Supplement

Levels and trends of body-mass index, obesity, and overweight at national and sub-national levels in Iran from 1990 to 2016; a digression from SDGs
Supplementary material

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Overview of Study Design

In this study, we aimed to estimate the mean Body Mass Index (BMI) and the prevalence of obesity and overweight by sex and age across all provinces of Iran from 1990 to 2016. Body mass index (BMI) was defined as weight (kg) divided by height squared (m^2). Overweight and obesity were defined as BMI of 25 or more and BMI of 30 or more, respectively.

We estimated results for both sexes, 13 age groups from 25 to over 85 years (5-year categories), 31 provinces, and 27 years (from 1990 to 2016).

We used all available related data sources consisting of a pooled analysis and extracted results of comprehensive systematic review and meta-analysis. We also conducted a meta-regression including Generalized Linear Mixed Model, Age-Spatio-Temporal, Gaussian Process Regression (ST-GPR), and crosswalk.

Data Sources

Systematic Literature Review

Systematic search

We searched PubMed/MEDLINE, Web of Science, and Scopus as the main comprehensive related international databases and Scientific Information Database (SID), IranDoc, IranMedex (Barekat Knowledge Network System), and Magiran as national systematic databases, with 89% of Iranian medical and public health journals and with an access to the gray literature.

The time limitation of the search was set between 1990/1/1 and 2017/06/30. There was no limitation on language, document type or publication status. Keywords were collected through experts' opinion, literature review, controlled vocabulary (Medical Subject Headings = MeSH and Excerpta Medica Tree = EMTREE) and reviewing the primary results of search protocol evaluation.
We developed the first root of search strategy in MEDLINE. Considering the further complementary contribution of Scopus and expert opinions, the finalized search strategy was run in all of targeted databases. For national databases, in addition to the main search strategy, considering all probable spellings and combinations, the Persian equivalents for words and specific terms were included.

((“Body Mass Index”[Mesh] OR “Body Mass Index”[All Fields] OR “Overweight”[Mesh]) OR “Overweight”[All Fields] OR “Obesity”[Mesh] OR “Obesity”[All Fields] OR “Quetelet* Index”[All Fields] AND (“Iran”[Mesh] OR “iran”[All Fields]) OR Iranian[All Fields] OR I.R.Iran[All Fields] OR “I.R Iran”[All Fields] OR (“persia”[MeSH Terms] OR “persia”[All Fields]))
In addition to the electronic searches, we conducted a manual search for reviewing unpublished data sources such as governmental/ project reports, conferences documents and reference lists.
The references of the reviews were also searched for eligible studies. In some cases, we asked for more information from specific researches.
All results of the search was exported to the Reference Manager bibliographic software.

Inclusion and Exclusion Criteria
We included all national, provincial, district and community-based representative studies from Jan 1990 to Jul 2017 that reported the mean BMI or the prevalence / incidence of obesity or overweight. The cross-sectional, baseline measurements of population-based cohort, control group in case-control, and ecologic studies were acceptable. The target group of investigation was defined as adult Iranian population (25 years and older).
For more accuracy, self-reported studies were excluded. Moreover, the studies on specific subgroups of the population such as non-Iranian populations, patients, employees, volunteers, immigrants, and also hospital-based studies were excluded.
In case of more than one extracted document from one specific research, the paper which reported more complete data was included. We also excluded papers with duplicate citations. Duplicate entries were identified through reviewing the title of the papers, authors, the year of publication, and specifications of the sources. In questionable cases, the abstracts and main texts were compared.
Papers for which the required data for classification and analyzing could not be obtained were considered for possible future assessment of availability of resources. Non-peer reviewed, conference proceedings and book chapters were followed for more data availability.

Outcome Measures
We estimated the mean BMI level and prevalence of obesity and overweight, by sex, 5-year age groups, and province.

Validity Assessment
After three steps of data refinement for titles, abstracts and full texts, the full text of each selected article was retrieved for detailed assessment.
Quality assessment was conducted based on three main components of general information of the study, sampling quality, and measurement quality. Critical Appraisal Tool (CASP) was used for standard assessments. The final quality score of an article was calculated as the mean of quality scores that two reviewers provided.
Moreover, the sampling quality refers to response rate, sample size, and sampling design and the measurement quality includes type of measurement tools, calibration, and accuracy of measurement methods considered in our further quality assessments. Accordingly, each item obtains a score.

Assessment of heterogeneity between included studies regarding the reported outcome measures was performed through observing data extraction tables. For meta-analysis, we assessed heterogeneity through visual inspection of the forest plot to look for apparent variances in results between the reports.

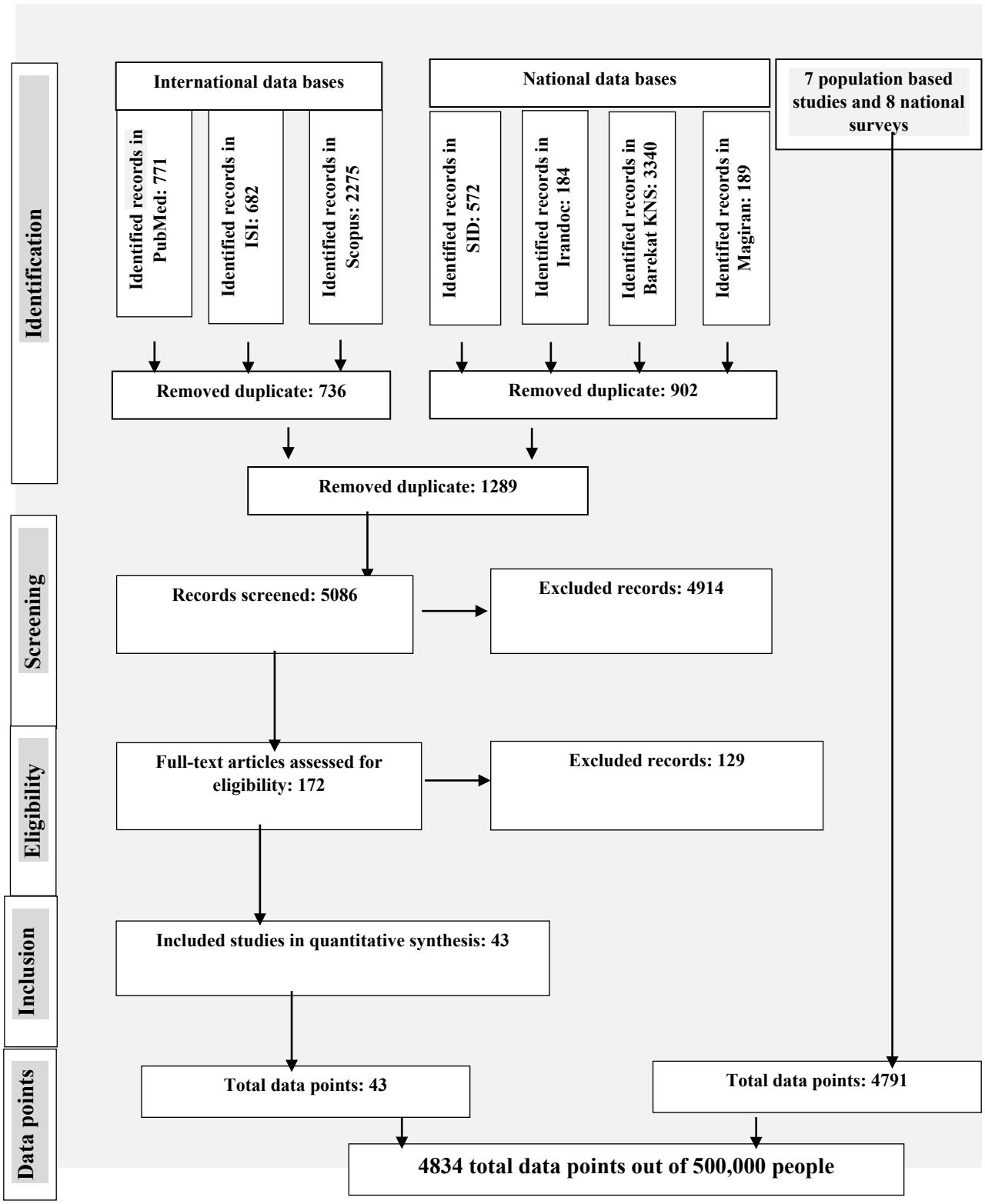
Data Extraction

All included records were reviewed, and the required data was extracted and inserted on data extraction sheet. The data extraction sheet contained detailed information on 1) Basic information on the title of the study, authors' affiliation, sponsoring, citations, corresponding authors, and publication date; 2) Unique Study ID; 3) Study date; 4) Study duration, design, and settings; 5) Study scope; 6) Province; 7) Sample size and sampling method; 8) Data source; 9) Study level; 10) Measurement tool; 11) Response rate; 12) Subgroups Sex, Minimum age, Maximum age, Median age range, and Subgroup proportion; 13) Measurements including the Measure, Unit, Mean, Standard deviation, Lower level of 95% Confidence Interval, Higher level of 95% Confidence Interval, Standard Error of Mean, Median, Percentage, and Subgroup measurements; and 14) Quality score based on CASP.

Quality assessment and data extraction were conducted using a checklist which recorded citation, publication year, study year, place of study, type of study, population characteristics and methodological criteria (sample size, mean age, type of measure, results of measures and other information).

The entire process from systematic search to data extraction was performed independently by two research experts (Kappa statistic for agreement for quality assessment; 0.92). Under the supervision of the principle investigator, probable discrepancies were resolved by discussion.

After three steps of refinement for titles, abstracts and full texts, a total of 172 studies remained for full text assessment. Considering the criteria for inclusion and exclusion, 129 studies were excluded because of the limitations of presentation of required data or low quality of studies or papers. Finally, 43 studies remained for data extraction. The process of study selection is shown in the PRISMA flow diagram (Figure 1).


Identification
Screening
Eligibility
Inclusion
Data points
International data bases
National data bases
7 population based studies and 8 national surveys
Identified records in PubMed: 771
Identified records in ISI: 682
Identified records in Scopus: 2275
Identified records in SID: 572
Identified records in Irandoc: 184
Identified records in Barekat KNS: 3340
Identified records in Magiran: 189
Removed duplicate: 736
Removed duplicate: 902
Removed duplicate: 1289
Records screened: 5086
Excluded records: 4914
Full-text articles assessed for eligibility: 172
Excluded records: 129
Included studies in quantitative synthesis: 43
Total data points: 43
Total data points: 4791
4834 total data points out of 500,000 people

Supplementary Figure 1. Process of selecting studies for systematic review based on the PRISMA flow diagram

Searching other Resources

Unpublished reports, abstracts presented in conferences, Iranian journals not available online, and dissertations were additional sources that were considered for manual searching and data acquisition through their corresponding author.

National Surveys

Through a systematic review, the extracted papers from national surveys were retrieved, including seven iterations of NCD surveillance survey (STEPwise) in 2005, 2006, 2007, 2008, 2009, 2011, and 2016 and one iterations of National Health Survey (NHS) in 2000.

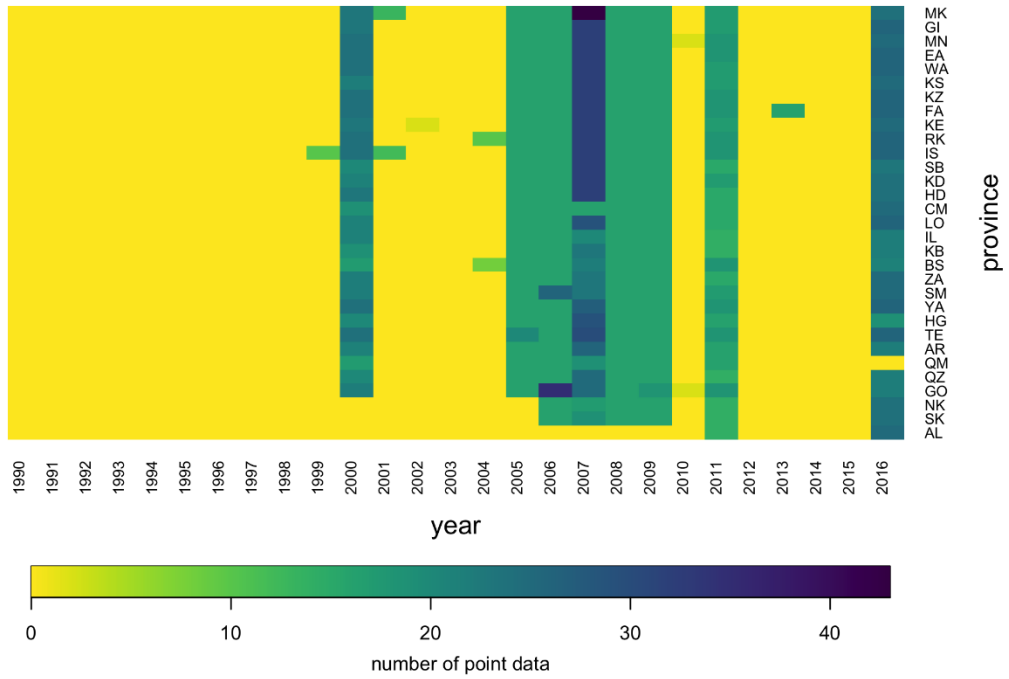
Data of BMI was reported stratified by sex, 5-year age groups, province, and year. Data at the individual level were added as no further data cleaning or harmonization was required.

Large Population-based Cohort Studies

The data of the following large population-based Iranian cohort studies were included in the main dataset:

1) Golestan Cohort Study (GCS)
2) Pars Cohort Study (PCS)
3) Isfahan Healthy Heart Program (IHHP)
4) Tehran Lipid and Glucose Study (TLGS)
5) Kerman Cohort Study (KERCADR)
6) Mashhad Cardiovascular Cohort Study
7) Persian Gulf Healthy Heart Study.

The principal investigators were contacted to obtain the aggregated data, which was further pooled in our database. For each province, data was stratified by sex and 5-year age groups. Some studies took more than one round of recruitment; in such cases, the median year of the recruitment interval was estimated.



Supplementary Figure 2. Number of data sources by province and year

Supplementary Table 1. Systematic review data points'

Source	Province	Sex	BMI (mean)	BMI (SD)	Number of participants	Age categories	year
Nizal Sarraf zadegan, *et al.* (1999). "Risk factors for coronary artery disease in Isfahan, Iran." European Journal of Public Health 9(1): 20-26.	Isfahan	Male	0.25	3.8	992	45	1999
	Isfahan	Female	0.27	4.4	1184	45	1999
	Isfahan	Male	0.25	4.4	152	65	1999
	Isfahan	Male	0.26	3.2	181	50	1999
	Isfahan	Male	0.26	3.7	204	40	1999
	Isfahan	Male	0.25	3.5	241	30	1999
	Isfahan	Female	0.28	4.1	212	65	1999
	Isfahan	Female	0.28	4.1	276	50	1999
	Isfahan	Female	0.28	4.4	340	40	1999
	Isfahan	Female	0.27	4.3	241	30	1999
Rezaeian, *et al*. (2007). Prevalence of obesity and abdominal obesity in a sample of Urban adult population within South East of Iran. Pak J Med Sci 23(2): 193-197.	Kerman	Male	0.24	-	316	45	2002
	Kerman	Female	0.25	-	440	45	2002
Azimi-Nezhad, M., M. Ghayour-Mobarhan, *et al.* (2009). "Anthropometric Indices of Obesity and the Prediction of Cardiovascular Risk Factors in an Iranian Population." The scientific world journal 9: 424-430	Khorasan	Male	0.24	4.25	2445	40	2004
	Khorasan	0	0.25	5.44	2483	40	2004
	Khorasan	Male	0.25	4.1	282	60	2004
	Khorasan	Male	0.25	4.46	414	50	2004
	Khorasan	Male	0.25	4.12	554	40	2004
	Khorasan	Male	0.24	3.83	477	30	2004
	Khorasan	Female	0.26	5.58	258	60	2004
	Khorasan	Female	0.27	5.53	467	50	2004
	Khorasan	Female	0.27	5.3	525	40	2004
	Khorasan	Female	0.26	5.4	465	30	2004
Moayeri, H., K. Bidad, *et al.* (2006). "Overweight and obesity and their associated factors in adolescents in Tehran, Iran, 2004-2005." Eur J Pediatr 165(7): 489-493.	Tehran	Female	0.28	-	18	60	2005
	Tehran	Female	0.30	-	61	50	2005
	Tehran	Female	0.29	-	174	40	2005
	Tehran	Female	0.28	-	215	30	2005
Veghari, G., M. Sedaghat, *et al.* (2010). "The prevalence of obesity and its related risk factor in the north of Iran in 2006." Journal of Research in Health Sciences 10(2): 116-121.	Golestan	Male	0.25	2.2	141	25	2006
Gharakhanlou, R., B. Farzad, *et al.* (2012). "Anthropometric measures as predictors of cardiovascular disease risk factors in the urban population of Iran." Arq Bras Cardiol 98(2): 126-135.	Semnan	Male	0.26	-	1695	50	2006
	Semnan	0	0.28	-	2104	50	2006
	Semnan	Male	0.26	-	260	65	2006
	Semnan	Male	0.26	-	411	50	2006
	Semnan	Male	0.26	-	512	40	2006
	Semnan	Male	0.25	-	512	30	2006
	Semnan	Female	0.28	-	213	65	2006

	Semnan	Female	0.29	-	497	50	2006
	Semnan	Female	0.28	-	656	40	2006
	Semnan	Female	0.28	-	738	30	2006
Veghari, G., *et al.,* Obesity and its socio-demographic related factors: an epidemiological study. Payesh (Health Monitor), 2012. 11(6): p. 807-813.	Golestan	Male	0.25	4.8	3245	40	2009
	Golestan	Female	0.28	6.1	3244	40	2009
Khadivzadeh T., K. M., Parsai S., Mazloom S.R. (1381). "Body mass index and percent of ideal body weight in woman of reproductive ages in Mashad, 1997-98." Journal of Mashhad School of Nursing & Midwifery 13-14(4): 10-18.	Razavi Khorasan	Female	0.29	6.9	500	35	2010
	Razavi Khorasan	Male	0.26	4.5	500	35	2010
Veghari, G., *et al*., Trends in waist circumference and central obesity in adults, northern iran. Oman medical journal, 2012. 27(1): p. 50.	Golestan	Female	0.28	6.2	1499	35	2010
	Golestan	Male	0.25	4.82	1495	35	2010

Data Preparation

In order to estimate the primary outcomes, all combined data sources have to be prepared for statistical analysis. Each sex-age-province-year combination in systematic reviews that did not have the information of year and province was excluded from analysis. In addition, plausible ranges in age groups and years were computed as the median of this range. Studies with sample size under 5 were also excluded.

