Socioeconomic disparities in hypertension prevalence among adults in Islamic Republic of Iran

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Abstract

Background: Hypertension is a major risk factor for non-communicable disease morbidity and mortality globally, and its prevalence varies significantly across socioeconomic groups.

Aim: To investigate the socioeconomic disparities in hypertension prevalence in northwestern Islamic Republic of Iran, focusing on gender and socioeconomic and education status.

Methods: We analysed data on Ardabil, Northwest Islamic Republic of Iran, extracted from the Persian cohort study, a population-based study involving 20 149 individuals aged 35–70 years, conducted between May 2017 and February 2020. Hypertension status was determined through self-reported diagnosis and clinic records. We used the multilevel logistic regression models to assess factors associated with hypertension prevalence, and the slope index and relative index of inequalities with Blinder-Oaxaca decomposition to quantify socioeconomic inequalities.

Results: Older age, male sex, lower education level, marital status, lower economic status, and higher body mass index were the main determinants of hypertension prevalence. Prevalence was 25.1% (95% CI: 24.3–25.9) among men and 32.5% (95% CI: 31.4–33.7%) among women. It was substantially higher among the poorest population groups than the richest (25.8% vs 13.7% crude rate and 28.4% vs 19.9% adjusted rate). Individuals with lower education status exhibited higher hypertension rates (22.3%) (95% CI = 19.9–24.9). These disparities were more pronounced among women (CI = -0.167) than men (CI = -0.041).

Conclusion: Significant disparities exist in hypertension prevalence in northwestern Islamic Republic of Iran: prevalence was higher among individuals with lower socioeconomic and education levels and among women. Interventions to address the gender and socioeconomic inequalities and promote education attainment are crucial to effectively control hypertension among the population group.

Keywords: hypertension, non-communicable disease, socioeconomic disparity, inequality, Iran

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Introduction

The Third United Nations High-Level Meeting on Non-Communicable Diseases (NCDs) held in September 2018 emphasised the need for intensified efforts to address the global burden of NCDs (*1*). With an estimated 40.5 million deaths (71% of 56.9 million) attributed to NCDs in 2016, the NCD Countdown 2030, an autonomous collaboration, aims to guide initiatives for reducing NCDs globally (*1,2*).

The global prevalence of hypertension has increased by 90% over 4 decades, particularly in low- and middle-income countries like Islamic Republic of Iran, and is projected to reach 29.2% by 2025 (*4*). Hypertension is a major risk factor for NCD morbidity and mortality worldwide, contributing significantly to cardiovascular disease, stroke, kidney disease, and other life-threatening conditions (*3*). As a key driver of NCD-related deaths and accounting for 80% of global NCD mortality—including cancer, cardiovascular disorder, chronic respiratory disease and diabetes—hypertension places an immense burden on health systems, particularly in low- and middle-income countries. Effective control strategies, such as early detection, lifestyle interventions, and access to affordable medications, are essential to mitigate the impact of hypertension and curb the increasing prevalence globally. Addressing hypertension is critical to reducing NCD burden and essential for improving overall health equity (*1*).

Blood pressure is influenced by various factors, including gender, diet, environment, and individual behaviour (*5*). Research has shown correlations between socioeconomic conditions and hypertension, with lower economic groups experiencing higher mortality rates due to NCDs, including high blood pressure (*6,7*). Inequalities in hypertension-related mortality are more than twice higher in low- and middle-income countries than in high-income countries (*6,8*). In Islamic Republic of Iran, for example, socioeconomic factors play a significant role

in the prevalence of noncommunicable diseases such as hypertension, reflecting broader disparities in access to health care, education and health resources (*9,10*). Lower-income individuals face greater risks of hypertension due to limited access to healthy food, higher stress levels and reduced opportunities for preventive health care (*11*). Education level further compounds these disparities; individuals with lower educational attainment are often less informed about hypertension management and lifestyle modifications that can reduce risk.

Urbanization and lifestyle changes, such as dietary changes toward high-salt and high-fat foods and increased sedentary behaviour, have exacerbated these issues, particularly among low-income groups who may have limited access to healthy lifestyle options (*12*). These socioeconomic disparities highlight a critical need for targeted public health interventions in Islamic Republic of Iran that will address the economic and educational inequalities by reducing the burden of hypertension and promoting health equity (*12,13*).

The association between blood pressure and socioeconomic status varies across populations. Some studies have shown negative correlations in high-income countries (*14*), while others have shown positive correlations between hypertension and low educational attainment (*15*). Health inequalities, including socioeconomic disparities, racism and discrimination, play a significant role in influencing health outcomes, thus requiring attention from health care providers (*16*).

