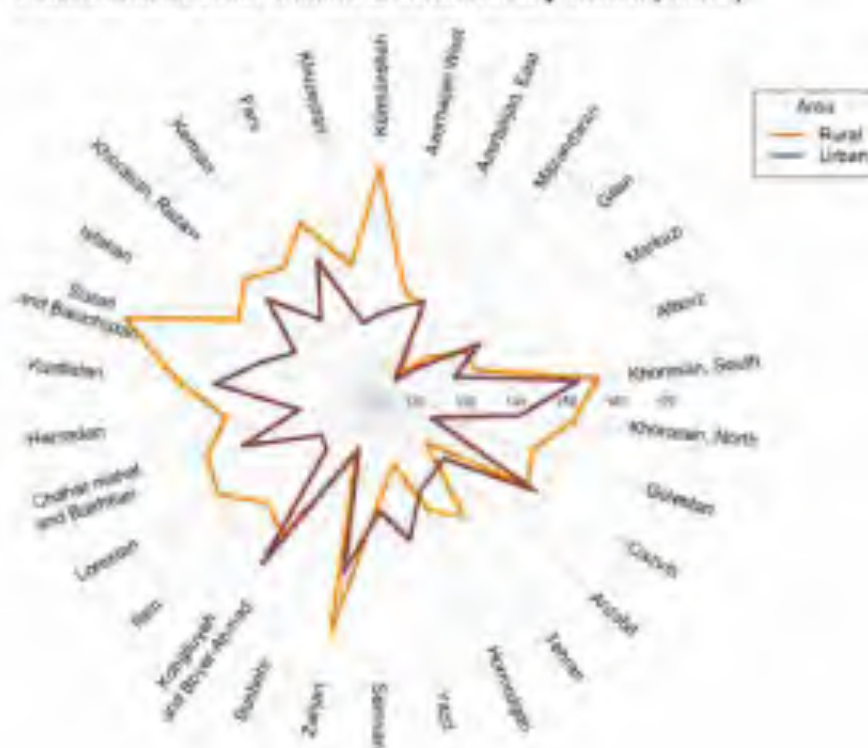


Figure 8.111. Provincial distribution of mean of 24-hours urinary sodium (mmol/l) by area of residency

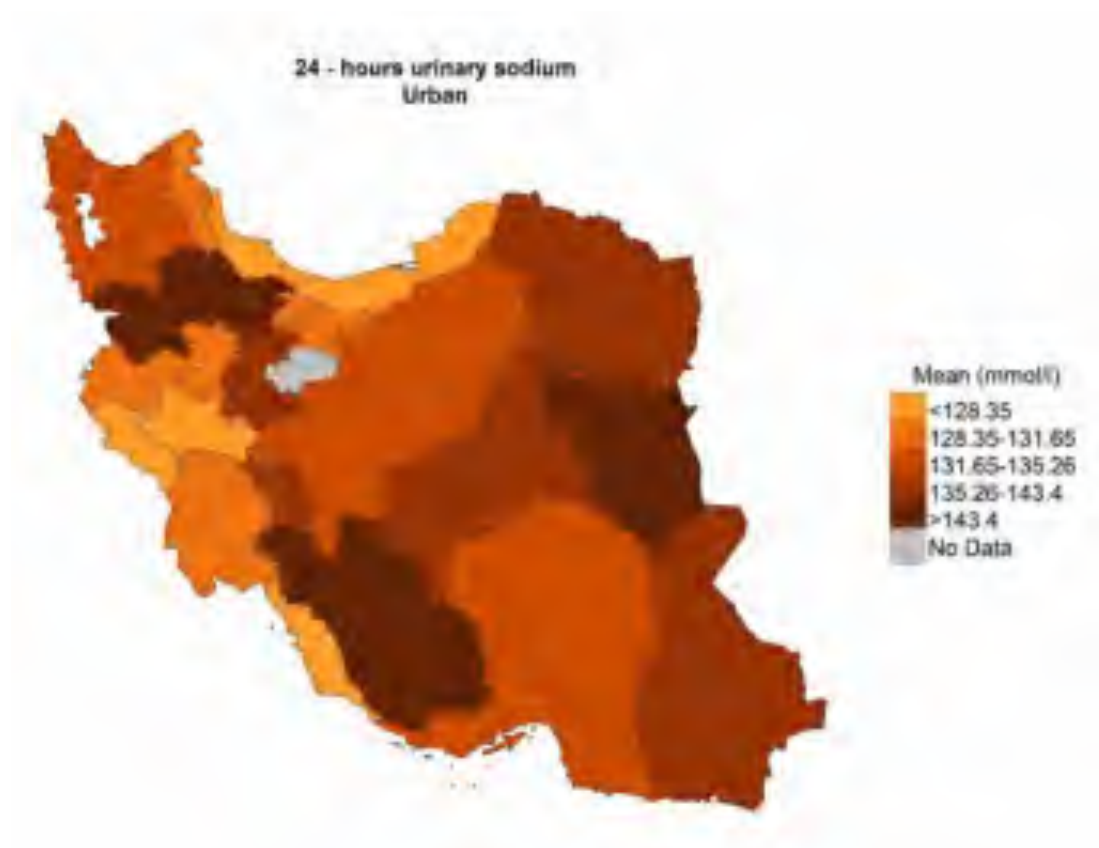


Figure 8.112. Geographical distribution of mean of 24-hours urinary sodium (mmol/l) in urban area of residency