In the next step, based on the rare value of data points in age groups over 65 years, data points were adjusted for these age groups. To be more detailed, we used STEPs 2016 data for older age groups to estimate data points for NCDs studied in 2005, 2006, 2007, 2008, 2009, and 2011.

Covariates: Years of Schooling, Wealth, Urbanization

In order to estimate the response variable including the mean BMI and the prevalence of obesity and overweight, in our estimation, we benefitted from four types of covariates by all sex, age, province and year combinations.

The urbanization covariate (the proportion of the people who live in urban areas) was calculated by population file in each province. Years of schooling (YOS) and wealth index (WI) were derived from Household Expenditure and Income conducted by the Statistical Center of Iran. YOS was defined as the years that each person educated and ranged from 0 to 25 years. WI was categorized as five equal percentiles based on the income and assets of each household.

Statistical Analyses

Generalized Linear Mixed Model

To estimate the mean BMI for two sexes, 13 age groups, 31 provinces, over 27 years, we used a linear mixed effect model. In this model, we modelled the mean BMI which is a continuous variable. However, we worked on the natural logarithm transformation of mean BMI to decrease the variation of the variable and secure normality assumption. In this modeling, we took advantage of including YOS, WI, and urbanization as fixed-effects and province as random effects of linear mixed effect model. The extracted predictions and residuals of study data points were used later in Age-Spatio-Temporal Model. This model was reiterated separately for women and men.

$$Y_{a,y,p} = \beta_{\circ} + \beta_i X_{i_{ayp}} + \beta_j Z_j + \beta_2 \times year + \pi_p + \varepsilon_{a,y,p}$$

Define as:

a= age group

y= year index

p= province index

β_i = coefficient on covariate i

$X_{i_{ayp}}$ = covariate i for observation a, y, p

β_j = coefficient on age group

Z_j = age dummy variables

β_2 = coefficient for year

π_p = random intercept on province

$\varepsilon_{a,y,p} \sim N(0, \sigma_\varepsilon \bullet I)$

ST-GPR: for mean BMI Estimates

It is assumed that the residuals extracted from linear mixed effect model have some variations that cannot be captured in this model. The Age-Spatio-Temporal model is used to justify variances and correlations of age groups, time, and provinces. Three weight matrices were developed through them, adjusted years, age groups and provinces get more weights than others. These matrices were developed as follows:

Age matrix:

$$\omega_{a_{i,j}} = \frac{1}{e^{\varpi \times \left| agegroup_i - agegroup_j \right|}}$$

i is prediction age group and *j* is observation's age group. If i and j be the same age group, the weight receives 1. We had a 13*13 matrix for this component. ϖ was defined as 1, and it can be increased for greater smoothing over age.

Temporal matrix:

$$\omega_{y_{i,j}} = \left(1 - \left(\frac{\left| year_i - year_j \right|}{\arg\max\left(\left| year_i - year_j \right| + 1 \right)} \right)^{\lambda} \right)^3$$

It was a 27*27 matrix with $^{\lambda}$= 0.5. Again, it can increase or decrease for the amount of smoothing across time.

The age and time weights are multiplied together for each observation, producing a weight for age and year dimensions.

$$\omega_{i,j} = \frac{\omega_{a_{i,j}} \times \omega_{y_{i,j}}}{\sum \left(\omega_{a_{i,j}} \times \omega_{y_{i,j}} \right)}$$

Then, the weights are rescaled to reflect geographical proximity to observation being predicted by a spatial 31*31 matrix. The same provinces got the weight 1, adjacent provinces got the weight 0.9 and the others got 0.

In addition to these three types of weightings, a weight was defined for each data source. National data sources received 0.9 of the total weights and the other sub-national and systematic reviews got 0.1.

Once these weights are calculated, weighting every observation in the dataset relative to the one being predicted, it is a simple matter of calculating a weighted average of the residuals from the mixed effects regression. This "predicted residual" is then added back onto the mixed effects prediction, creating an estimate that more closely takes into account aspects of the data that cannot be captured by a simple covariate model.

These adjusted residuals were added to the preceding predictions of linear mixed effect model. Therefore, we had estimations for all sex, age, province, and year combinations.

In order to unify all data sources and estimate their uncertainty intervals over time, we used Gaussian Process Regression (GPR) that is a Bayesian statistical model with a mean function and a covariance function. Age Spatio-Temporal was used as the prior for mean function and Matern function as a prior for

covariance. The Matern function has three parameters. The first parameter quantifies the deviation of data points from mean function. The second parameter identifies the degree of smoothness across time. The third one specifies the correlation of estimates over time. Our posterior which is the mean of BMI has a normal distribution defined as a Gaussian Process for its mean and the sampling error of data points for its variance component (σ^2). This model is formulated as follows and details about the parameters are previously described.

$$Y \sim Normal(m, \sigma^2)$$
$$m \sim GP(M, C)$$

Where m had the Gaussian Process with Age-Spatial-Temporal as its mean function and Matern for covariance function.

Crosswalk: For Obesity and Overweight Prevalence Estimation

Our estimations so far consisted of mean BMI distribution. In order to interpolate the prevalence of obesity and overweight, we needed a model to convert BMI to prevalence of obesity and overweight. We used the data of the seven rounds of STEP in which BMI as well as the age-specific prevalence of obesity and overweight were measured and reported. A linear mixed model on the logarithm of prevalence of obesity and overweight was developed using four covariates: years of schooling, wealth index, and urbanization in addition to the mean of BMI. Again, all estimates were specific to sex, age, province, and year. For calculating uncertainty intervals, we simulated the confidents excluded from the previous model and the matrix of variance-covariance of coefficients. We also included the standard error of BMI GPR estimates.

$$\ln(obesity\_prevalence_{a,y,p}) = \beta_\circ + \beta_i X_{i_{ayp}} + \beta_1 \times SBP + \beta_2 \times DBP + \pi_p + \varepsilon_{a,y,p}$$

$$\ln(overweight/obesity\_prevalence_{a,y,p}) = \beta_\circ + \beta_i X_{i_{ayp}} + \beta_1 \times SBP + \beta_2 \times DBP + \pi_p + \varepsilon_{a,y,p}$$

Age Standardization of Results

In order to remove the age effect, we used the population of Iran tabulated by sex, age at national level in 2016, and all estimates were reported as age-standardized.

Sensitivity Analysis

After developing the main comprehensive dataset for the linear mixed effect model, we conducted a sensitivity analysis in two stages. In the first stage, we randomly masked 10% of our data points and then, we repeated all the models for the remaining 90% of data. We used four metrics to evaluate the performance of in-sample validity: Root Mean Square Error (RMSE), Root Median Square Error, Median Relative Error, and Mean Relative Error of prediction models.

In the next step, we calculated the proportion of data points in our masked dataset that were located in the 95% Uncertainty Interval of our 90% withheld data.

Supplementary Table 2. Sensitivity Analysis

Outcome	Method	Root mean SE	Root median SE	Mean RE	Median RE
BMI	Linear mixed effect model	25.0943	24.835	21.64735	25.06916
	ASTM	25.36617	25.06916	25.27958	23.98588
	GPR	20.05039	20.21003	5.685294	3.146

Decomposition Analysis

We calculated the percent change in number of adults with obesity and overweight/obesity. We decomposed the contribution of increased prevalence, population growth, and change in age structure to the percent change in number obesity and overweight/obesity adults. To estimate the contribution of increase in prevalence, we calculated the percent change in population of 1990 solely due to increase in prevalence. Conversely, to estimate the contribution of both population growth and change in age

structure, we calculated the percent change assuming that the prevalence remained constant and population changed from 1990 to 2016. In order to decompose the contribution of change only due to population growth, we assumed that the age structure remained constant and population growth happened with the same age structure. Finally, to estimate the contribution of change in age structure, we assumed that the population and prevalence remained constant and only the age structure in 1990 changed to the age structure in 2016.

References

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3. Foreman KJ, Lozano R, Lopez AD, Murray CJ. Modeling causes of death: an integrated approach using CODEm. Popul Health Metr. 2012;10:1. doi: 10.1186/1478-7954-10-1.
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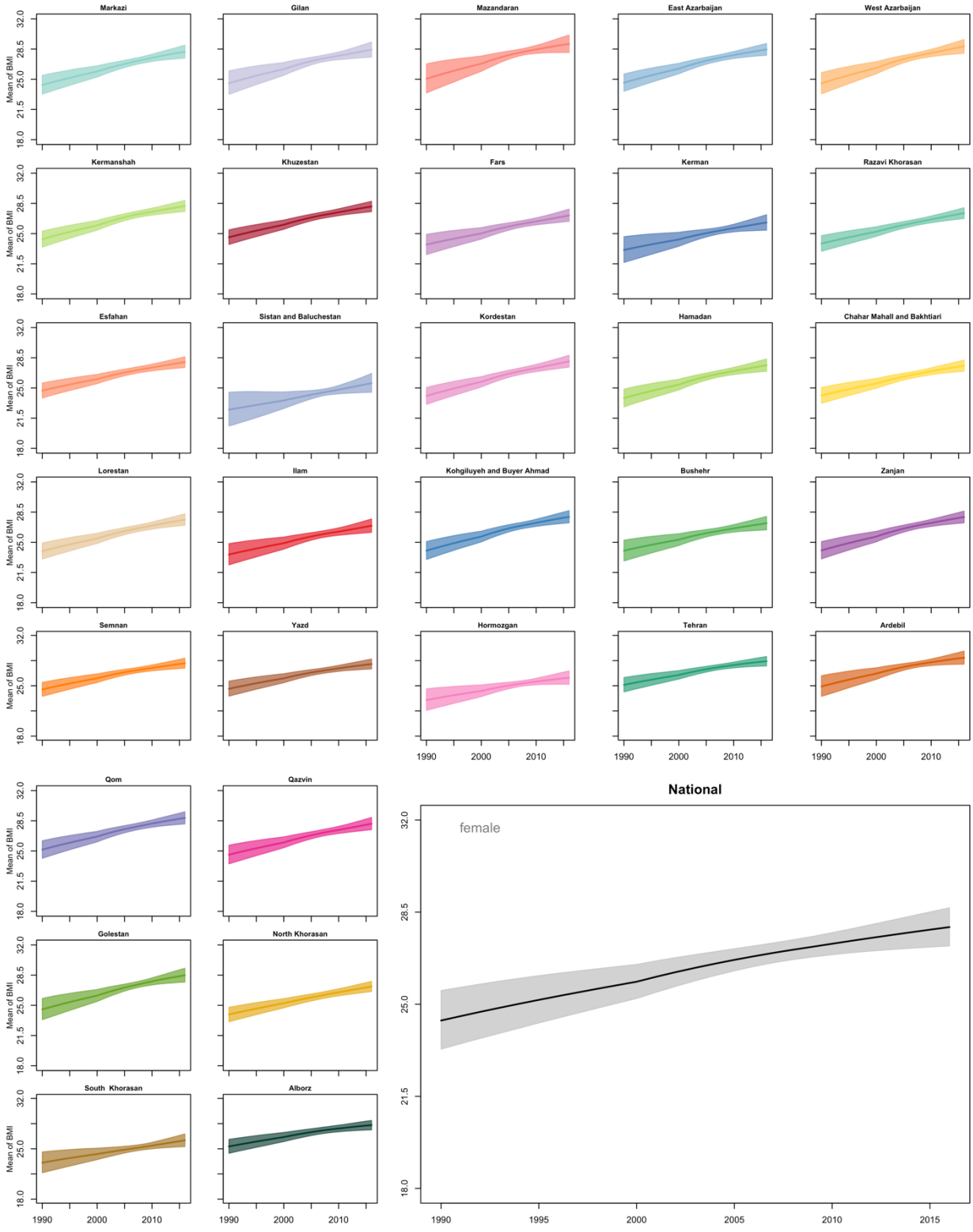
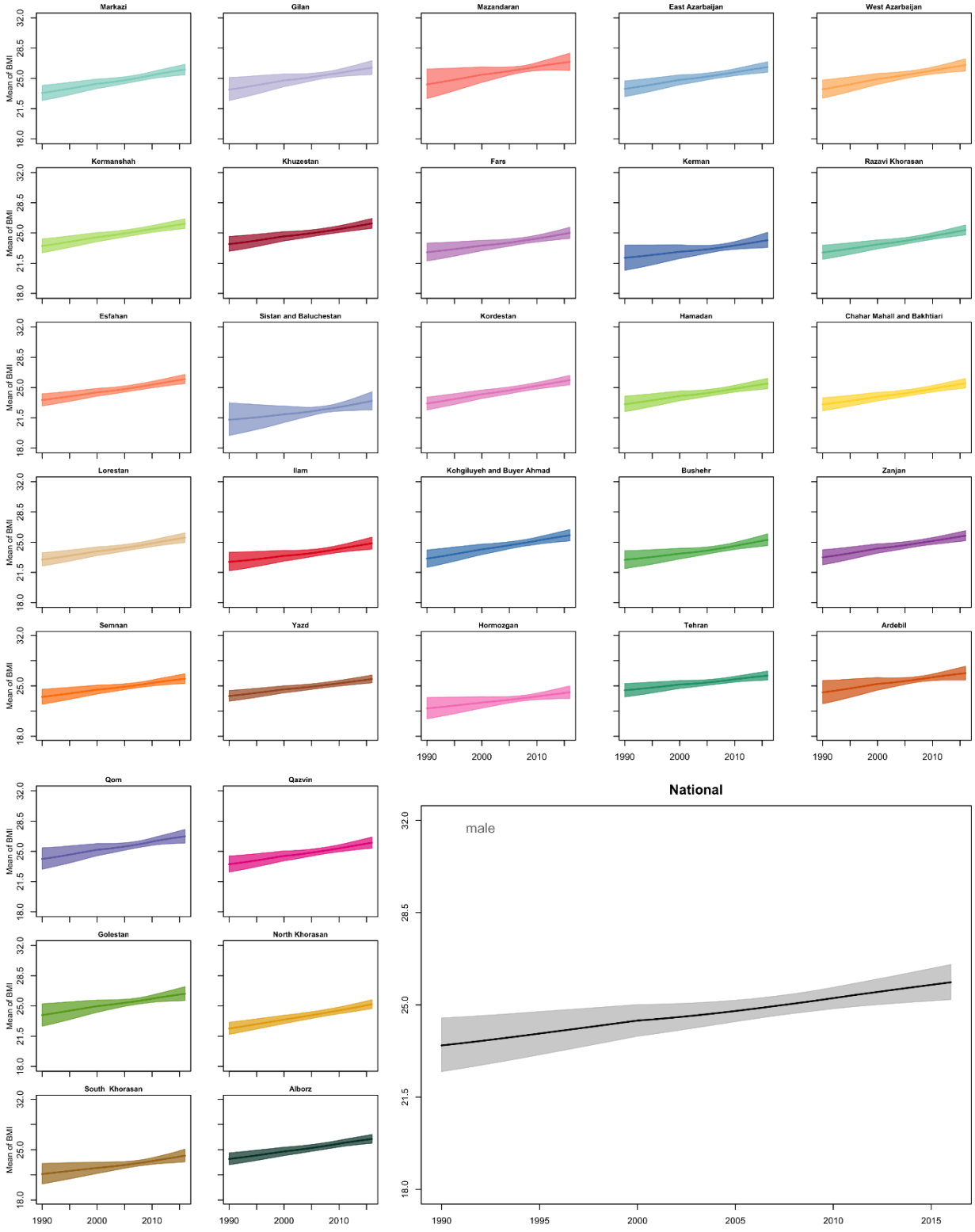
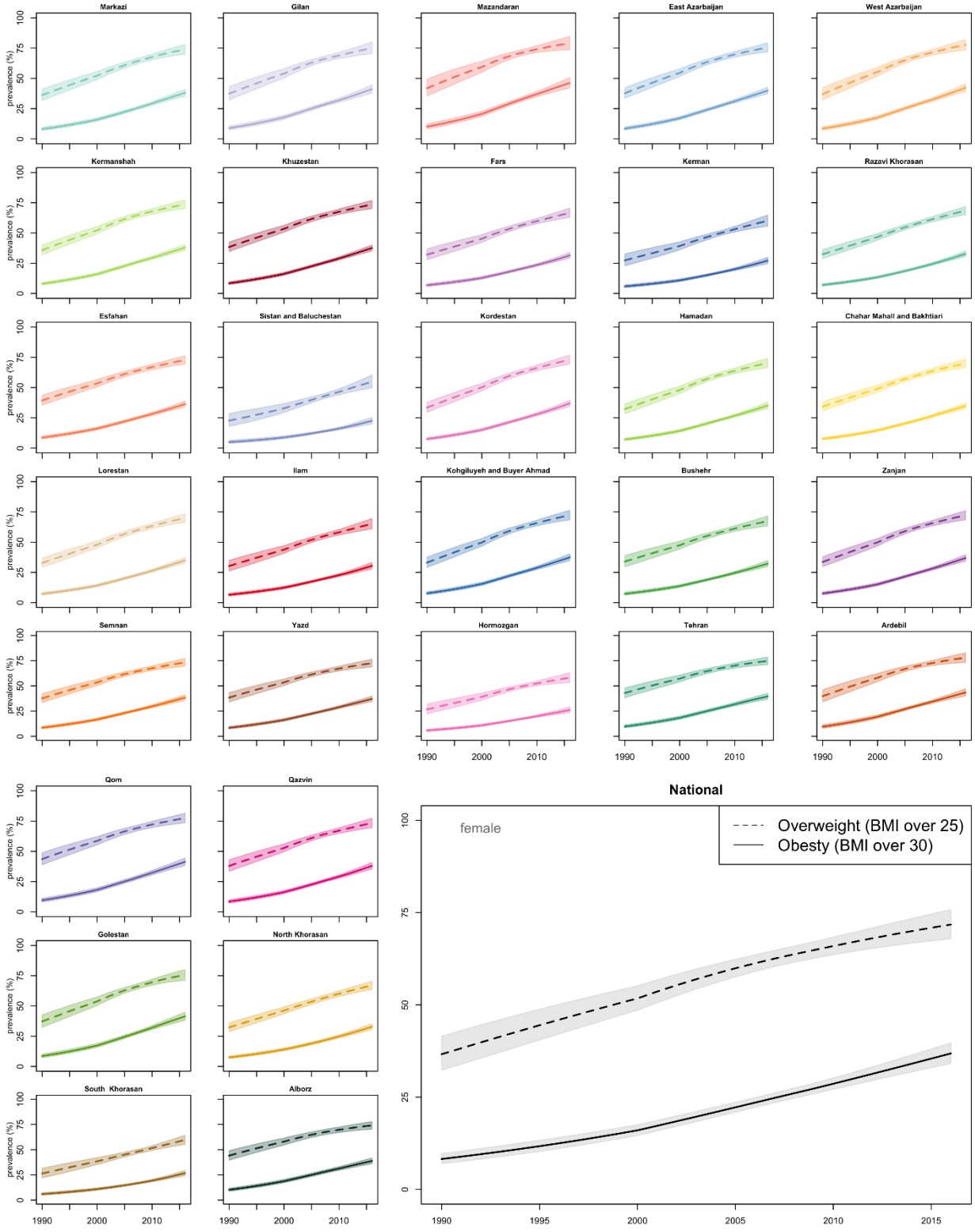
Panel A) BMI in females