This study aimed to address the dearth of research on the relationship between socioeconomic inequalities and hypertension in Islamic Republic of Iran, particularly how factors like wealth, education and gender contribute to disparities in hypertension prevalence. By understanding and addressing these inequalities, the research seeks to contribute to the development of interventions that will help reduce the burden of hypertension in Islamic Republic of Iran and similar developing countries. It contributes to the broader understanding of how socioeconomic and gender-based inequalities impact hypertension, consolidating existing evidence and highlighting critical areas for intervention (*15,16*).

Methods

This cross-sectional analysis used data from the Persian cohort study (*17*) conducted in Ardabil, northwest Islamic Republic of Iran initiated in 2013 by the Iranian Ministry of Health and Medical Education to inform non-communicable disease policies. The Ardabil Non-Communicable Disease (ArNCD) cohort is one of 18 Persian study areas that enrolled 20 525 adults (35–70 years) from May 2017 to February 2020. The age range 35–70 years was chosen because of the high risk of hypertension within this demographic group in Islamic Republic of Iran. This age-specific analysis allows for targeted insights into the prevalence of hypertension and its associated risk factors among mid-life and older adults (*18*). The Persian cohort study had more than 200 000 participants in this age range, providing a large and representative sample for our analysis (*17*). The participants, mainly of Azari ethnic group, underwent stringent inclusion criteria such as being of Iranian descent and living in Ardabil City for at least 9 months of the year. It excluded individuals with certain conditions such as people with physical or psychological disabilities that render them unable to complete the survey. The final sample size was 20 419 and trained interviewers administered the questionnaire (*17*).

Variables

All required information was recorded according to the standard data collection protocol and analysed with high accuracy (*17*). Hypertension was analysed as a dependent (and binary) variable, assessed by integrating self-reported and clinic records, in line with the prevalence of hypertension during the year prior to each participant's enrolment in the study. The Persian Cohort study recruitment process began in Ardabil in 2016 and continued through 2020. The 'last year' referenced varied for every participant; it refers to the year before enrolment. As part of the cohort study protocol, blood pressure measurements were taken at enrolment and individuals with high blood pressure were asked to provide relevant medical records. This ensured that blood pressure history was available for all participants, allowing us to cross-check self-reported hypertension status with objective clinic data. Respondents were asked: "Has a doctor or other health professional ever told you that you have hypertension or high blood pressure and prescribed medication for you?" The answer was assigned the value of 1 if a respondent reported having hypertension and 0 if not. Individuals who reported having hypertension were requested to provide the results of their most recent clinic test to confirm their diagnosis. We requested the results of the most recent blood pressure measurement from a clinic test as confirmation for individuals who self-reported a diagnosis of hypertension. The clinic test used as a parameter was a standard blood pressure assessment, typically performed by a health care professional. If the clinic results did not align with the self-reported diagnosis (e.g. recent measurements did not indicate elevated blood pressure), we retained the self-reported information in our analysis to account for possible variations in blood pressure over time or treatment effects. This approach balanced participant-reported health history with clinically obtained data, ensuring a more comprehensive assessment of hypertension prevalence.

Age (35–70 years), sex (male/female) and marital status (single/married/other) were the major independent variables. Smoking history was graded as: (1) actual smoker or history of smoking (ex-smoker) and (2) never smoker. Level of schooling was based on years of study and categorised into illiterate/primary and secondary/high school/academic degrees. Education was treated as a continuous variable (years of education) for concentration curve and index calculations, while ordinal catego-

ries were used in descriptive tables for clarity. Body mass index (BMI) was based on the weight and height of individuals and grouped into a 4-level categorical component (*19*). Explanatory variables in the principal component analysis used for determining socioeconomic status scoring were family size; house ownership; number of bedrooms at home; family properties; international and domestic travel; number of books read; ownership of a car, motorcycle, bicycle, personal computer, CD/DVD player, washing machine, microwave, etc; education level, and work. Based on the socioeconomic status scores, participants were divided into 5 (quintiles) from the poorest to the richest.

Statistical analysis

The slope index of difference (SID) and relative index of inequality (RII) were used to calculate the socioeconomic disparities in hypertension prevalence (*9,20*). A multivariate logistic regression model was used to investigate the correlation between hypertension and independent variables, and the decomposition method of Blinder-Oaxaca was used to measure the contribution of each dependent variable (*21*). The following formulae were used to estimate the hypertension prevalence gap between the poorest and richest:

$$y_i = \begin{cases} \beta^P x_i + \varepsilon_i^P & if\ P \\ \beta^R x_i + \varepsilon_i^R & if\ R \end{cases}$$