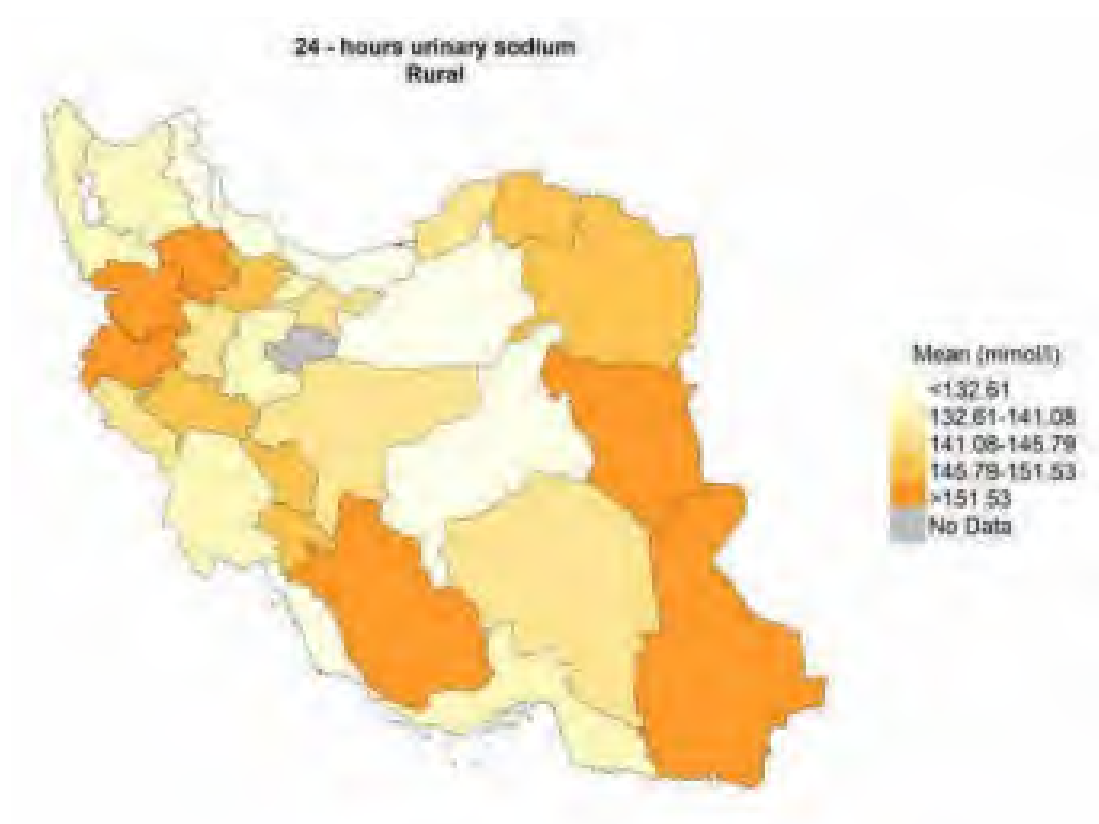


Figure 8.113. Geographical distribution of mean of 24-hours urinary sodium (mmol/l) in rural area of residency

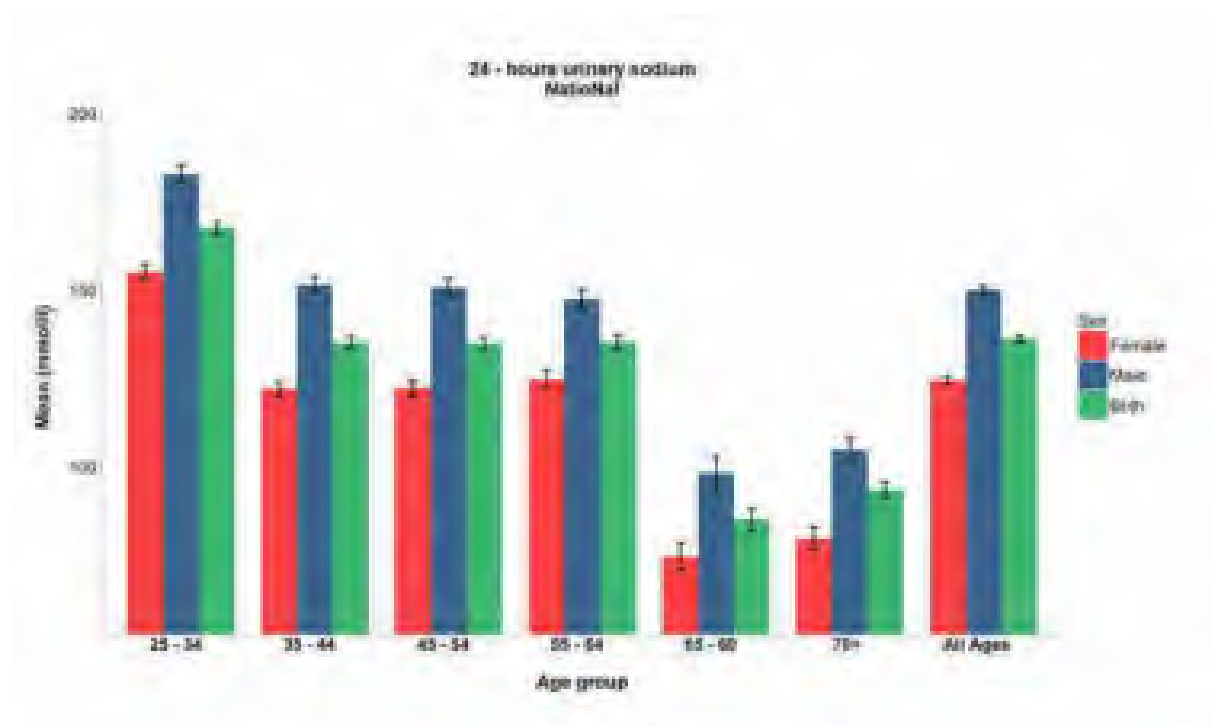


Figure 8.114. Mean of 24-hours urinary sodium (mmol/l) by age and sex at national level