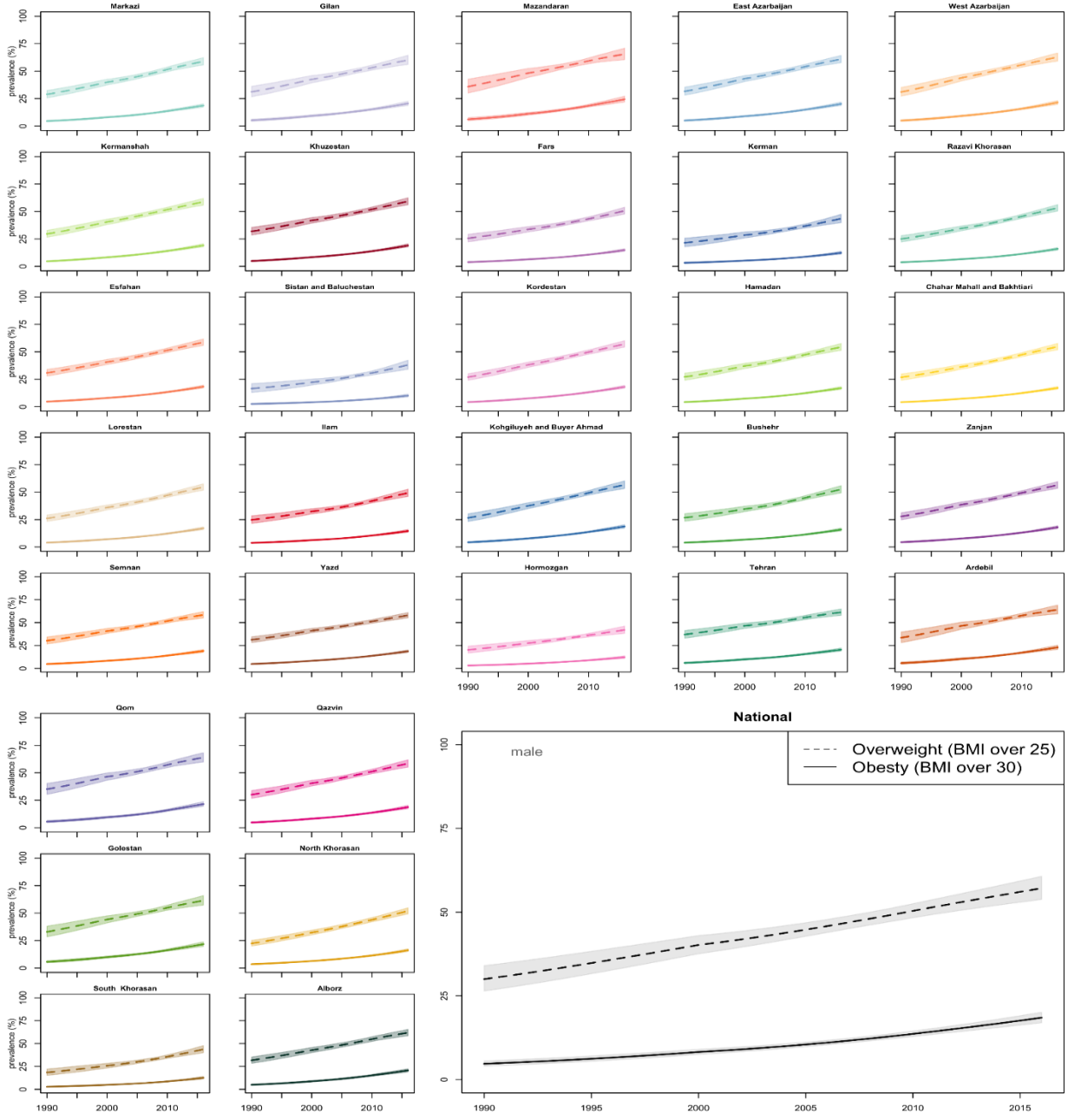
Panel B) BMI in males



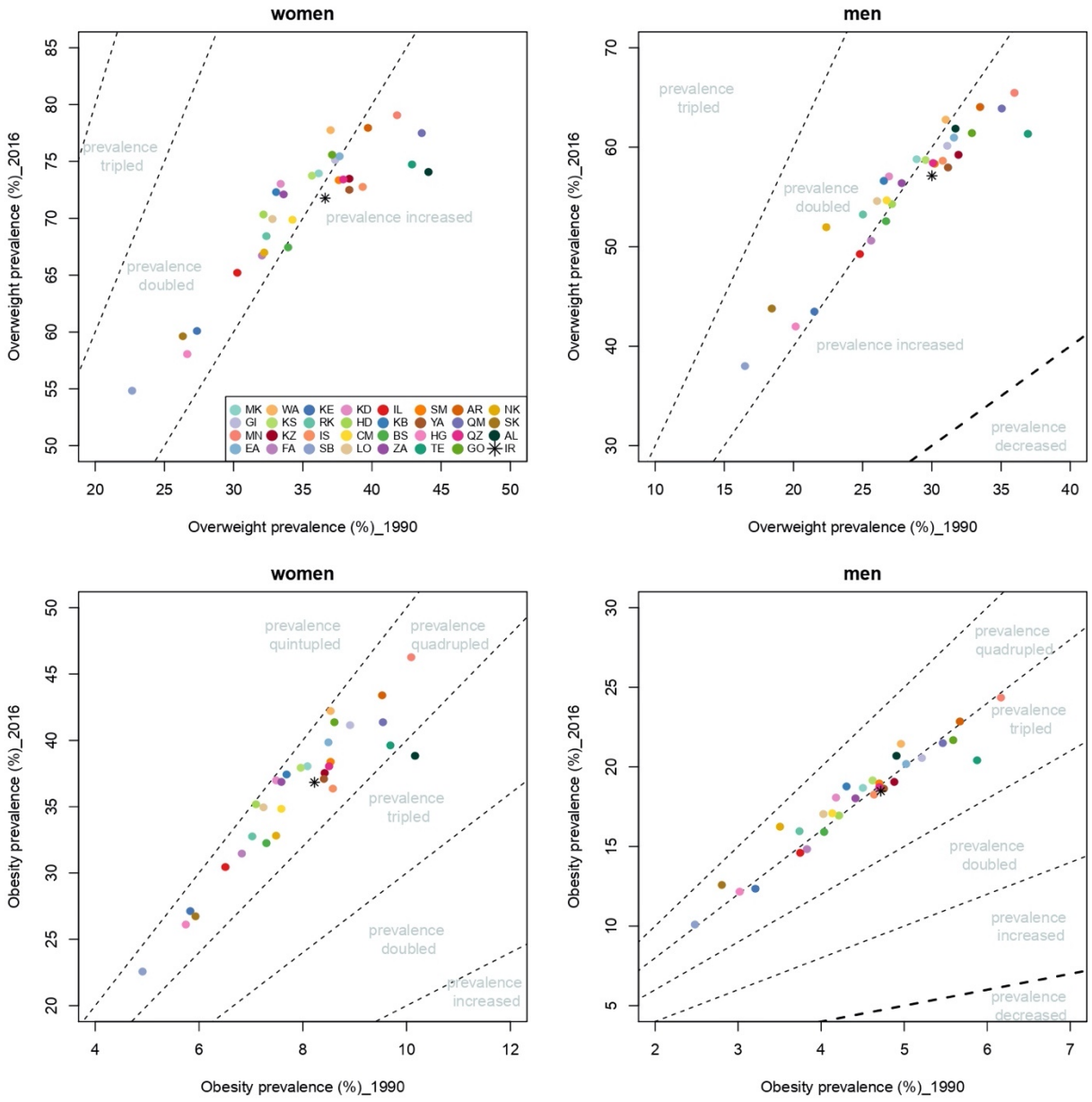
Panel C) Obesity and overweight prevalence in females



Panel D) Obesity and overweight prevalence in males

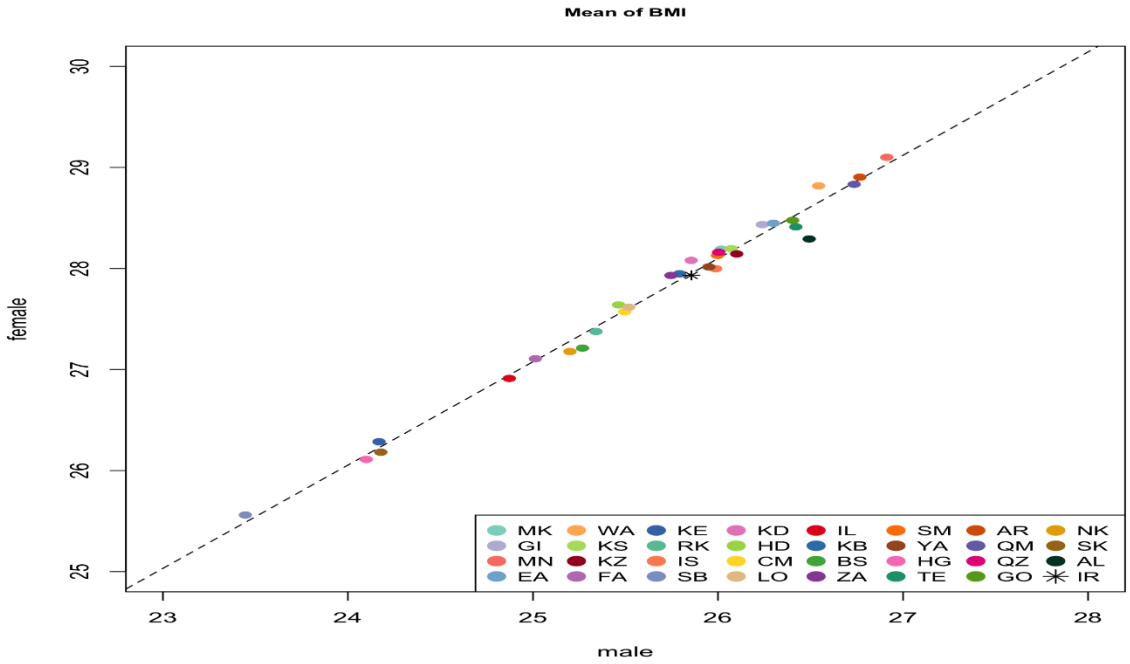


Supplementary Figure 3 (linear trends). Trends in age-standardized mean BMI, overweight and obesity prevalence by sex and by province in people aged 25 years and older from 1990 to 2016. The lines show the posterior mean estimates and the shaded areas show the 95% UI.

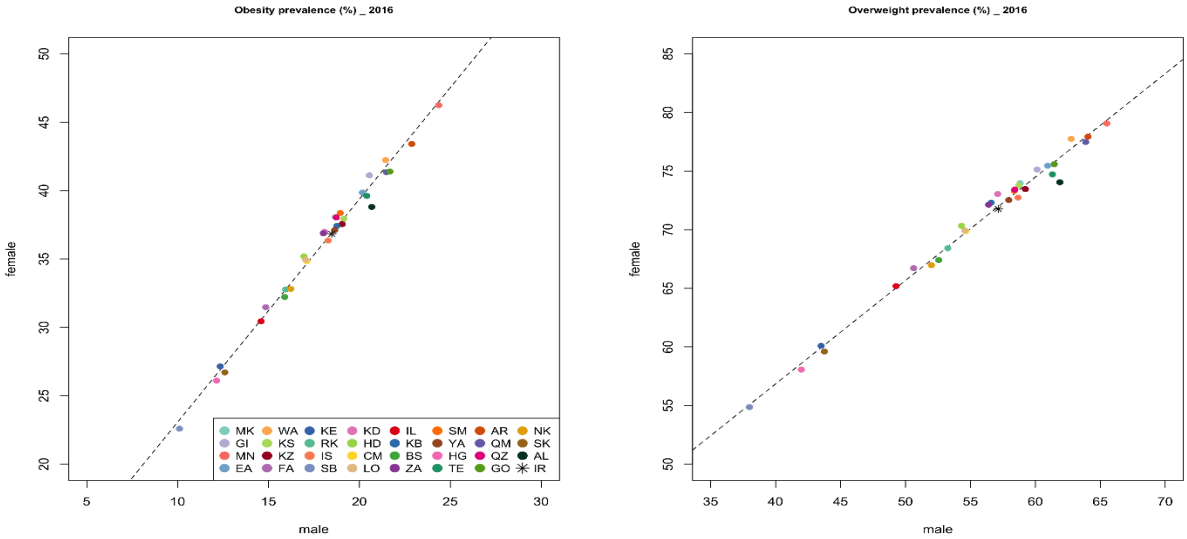


Supplementary Figure 4. Relation between age-standardized obesity prevalence and overweight prevalence in men and women aged 25 years and older in 1990