P and R were the poorest and richest, respectively. The difference between the mean outcomes y^R and y^P, equals:

$$\overline{y^R - y^P = \Delta x \beta^P + \Delta x \beta^R}$$

Where:

$$\Delta x = x^R - x^P \ \ and\ \Delta\beta = \beta^R - \beta^P$$

$$\overline{y^R - y^P = \Delta x \beta^R + \Delta x \beta^P}$$

$$y^R - y^P = \Delta x \beta^R + \Delta x \beta^P + \Delta x \Delta\beta = E + C + CE$$

where $\overline{x^R}$ and $\overline{x^P}$ were independent average variables for the richest (the richest group in the formula above) and lowest (the lowest group in the formula above) groups. The mean difference (in this study, hypertension) in the outcome factor was divided into 3 components. The difference in the mean value of the explanatory variables is E (explained part), the difference in the mean β (coefficient/unexplained part) is C, and the product of the mean difference of the independent variables and their coefficients is CE. The following formula was used when there were only 2 explanatory variables:

$$y^R - y^P = (\beta_0^R - \beta_0^P) + (\beta_1^R x_1^R - \beta_1^P x_1^P) + (\beta_2^R x_2^R - \beta_2^P x_2^P) = W_0 + W_1 + W_2$$

where y is the hypertension, W_1 indicates constant variations, W_1 is the χ_1 and β_1 difference, and W_2 is the χ_2 and β_2 difference. The nonlinear process of β_0 decomposition was used to decompose the variables that described difference in hypertension between the poorest and richest individuals (*22*). All statistical analyses were performed using Stata version 14.1 and $P < 0.05$ was used as the level of significance.

Ethics considerations

The Ardabil Persian cohort study followed strict ethics standards. It aligned with the Declaration of Helsinki and received approval from the Ardabil University of Medical Sciences ethics committee (IR.ARUMS.REC.1399.072). All participants, including illiterate individuals, gave written informed consent—assisted by a legal representative if needed—for their anonymised data to be used for the research. Participant privacy was ensured through data anonymization and adherence to ethics guidelines for human subject research.

Results

After removing missing data, 20 419 adults aged 35–70 years were included in this analysis. The average age was 49.1 years (standard deviation 8.8 years). Approximately 54.2% (11061) were women and 91.1% were married. Table 1 presents the descriptive characteristics of the participants according to the crude and age-adjusted prevalence of hypertension. The overall crude age-adjusted prevalence of hypertension was 20.7% (95% CI: 20.2–21.3) and age-adjusted prevalence was 26.1% (95% CI: 25.3–26.8). Prevalence was 25.1% (95% CI: 24.3–25.9) among men and 32.5% (95% CI: 31.4–33.7%) among women, while age-adjusted prevalence was 15.6% (95% CI: 14.8–16.3%) for men and 19.8% (95% CI: 18.7–20.9%) for women.

Table 2 presents the results of the multivariate logistic regression to identify the main factors affecting the prevalence of hypertension among the participants. Based on the logistic regression model, being older, male sex, lower education level, marital status, lower economic status, and higher BMI score were the main determinants of hypertension prevalence. Males were associated with 68% increase in the odds of hypertension risk compared to females (OR = 1.68, 95% CI: 1.52–1.85).

Hypertension prevalence was substantially higher among the poorest population group [crude rate 25.8% (95% CI: 24.5–27.2); adjusted rate 28.4% (95% CI: 27.1–29.8)] than the richest [crude rate 13.7% (95% CI: 24.5–27.2); adjusted rate 19.9% (95% CI: 27.1–29.8)]. Table 3 presents the concentration indices by wealth and education level, stratified by sex. The overall concentration index of -0.156 indicates greater hypertension prevalence among the deprived. This disparity was more pronounced

Table 1 Participants' characteristics and prevalence of hypertension, Ardabil, Islamic Republic of Iran

	No. (%)	Prevalence of hypertension	
		Crude (95% CI)	Age-adjusted (95% CI)
Age group			
35–45	7975 (39.0)	6.7 (6.2–7.3)	5.9 (5.4–6.4)
46–55	7425 (36.4)	21.1 (20.20–22.1)	21.6 (20.7–22.5)
56–65	4247 (20.8)	40.8 (39.4–42.4)	42.1 (40.5–43.6)
>66 years	772 (3.8)	50.7 (47.2–54.3)	51.04 (46.7–55.3)
Sex			
Male	9358 (45.8)	25.1 (24.3–25.9)	32.5 (31.4–33.7)
Female	11061 (54.2)	15.6 (14.8–16.3)	19.8 (18.7–20.9)
Marital status			
Single	341 (1.67)	4.9 (3.1–7.9)	11.7 (8.5–15.9)
Married	18573 (90.9)	19.7 (19.1–20.3)	25.2 (24.3–26.1)
Divorced/Widowed	1505 (7.4)	36.9 (34.5–39.4)	32.2 (30.1–34.4)
Years of schooling			
Illiterate	3529 (17.3)	38.4 (36.8–40.1)	30.3 (28.8–31.7)
Primary (1–5 years)	6583 (32.2)	21.6 (20.6–22.6)	26.2 (24.7–27.8)
Intermediate (6–9 years)	3553 (17.4)	15.1 (13.9–16.2)	23.9 (21.2–26.8)
Secondary (10–12 years)	3948 (19.3)	13.9 (12.9–15.2)	24.1 (21.7–26.7)
Academic (≥13)	2806 (13.7)	13.4 (12.2–14.7)	22.3 (19.9–24.9)
Smoking status			
Smoker	3291 (16.1)	17.4 (16.2–18.8)	20.1 (18.5–21.7)
Non-smoker	17128 (83.9)	21.4 (20.7–22.0)	27.6 (26.7–28.5)
BMI			
Under weight (<18.5)	144 (0.7)	4.8 (2.3–9.9)	6.3 (3.5–11.2)
Normal weight (18.5–24.9)	3154 (15.4)	8.8 (7.9–9.8)	13.8 (12.2–15.6)
Overweight (25–29.9)	8465 (41.5)	17.5 (16.7–18.3)	23.4 (22.2–24.6)
Obesity (>30)	8656 (42.4)	28.5 (27.5–29.4)	33.8 (32.5–35.1)
Socioeconomic status			
Poorest	4082 (20.0)	25.8 (24.5–27.2)	28.4 (27.1–29.8)
Poor	4076 (20.0)	25.6 (24.3–27.1)	27.8 (25.8–29.7)
Middle	4099 (20.1)	20.7 (19.5–22.1)	27.7 (25.8–29.7)
Rich	4072 (19.9)	17.7 (16.6–18.9)	25.7 (23.7–27.8)
Richest	4090 (20.0)	13.7 (12.7–14.8)	19.9 (17.9–22.0)

