




The Silent Crisis of Metabolic Syndrome and the Need to Reconsider Public Health Strategies in Iran: A Policy Brief

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Article Info.

Received: 8 November, 2025

Revised: 28 December, 2025

Accepted: 6 January, 2025

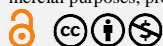
Abstract

Background and Objective: Research problem: Metabolic syndrome (MetS) is a major driver of cardiovascular disease and type 2 diabetes. It can be considered a serious threat to public health. Evidence from Iran indicates a growing prevalence that threatens both population health and economic stability.

Methods: This policy brief is based on findings from a study titled “Socioeconomic status and metabolic syndrome in Southwest Iran: Results from the Hoveyzeh Cohort Study (HCS)”.

Findings: The overall prevalence of MetS in the participants was 39.1%. While skill level and the Townsend index were significantly and independently associated with MetS, no such associations were observed for educational level or wealth status.

Conclusion: The results of our study showed that socioeconomic status (SES) is a significant factor in the prevalence of MetS. Among the four assessed SES indicators, skilled levels and Townsend score showed the strongest associations with MetS. Therefore, we recommend that interventional programs for MetS account for SES when being designed for similar communities.



Introduction

Metabolic syndrome (MetS) is a cluster of risk factors including central obesity, high blood pressure, and dyslipidemia. Globally, MetS affects approximately one in four adults, with rapidly increasing prevalence in middle-income countries (1). In Iran, MetS represents a major public health challenge. Data from the Hoveyze region in Southwest Iran indicate a prevalence of 39.1% (2), markedly exceeding the average reported for Middle Eastern countries (approximately 25%) (3). As a cluster of conditions that significantly increase the risk of cardiovascular disease and type 2 diabetes (4), MetS is a growing concern nationwide. National evidence from the STEPs Survey 2021 similarly suggests that 35–40% of Iranian adults exhibit metabolic abnormalities (5). This rising trend represents not only a biomedical challenge but also a socio-economic (SES) burden. Data from the *Institute for Health Metrics and Evaluation* estimate that non-communicable diseases (NCDs) linked to metabolic risk factors consume over 7 % of Iran's gross domestic product (GDP) through direct and indirect costs (6).

The Hoveyze Cohort Study (HCS), as a part of the Prospective Epidemiological Research Studies in IRAN (PERSIAN Cohort Study) (7), provides unique insights into these relationships within an Arab population in Southwest Iran. This population shares ethnic, cultural, and lifestyle characteristics with a substantial proportion of residents of Khuzestan Province. Similar characteristics are also observed in neighboring regions, particularly southern Iraq. Accordingly, the findings may be generalizable to a broader geographical area encompassing millions of individuals (8).

Methods

This policy brief is based on findings from a study titled "Socio-economic status and metabolic syndrome in Southwest Iran: results from the Hoveyze Cohort Study (HCS)" (2). This report synthesizes key findings from the HCS, focusing on the crucial relationship between multiple SES indicators- including education, wealth index, skill level, and Townsend deprivation index- and MetS prevalence.

Results

Prevalence of Metabolic Syndrome (MetS) (2)

- The overall prevalence of Metabolic Syndrome in the studied adult population (aged 35-70) is 39.1%, which is notably high.
- MetS is significantly more common in women (45.7%) than in men (29.3%).
- MetS prevalence increases strongly with age.

Impact of Socioeconomic Status (SES) on MetS

- Occupational Skill Level: Individuals in Skill Level 3 (roles requiring high literacy and communication skills) had 89% higher odds of having MetS compared to those in manual, physical jobs (Skill Level 1).
- Area-Level Deprivation (Townsend deprivation Index): Contrary to typical patterns, residents living in the "most affluent" areas had 71% higher odds of MetS than those in the "most deprived" areas.
- Educational Level and Household Wealth Status did not show a significant independent association with MetS after adjustment.

Other Significant Risk Factors

- Female gender and older age were strong independent risk factors.
- Low physical activity was significantly associated with a higher odd of MetS.
- Smoking and alcohol use did not show a significant independent association with MetS in this population.

Policy Implications

- Move beyond traditional metrics like income or education by integrating occupational status and the Townsend deprivation indicators into routine public health surveillance.
- Target modifiable social and environmental factors e.g., urban design, workplace activity, and dietary patterns.
- Prioritize women and older adults for screening and education.
- Use cohort data (Hoveyze, PERSIAN) to design region-specific NCD prevention plans.
- Strengthen inter-sectoral collaboration among the Ministries of Health, Labor, Sports, and Social Welfare to tackle social determinants of metabolic health.

Recommendations

Surveillance & Data Systems:

- Integrate occupation, physical activity level, and deprivation indices into national NCD surveillance systems.

Workplace Health Promotion:

- Implement structured physical activity and nutrition programs for sedentary urban occupations, beginning in high-risk provinces.

Targeted Prevention:

- Prioritize screening and education for women aged ≥ 40 years and older adults in high-burden provinces such as Khuzestan.

Policy Integration:

- Apply the Health in All Policies framework through coordinated action between health, labor, sports, and social welfare sectors.

Research and Evidence Use:

- Use data from the PERSIAN and HoveyzeH cohorts to develop a national dashboard on metabolic health inequalities.

Public Awareness:

- Launch evidence-based national campaigns promoting physical activity and healthy diets, integrated with primary healthcare services.

Conclusion

Metabolic syndrome (MetS) is rapidly emerging as a silent public health crisis in Iran. While its roots are biological and behavioral, scientific evidence confirms that social determinants of health are the primary contributing factors. To curb this trend, the Ministry of Health must reorient its strategies based on social justice, a structural prevention approach, and localized data. Only through such a fundamental shift can the expansion of this silent metabolic crisis be halted and the goal of equitable health for all Iranians by 2030 be achieved (9)

Footnotes

Acknowledgments: We would like to thank the participants and staff of the HoveyzeH Cohort Study Center who assisted us in conducting this study.

Authors' Contribution: BCh: Conception, design, data analysis, interpretation, manuscript writing, and final approval. NS: Conception, design, data interpretation, final approval, Project administration, and writing- review editing. ZR: Conception, design, data collection, and data interpretation. SAH, FR, SJH: Supervision, and

writing- review editing. All authors reviewed the manuscript.

Conflict of Interests Statement: The authors declare that they have no conflict of interest.

Ethical Approval: The ethics committee of Ahvaz Jundishapur University of Medical Sciences approved the study protocol (IR.AJUMS.REC.1398.276). This study was conducted based on the Declaration of Helsinki and its later amendments. On the registration day, informed written consent was received from the study participants.

Funding/Support: The Vice-Chancellor for Research at Ahvaz Jundishapur University of Medical Sciences grant number HCS-9801.

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