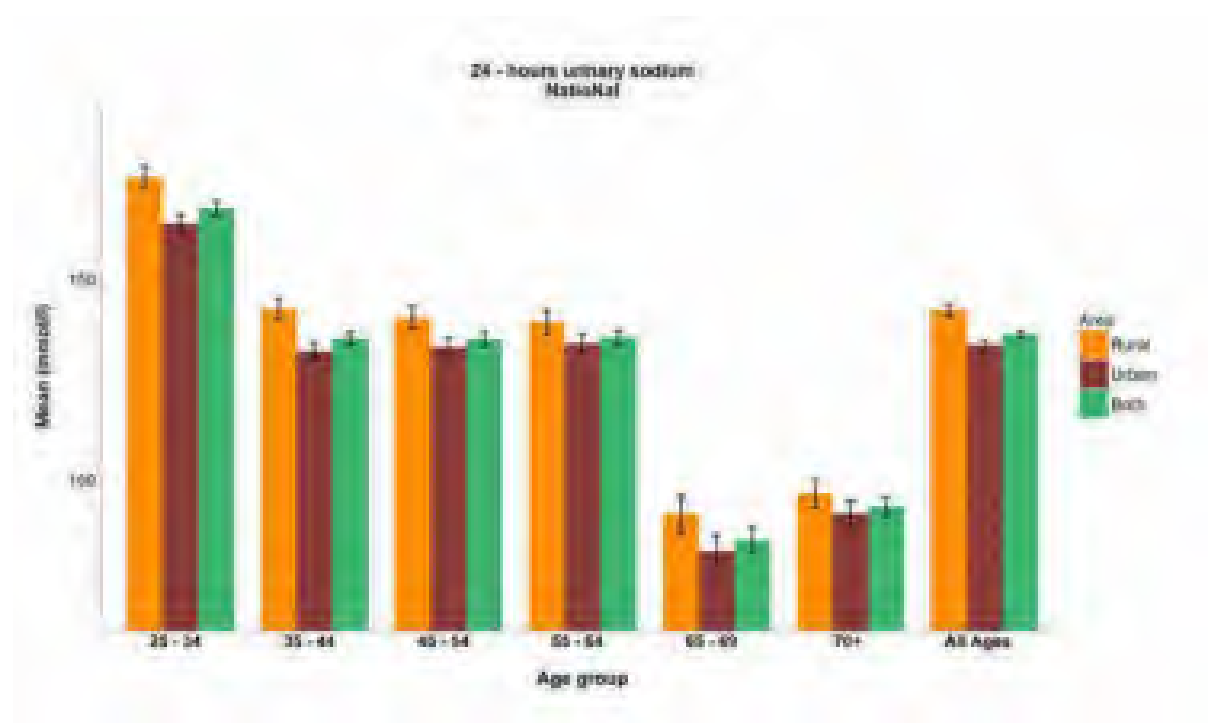


Figure 8.115. Mean of 24-hours urinary sodium (mmol/l) by age and area of residency at national level

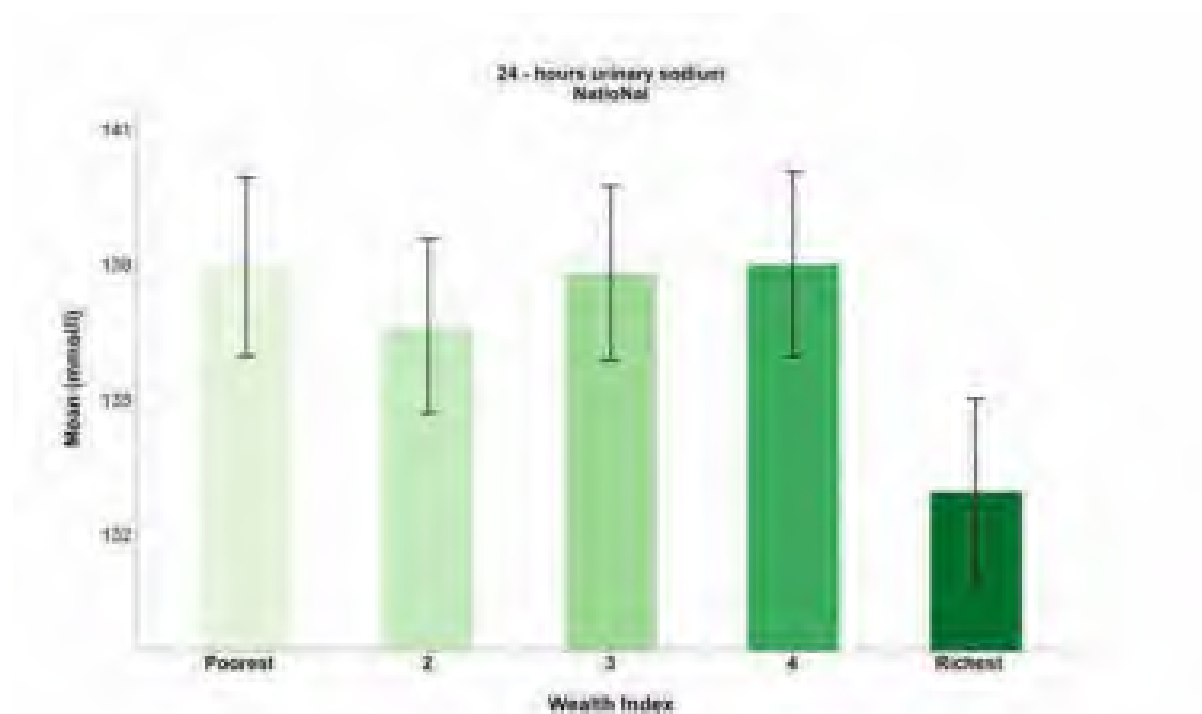


Figure 8.116. Mean of 24-hours urinary sodium (mmol/l) by wealth index quantiles at national level

Provincial distribution of mean 24 - hours urinary sodium (mmol/l)