among women (concentration index -0.167) than men (concentration index -0.041). Similarly, individuals with lower education attainment exhibited higher hypertension rates. The concentration index for the entire sample was -0.265 and women (concentration index -0.333) had a more substantial disparity than men (concentration index -0.060). These findings highlight a clear socioeconomic gradient in hypertension, as evidenced by the C curves positioned above the line of perfect equality (Figures 1 and 2).

Discussion

Islamic Republic of Iran is among countries with moderate to high prevalence of high blood pressure (*23*). This study reveals a substantial (26.1%) age-adjusted prevalence of socioeconomic disparities among Iranian adults with hypertension in Ardabil, which differs markedly from reported rates in other Iranian cities and at the global level (*12,24*). Various studies have shown different prevalence rates of age-standardized, self-reported diagnosed hypertension in developed (United States 30.0%, England 21.4%) and developing countries (Nepal 19.5%, Nigeria 35.6%) (*25–27*). The high prevalence of high blood pressure in Ardabil, Islamic Republic of Iran may be due to several factors, including reduced physical activity, increased calorie intake and high salt consumption (*16,24*). As reported earlier, the main lifestyle risk factors related to increased blood pressure are salt consumption, being overweight and physical immobility (*15,16*). Ardabil Province is classified among

Table 2 Logistic regression of the determinants of hypertension among adult participants, Ardabil, Islamic Republic of Iran

	Odds ratio	
	Crude (95% CI)	Adjusted (95% CI)
Age group (ref. 35–45)		
46–55	3.70 (3.33–4.10)*	3.52 (3.16–3.92)*
56–65	9.53 (8.57–10.61)*	9.16 (8.14–10.3)*
≥66 years	14.23 (12.05–16.80)*	14.26 (11.88–17.10)*
Sex (ref. female)		
Male	1.81 (1.69–1.94)*	1.68 (1.52–1.85)*
Marital status (ref. single)		
Married	1.16 (2.87–7.64)*	1.99 (1.19–3.31)*
Divorced/Widowed	11.16 (6.78–18.38)*	2.12 (1.26–3.59)*
Years of schooling (ref. illiterate)		
Primary (1–5 years)	0.44 (0.40–0.48)*	0.87 (0.79–0.97)*
Intermediate (6–9 years)	0.28 (0.25–0.32)*	0.81 (0.70–0.93)*
Secondary (10–12 years)	0.26 (0.23–0.29)*	0.84 (0.73–0.97)*
Academic (≥13)	0.25 (0.22–0.28)*	0.93 (0.78–1.12)
Smoking status (ref. non-smoker)		
Smoker	0.78 (0.71–0.86)*	1.00 (0.89–1.32)
BMI (ref. underweight)		
Normal weight (18.5–24.9)	1.89 (0.88–4.09)	1.95 (0.89–4.29)
Overweight (25–29.9)	4.16 (1.94–8.90)*	4.07 (1.87–8.87)*
Obesity (>30)	7.80 (3.64–16.70)*	6.42 (2.94–13.98)*
Socioeconomic status (ref. richest)		
Poorest	2.16 (1.94–2.44)*	1.10 (0.94–1.29)
Poor	2.16 (1.92–2.41)*	1.15 (1.10–1.34)*
Middle	1.64 (1.46–1.84)*	1.14 (1.04–1.32)*
Rich	1.35 (1.19–1.52)*	1.07 (0.93–1.24)

*$P < 0.05$

the regions with high salt consumption, obesity and physical inactivity, making it a high-risk province (*12*).