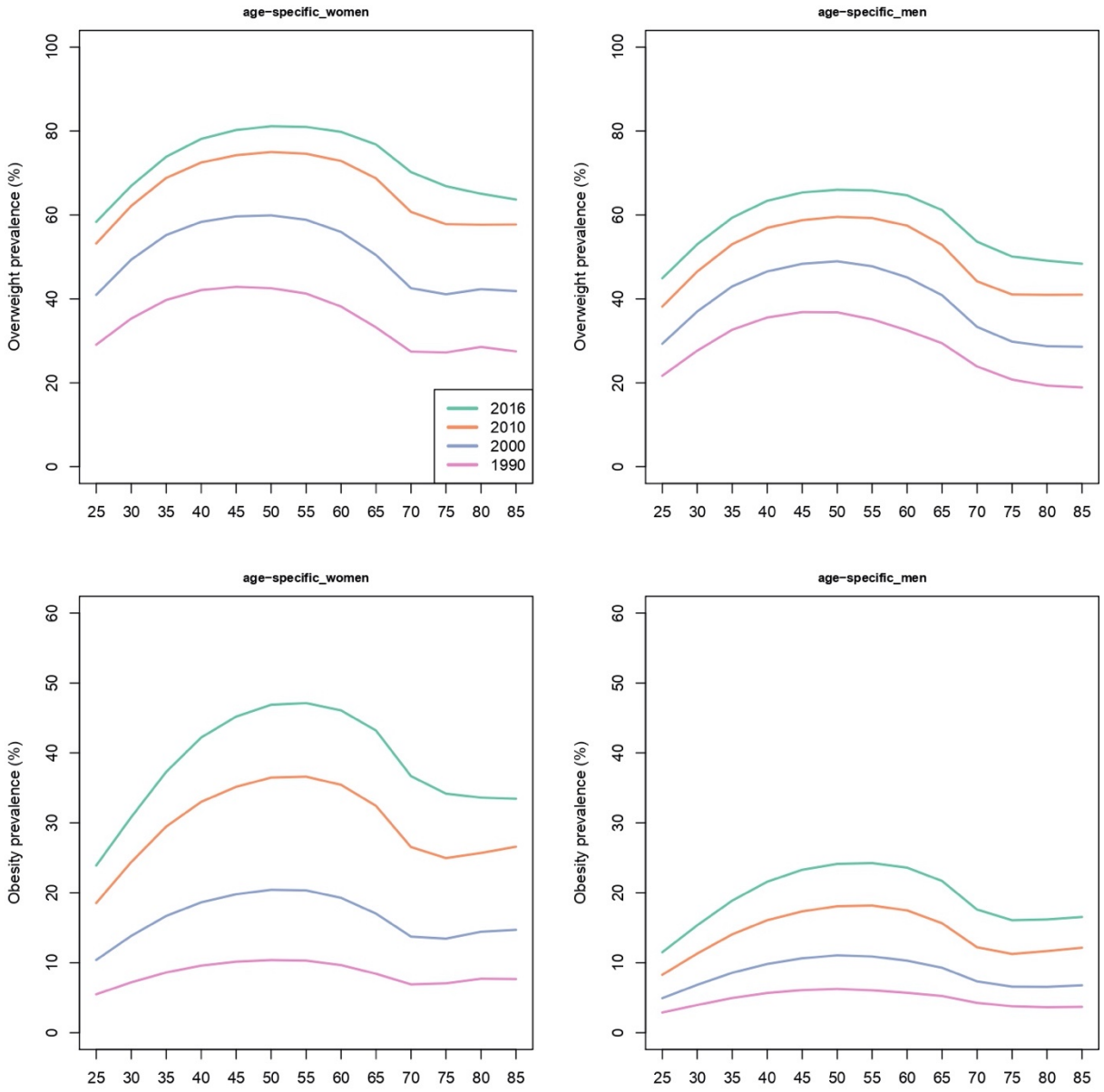
Panel A) Mean of BMI



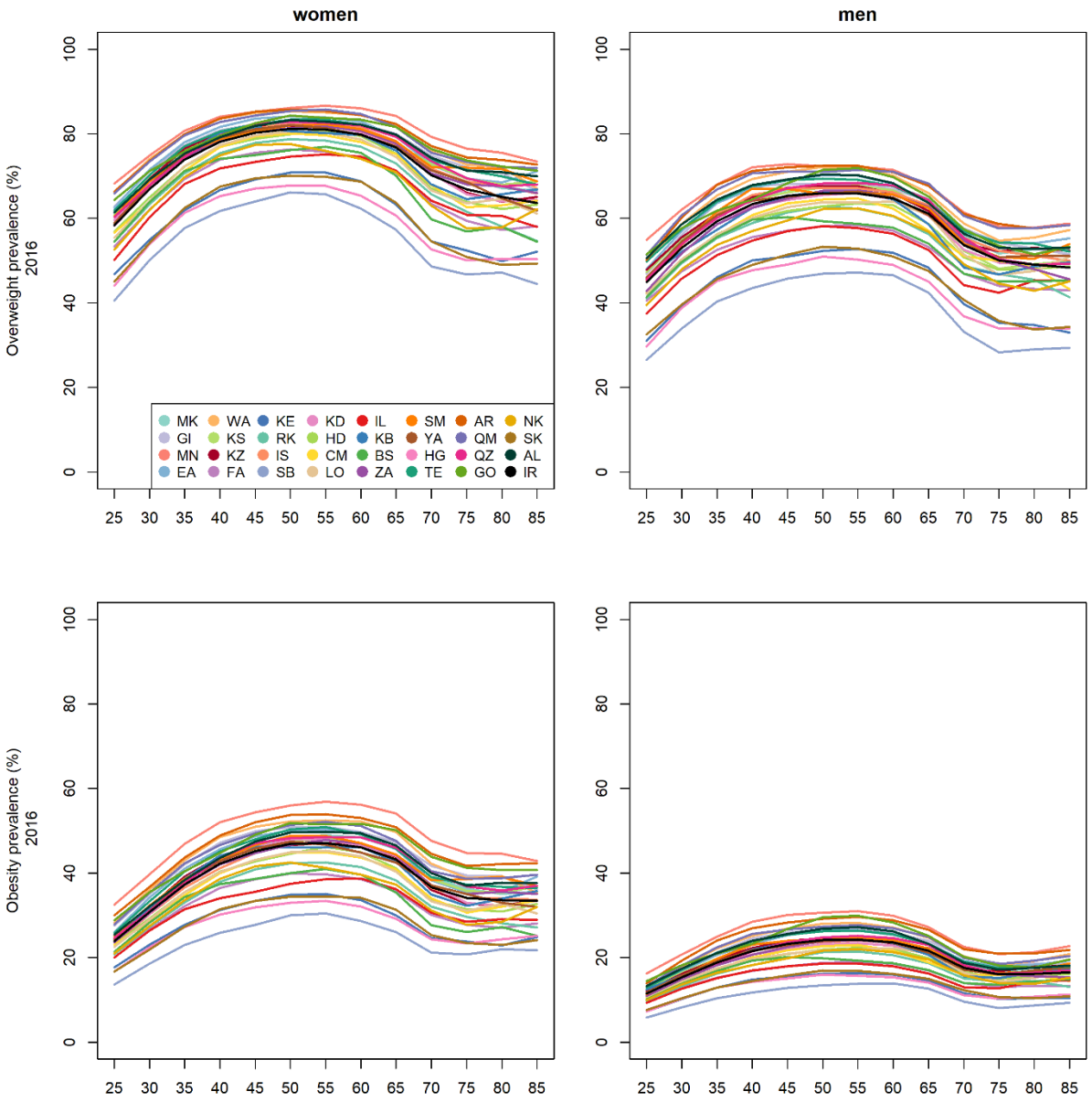
Panel B) Obesity and Overweight



Supplementary Figure 5 (Scatter Plot). Relation between age-standardized BMI, obesity prevalence and overweight prevalence in men and women aged 25 years and older in 2016.

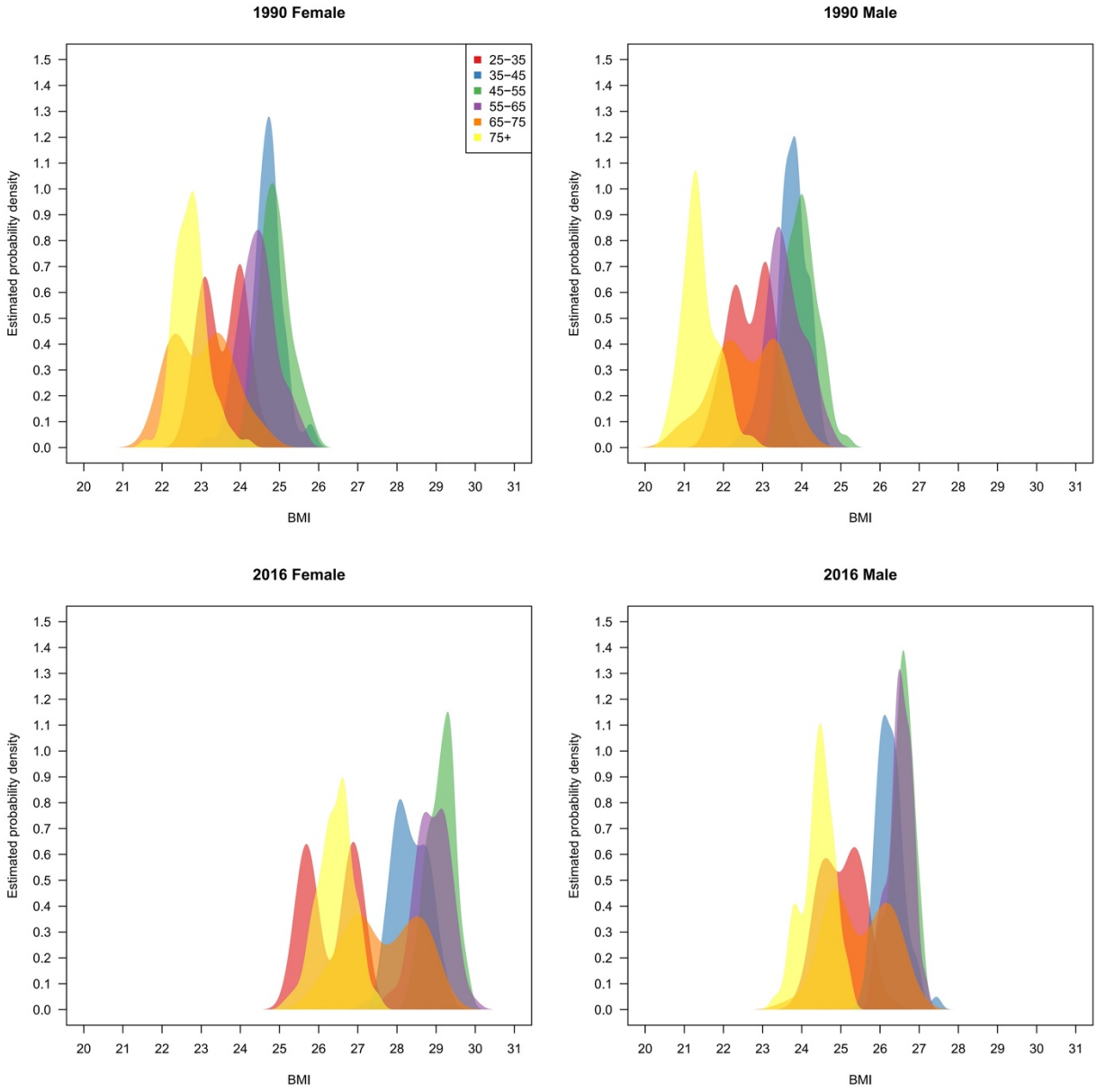


Supplementary Figure 6. Changes in age-standardized overweight and obesity prevalence by sex in people aged 25 years and older in 1990, 2000, 2010, and 2016

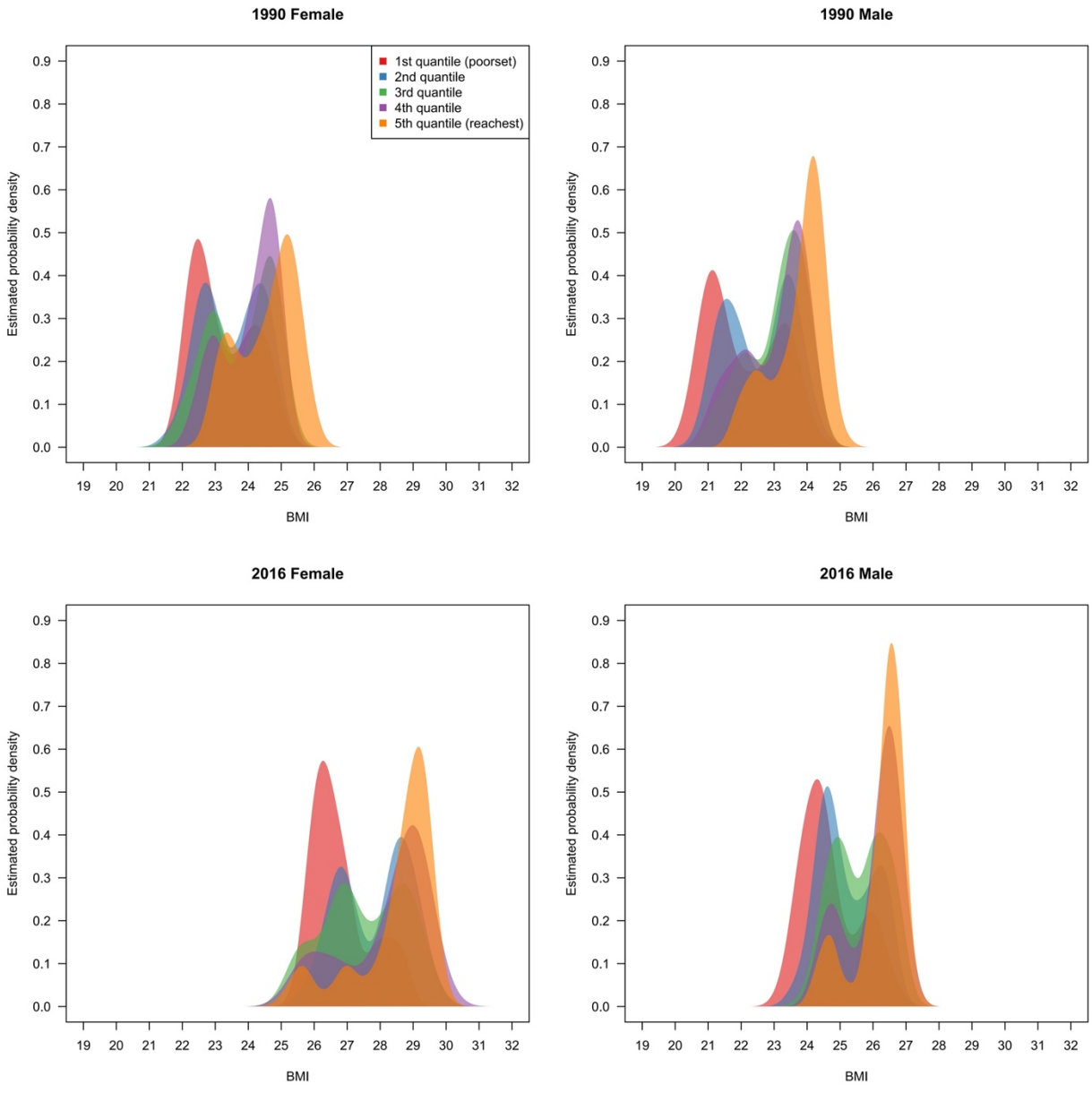


MK: Markazi, WA: West Azarbaijan, KE: Kerman, KD: Kordestan, IL: Ilam. SM: Semnan, AR: Ardebil, NK:North Khorasan, GL:Gilan, KS:Kermanshah, , RK:Razavi Khorasan, HD:Hamadan, KB:kohgiluyeh and Buyer Ahmad, YA: Yazd, QM:Qom, SK:South Khorasan , MN:Mazandaran, KZ: Khuzastan, IS:Isfahan, CM:Chahar Mahall and Bakhtiari, BS: Bushehr, HG,Hormozgan, QZ:Qazvin, AL:Alborz, EA: Eest Azarbaijan, FA:Fars, SB: Sistan and Baluchestan, LO: Lorestan, ZA:Zanjan, TE:Tehran, GO:Golestan, IR:Iran

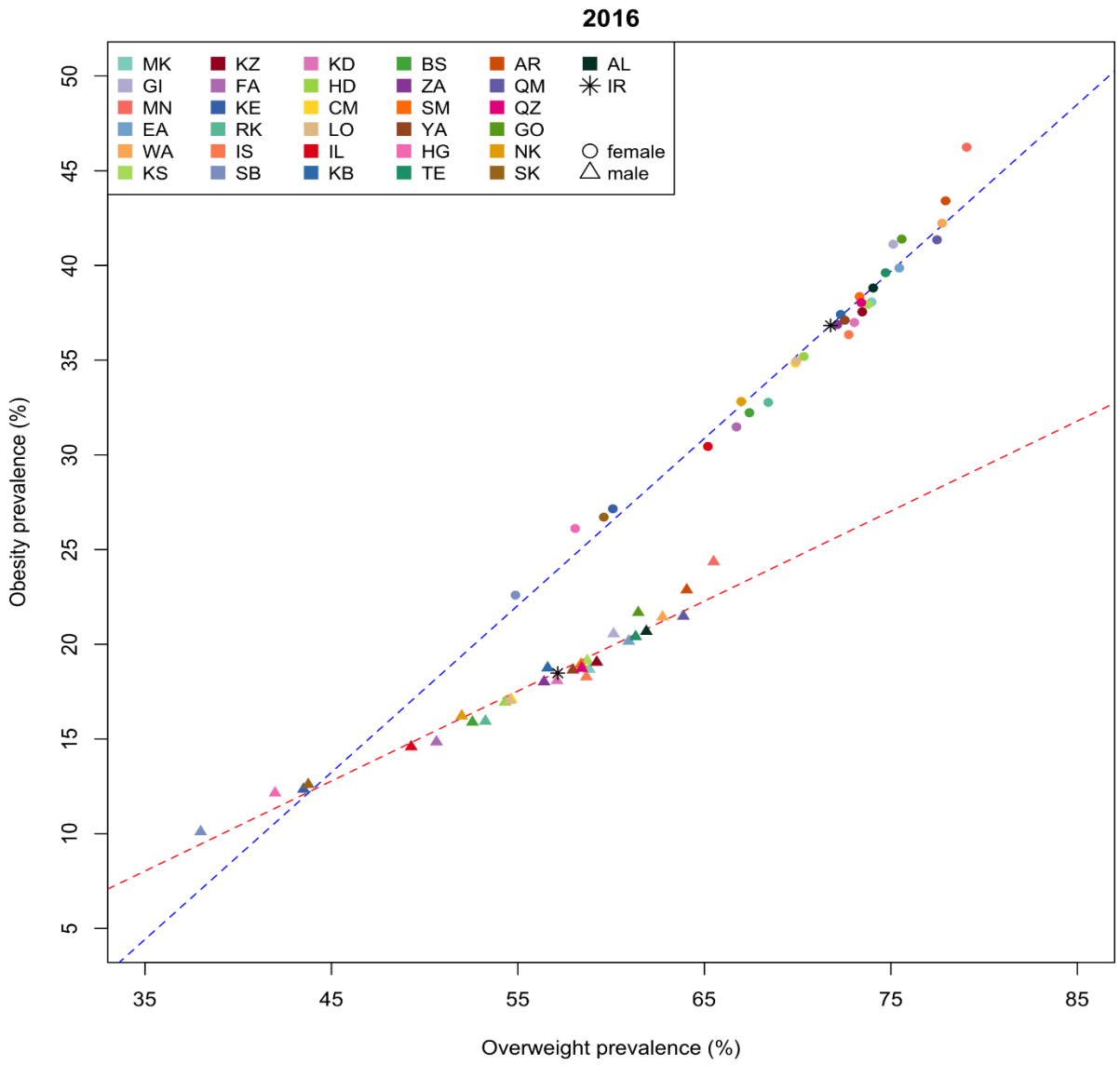
Supplementary Figure 7 (age pattern). Age pattern of prevalence of overweight and obesity by sex at provincial level in people aged 25 years and older in 2016.