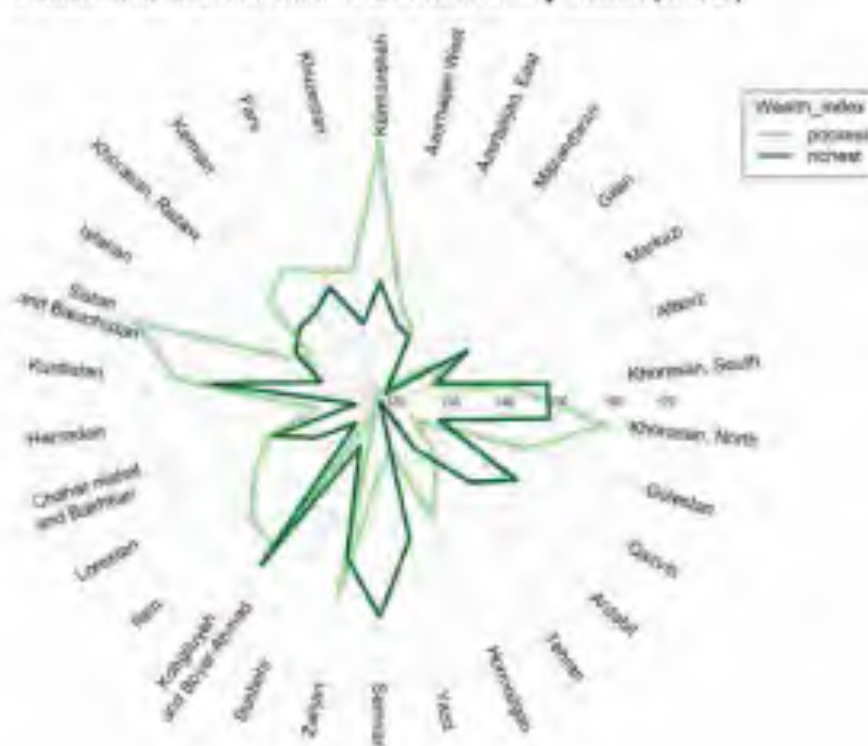


Figure 8.117. Provincial distribution of mean of 24-hours urinary sodium (mmol/l) by wealth index