This cohort study identified key factors linked to hypertension prevalence, including older age, male gender, lower education, marital status, higher BMI, and lower socioeconomic status (*13,21*). This is because with age, blood vessels become narrower and stiffer, leading to high blood pressure (*28*). In our study, we found a higher prevalence of hypertension among men than women. However, reports from Islamic Republic of Iran as a whole have shown that women tend to have higher blood pressure than men (*12*). This trend is consistent with findings from other countries, which have reported higher blood pressure levels among women than men (*26*). Giosia et al reported that hypertension frequency, understanding and control vary between men and women because of the variations in sex hormones (*29*), suggesting that beyond lifestyle and nutrition, stress due to greater work responsibilities contributes to higher risk of hypertension among men than women (*30*).

We found that educated individuals were less likely to have hypertension than the uneducated, aligning with

Table 3 Concentration index of hypertension by wealth and education level, stratified by sex, Ardabil, Islamic Republic of Iran

Variable	Group	Concentration index	95% confidence interval	*P*
Wealth index	Male	-0.041	-0.071–0.009	0.01
	Female	-0.167	-0.191–0.143	<0.001
	Total	-0.156	-0.175–0.137	<0.001
Education level	Male	-0.060	-0.091–0.028	<0.001
	Female	-0.333	-0.355–0.309	<0.001
	Total	-0.265	-0.283–0.246	<0.001

Figure 1 Concentration curves for the prevalence of hypertension among participants, Ardabil, Islamic Republic of Iran: (a) men, (b) women, (c) total