Supplementary Figure 8. Distribution of mean BMI by sex and by age groups in people aged 25 years and older in 1990 to 2016

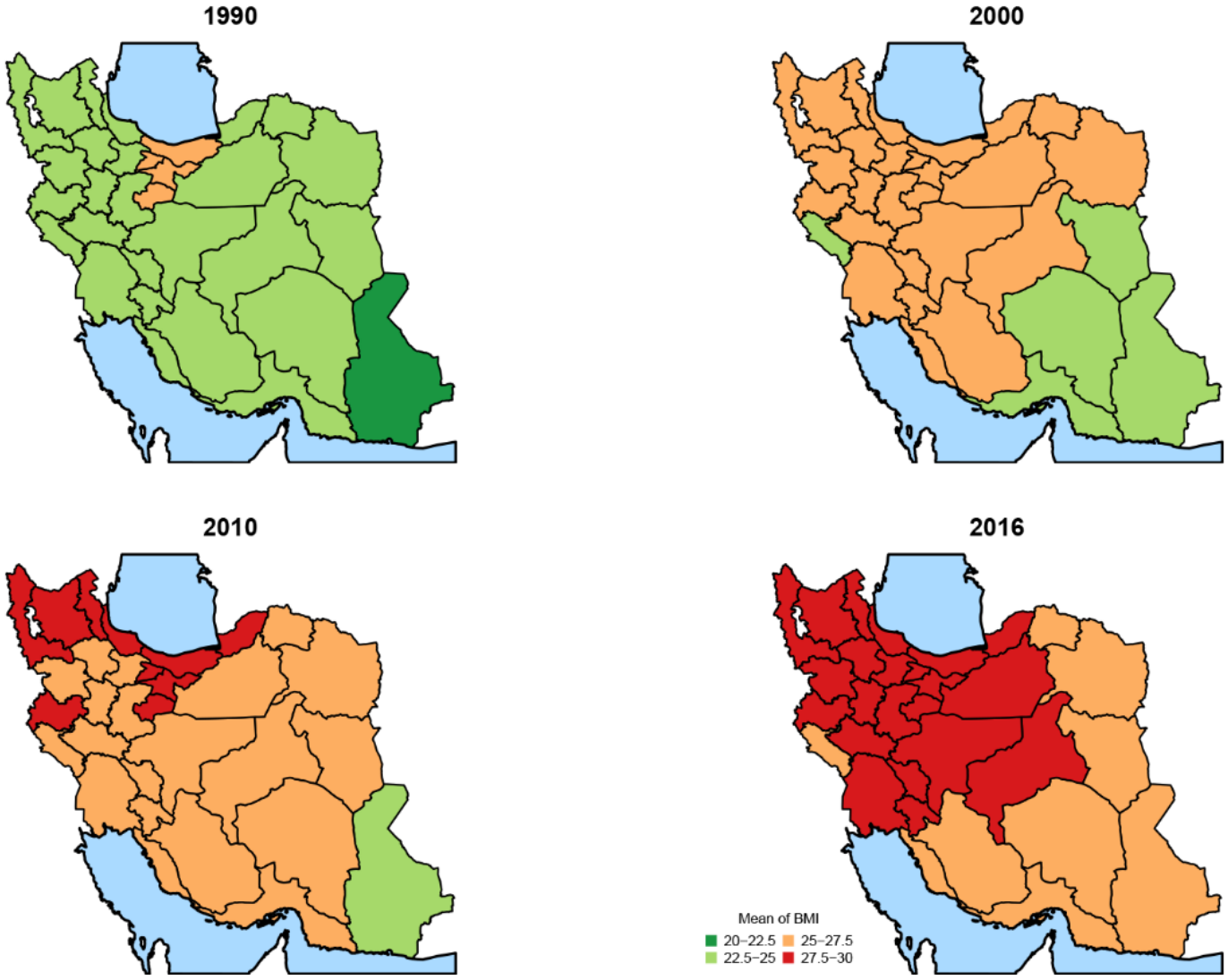


Supplementary Figure 9. Distribution of mean BMI by sex and by wealth quantiles in peoples aged 25 years and older in 1990 and 2016

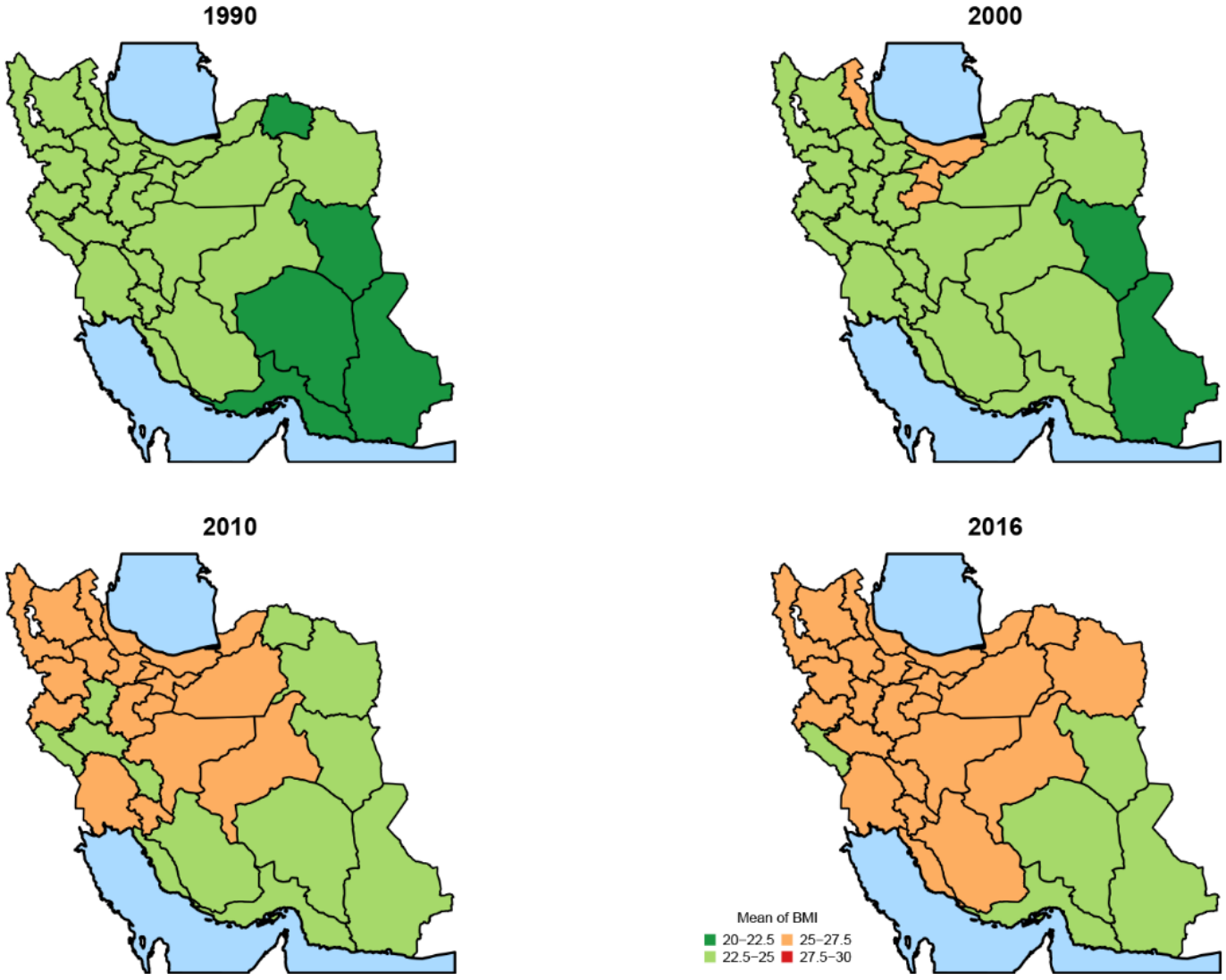


Supplementary Figure 10 (Scatter Plot). Relation between age-standardized obesity prevalence and overweight prevalence in men and women aged 25 years and older in 2016.

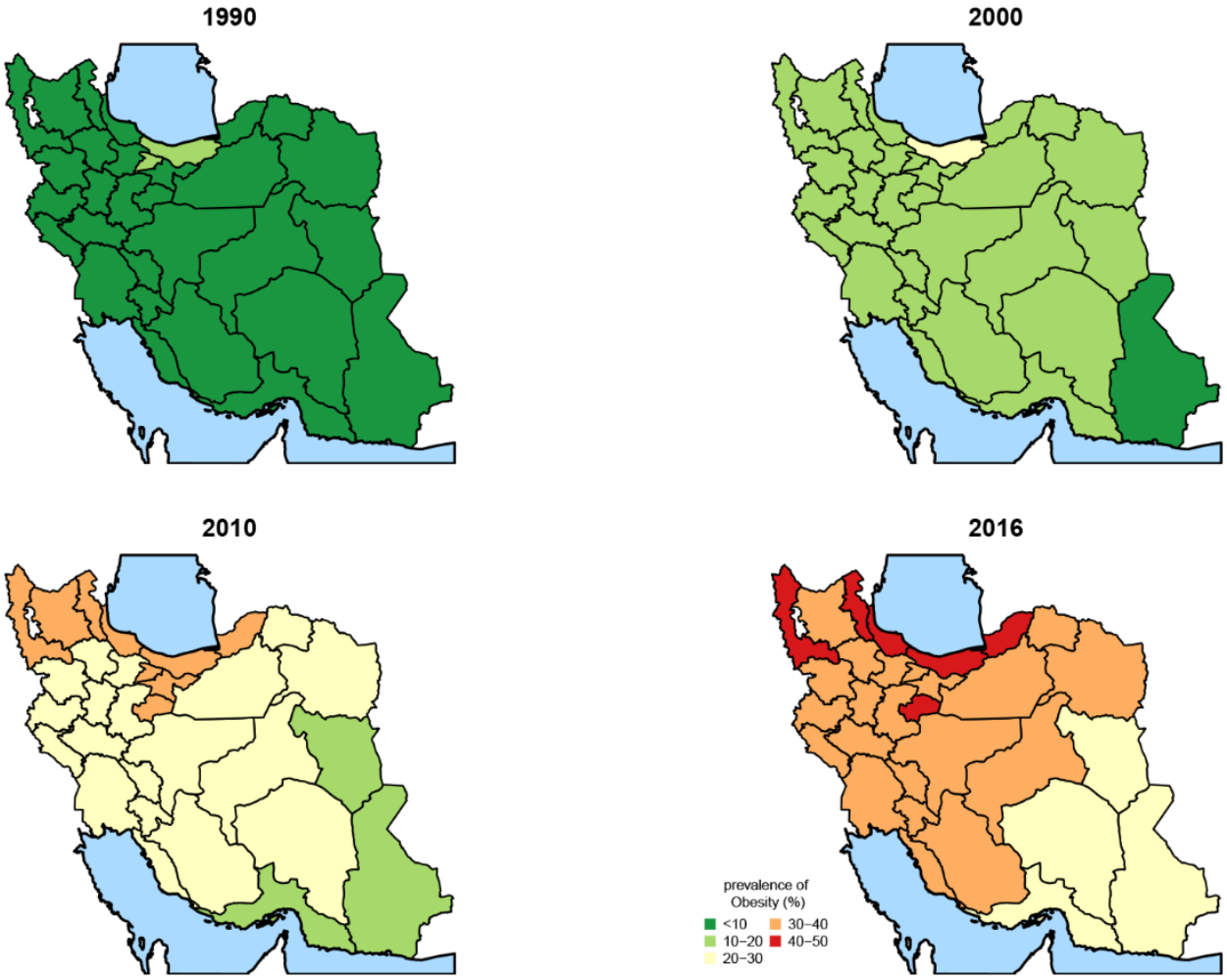
Panel A) BMI in females



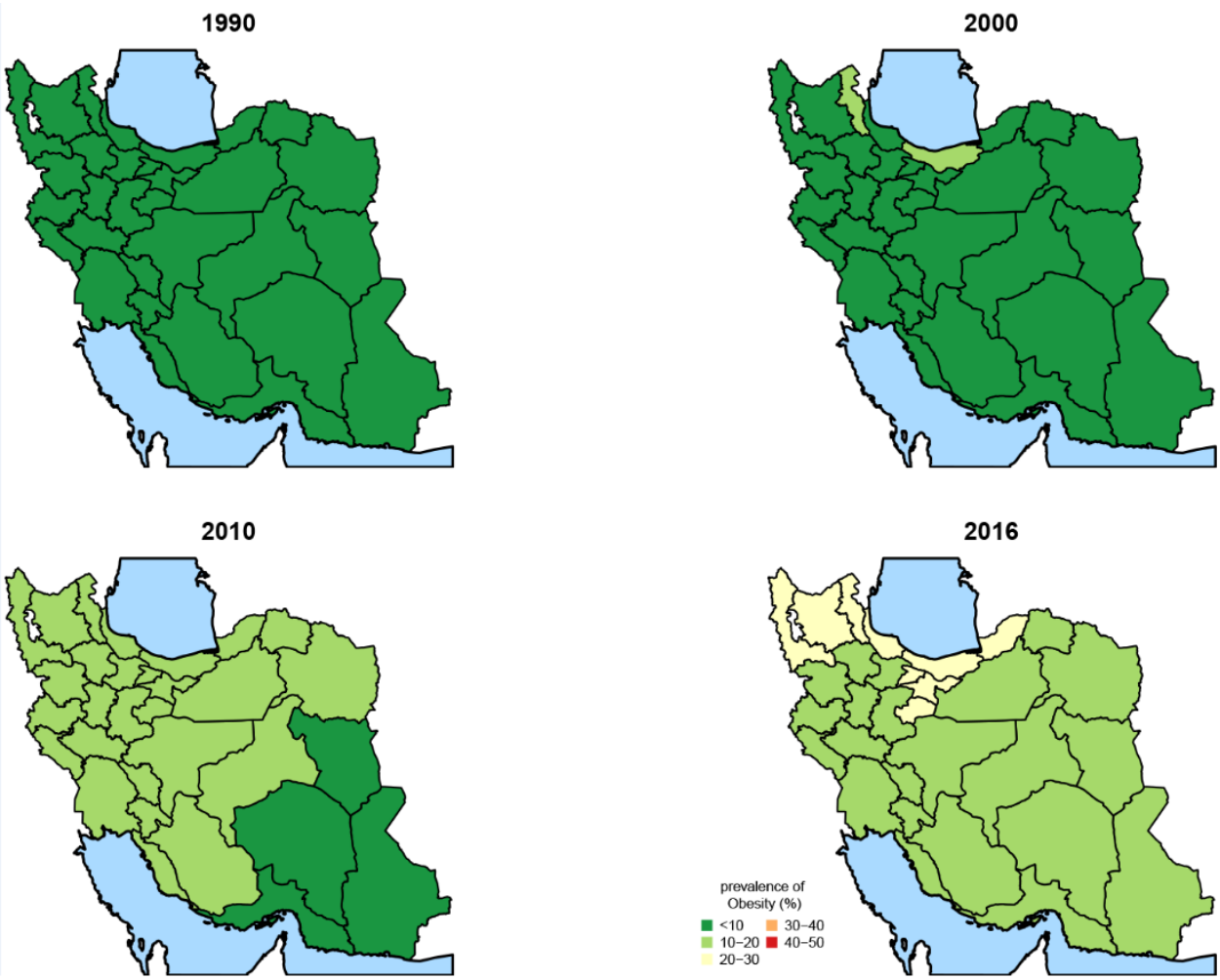
Panel B) BMI in males



Panel C) Obesity prevalence in females

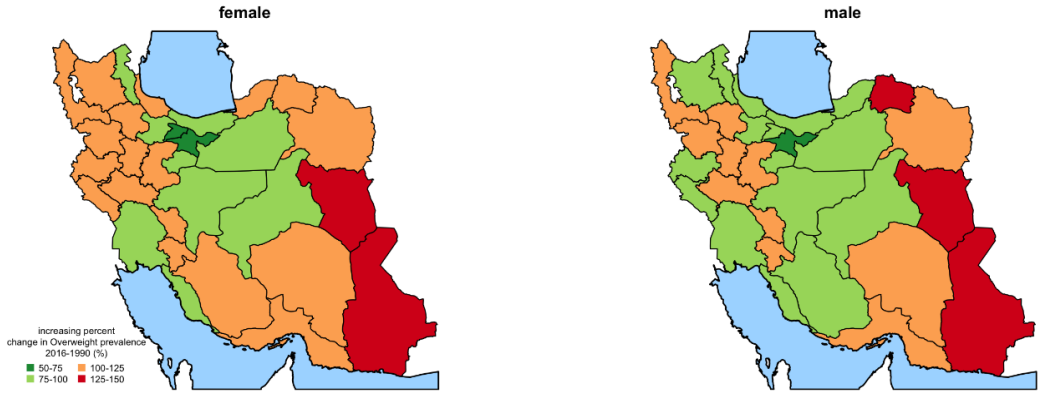


Panel D) Obesity prevalence in males

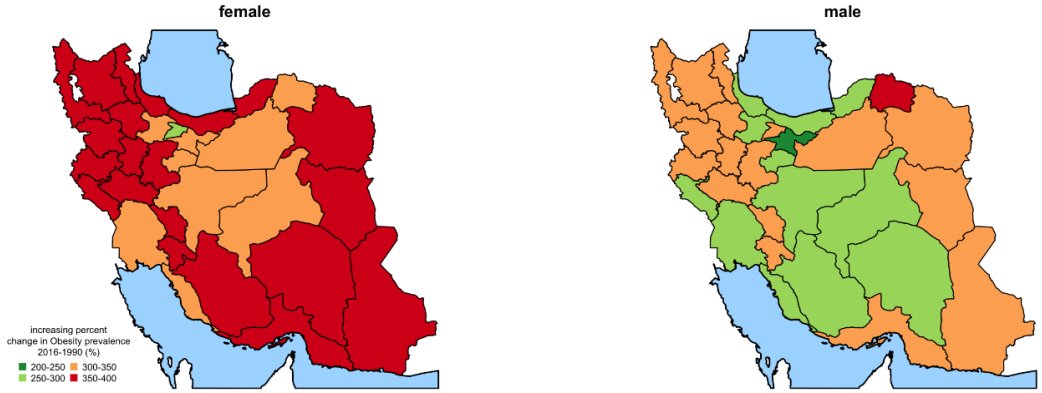


Supplementary Figure 11 (map). Age-standardized mean BMI and obesity prevalence by sex and by province in 1990, 2000, 2010, and 2016 in people aged 25 years and older.

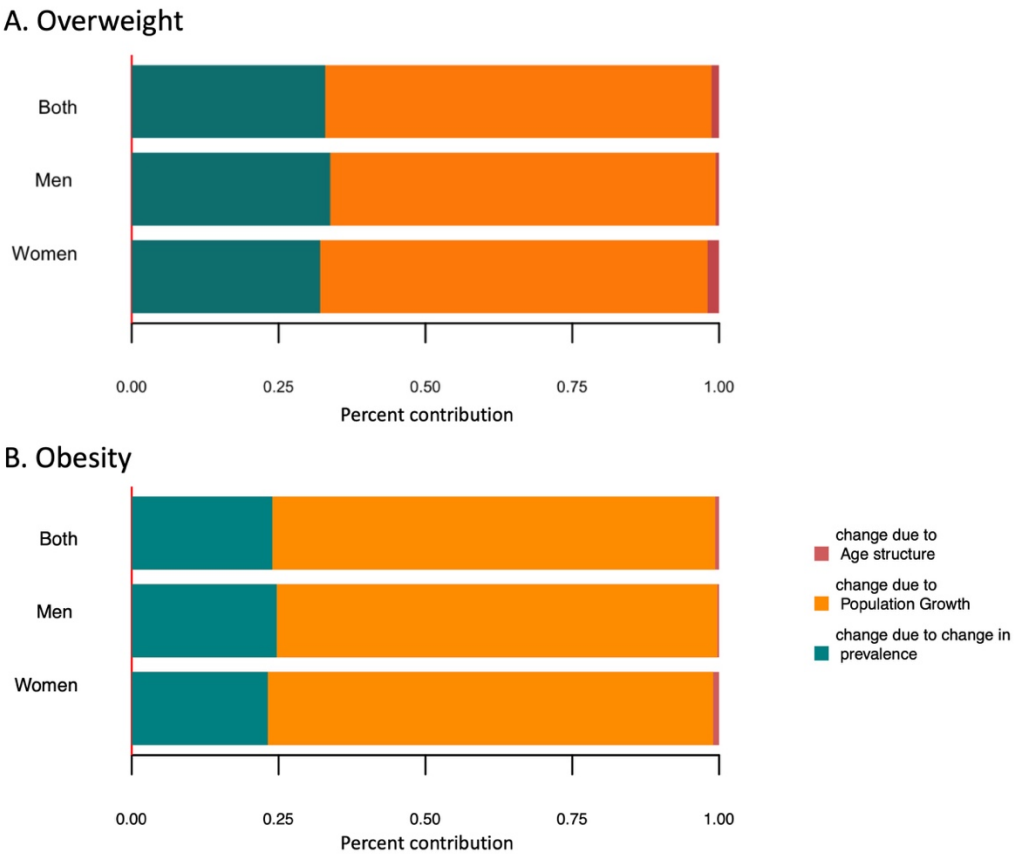
Panel A) Overweight



Panel B) Obesity



Supplementary Figure 12 (map). Percent change in age-standardized prevalence of overweight and obesity by sex and by province from 1990 to 2016 in men and women aged 25 years and older.