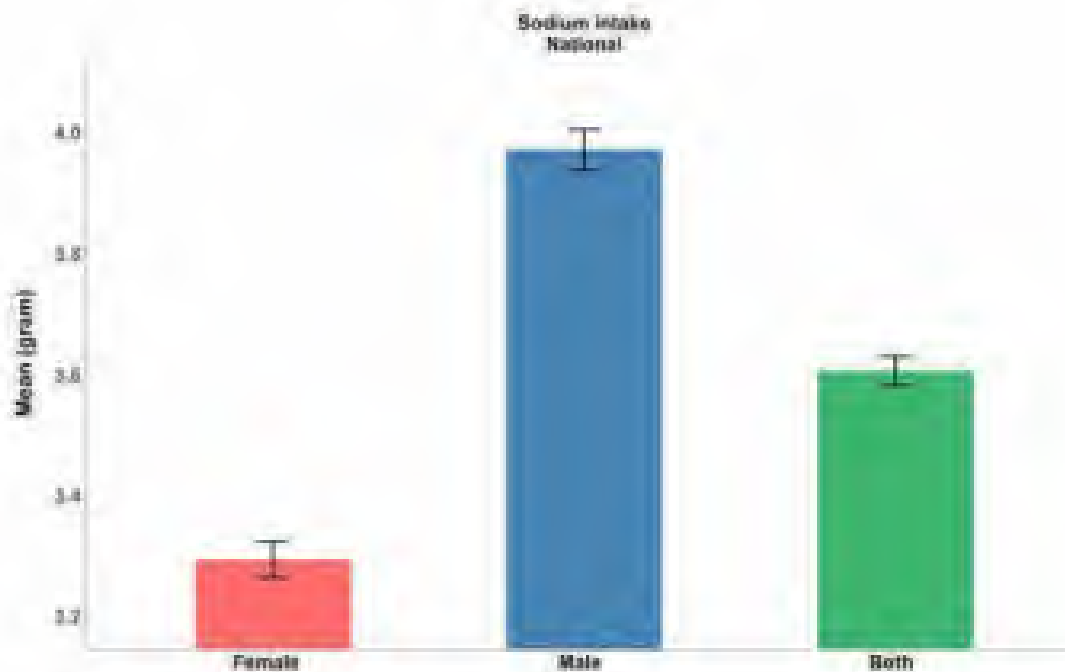


Figure 8.118. Mean of sodium intake (gram) by sex at national level

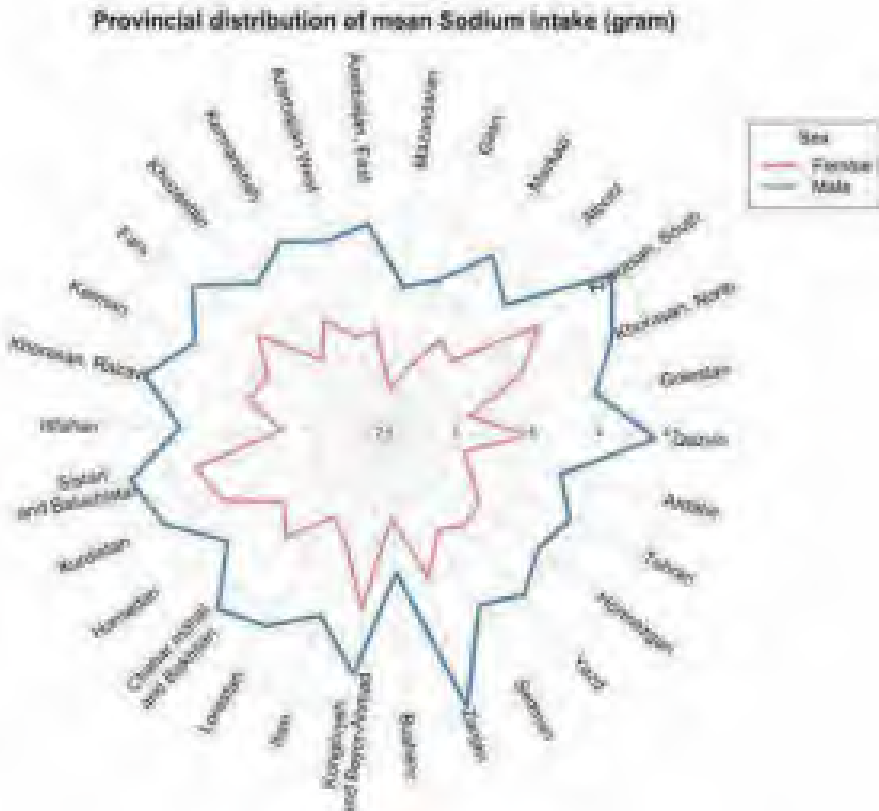


Figure 8.119. Provincial distribution of mean of sodium intake (gram) by sex

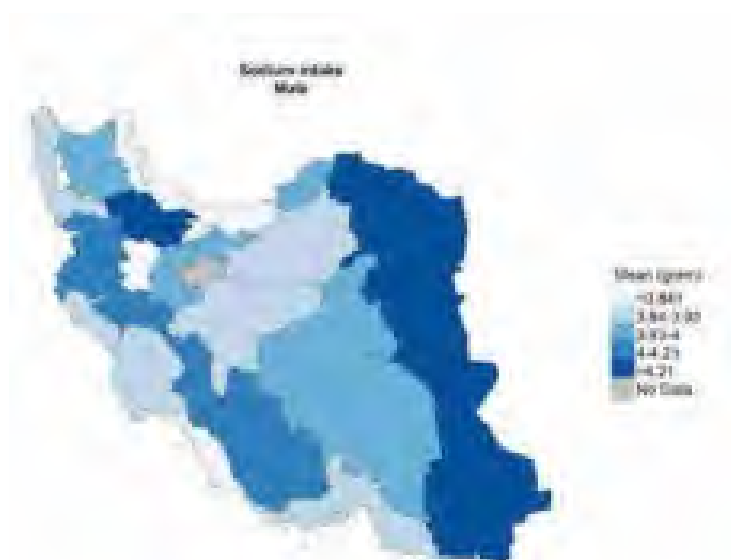


Figure 8.120. Geographical distribution of mean of sodium intake (gram) in males

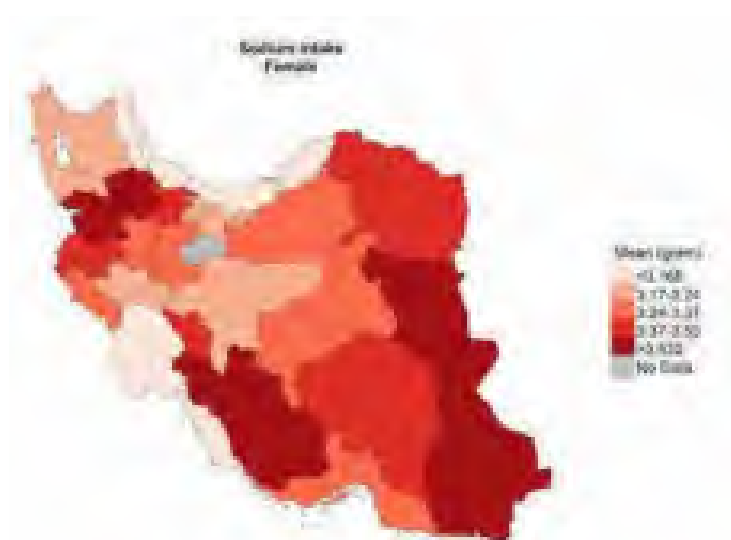


Figure 8.121. Geographical distribution of mean of sodium intake (gram) in females

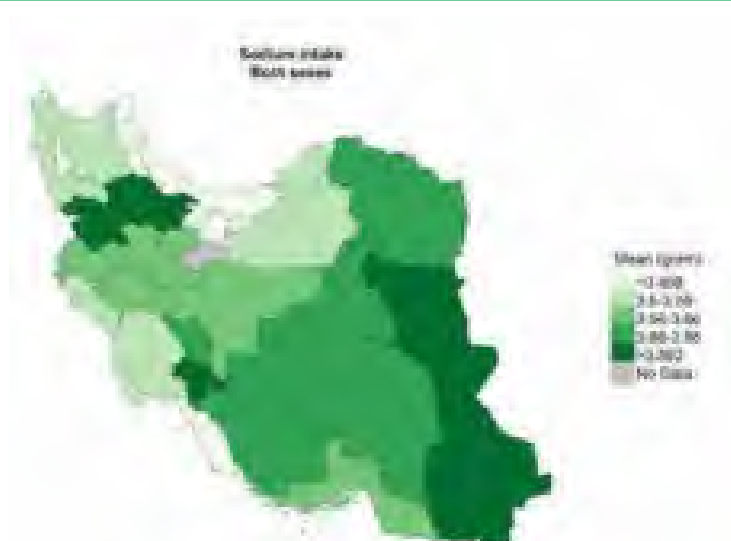


Figure 8.122. Geographical distribution of mean of sodium intake (gram) in both sexes

