Bypassing Emergency Service: Decoding the Drivers of Self-Referral during Acute Myocardial Infarction

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Introduction

Self-referral: When patients seek treatment without using emergency medical services.

Cardiovascular diseases, especially AMI, remain a leading cause of mortality.

Regional disparities: Saxony-Anhalt has one of the highest AMI mortality rates in Germany.

Differences between rural and urban areas in access to AMI treatment, healthcare infrastructure, and patient behavior.

Why it matters: Delays in treatment can worsen outcomes.

Study Objectives

- **Primary Objective:**

Identify factors that drive self-referral in AMI patients.

- **Secondary Objective:**

Assess whether self-referral impacts access to Percutaneous coronary intervention (PCI)-capable hospitals.

Methodology - Study Population

- **Data Source**: Regional Myocardial Infarction Registry of Saxony-Anhalt (RHESA).
- **Sample**: 4,044 patients with confirmed AMI by ECG
- **Demographics**:
  - 48.7% urban (Halle) vs 51.3% rural (Altmark).
  - Gender distribution: 65% male, 35% female.
  - Age: 25 to 80+ years.

- **Comorbidities:**
  - Hypertension (85.1%), Hypercholesterolemia (52.9%), Diabetes (35.4%).
  - BMI categories: 40.8% overweight, 22.4% obesity I.

Methodology – Statistical Approach

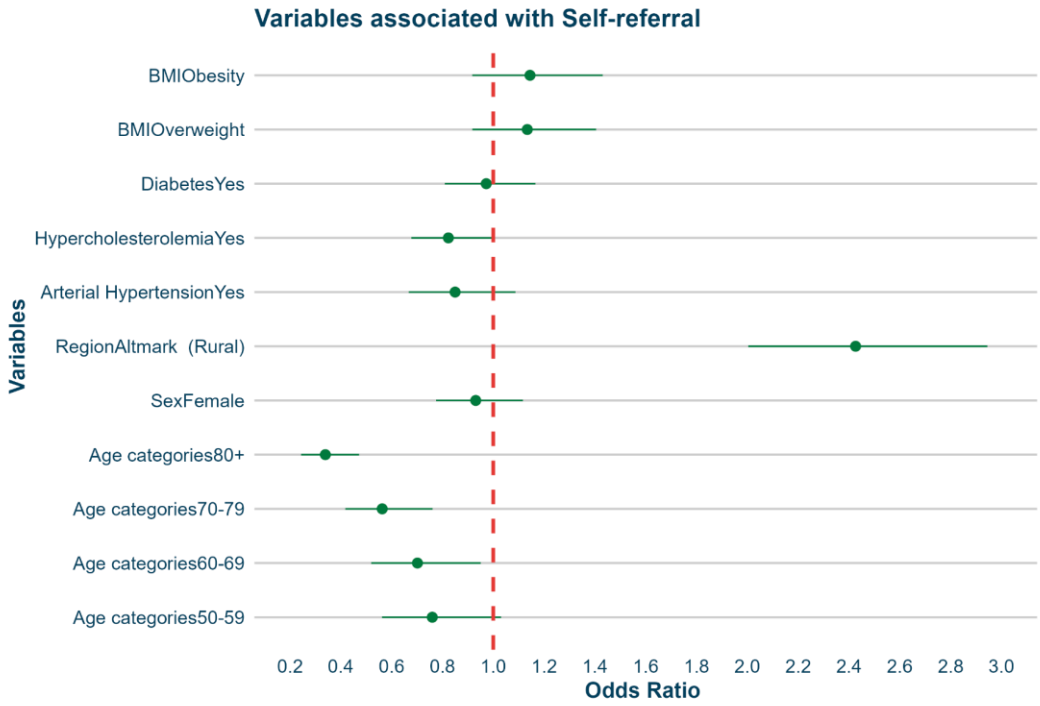
- **Adjusted Variables**: Age, residence (urban/rural), hypertension, BMI, diabetes, and sex.
- **Multivariable Logistic Regression**: Adjusted for age, sex, region, metabolic factors (hypertension, diabetes, BMI).
- **Outcomes**:
- Self-referral vs. non-self-referral.
- Access to hospitals with PCI capability

Results - Self-Referral Factors

Rural Residents: More likely to self-refer than urban residents (OR 2.43 [95% CI: 2.00–2.94]).