Supplementary Figure 13 (bar chart). National percent change in number of adults aged 25 years and older with obesity and overweight due to change in age-standardized prevalence, population growth, and change in age structure

Supplementary Table 3. BMI and prevalence of obesity and overweight, and their percent change from 1990 to 2016 by sex and province, with 95% Uncertainty Intervals.

Panel A) BMI in Females

	BMI (kg/m^2) (UI)	BMI (kg/m^2) (UI)	BMI (kg/m^2) (UI)	BMI (kg/m^2) (UI)	Percent change (UI)	Percent change (UI)	Percent change (UI)	Percent change (UI)
Province	1990	2000	2010	2016	1990-2016	1990-2000	2000-2010	2010-2016
Markazi	24.34(23.28-25.45)	25.9(25.25-26.56)	27.48(27.06-27.91)	28.19(27.45-28.95)	15.82(7.85-24.34)	6.41(-0.78-14.06)	6.1(1.88-10.52)	2.59(-1.64-6.99)
Gilan	24.54(23.24-25.98)	26.18(25.45-26.95)	27.72(27.27-28.17)	28.43(27.57-29.32)	15.86(6.11-26.19)	6.66(-2.05-15.98)	5.89(1.17-10.69)	2.58(-2.13-7.54)
Mazandaran	25.05(23.41-26.78)	26.8(25.92-27.69)	28.46(28-28.93)	29.1(28.09-30.13)	16.16(4.89-28.7)	7(-3.23-18.29)	6.17(1.09-11.62)	2.26(-2.9-7.62)
Azerbaijan, East	24.6(23.61-25.62)	26.23(25.63-26.84)	27.8(27.4-28.22)	28.45(27.77-29.15)	15.66(8.39-23.48)	6.63(0.01-13.7)	6.01(2.06-10.11)	2.32(-1.57-6.41)
Azerbaijan, West	24.52(23.3-25.78)	26.32(25.63-27.04)	28.04(27.62-28.47)	28.82(28.02-29.61)	17.53(8.68-27.1)	7.33(-0.58-16.06)	6.55(2.13-11.11)	2.77(-1.61-7.23)
Kermanshah	24.34(23.42-25.28)	25.95(25.39-26.52)	27.54(27.14-27.95)	28.2(27.56-28.85)	15.83(8.99-23.18)	6.61(0.41-13.24)	6.13(2.33-10.11)	2.38(-1.42-6.3)
Khuzestan	24.57(23.74-25.44)	26.03(25.49-26.57)	27.48(27.08-27.88)	28.14(27.54-28.76)	14.53(8.26-21.12)	5.92(0.22-11.9)	5.57(1.92-9.36)	2.43(-1.22-6.2)
Fars	23.72(22.57-24.91)	25.02(24.36-25.69)	26.42(26.01-26.83)	27.11(26.42-27.84)	14.29(6.03-23.38)	5.49(-2.23-13.86)	5.58(1.22-10.13)	2.62(-1.53-7.06)
Kerman	23.1(21.65-24.65)	24.32(23.53-25.15)	25.64(25.2-26.08)	26.29(25.39-27.19)	13.79(3.01-25.6)	5.28(-4.54-16.19)	5.41(0.17-10.86)	2.54(-2.66-7.92)
Khorasan, Razavi	23.85(22.94-24.77)	25.23(24.67-25.79)	26.65(26.25-27.04)	27.38(26.75-28.01)	14.78(8-22.07)	5.77(-0.37-12.41)	5.62(1.79-9.6)	2.74(-1.09-6.68)
Isfahan	24.69(23.83-25.58)	26.01(25.49-26.57)	27.36(26.97-27.76)	28(27.37-28.62)	13.4(6.98-20.09)	5.37(-0.36-11.51)	5.19(1.51-8.91)	2.32(-1.42-6.09)
Sistan and Baluchistan	22.48(20.59-24.5)	23.55(22.61-24.54)	24.8(24.31-25.29)	25.56(24.5-26.69)	13.68(-0.03-29.62)	4.72(-7.74-19.21)	5.32(-0.94-11.86)	3.07(-3.13-9.76)
Kordestan	24.08(23.09-25.07)	25.71(25.11-26.32)	27.3(26.88-27.74)	28.08(27.41-28.79)	16.62(9.34-24.7)	6.79(0.15-13.99)	6.2(2.16-10.49)	2.84(-1.19-7.09)
Hamadan	23.81(22.79-24.86)	25.38(24.76-26.01)	26.95(26.54-27.38)	27.64(26.93-28.36)	16.09(8.31-24.45)	6.62(-0.41-14.1)	6.18(2.07-10.59)	2.54(-1.65-6.86)
Chahar Mahaal and Bakhtiari	24.12(23.21-25.07)	25.52(24.96-26.1)	26.93(26.53-27.34)	27.57(26.93-28.23)	14.3(7.4-21.61)	5.82(-0.43-12.47)	5.5(1.61-9.53)	2.39(-1.52-6.41)
Lorestan	23.97(23.05-24.92)	25.44(24.86-26.04)	26.93(26.51-27.35)	27.62(26.96-28.3)	15.24(8.18-22.77)	6.15(-0.27-12.96)	5.87(1.82-10.03)	2.55(-1.41-6.74)
Ilam	23.57(22.38-24.85)	24.9(24.2-25.61)	26.24(25.81-26.67)	26.91(26.14-27.71)	14.17(5.2-23.81)	5.61(-2.61-14.42)	5.4(0.8-10.23)	2.56(-2-7.35)
Kohgiluyeh and Boyer-Ahmad	24.03(23-25.09)	25.66(25.04-26.29)	27.25(26.84-27.68)	27.95(27.25-28.67)	16.32(8.62-24.65)	6.82(-0.19-14.29)	6.19(2.09-10.52)	2.55(-1.54-6.82)
Bushehr	24.02(22.83-25.25)	25.31(24.62-25.99)	26.61(26.17-27.05)	27.21(26.44-28.01)	13.27(4.71-22.67)	5.34(-2.5-13.85)	5.15(0.68-9.89)	2.26(-2.27-7.02)
Zanjan	24.06(23.07-25.08)	25.66(25.05-26.27)	27.25(26.84-27.67)	27.93(27.25-28.62)	16.1(8.63-24.05)	6.68(-0.14-13.9)	6.17(2.14-10.45)	2.51(-1.51-6.64)
Semnan	24.49(23.52-25.48)	26.04(25.45-26.65)	27.48(27.07-27.89)	28.13(27.45-28.83)	14.88(7.73-22.58)	6.34(-0.13-13.3)	5.55(1.57-9.62)	2.35(-1.6-6.52)
Yazd	24.58(23.55-25.65)	26.04(25.42-26.67)	27.42(27.01-27.84)	28.02(27.33-28.73)	14(6.58-22)	5.94(-0.89-13.28)	5.33(1.25-9.53)	2.16(-1.82-6.38)
Hormozgān	23(21.56-24.57)	24.29(23.48-25.12)	25.58(25.13-26.05)	26.11(25.21-27.07)	13.52(2.58-25.56)	5.58(-4.43-16.5)	5.34(0.04-10.91)	2.07(-3.23-7.74)
Tehran	25.12(24.14-26.16)	26.5(25.92-27.11)	27.88(27.48-28.29)	28.41(27.75-29.08)	13.11(6.09-20.45)	5.5(-0.9-12.32)	5.22(1.36-9.15)	1.89(-1.92-5.8)
Ardabil	24.91(23.52-26.41)	26.69(25.89-27.51)	28.27(27.81-28.73)	28.9(28-29.83)	16.06(6.05-26.81)	7.17(-1.97-16.95)	5.9(1.09-10.98)	2.25(-2.52-7.27)
Qom	25.16(24.15-26.19)	26.67(26.05-27.27)	28.17(27.75-28.59)	28.83(28.13-29.55)	14.62(7.43-22.35)	6.01(-0.51-12.95)	5.65(1.73-9.75)	2.34(-1.62-6.49)
Qazvin	24.56(23.5-25.67)	25.99(25.37-26.64)	27.44(27.02-27.86)	28.16(27.47-28.89)	14.66(6.99-22.93)	5.82(-1.17-13.34)	5.58(1.45-9.79)	2.63(-1.4-6.91)
Golestan	24.53(23.33-25.79)	26.13(25.44-26.83)	27.77(27.35-28.18)	28.48(27.68-29.3)	16.09(7.31-25.58)	6.51(-1.35-15.01)	6.28(1.93-10.77)	2.55(-1.79-7.12)

Khorasan, North	23.94(23.09-24.77)	25.25(24.7-25.78)	26.51(26.1-26.92)	27.18(26.59-27.78)	13.55(7.34-20.31)	5.47(-0.27-11.65)	5.02(1.23-8.96)	2.51(-1.22-6.45)
Khorasan, South	23.07(21.66-24.57)	24.27(23.49-25.09)	25.44(24.99-25.9)	26.18(25.3-27.07)	13.49(2.99-24.97)	5.22(-4.4-15.81)	4.81(-0.37-10.27)	2.92(-2.3-8.31)
Alborz	25.32(24.37-26.31)	26.63(26-27.27)	27.82(27.36-28.29)	28.29(27.63-28.95)	11.73(5.02-18.78)	5.18(-1.19-11.91)	4.47(0.33-8.82)	1.69(-2.33-5.79)
Iran	**24.38(23.29-25.52)**	25.86(25.22-26.51)	27.3(26.88-27.72)	**27.93(27.21-28.67)**	**14.57(6.62-23.07)**	6.05(-1.19-13.82)	5.58(1.39-9.93)	2.32(-1.84-6.65)

Panel B) BMI in males

Province	BMI (kg/m^2) (UI)	BMI (kg/m^2) (UI)	BMI (kg/m^2) (UI)	BMI (kg/m^2) (UI)	Percent change (UI)	Percent change (UI)	Percent change (UI)	Percent change (UI)
	1990	**2000**	**2010**	**2016**	**1990-2016**	**1990-2000**	**2000-2010**	**2010-2016**
Markazi	23.32(22.45-24.19)	24.38(23.83-24.92)	25.37(24.98-25.77)	26.02(25.42-26.63)	11.58(5.07-18.64)	4.54(-1.48-11.05)	4.08(0.2-8.15)	2.55(-1.39-6.62)
Gilan	23.71(22.44-25.1)	24.77(24.04-25.5)	25.63(25.2-26.06)	26.24(25.44-27.05)	10.68(1.34-20.55)	4.47(-4.21-13.66)	3.47(-1.19-8.38)	2.39(-2.38-7.34)
Mazandaran	24.3(22.67-26.1)	25.43(24.54-26.32)	26.36(25.9-26.82)	26.91(25.93-27.91)	10.73(-0.64-23.14)	4.62(-5.95-16.11)	3.66(-1.58-9.28)	2.09(-3.33-7.76)
Azerbaijan, East	23.79(22.9-24.7)	24.83(24.27-25.4)	25.71(25.31-26.11)	26.3(25.7-26.92)	10.55(4.04-17.56)	4.39(-1.75-10.95)	3.52(-0.37-7.56)	2.31(-1.55-6.36)
Azerbaijan, West	23.74(22.71-24.82)	24.93(24.3-25.57)	25.91(25.5-26.31)	26.54(25.85-27.26)	11.82(4.17-20.05)	5.01(-2.06-12.6)	3.94(-0.28-8.25)	2.45(-1.75-6.92)
Kermanshah	23.49(22.71-24.31)	24.52(24-25.05)	25.46(25.07-25.86)	26.07(25.52-26.65)	10.97(4.96-17.32)	4.36(-1.28-10.27)	3.84(0.08-7.74)	2.4(-1.32-6.31)
Khuzestan	23.72(22.88-24.6)	24.61(24.09-25.16)	25.45(25.06-25.83)	26.1(25.54-26.68)	10.05(3.82-16.57)	3.78(-2.08-9.93)	3.38(-0.4-7.25)	2.58(-1.14-6.46)
Fars	22.77(21.77-23.83)	23.54(22.96-24.15)	24.35(23.97-24.74)	25.01(24.37-25.66)	9.85(2.26-17.85)	3.4(-3.67-10.94)	3.43(-0.76-7.78)	2.71(-1.5-7.05)
Kerman	22.13(20.68-23.59)	22.83(22.05-23.62)	23.55(23.12-23.99)	24.17(23.33-25.07)	9.2(-1.12-21.19)	3.17(-6.52-14.19)	3.15(-2.12-8.8)	2.62(-2.78-8.43)
Khorasan, Razavi	22.75(21.95-23.58)	23.68(23.17-24.2)	24.64(24.26-25.03)	25.34(24.77-25.92)	11.41(5.08-18.08)	4.09(-1.74-10.22)	4.06(0.26-8.02)	2.85(-1-6.86)
Isfahan	23.56(22.88-24.28)	24.45(24.01-24.9)	25.33(24.97-25.71)	25.99(25.46-26.52)	10.32(4.89-15.93)	3.78(-1.09-8.84)	3.63(0.27-7.07)	2.58(-0.96-6.23)
Sistan and Baluchistan	21.28(19.46-23.23)	21.91(20.97-22.86)	22.74(22.28-23.21)	23.45(22.42-24.51)	10.15(-3.48-25.94)	2.95(-9.74-17.5)	3.76(-2.57-10.72)	3.12(-3.42-10.01)
Kordestan	23.15(22.42-23.9)	24.23(23.74-24.72)	25.21(24.83-25.59)	25.86(25.32-26.41)	11.67(5.96-17.79)	4.64(-0.65-10.26)	4.04(0.42-7.8)	2.57(-1.07-6.39)
Hamadan	23.08(22.22-24.01)	24.03(23.49-24.6)	24.87(24.48-25.26)	25.46(24.87-26.07)	10.31(3.56-17.31)	4.09(-2.18-10.7)	3.49(-0.48-7.57)	2.4(-1.58-6.48)
Chahar Mahaal and Bakhtiari	23.05(22.32-23.82)	23.95(23.47-24.45)	24.86(24.48-25.24)	25.5(24.95-26.05)	10.62(4.74-16.74)	3.9(-1.47-9.57)	3.82(0.12-7.55)	2.55(-1.16-6.41)
Lorestan	22.99(22.25-23.77)	23.94(23.45-24.45)	24.87(24.48-25.25)	25.52(24.97-26.08)	11.01(5.03-17.21)	4.15(-1.33-9.92)	3.87(0.11-7.68)	2.61(-1.15-6.53)
Ilam	22.72(21.69-23.82)	23.42(22.81-24.05)	24.23(23.81-24.64)	24.87(24.19-25.58)	9.47(1.54-17.91)	3.08(-4.25-10.86)	3.45(-0.98-8.01)	2.65(-1.82-7.41)
Kohgiluyeh and Boyer-Ahmad	23.09(22.09-24.09)	24.17(23.57-24.77)	25.16(24.75-25.57)	25.79(25.14-26.46)	11.68(4.35-19.75)	4.66(-2.18-12.12)	4.12(-0.09-8.49)	2.49(-1.67-6.9)
Bushehr	22.96(21.94-24.02)	23.68(23.07-24.3)	24.56(24.15-24.97)	25.27(24.6-25.96)	10.06(2.43-18.33)	3.15(-3.95-10.74)	3.71(-0.58-8.23)	2.88(-1.47-7.47)
Zanjan	23.25(22.39-24.12)	24.27(23.74-24.81)	25.14(24.74-25.53)	25.75(25.16-26.33)	10.76(4.3-17.6)	4.41(-1.59-10.79)	3.57(-0.27-7.56)	2.42(-1.47-6.42)
Semnan	23.48(22.45-24.53)	24.47(23.88-25.1)	25.4(24.99-25.82)	26(25.33-26.69)	10.73(3.28-18.86)	4.24(-2.65-11.78)	3.8(-0.42-8.12)	2.34(-1.88-6.78)
Yazd	23.6(22.88-24.35)	24.52(24.04-25.01)	25.36(24.98-25.76)	25.95(25.43-26.5)	9.97(4.42-15.83)	3.89(-1.3-9.32)	3.42(-0.13-7.19)	2.34(-1.31-6.09)
Hormozgān	21.88(20.44-23.38)	22.68(21.91-23.48)	23.53(23.09-23.98)	24.1(23.24-24.99)	10.16(-0.58-22.26)	3.69(-6.26-14.87)	3.74(-1.67-9.42)	2.4(-3.07-8.24)
Tehran	24.39(23.48-25.33)	25.19(24.65-25.75)	25.91(25.52-26.31)	26.42(25.81-27.05)	8.31(1.9-15.21)	3.28(-2.67-9.67)	2.85(-0.87-6.74)	1.96(-1.91-5.97)
Ardabil	24.1(22.52-25.75)	25.27(24.42-26.15)	26.19(25.74-26.64)	26.77(25.82-27.72)	11.08(0.29-23.07)	4.88(-5.17-16.1)	3.62(-1.57-9.12)	2.21(-3.08-7.69)
Qom	24.12(22.93-25.41)	25.18(24.49-25.9)	26.11(25.7-26.55)	26.74(25.97-27.53)	10.85(2.21-20.09)	4.41(-3.59-12.96)	3.69(-0.79-8.38)	2.38(-2.18-7.15)
Qazvin	23.51(22.61-24.46)	24.47(23.91-25.05)	25.35(24.96-25.75)	26(25.37-26.65)	10.61(3.71-17.89)	4.1(-2.25-10.79)	3.59(-0.37-7.7)	2.58(-1.49-6.8)
Golestan	23.94(22.66-25.25)	24.97(24.27-25.68)	25.84(25.42-26.26)	26.4(25.62-27.23)	10.28(1.49-20.16)	4.29(-3.87-13.31)	3.48(-0.98-8.2)	2.18(-2.42-7.09)
Khorasan, North	22.38(21.72-23.1)	23.42(22.96-23.92)	24.48(24.1-24.87)	25.2(24.7-25.72)	12.59(6.91-18.44)	4.66(-0.61-10.17)	4.5(0.73-8.31)	2.94(-0.7-6.73)
Khorasan, South	21.61(20.24-23.08)	22.46(21.7-23.26)	23.42(22.97-23.87)	24.18(23.31-25.07)	11.86(1-23.85)	3.93(-5.96-14.91)	4.24(-1.28-9.98)	3.25(-2.33-9.18)
Alborz	23.71(22.91-24.54)	24.75(24.18-25.33)	25.83(25.38-26.29)	26.49(25.89-27.1)	11.74(5.5-18.29)	4.39(-1.47-10.56)	4.36(0.17-8.73)	2.57(-1.52-6.8)