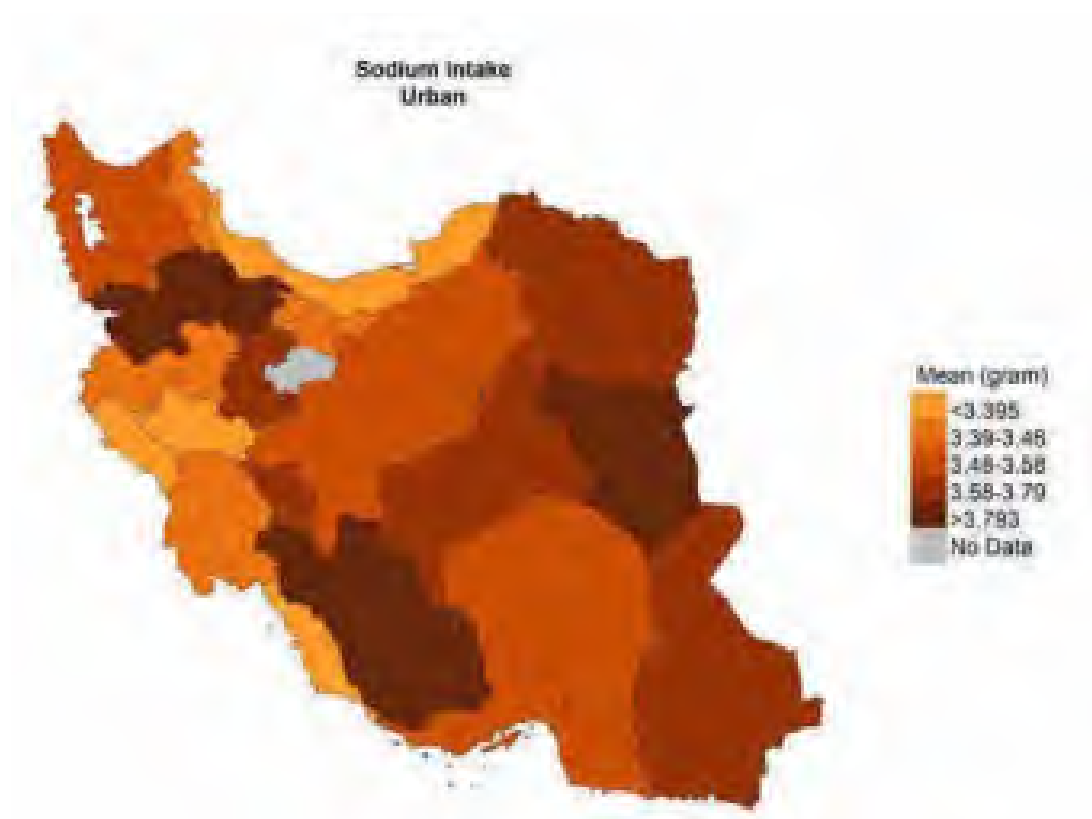


Figure 8.125. Geographical distribution of mean of sodium intake (gram) in urban area of residency

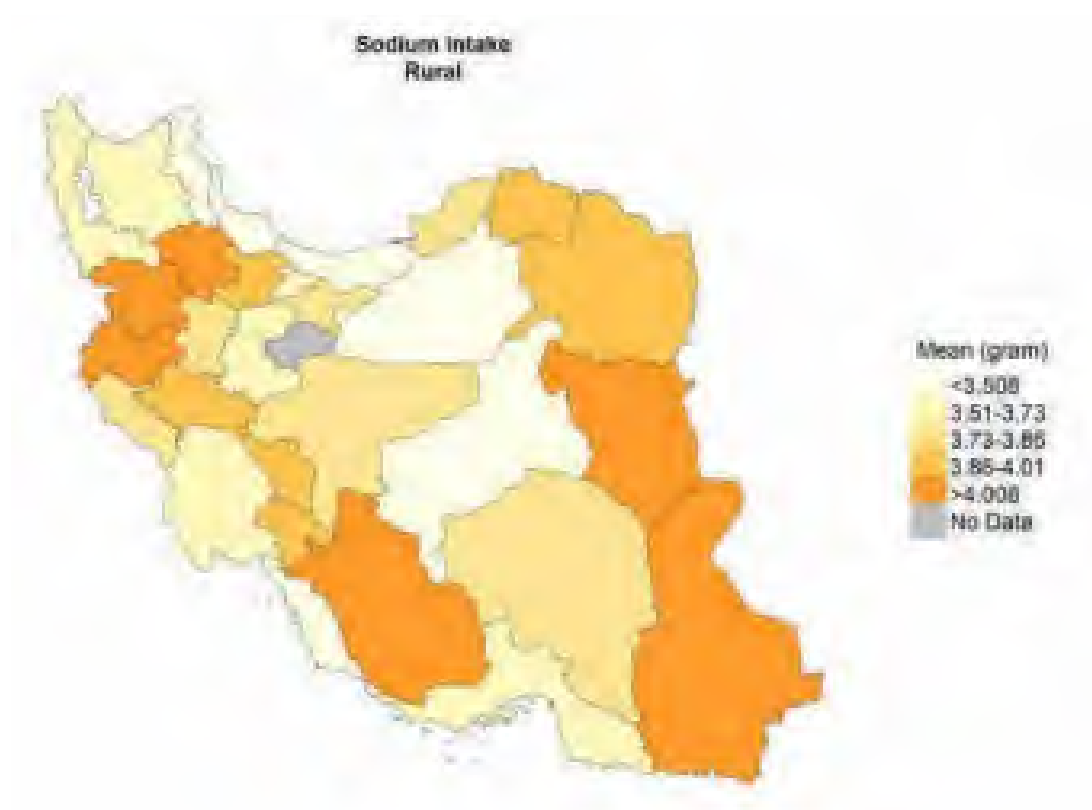


Figure 8.126. Geographical distribution of mean of sodium intake (gram) in rural area of residency

