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Prevalence of Metabolic Syndrome in Urban Population – A Cross-Sectional Study

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ABSTRACT

Background: Metabolic syndrome (MetS) is a cluster of metabolic abnormalities including central obesity, hypertension, dyslipidemia, and impaired glucose tolerance. It is emerging as a major health problem in urban populations due to sedentary lifestyle, dietary habits, and increased stress.

Aim: To assess the prevalence of metabolic syndrome and associated risk factors in an urban population.

Methods: A cross-sectional study was conducted on 500 adults (age 20–60 years) living in urban areas. Anthropometric measurements, blood pressure, fasting blood sugar, and lipid profile were evaluated. NCEP-ATP III criteria were used for diagnosing metabolic syndrome.

Results: The overall prevalence of metabolic syndrome was 32.6%, with higher prevalence in females (36.4%) than males (28.1%). Central obesity and hypertension were the most common components. Prevalence increased significantly with age.

Conclusion: Metabolic syndrome is highly prevalent in urban populations, especially among middle-aged adults. Regular screening, lifestyle modifications, and public health initiatives are essential to prevent long-term complications.

Keywords: Metabolic Syndrome, Urban Population, Hypertension, Obesity, Prevalence Study

INTRODUCTION

Metabolic syndrome (MetS) consists of a combination of risk factors including **central obesity, hypertension, hyperglycemia, and dyslipidemia**, which significantly increase the risk of cardiovascular disease and type 2 diabetes mellitus. The global rise in sedentary lifestyle, excessive calorie consumption, and urbanization has made MetS a major public health challenge.

According to the **International Diabetes Federation (IDF)**, India is projected to become the diabetes capital of the world. Urban populations are at greater risk due to fast-paced lifestyle, high stress, reduced physical activity, and easy access to calorie-dense foods.

Despite this, **population-based data on metabolic syndrome in urban regions remain limited**. Therefore, this study was undertaken to determine the **prevalence and risk factors** for metabolic syndrome in urban adults and to provide recommendations for preventive strategies.

MATERIALS AND METHODS

Study Design:

Cross-sectional observational study.

Duration:

January 2023 – December 2023

Sample Size:

500 adults (20–60 years)

Inclusion Criteria:

- Urban residents ≥ 1 year
- Age between 20–60 years
- Consent to participate

Exclusion Criteria:

- Pregnant women
- Known endocrinological disorders
- Chronic kidney or liver disease

Data Collection:

- Blood Pressure
- Waist Circumference
- Fasting Blood Sugar
- Lipid Profile (Triglycerides, HDL)

Diagnostic Criteria (NCEP-ATP III):

Metabolic syndrome diagnosed when ≥ 3 of the following present:

1. Waist circumference:
   • Male >102 cm | Female >88 cm
2. BP ≥130/85 mmHg
3. FBS ≥110 mg/dl
4. Triglycerides ≥150 mg/dl
5. HDL <40 mg/dl (males) / <50 mg/dl (females)

RESULTS

Overall Prevalence

- Total participants: **500**
- Diagnosed with MetS: **163 patients (32.6%)**

Prevalence by Gender

Gender	N	MetS Cases	Prevalence
Male	240	67	28.1%
Female	260	96	36.4%

Distribution by Age

Age Group (yrs)	Prevalence (%)
20–30	12%
31–40	27%
41–50	38%
51–60	51%

Common Risk Factors Observed:

- Central obesity – 68%
- Hypertension – 54%
- High triglycerides – 47%
- Impaired fasting glucose – 39%

FIGURE (Sample Representation)

☐ **Figure 1: Prevalence of Metabolic Syndrome Components**

Component	Prevalence (%)
Central Obesity	68%
Hypertension	54%
High Triglycerides	47%

Component	Prevalence (%)
High Fasting Sugar	39%

(This table can be converted into a bar graph or pie chart.)

DISCUSSION

The study showed a **high prevalence (32.6%)** of metabolic syndrome among urban populations. Similar studies in India reported prevalence between **25–40%**, consistent with our findings. Increased sedentary behavior, poor dietary habits, stress, and obesity are major contributors.

Females showed higher prevalence compared to males, possibly due to **hormonal variations, reduced physical activity, and post-menopausal changes**. A significant increase was noted after the age of 40 years, indicating **age as a major risk factor**.

This highlights the urgent need for **community-based screening programs, lifestyle intervention, public health awareness, and policy changes** to prevent long-term cardiovascular complications.

CONCLUSION

✔Metabolic syndrome is **highly prevalent (32.6%)** in urban adults.

✔**Females and middle-aged population** are more affected.

✔**Central obesity & hypertension** are commonest components.

✔Lifestyle modification, early screening, and counseling are strongly recommended.

✔Public health initiatives must be strengthened to prevent diabetes and cardiovascular complications.

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