Iran	23.46(22.47-24.5)	24.4(23.81-25.01)	25.26(24.85-25.66)	25.86(25.2-26.53)	10.21(2.85-18.08)	4.02(-2.82-11.31)	3.49(-0.62-7.78)	2.37(-1.81-6.75)

Panel C) Prevalence of obesity in females

Province	1990	2000	2010	2016	1990-2016	1990-2000	2000-2010	2010-2016
Markazi	0.08(0.07-0.1)	0.16(0.15-0.17)	0.29(0.28-0.31)	0.38(0.35-0.41)	3.71(2.68-5)	0.97(0.52-1.55)	0.84(0.59-1.12)	0.3(0.14-0.48)
Gilan	0.09(0.07-0.11)	0.18(0.16-0.2)	0.32(0.3-0.34)	0.41(0.38-0.45)	3.61(2.51-5.06)	1(0.5-1.66)	0.79(0.54-1.1)	0.29(0.12-0.48)
Mazandaran	0.1(0.08-0.12)	0.21(0.19-0.23)	0.37(0.35-0.39)	0.46(0.42-0.51)	3.59(2.39-5.21)	1.05(0.5-1.8)	0.79(0.52-1.11)	0.25(0.07-0.46)
Azerbaijan, East	0.08(0.07-0.1)	0.17(0.16-0.19)	0.31(0.3-0.33)	0.4(0.37-0.43)	3.69(2.75-4.86)	1.01(0.58-1.55)	0.82(0.59-1.08)	0.28(0.14-0.44)
Azerbaijan, West	0.09(0.07-0.1)	0.18(0.16-0.19)	0.33(0.31-0.34)	0.42(0.39-0.46)	3.95(2.87-5.35)	1.06(0.58-1.68)	0.85(0.61-1.13)	0.3(0.15-0.47)
Kermanshah	0.08(0.07-0.09)	0.16(0.15-0.17)	0.29(0.28-0.31)	0.38(0.35-0.41)	3.77(2.83-4.95)	1.01(0.59-1.54)	0.84(0.61-1.11)	0.29(0.14-0.45)
Khuzestan	0.08(0.07-0.1)	0.16(0.15-0.17)	0.29(0.28-0.3)	0.38(0.35-0.4)	3.46(2.63-4.48)	0.92(0.54-1.39)	0.79(0.58-1.03)	0.3(0.16-0.45)
Fars	0.07(0.06-0.08)	0.13(0.12-0.14)	0.24(0.22-0.25)	0.31(0.29-0.34)	3.61(2.58-4.96)	0.88(0.44-1.47)	0.83(0.58-1.12)	0.34(0.17-0.52)
Kerman	0.06(0.05-0.07)	0.11(0.1-0.12)	0.2(0.19-0.21)	0.27(0.25-0.3)	3.65(2.42-5.33)	0.86(0.35-1.56)	0.85(0.56-1.19)	0.35(0.16-0.58)
Khorasan, Razavi	0.07(0.06-0.08)	0.13(0.12-0.15)	0.24(0.23-0.26)	0.33(0.31-0.35)	3.67(2.74-4.81)	0.91(0.51-1.41)	0.82(0.6-1.08)	0.34(0.19-0.51)
Isfahan	0.09(0.07-0.1)	0.16(0.15-0.17)	0.28(0.27-0.3)	0.36(0.34-0.39)	3.24(2.43-4.23)	0.87(0.49-1.35)	0.75(0.53-1.01)	0.29(0.14-0.45)
Sistan and Baluchistan	0.05(0.04-0.06)	0.09(0.08-0.1)	0.16(0.15-0.17)	0.23(0.2-0.25)	3.61(2.12-5.8)	0.79(0.19-1.7)	0.83(0.48-1.27)	0.4(0.16-0.7)
Kordestan	0.07(0.06-0.09)	0.15(0.14-0.16)	0.28(0.26-0.29)	0.37(0.34-0.4)	3.94(2.92-5.23)	1.01(0.57-1.58)	0.85(0.61-1.14)	0.33(0.17-0.5)
Hamadan	0.07(0.06-0.08)	0.14(0.13-0.15)	0.27(0.25-0.28)	0.35(0.33-0.38)	3.95(2.9-5.29)	1(0.55-1.57)	0.88(0.64-1.16)	0.32(0.16-0.49)
Chahar Mahaal and Bakhtiari	0.08(0.07-0.09)	0.15(0.14-0.16)	0.27(0.25-0.28)	0.35(0.32-0.37)	3.59(2.69-4.71)	0.93(0.53-1.42)	0.82(0.59-1.07)	0.31(0.16-0.48)
Lorestan	0.07(0.06-0.08)	0.14(0.13-0.15)	0.26(0.25-0.28)	0.35(0.33-0.38)	3.83(2.85-5.04)	0.96(0.54-1.48)	0.86(0.63-1.13)	0.32(0.17-0.5)
Ilam	0.07(0.05-0.08)	0.12(0.11-0.14)	0.23(0.21-0.24)	0.3(0.28-0.33)	3.68(2.57-5.12)	0.91(0.45-1.51)	0.83(0.57-1.14)	0.34(0.16-0.55)
Kohgiluyeh and Boyer-Ahmad	0.08(0.07-0.09)	0.16(0.14-0.17)	0.29(0.27-0.3)	0.37(0.35-0.4)	3.87(2.83-5.19)	1.02(0.56-1.6)	0.85(0.61-1.14)	0.3(0.14-0.48)
Bushehr	0.07(0.06-0.09)	0.14(0.13-0.15)	0.25(0.23-0.26)	0.32(0.3-0.35)	3.42(2.43-4.69)	0.88(0.44-1.45)	0.79(0.55-1.07)	0.31(0.15-0.5)
Zanjan	0.08(0.06-0.09)	0.15(0.14-0.17)	0.28(0.27-0.3)	0.37(0.34-0.4)	3.86(2.86-5.11)	1(0.56-1.55)	0.86(0.63-1.13)	0.31(0.16-0.47)
Semnan	0.09(0.07-0.1)	0.17(0.15-0.18)	0.3(0.28-0.31)	0.38(0.36-0.41)	3.5(2.59-4.64)	0.95(0.54-1.47)	0.78(0.56-1.04)	0.29(0.14-0.46)
Yazd	0.08(0.07-0.1)	0.16(0.15-0.18)	0.29(0.27-0.3)	0.37(0.34-0.4)	3.42(2.5-4.58)	0.93(0.51-1.47)	0.78(0.55-1.05)	0.29(0.13-0.46)
Hormozgān	0.06(0.05-0.07)	0.11(0.1-0.12)	0.2(0.19-0.21)	0.26(0.23-0.29)	3.54(2.29-5.29)	0.89(0.37-1.63)	0.83(0.53-1.19)	0.31(0.1-0.56)
Tehran	0.1(0.08-0.11)	0.18(0.17-0.2)	0.32(0.3-0.34)	0.4(0.37-0.43)	3.09(2.24-4.16)	0.89(0.48-1.43)	0.73(0.49-1.01)	0.25(0.09-0.42)
Ardabil	0.1(0.08-0.12)	0.19(0.18-0.21)	0.34(0.33-0.36)	0.43(0.4-0.47)	3.56(2.47-4.98)	1.04(0.53-1.71)	0.77(0.53-1.05)	0.26(0.1-0.44)
Qom	0.1(0.08-0.11)	0.18(0.17-0.2)	0.32(0.3-0.34)	0.41(0.38-0.45)	3.33(2.42-4.48)	0.9(0.48-1.45)	0.78(0.53-1.06)	0.28(0.12-0.46)
Qazvin	0.09(0.07-0.1)	0.16(0.15-0.18)	0.29(0.28-0.31)	0.38(0.35-0.41)	3.47(2.52-4.66)	0.92(0.49-1.46)	0.79(0.56-1.05)	0.31(0.15-0.48)
Golestan	0.09(0.07-0.1)	0.17(0.16-0.19)	0.32(0.3-0.34)	0.41(0.38-0.45)	3.81(2.72-5.21)	1.01(0.54-1.62)	0.85(0.6-1.15)	0.29(0.13-0.48)
Khorasan, North	0.07(0.06-0.09)	0.14(0.13-0.15)	0.25(0.23-0.26)	0.33(0.3-0.35)	3.38(2.49-4.52)	0.88(0.47-1.39)	0.76(0.53-1.04)	0.32(0.16-0.51)
Khorasan, South	0.06(0.05-0.07)	0.11(0.1-0.12)	0.19(0.18-0.21)	0.27(0.24-0.29)	3.5(2.29-5.18)	0.83(0.31-1.56)	0.78(0.49-1.13)	0.38(0.18-0.63)
Alborz	0.1(0.09-0.12)	0.19(0.17-0.2)	0.31(0.29-0.33)	0.39(0.36-0.42)	2.82(2.06-3.77)	0.85(0.46-1.34)	0.67(0.44-0.93)	0.24(0.08-0.42)
Iran	0.08(0.07-0.1)	0.16(0.15-0.18)	0.29(0.27-0.3)	0.37(0.34-0.4)	3.48(2.51-4.71)	0.94(0.5-1.52)	0.79(0.55-1.07)	0.29(0.13-0.47)

Panel D) Prevalence of obesity in males

Province	1990	2000	2010	2016	1990-2016	1990-2000	2000-2010	2010-2016
Markazi	0.05(0.04-0.05)	0.08(0.07-0.09)	0.14(0.13-0.14)	0.19(0.17-0.2)	3.15(2.28-4.23)	0.78(0.4-1.26)	0.7(0.47-0.98)	0.37(0.19-0.58)
Gilan	0.05(0.04-0.06)	0.09(0.08-0.1)	0.15(0.14-0.16)	0.21(0.19-0.23)	2.94(1.97-4.23)	0.78(0.32-1.39)	0.64(0.39-0.94)	0.35(0.15-0.58)
Mazandaran	0.06(0.05-0.08)	0.11(0.1-0.12)	0.18(0.17-0.2)	0.24(0.22-0.27)	2.95(1.86-4.46)	0.81(0.3-1.51)	0.65(0.38-0.99)	0.32(0.1-0.58)
Azerbaijan, East	0.05(0.04-0.06)	0.09(0.08-0.1)	0.15(0.14-0.16)	0.2(0.19-0.22)	3.01(2.18-4.05)	0.78(0.4-1.27)	0.66(0.44-0.92)	0.35(0.19-0.54)
Azerbaijan, West	0.05(0.04-0.06)	0.09(0.08-0.1)	0.16(0.15-0.17)	0.21(0.2-0.23)	3.32(2.38-4.53)	0.85(0.44-1.39)	0.71(0.48-0.98)	0.36(0.19-0.56)
Kermanshah	0.05(0.04-0.05)	0.08(0.08-0.09)	0.14(0.13-0.15)	0.19(0.18-0.21)	3.14(2.34-4.14)	0.79(0.42-1.24)	0.7(0.47-0.96)	0.36(0.19-0.56)
Khuzestan	0.05(0.04-0.06)	0.08(0.08-0.09)	0.14(0.13-0.15)	0.19(0.18-0.21)	2.9(2.13-3.85)	0.72(0.37-1.15)	0.65(0.44-0.89)	0.38(0.21-0.57)
Fars	0.04(0.03-0.05)	0.06(0.06-0.07)	0.11(0.1-0.11)	0.15(0.14-0.16)	2.88(2.03-3.97)	0.68(0.29-1.18)	0.66(0.43-0.93)	0.39(0.22-0.6)
Kerman	0.03(0.03-0.04)	0.05(0.05-0.06)	0.09(0.08-0.09)	0.12(0.11-0.14)	2.85(1.8-4.28)	0.64(0.19-1.27)	0.66(0.39-0.98)	0.41(0.19-0.67)
Khorasan, Razavi	0.04(0.03-0.04)	0.07(0.06-0.07)	0.11(0.11-0.12)	0.16(0.15-0.17)	3.27(2.42-4.31)	0.75(0.39-1.2)	0.73(0.5-0.98)	0.41(0.24-0.6)
Isfahan	0.05(0.04-0.05)	0.08(0.07-0.09)	0.13(0.13-0.14)	0.18(0.17-0.2)	2.94(2.21-3.85)	0.72(0.39-1.14)	0.67(0.46-0.92)	0.37(0.21-0.56)
Sistan and Baluchistan	0.02(0.02-0.03)	0.04(0.04-0.05)	0.07(0.06-0.08)	0.1(0.09-0.11)	3.07(1.72-5.09)	0.63(0.08-1.48)	0.72(0.38-1.15)	0.45(0.18-0.78)
Kordestan	0.04(0.04-0.05)	0.08(0.07-0.08)	0.13(0.12-0.14)	0.18(0.17-0.19)	3.32(2.48-4.38)	0.82(0.44-1.29)	0.73(0.5-0.99)	0.38(0.21-0.57)
Hamadan	0.04(0.04-0.05)	0.07(0.07-0.08)	0.12(0.12-0.13)	0.17(0.16-0.18)	3.02(2.21-4.03)	0.75(0.39-1.2)	0.68(0.46-0.92)	0.37(0.2-0.57)
Chahar Mahaal and Bakhtiari	0.04(0.04-0.05)	0.07(0.07-0.08)	0.12(0.12-0.13)	0.17(0.16-0.18)	3.14(2.35-4.11)	0.75(0.41-1.17)	0.71(0.5-0.95)	0.38(0.22-0.57)
Lorestan	0.04(0.03-0.05)	0.07(0.07-0.08)	0.12(0.12-0.13)	0.17(0.16-0.18)	3.23(2.4-4.26)	0.76(0.4-1.21)	0.72(0.5-0.98)	0.39(0.23-0.58)
Ilam	0.04(0.03-0.04)	0.06(0.06-0.07)	0.1(0.1-0.11)	0.15(0.13-0.16)	2.89(2.01-4.03)	0.67(0.28-1.17)	0.67(0.44-0.95)	0.39(0.2-0.61)
Kohgiluyeh and Boyer-Ahmad	0.04(0.04-0.05)	0.08(0.07-0.09)	0.14(0.13-0.15)	0.19(0.17-0.2)	3.36(2.4-4.58)	0.82(0.41-1.36)	0.75(0.5-1.03)	0.37(0.19-0.58)
Bushehr	0.04(0.03-0.05)	0.07(0.06-0.07)	0.11(0.11-0.12)	0.16(0.15-0.17)	2.94(2.09-4.02)	0.67(0.3-1.15)	0.69(0.46-0.95)	0.4(0.22-0.6)
Zanjan	0.04(0.04-0.05)	0.08(0.07-0.08)	0.13(0.12-0.14)	0.18(0.17-0.19)	3.08(2.26-4.09)	0.76(0.39-1.22)	0.68(0.47-0.93)	0.38(0.21-0.56)
Semnan	0.05(0.04-0.06)	0.08(0.08-0.09)	0.14(0.13-0.15)	0.19(0.17-0.21)	3.03(2.16-4.13)	0.76(0.37-1.25)	0.69(0.46-0.95)	0.36(0.18-0.56)
Yazd	0.05(0.04-0.05)	0.08(0.08-0.09)	0.14(0.13-0.14)	0.19(0.17-0.2)	2.92(2.18-3.84)	0.73(0.39-1.15)	0.66(0.45-0.9)	0.36(0.2-0.55)
Hormozgān	0.03(0.02-0.04)	0.05(0.05-0.06)	0.09(0.08-0.09)	0.12(0.11-0.14)	3.03(1.88-4.64)	0.71(0.23-1.37)	0.71(0.42-1.05)	0.38(0.14-0.67)
Tehran	0.06(0.05-0.07)	0.1(0.09-0.11)	0.16(0.15-0.17)	0.2(0.19-0.22)	2.47(1.73-3.41)	0.67(0.3-1.15)	0.58(0.35-0.84)	0.31(0.13-0.52)
Ardabil	0.06(0.05-0.07)	0.1(0.09-0.11)	0.17(0.16-0.18)	0.23(0.21-0.25)	3.03(1.96-4.49)	0.82(0.32-1.5)	0.66(0.4-0.96)	0.34(0.14-0.57)
Qom	0.05(0.05-0.07)	0.09(0.09-0.1)	0.16(0.15-0.17)	0.21(0.19-0.24)	2.93(1.96-4.2)	0.74(0.31-1.3)	0.67(0.41-0.97)	0.36(0.15-0.6)
Qazvin	0.05(0.04-0.05)	0.08(0.08-0.09)	0.14(0.13-0.14)	0.19(0.17-0.2)	2.98(2.15-4.02)	0.74(0.37-1.21)	0.67(0.44-0.92)	0.37(0.2-0.57)
Golestan	0.06(0.05-0.07)	0.1(0.09-0.11)	0.16(0.15-0.17)	0.22(0.2-0.24)	2.88(1.93-4.13)	0.77(0.34-1.35)	0.64(0.4-0.92)	0.33(0.14-0.56)
Khorasan, North	0.04(0.03-0.04)	0.06(0.06-0.07)	0.11(0.11-0.12)	0.16(0.15-0.18)	3.63(2.69-4.79)	0.81(0.43-1.29)	0.79(0.54-1.08)	0.43(0.24-0.64)
Khorasan, South	0.03(0.02-0.03)	0.05(0.04-0.05)	0.09(0.08-0.09)	0.13(0.11-0.14)	3.5(2.24-5.26)	0.73(0.23-1.42)	0.78(0.47-1.16)	0.46(0.22-0.75)
Alborz	0.05(0.04-0.06)	0.09(0.08-0.1)	0.15(0.14-0.16)	0.21(0.19-0.22)	3.21(2.34-4.31)	0.79(0.4-1.27)	0.73(0.48-1.04)	0.36(0.17-0.58)
Iran	0.05(0.04-0.06)	0.08(0.08-0.09)	0.14(0.13-0.14)	0.18(0.17-0.2)	2.92(2.06-4.01)	0.75(0.35-1.26)	0.66(0.42-0.93)	0.35(0.17-0.56)