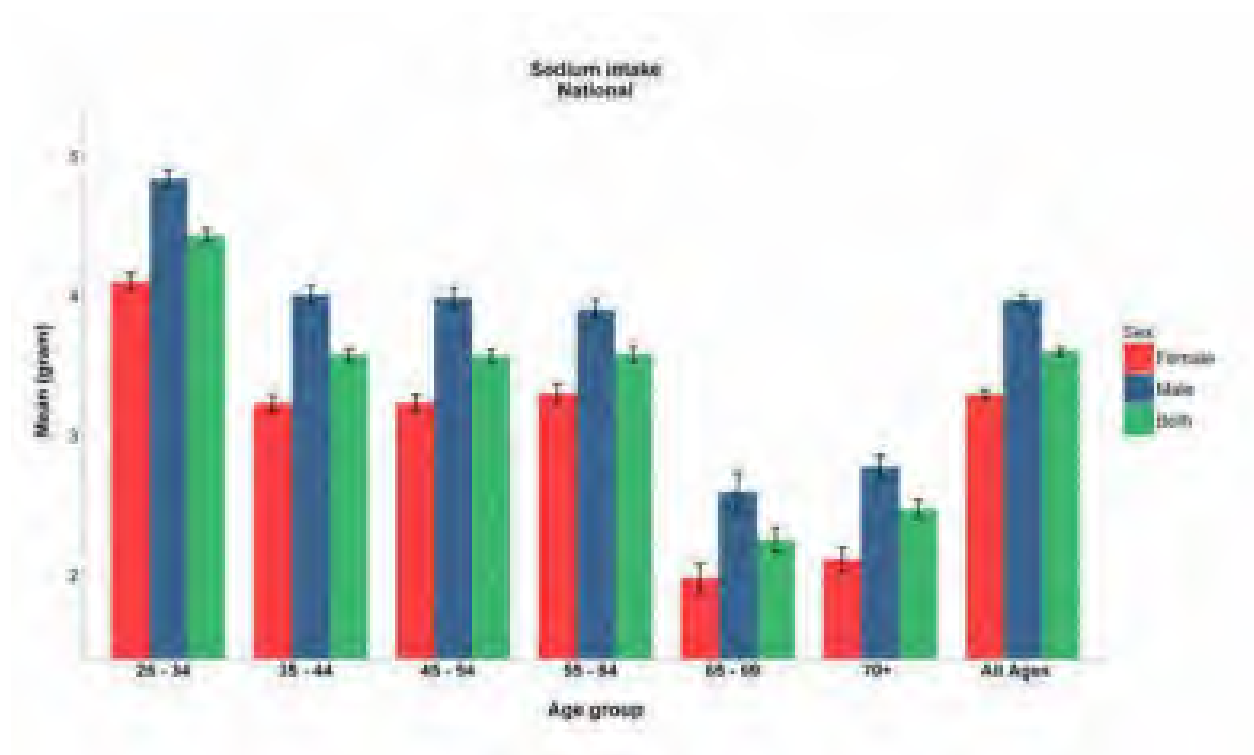


Figure 8.127. Mean of sodium intake (gram) by age and sex at national level

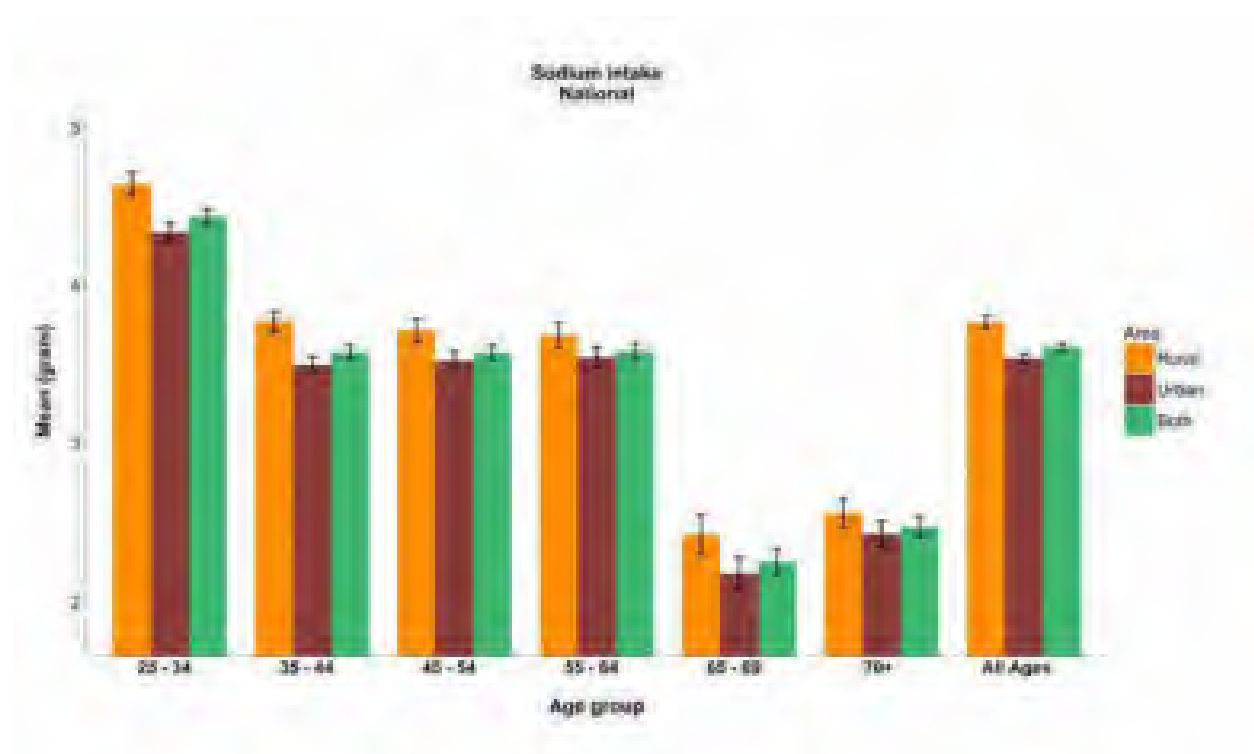


Figure 8.128. Mean of sodium intake (gram) by age and area of residency at national level