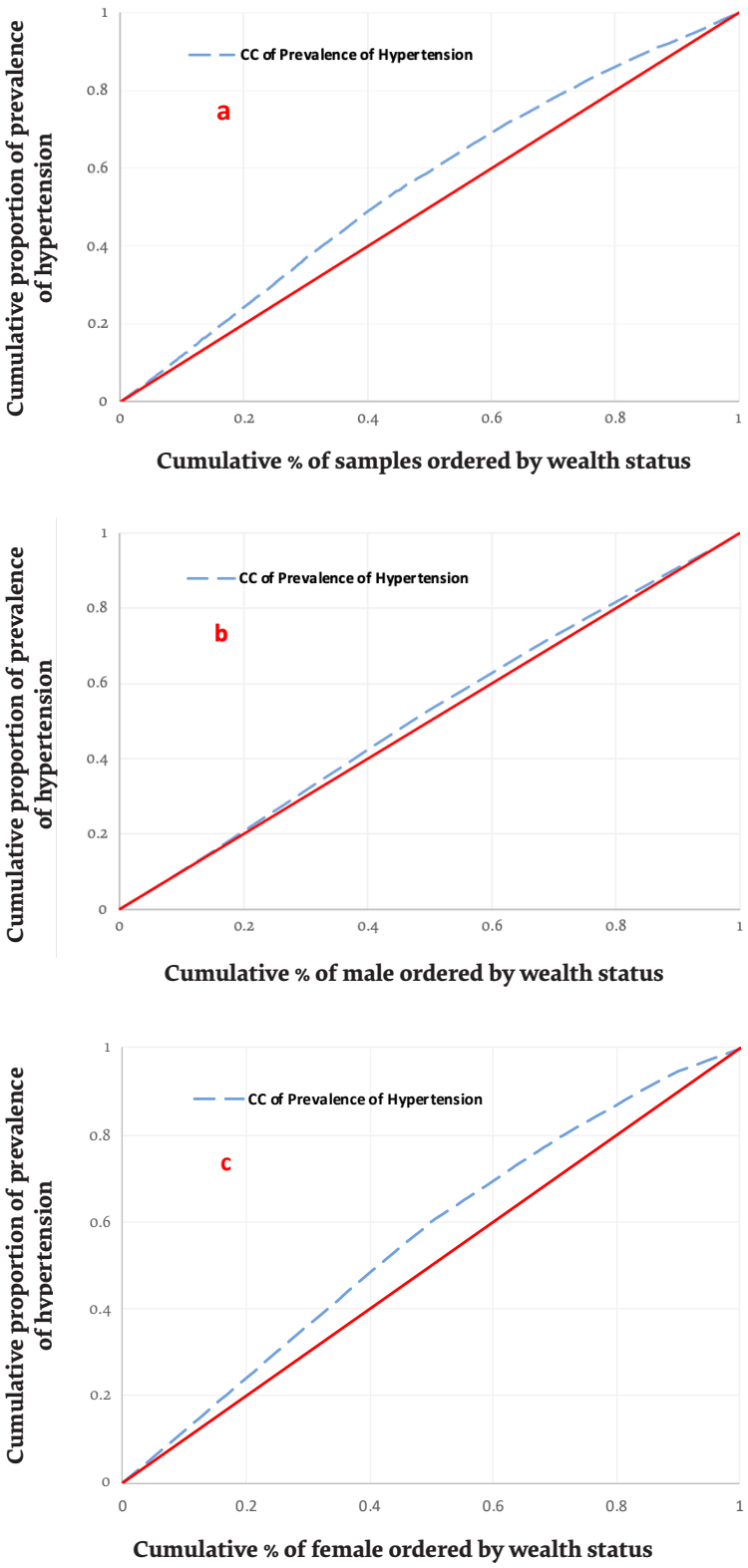
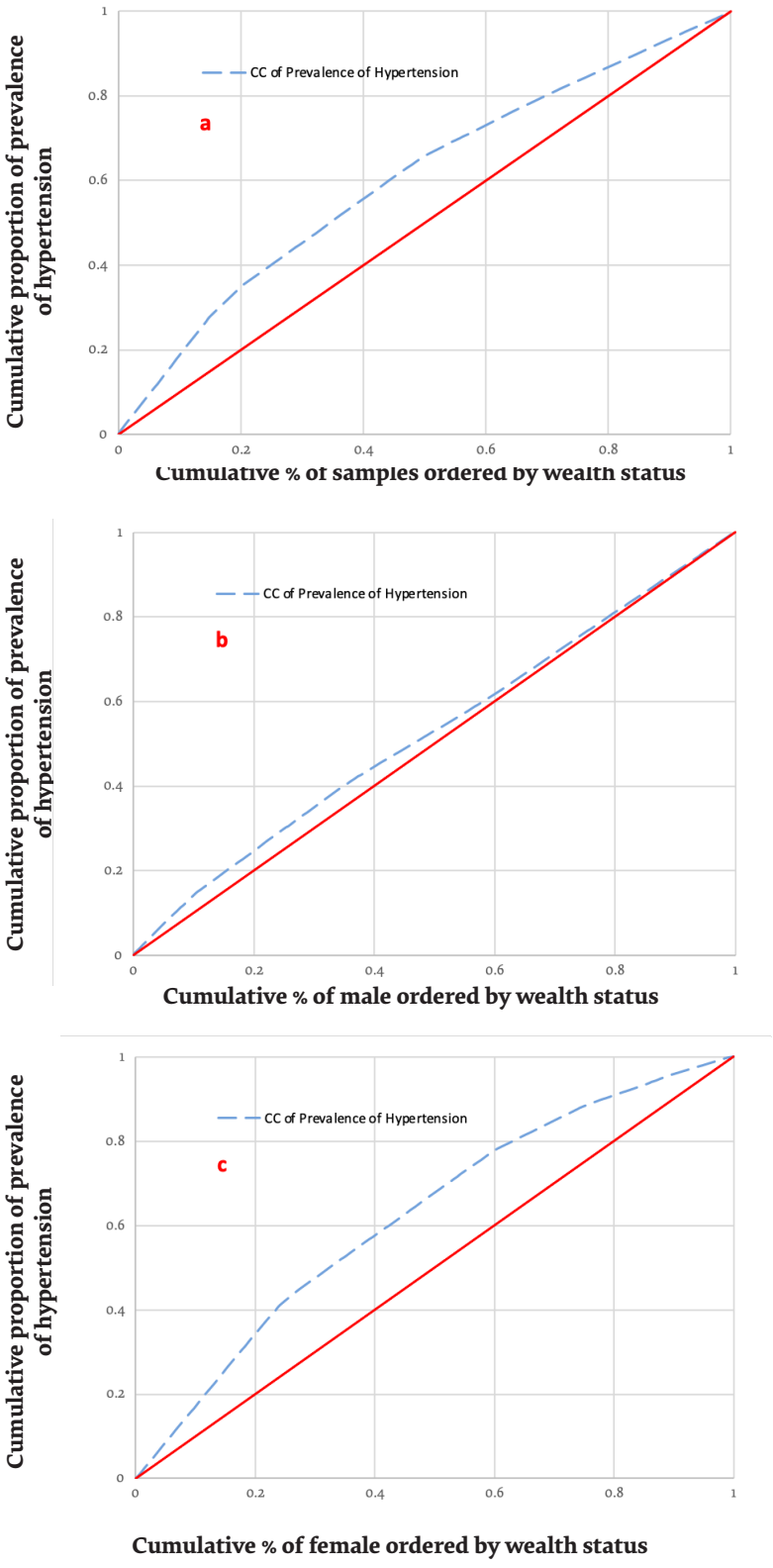


Figure 2 Concentration curves for the prevalence of hypertension based on education status: (a) men, (b) women, (c) total, Ardabil, Islamic Republic of Iran



other research findings (*31*). BMI had a significant effect on hypertension, thus associating socioeconomic status, which affects the consumption of unhealthy foods, sedentary lifestyle and higher BMI, with the prevalence of hypertension (*13*). Studies on adult men from China, Mexico, India, South Africa, and Russia have shown similar results (*32*).

