

# iranian adults with hypertension over 15 Cardiometabolic risk factors trend in Iranian adults with hypertension over 15 years: findings of nationwide steps of 2007–2021

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# Abstract

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## Objectives

People with hypertension are more susceptible to developing cardiometabolic risk factors including overweight, obesity, diabetes mellitus, dyslipidemia, and metabolic syndrome (MetS). We aim to determine the trends in the prevalence of these risk factors among Iranian adults with hypertension from 2007 to 2021.

## Methods

We utilized data for adults from 25 to 64 years old from four rounds of the STEPwise approach to non-communicable diseases risk factor surveillance (STEPS) study conducted in Iran in 2007, 2011, 2016, and 2021. Direct standardization by age, sex, and residency area was conducted using the 2016 Iranian census population. Weighted least squares linear regression was performed to assess the statistical changes in the trends.

## Results

Overall, 21,088 participants were included in this study. From 2007 to 2021, the standardized prevalence of hypertension among adults did not change significantly (from 24.5 to 22.8%). Dyslipidemia was the most prevalent comorbidity among adults with hypertension (from 83.7 to 85.5%). The standardized prevalence of overweight (39.3–40.4%) did not change significantly among adults with hypertension, while the standardized prevalence of obesity (34.3–38.4%), diabetes (10.3–13.5%), and MetS (64.4–78.3%) increased significantly, with MetS showing the highest annually change (0.9%). Considering changes in specific subgroups, significant increases in obesity were observed in males, the 45–54 age group, and rural subgroups. For MetS and diabetes, all subgroups showed a significant increase, except for diabetes in age groups, where significant increases were limited to the 55–64 age group.

## Conclusions

There has been a significant increase in the prevalence of obesity, diabetes, and MetS among adults with hypertension in Iran. The observed disparities in these trends across different subgroups highlight the need for health policymakers to implement targeted strategies that account for age, sex, and area differences to effectively prevent and control these risk factors.