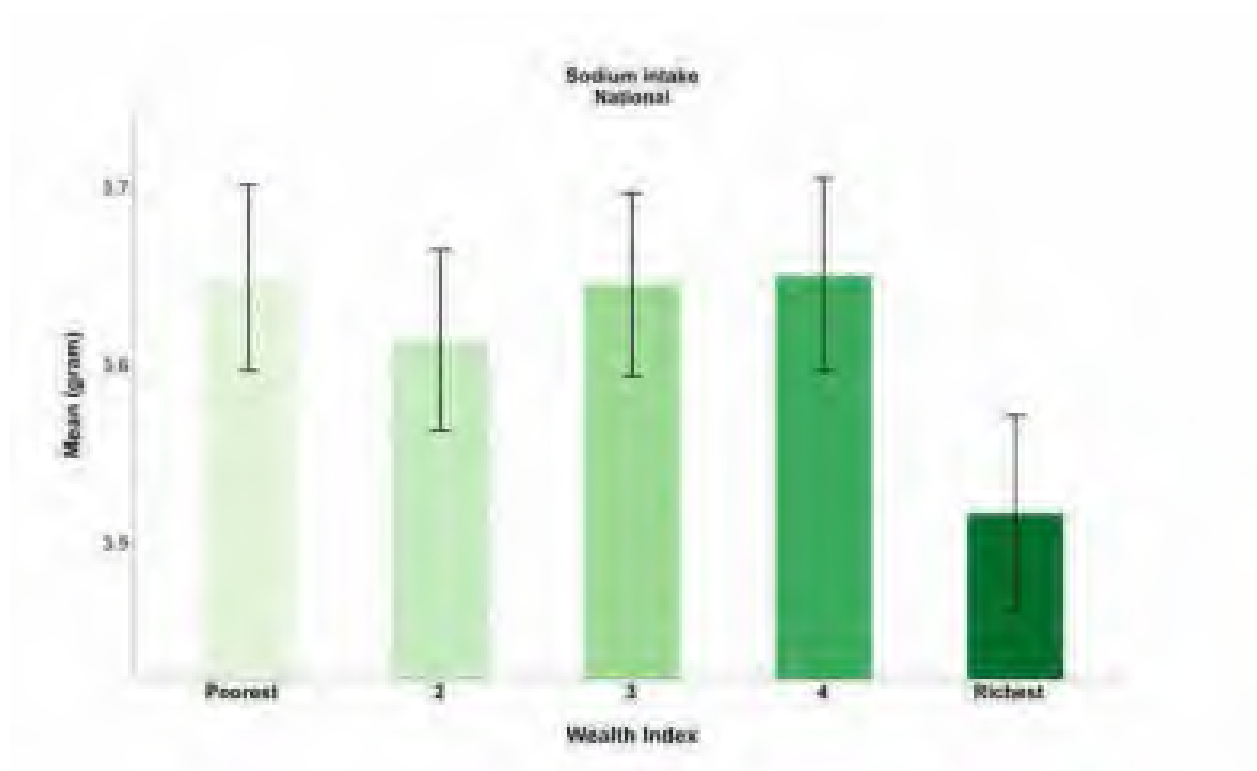


Figure 8.129. Mean of sodium intake (gram) by wealth index quantiles at national level

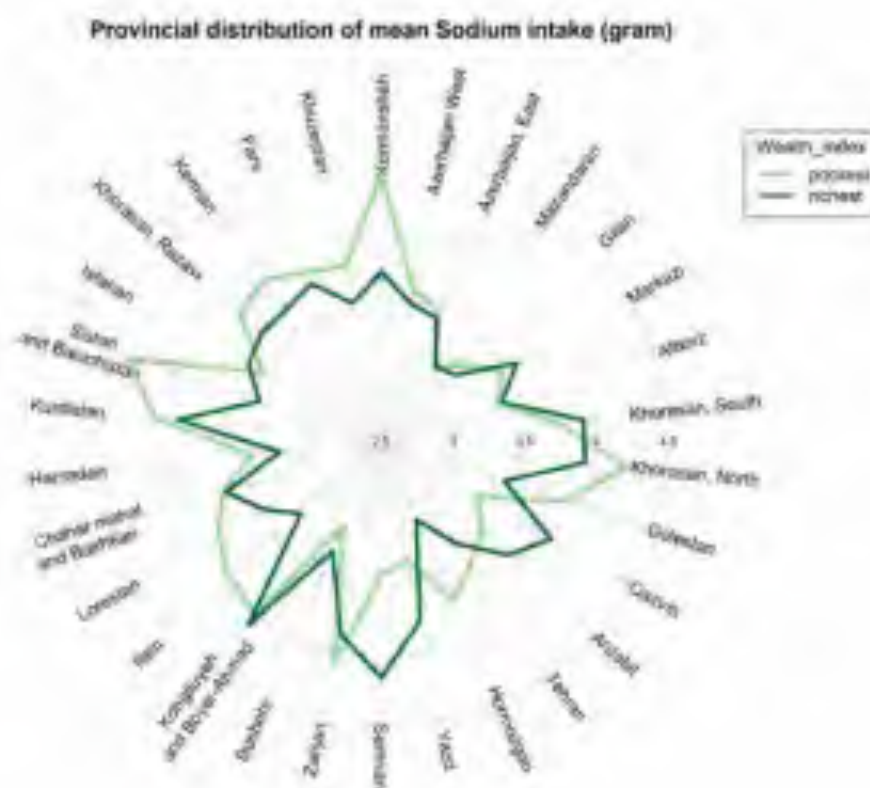


Figure 8.130. Provincial distribution of mean of sodium intake (gram) by wealth index

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