This study found higher prevalence of hypertension among individuals in the lower socioeconomic strata, highlighting severe socioeconomic inequality (*14*). Socioeconomic indices like the relative index of inequality and slope index of inequality highlight disparities in hypertension prevalence. The relative index of inequality showed 1.64 times higher rate among the poorest, while the slope index of inequality revealed an 8.47 gap between the poorest and richest. Limited access to healthy foods among the poor increases the chances of eating unhealthy foods and their risks of having hypertension (*33*). This inequality contrasts with findings in Nepal but aligns with trends observed in Latin America and the Middle East (*26*).

In Islamic Republic of Iran, socioeconomic disparities affect hypertension prevalence due to unequal health care access, income differences and variations in education and occupation. Research shows that people in the lower-income groups have higher hypertension rates because of limited health care resources, increased stress and unhealthy diets due to financial limitations (*34*). Wealth disparities are also compounded by urban-rural divides; urban areas generally have better access to health care services, while rural populations often have higher rates of uncontrolled hypertension due to limited access to preventive care (*12*). Islamic Republic of Iran has experienced an epidemiologic transition marked by a shift from infectious diseases to NCDs, with hypertension emerging as a leading NCD, particularly among the lower socioeconomic groups (*12*). These Iran-specific socioeconomic and epidemiologic factors are unique and different from other regions, highlighting the need for targeted and adapted interventions.

The correlation between improved living standards, economic growth and the increase in NCDs is evident. Economic and social inequalities play a crucial role in shaping hypertension prevalence, as preventive services are more readily accessible to wealthier individuals (*5*). This study highlights the urgent need for further research on socioeconomic and region-specific disparities in chronic disease incidence. Cao et al showed that hypertension is not pro-rich but pro-poor in China (*35*). This calls for qualitative exploration to elucidate the underlying reasons for the disparities in service access, particularly among individuals in the lower socioeconomic strata. It is generally considered that the poor have access to fewer health resources than the rich, thus facing worse health status (*34*).

Study limitations

This study had some limitations, primarily its reliance on self-reported hypertension data, which may have caused over-reporting or recall bias and some inaccuracies although efforts were made to verify with recent clinic results. As a cross-sectional study, it could not establish a temporal link between socioeconomic status and hypertension, limiting the causal conclusions. Calorie intake, which is a relevant factor for hypertension risk, was excluded from the analysis due to data collection constraints and a focus on broader dietary and socioeconomic trends. The study emphasized the socio-demographic factors like wealth and education, and general dietary patterns, to assess inequalities. Future research could include detailed dietary data, such as calorie intake, for better interpretation of the results. However, the strengths include the large Persian Cohort sample size and the fact that it is the first to explore the socioeconomic disparities in hypertension prevalence in Ardabil, Islamic Republic of Iran.

Conclusion

This study revealed inequalities in hypertension prevalence in Ardabil, Islamic Republic of Iran. The poorest and less educated were the most vulnerable while there were variations in prevalence among the wealthier and educated populations. Personalized interventions to address socioeconomic factors, education and BMI among at-risk populations are crucial. Priority should be given to addressing poverty and low educational attainment, alongside community-based interventions like dietary changes and increased physical activity. Affordable and accessible screening and treatment for hypertension, regardless of socioeconomic status, are essential. To reduce hypertension prevalence and improve health equity, health policy in Islamic Republic of Iran should prioritize expanding health care access in underserved areas, where preventive and treatment services for hypertension may be limited. Community-based education programmes to raise awareness about the risk factors and management of hypertension could empower individuals to adopt healthier lifestyles. Targeted interventions, such as subsidizing medication for low-income patients and enhancing routine blood pressure screenings in primary care clinics, would further aid early detection and management.

Disparités socioéconomiques dans la prévalence de l'hypertension chez les adultes en République islamique d'Iran

Résumé

Contexte : L'hypertension est un facteur de risque majeur de morbidité et de mortalité dues aux maladies non transmissibles dans le monde, et sa prévalence varie considérablement selon les groupes socioéconomiques.

Objectif : Étudier les disparités socioéconomiques dans la prévalence de l'hypertension dans le nord-ouest de la République islamique d'Iran, en mettant l'accent sur le sexe, le statut socioéconomique et le niveau d'éducation.

Méthodes : Nous avons analysé les données relatives à Ardabil, dans le nord-ouest de la République islamique d'Iran, extraites de l'étude de cohorte perse, une étude en population impliquant 20 149 personnes âgées de 35 à 70 ans, qui a été menée entre mai 2017 et février 2020. L'état hypertensif a été déterminé sur la base d'un diagnostic auto-déclaré et des dossiers cliniques. Nous avons utilisé des modèles de régression logistique multiniveaux pour évaluer les facteurs associés à la prévalence de l'hypertension, ainsi que l'indice de pente et l'indice relatif des inégalités. Une décomposition de Blinder-Oaxaca a également été réalisée afin de quantifier les inégalités socioéconomiques.