Panel E) Prevalence of overweight in females

Province	1990	2000	2010	2016	1990-2016	1990-2000	2000-2010	2010-2016

Markazi	0.36(0.32-0.41)	0.52(0.49-0.56)	0.68(0.65-0.7)	0.74(0.7-0.78)	1.05(0.7-1.46)	0.44(0.19-0.75)	0.3(0.17-0.43)	0.09(0-0.2)
Gilan	0.37(0.32-0.43)	0.54(0.5-0.58)	0.69(0.66-0.72)	0.75(0.7-0.8)	1.01(0.63-1.48)	0.45(0.16-0.8)	0.28(0.14-0.42)	0.09(-0.02-0.21)
Mazandaran	0.42(0.35-0.49)	0.59(0.55-0.64)	0.74(0.71-0.77)	0.79(0.74-0.85)	0.89(0.5-1.4)	0.42(0.12-0.81)	0.25(0.11-0.4)	0.07(-0.04-0.19)
Azerbaijan, East	0.38(0.33-0.42)	0.55(0.51-0.58)	0.7(0.68-0.72)	0.75(0.72-0.79)	1(0.7-1.37)	0.45(0.22-0.73)	0.28(0.17-0.4)	0.08(0-0.17)
Azerbaijan, West	0.37(0.32-0.42)	0.55(0.52-0.59)	0.72(0.69-0.74)	0.78(0.74-0.82)	1.1(0.74-1.54)	0.5(0.22-0.83)	0.29(0.17-0.43)	0.09(-0.01-0.19)
Kermanshah	0.36(0.32-0.4)	0.52(0.49-0.55)	0.68(0.65-0.7)	0.74(0.7-0.77)	1.07(0.76-1.43)	0.46(0.23-0.74)	0.3(0.19-0.42)	0.09(0-0.18)
Khuzestan	0.38(0.35-0.42)	0.53(0.51-0.56)	0.68(0.65-0.7)	0.73(0.7-0.77)	0.92(0.65-1.22)	0.39(0.19-0.63)	0.26(0.16-0.38)	0.09(0.01-0.18)
Fars	0.32(0.28-0.37)	0.45(0.42-0.49)	0.6(0.58-0.62)	0.67(0.63-0.71)	1.08(0.71-1.54)	0.41(0.15-0.74)	0.32(0.19-0.47)	0.12(0.01-0.23)
Kerman	0.27(0.23-0.33)	0.39(0.36-0.43)	0.53(0.51-0.55)	0.6(0.56-0.65)	1.2(0.71-1.83)	0.43(0.1-0.86)	0.35(0.19-0.54)	0.13(0-0.28)
Khorasan, Razavi	0.32(0.29-0.36)	0.47(0.44-0.5)	0.61(0.59-0.64)	0.68(0.65-0.72)	1.11(0.8-1.49)	0.44(0.21-0.72)	0.32(0.2-0.45)	0.11(0.02-0.21)
Isfahan	0.39(0.35-0.44)	0.53(0.51-0.56)	0.67(0.65-0.69)	0.73(0.69-0.76)	0.85(0.59-1.16)	0.36(0.16-0.6)	0.25(0.15-0.37)	0.09(0-0.18)
Sistan and Baluchistan	0.23(0.18-0.29)	0.33(0.29-0.37)	0.46(0.44-0.49)	0.55(0.5-0.6)	1.42(0.74-2.37)	0.45(0.03-1.05)	0.41(0.2-0.67)	0.18(0.02-0.37)
Kordestan	0.33(0.3-0.38)	0.5(0.47-0.53)	0.66(0.64-0.69)	0.73(0.69-0.77)	1.19(0.84-1.6)	0.5(0.25-0.81)	0.32(0.19-0.45)	0.1(0.01-0.2)
Hamadan	0.32(0.28-0.36)	0.48(0.45-0.51)	0.64(0.62-0.66)	0.7(0.67-0.74)	1.19(0.82-1.62)	0.49(0.23-0.8)	0.33(0.2-0.47)	0.1(0.01-0.21)
Chahar Mahaal and Bakhtiari	0.34(0.31-0.38)	0.49(0.46-0.52)	0.64(0.61-0.66)	0.7(0.66-0.74)	1.04(0.73-1.4)	0.43(0.21-0.7)	0.3(0.18-0.43)	0.1(0.01-0.2)
Lorestan	0.33(0.29-0.37)	0.48(0.45-0.51)	0.63(0.61-0.66)	0.7(0.66-0.74)	1.13(0.8-1.53)	0.46(0.22-0.75)	0.32(0.2-0.46)	0.1(0.01-0.21)
Ilam	0.3(0.26-0.35)	0.44(0.41-0.47)	0.58(0.56-0.61)	0.65(0.61-0.7)	1.15(0.74-1.66)	0.45(0.16-0.8)	0.33(0.19-0.49)	0.12(0.01-0.25)
Kohgiluyeh and Boyer-Ahmad	0.33(0.29-0.38)	0.5(0.47-0.53)	0.66(0.63-0.68)	0.72(0.68-0.76)	1.19(0.82-1.62)	0.5(0.24-0.82)	0.32(0.2-0.46)	0.1(0-0.2)
Bushehr	0.34(0.3-0.39)	0.47(0.44-0.51)	0.61(0.59-0.64)	0.67(0.63-0.72)	0.99(0.63-1.42)	0.4(0.14-0.72)	0.29(0.16-0.43)	0.1(0-0.22)
Zanjan	0.34(0.3-0.38)	0.5(0.47-0.53)	0.66(0.64-0.68)	0.72(0.68-0.76)	1.15(0.8-1.56)	0.48(0.23-0.78)	0.32(0.2-0.45)	0.1(0.01-0.2)
Semnan	0.38(0.34-0.42)	0.53(0.5-0.57)	0.68(0.65-0.7)	0.73(0.7-0.77)	0.95(0.65-1.3)	0.42(0.2-0.69)	0.26(0.15-0.39)	0.09(0-0.18)
Yazd	0.38(0.34-0.43)	0.53(0.5-0.57)	0.67(0.65-0.69)	0.73(0.69-0.77)	0.89(0.59-1.25)	0.39(0.16-0.67)	0.25(0.14-0.38)	0.08(-0.01-0.18)
Hormozgān	0.27(0.22-0.32)	0.39(0.36-0.43)	0.52(0.5-0.55)	0.58(0.53-0.63)	1.18(0.68-1.83)	0.47(0.12-0.92)	0.34(0.17-0.53)	0.11(-0.03-0.26)
Tehran	0.43(0.38-0.48)	0.57(0.54-0.61)	0.7(0.68-0.73)	0.75(0.71-0.79)	0.74(0.48-1.05)	0.33(0.13-0.58)	0.23(0.12-0.35)	0.07(-0.02-0.16)
Ardabil	0.4(0.34-0.46)	0.58(0.54-0.62)	0.73(0.7-0.75)	0.78(0.73-0.83)	0.96(0.59-1.42)	0.46(0.17-0.82)	0.25(0.13-0.39)	0.07(-0.03-0.18)
Qom	0.44(0.39-0.49)	0.59(0.55-0.62)	0.72(0.7-0.75)	0.77(0.74-0.82)	0.78(0.51-1.1)	0.35(0.13-0.6)	0.23(0.12-0.35)	0.07(-0.02-0.17)
Qazvin	0.38(0.33-0.43)	0.53(0.5-0.56)	0.67(0.65-0.69)	0.73(0.7-0.77)	0.94(0.62-1.31)	0.39(0.16-0.68)	0.27(0.15-0.4)	0.09(0-0.19)
Golestan	0.37(0.32-0.43)	0.54(0.5-0.57)	0.7(0.67-0.72)	0.76(0.71-0.8)	1.04(0.67-1.48)	0.45(0.18-0.77)	0.29(0.17-0.43)	0.09(-0.01-0.19)
Khorasan, North	0.32(0.29-0.36)	0.46(0.43-0.49)	0.6(0.58-0.62)	0.67(0.64-0.7)	1.08(0.77-1.45)	0.43(0.2-0.71)	0.3(0.18-0.44)	0.11(0.02-0.22)
Khorasan, South	0.26(0.22-0.32)	0.38(0.35-0.42)	0.52(0.49-0.54)	0.6(0.55-0.64)	1.26(0.75-1.92)	0.46(0.11-0.91)	0.34(0.17-0.54)	0.16(0.02-0.31)
Alborz	0.44(0.4-0.49)	0.58(0.55-0.62)	0.7(0.67-0.72)	0.74(0.7-0.78)	0.68(0.44-0.97)	0.32(0.11-0.55)	0.2(0.09-0.33)	0.06(-0.03-0.16)
Iran	0.37(0.32-0.42)	0.52(0.49-0.55)	0.66(0.64-0.68)	0.72(0.68-0.76)	0.96(0.64-1.35)	0.41(0.17-0.71)	0.27(0.15-0.41)	0.09(-0.01-0.19)

Panel F) Prevalence of overweight in males

Province	1990	2000	2010	2016	1990-2016	1990-2000	2000-2010	2010-2016
Markazi	0.29(0.26-0.32)	0.4(0.37-0.43)	0.52(0.49-0.54)	0.59(0.56-0.62)	1.04(0.71-1.42)	0.38(0.15-0.66)	0.29(0.16-0.43)	0.14(0.04-0.26)

Gilan	0.31(0.27-0.36)	0.43(0.39-0.46)	0.53(0.51-0.55)	0.6(0.56-0.64)	0.93(0.55-1.41)	0.37(0.09-0.72)	0.25(0.11-0.41)	0.13(0.01-0.27)
Mazandaran	0.36(0.3-0.43)	0.48(0.44-0.52)	0.59(0.57-0.62)	0.65(0.6-0.71)	0.82(0.41-1.35)	0.34(0.04-0.74)	0.23(0.08-0.4)	0.1(-0.02-0.25)
Azerbaijan, East	0.32(0.28-0.35)	0.43(0.41-0.46)	0.54(0.52-0.56)	0.61(0.58-0.64)	0.93(0.63-1.29)	0.37(0.14-0.64)	0.25(0.13-0.38)	0.13(0.03-0.24)
Azerbaijan, West	0.31(0.27-0.35)	0.44(0.41-0.47)	0.56(0.54-0.58)	0.63(0.59-0.67)	1.02(0.68-1.44)	0.42(0.17-0.72)	0.27(0.14-0.41)	0.13(0.02-0.24)
Kermanshah	0.3(0.27-0.33)	0.4(0.38-0.43)	0.52(0.5-0.54)	0.59(0.56-0.62)	0.99(0.7-1.33)	0.37(0.16-0.62)	0.28(0.15-0.41)	0.14(0.04-0.25)
Khuzestan	0.32(0.29-0.36)	0.42(0.39-0.44)	0.52(0.5-0.54)	0.59(0.56-0.62)	0.86(0.58-1.18)	0.31(0.11-0.55)	0.24(0.12-0.37)	0.14(0.04-0.25)
Fars	0.26(0.22-0.29)	0.34(0.31-0.36)	0.43(0.41-0.45)	0.51(0.48-0.54)	0.98(0.63-1.4)	0.32(0.07-0.62)	0.28(0.14-0.44)	0.17(0.06-0.3)
Kerman	0.21(0.18-0.26)	0.29(0.26-0.31)	0.37(0.35-0.39)	0.44(0.4-0.47)	1.02(0.55-1.65)	0.33(0.01-0.75)	0.29(0.12-0.49)	0.18(0.03-0.36)
Khorasan, Razavi	0.25(0.22-0.28)	0.35(0.32-0.37)	0.45(0.44-0.47)	0.53(0.5-0.56)	1.13(0.8-1.52)	0.38(0.16-0.65)	0.32(0.19-0.46)	0.17(0.07-0.29)
Isfahan	0.31(0.28-0.34)	0.41(0.39-0.43)	0.51(0.49-0.53)	0.59(0.56-0.62)	0.91(0.65-1.2)	0.32(0.14-0.54)	0.26(0.15-0.39)	0.14(0.05-0.25)
Sistan and Baluchistan	0.17(0.13-0.21)	0.22(0.2-0.25)	0.31(0.29-0.33)	0.38(0.34-0.42)	1.3(0.62-2.28)	0.35(-0.07-0.95)	0.38(0.15-0.66)	0.24(0.04-0.47)
Kordestan	0.27(0.24-0.3)	0.38(0.36-0.41)	0.5(0.48-0.52)	0.57(0.54-0.6)	1.12(0.81-1.49)	0.42(0.2-0.68)	0.3(0.18-0.44)	0.15(0.05-0.26)
Hamadan	0.27(0.24-0.3)	0.37(0.35-0.4)	0.47(0.45-0.49)	0.54(0.51-0.57)	1(0.68-1.38)	0.37(0.14-0.64)	0.27(0.15-0.41)	0.15(0.04-0.26)
Chahar Mahaal and Bakhtiari	0.27(0.24-0.3)	0.36(0.34-0.39)	0.47(0.45-0.49)	0.55(0.52-0.58)	1.04(0.74-1.39)	0.36(0.15-0.6)	0.3(0.18-0.43)	0.16(0.05-0.27)
Lorestan	0.26(0.23-0.29)	0.36(0.34-0.38)	0.47(0.45-0.49)	0.55(0.52-0.58)	1.09(0.78-1.47)	0.38(0.16-0.64)	0.31(0.18-0.45)	0.16(0.06-0.27)
Ilam	0.25(0.22-0.28)	0.32(0.3-0.35)	0.42(0.4-0.44)	0.49(0.46-0.53)	0.99(0.62-1.44)	0.31(0.06-0.62)	0.29(0.15-0.46)	0.17(0.05-0.31)
Kohgiluyeh and Boyer-Ahmad	0.27(0.23-0.3)	0.38(0.35-0.4)	0.49(0.47-0.51)	0.57(0.53-0.6)	1.13(0.76-1.59)	0.42(0.16-0.73)	0.31(0.17-0.47)	0.15(0.04-0.27)
Bushehr	0.27(0.23-0.3)	0.35(0.32-0.37)	0.45(0.43-0.47)	0.53(0.49-0.56)	0.97(0.63-1.38)	0.3(0.06-0.58)	0.29(0.16-0.44)	0.17(0.06-0.3)
Zanjan	0.28(0.25-0.31)	0.39(0.36-0.41)	0.49(0.47-0.51)	0.56(0.53-0.6)	1.03(0.71-1.4)	0.39(0.16-0.65)	0.28(0.15-0.41)	0.14(0.04-0.26)
Semnan	0.3(0.27-0.34)	0.41(0.38-0.44)	0.52(0.5-0.54)	0.58(0.55-0.62)	0.93(0.61-1.33)	0.35(0.11-0.63)	0.27(0.14-0.41)	0.13(0.02-0.25)
Yazd	0.31(0.28-0.34)	0.41(0.39-0.44)	0.51(0.49-0.53)	0.58(0.55-0.61)	0.86(0.6-1.16)	0.32(0.13-0.54)	0.24(0.13-0.37)	0.13(0.04-0.24)
Hormozgān	0.2(0.17-0.24)	0.28(0.25-0.3)	0.36(0.34-0.38)	0.42(0.38-0.46)	1.08(0.57-1.75)	0.37(0.03-0.81)	0.31(0.13-0.52)	0.16(0-0.34)
Tehran	0.37(0.33-0.41)	0.47(0.44-0.5)	0.56(0.53-0.58)	0.61(0.58-0.65)	0.66(0.4-0.97)	0.26(0.05-0.5)	0.19(0.08-0.32)	0.1(0-0.22)
Ardabil	0.33(0.28-0.4)	0.46(0.43-0.5)	0.58(0.55-0.6)	0.64(0.59-0.69)	0.91(0.49-1.45)	0.39(0.08-0.79)	0.24(0.1-0.4)	0.11(-0.01-0.25)
Qom	0.35(0.3-0.4)	0.46(0.43-0.5)	0.57(0.55-0.6)	0.64(0.6-0.68)	0.82(0.48-1.24)	0.32(0.07-0.64)	0.23(0.1-0.38)	0.12(0-0.25)
Qazvin	0.3(0.27-0.34)	0.41(0.38-0.43)	0.51(0.49-0.53)	0.58(0.55-0.62)	0.94(0.63-1.31)	0.35(0.12-0.61)	0.26(0.14-0.4)	0.14(0.04-0.26)
Golestan	0.33(0.28-0.38)	0.44(0.41-0.47)	0.55(0.53-0.57)	0.61(0.57-0.66)	0.87(0.51-1.32)	0.34(0.08-0.67)	0.24(0.11-0.39)	0.12(0-0.25)
Khorasan, North	0.22(0.2-0.25)	0.32(0.3-0.34)	0.44(0.42-0.46)	0.52(0.49-0.55)	1.32(0.97-1.74)	0.44(0.21-0.72)	0.36(0.22-0.52)	0.18(0.07-0.31)
Khorasan, South	0.18(0.15-0.22)	0.26(0.23-0.28)	0.36(0.34-0.38)	0.44(0.4-0.48)	1.38(0.8-2.13)	0.4(0.05-0.86)	0.38(0.19-0.61)	0.23(0.07-0.42)
Alborz	0.32(0.28-0.35)	0.43(0.4-0.46)	0.55(0.52-0.57)	0.62(0.58-0.65)	0.95(0.66-1.3)	0.35(0.13-0.61)	0.28(0.15-0.43)	0.13(0.02-0.25)
Iran	0.3(0.26-0.34)	0.4(0.38-0.43)	0.5(0.48-0.52)	0.57(0.54-0.61)	0.9(0.58-1.29)	0.34(0.1-0.62)	0.25(0.12-0.4)	0.13(0.02-0.26)