Résultats : L'âge avancé, le sexe masculin, un niveau d'éducation inférieur, l'état matrimonial, un statut économique inférieur et un indice de masse corporelle plus élevé étaient les principaux déterminants de la prévalence de l'hypertension. La prévalence était de 25,1 % (IC à 95 % : 24,3 à 25,9) chez les hommes et de 32,5 % (IC à 95 % : 31,4 à 33,7 %) chez les femmes. Elle était nettement plus élevée dans les groupes de population les plus pauvres que dans les plus riches (25,8 % contre 13,7 % pour le taux brut et 28,4 % contre 19,9 % pour le taux ajusté). Les personnes ayant un faible niveau d'instruction présentaient des taux d'hypertension plus élevés (22,3 %) (IC à 95 % = 19,9 à 24,9). Ces disparités étaient plus marquées chez les femmes (IC = −0,167) que chez les hommes (IC = −0,041).

Conclusion : Il existe de fortes disparités dans la prévalence de l'hypertension dans le nord-ouest de la République islamique d'Iran : la prévalence était plus élevée chez les femmes ainsi que chez les personnes de faible niveau socioéconomique et éducatif. Des interventions visant à remédier aux inégalités entre les sexes et aux inégalités socioéconomiques, ainsi qu'à promouvoir le niveau d'éducation sont cruciales pour lutter efficacement contre l'hypertension dans ce groupe de population.

أوجه التفاوت الاجتماعية والاقتصادية في انتشار ارتفاع ضغط الدم بين البالغين في شمال غرب جمهورية إيران الإسلامية

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الخلاصة

الخلفية: يمثل ارتفاع ضغط الدم عامل خطر رئيسيًّا للمراضة والوفيات الناجمة عن الأمراض غير السارية على الصعيد العالمي، ويتفاوت انتشاره تفاوتًا كبيرًا بين الفئات الاجتماعية والاقتصادية.

الأهداف: هدفت هذه الدراسة الى استقصاء أوجه التفاوت التي ترجع لعوامل اجتماعية واقتصادية في معدل انتشار ارتفاع ضغط الدم في شمال غرب جمهورية إيران الإسلامية، مع التركيز على نوع الجنس والوضع الاجتماعي والاقتصادي والتعليمي.

طرق البحث: حللنا بيانات عن أردبيل في شمال غرب جمهورية إيران الإسلامية، مُستقاة من دراسة الأتراب الفارسية، وهي دراسة سكانية شملت 20149 فردًا تتراوح أعمارهم بين 35 و70 عامًا، وأجريت في الفترة بين مايو / أيار 2017 و فبراير / شباط 2020. وقد حُددت حالات ارتفاع ضغط الدم من خلال التشخيص الذي أبلغ عنه المرضى بأنفسهم وسجلات العيادة. واستخدمنا نماذج الانحدار اللوجستي المتعددة المستويات لتقييم العوامل المرتبطة بانتشار ارتفاع ضغط الدم، ومؤشر المنحدر والمؤشر النسبي لأوجه عدم المساواة مع طريقة بليندر–أواكساكا للتفكك لتحديد أوجه عدم المساواة الاجتماعية والاقتصادية.

النتائج: كانت المحددات الرئيسية لانتشار ارتفاع ضغط الدم هي كبر السن، والذكورة، وانخفاض مستوى التعليم، والحالة الاجتماعية، وانخفاض الحالة الاقتصادية، وارتفاع منسب كتلة الجسم. وكذلك معدل الانتشار ٪25.1 (فاصل الثقة 24.3 :٪95 إلى 25.9) بين الرجال و٪32.5 (فاصل الثقة 31.4 :٪95 إلى 33.7 في المائة) بين النساء. ومعدل الانتشار أعلى بكثير بين أفقر فئات السكان مقارنةً بأغناهم (المعدل الأولي: ٪25.8 مقابل ٪13.7، والمعدل المصحح ٪28.4 مقابل ٪19.9). وزادت معدلات ارتفاع ضغط الدم بين أصحاب المستوى التعليمي المنخفض (٪22.3) (فاصل الثقة 24.9 –19.9 :٪95). وظهر هذا التفاوت أكثر وضوحًا بين النساء (فاصل الثقة = −0.167) مقارنةً بالرجال (فاصل الثقة = −0.041).

الاستنتاجات: هناك تفاوت كبير في معدل انتشار ارتفاع ضغط الدم في شمال غرب جمهورية إيران الإسلامية؛ فمعدل الانتشار أعلى بين الأفراد أصحاب المستويات الاجتماعية والاقتصادية والتعليمية المتدنية، وبين النساء. وتُعدُّ التدخلات الرامية إلى معالجة أوجه عدم المساواة بين الجنسين وبين الفئات الاجتماعية والاقتصادية، وتعزيز التحصيل الدراسي شديدة الأهمية في مكافحة ارتفاع ضغط الدم بفعالية بين الفئات السكانية.

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