Age: Self-referral decreases with age (OR for 70-79: 0.56, 80+: 0.34).

Gender: Women less likely to self-refer compared to men (OR 0.93 [95% CI: 0.77–1.12]).



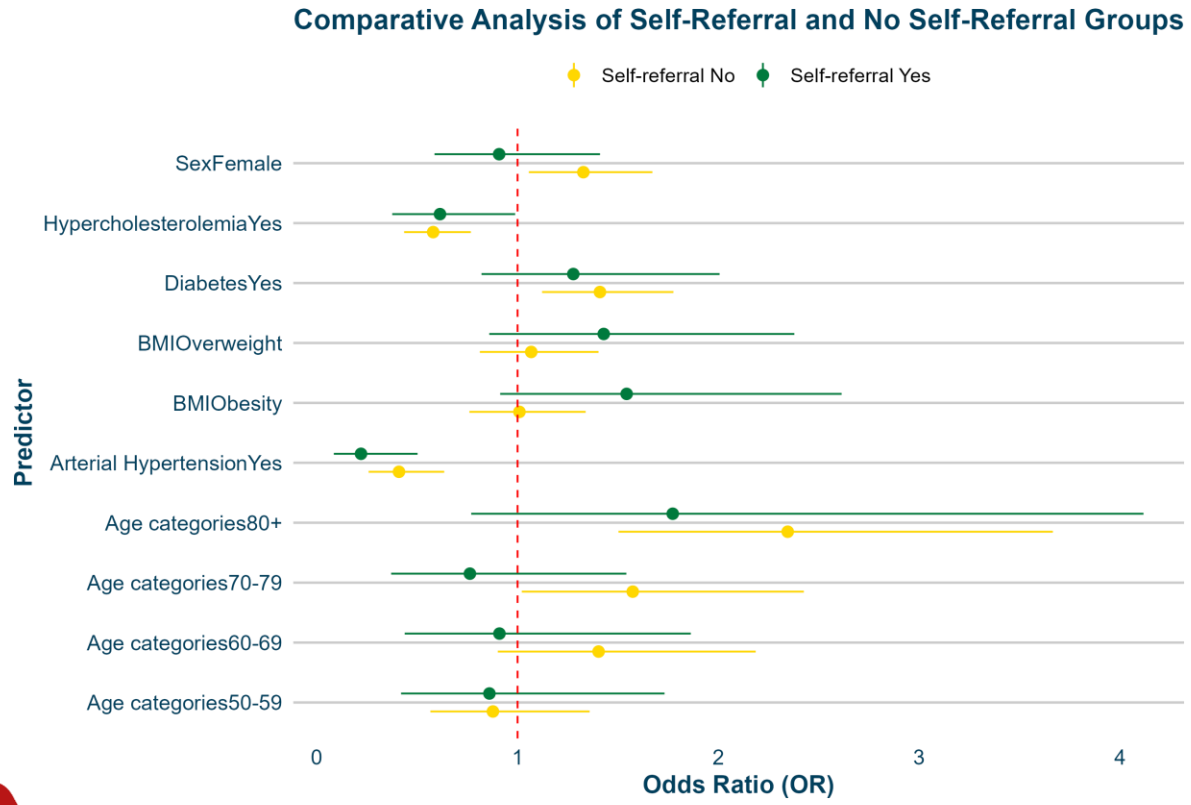
Results - PCI Access

- **Self-Referral**: Did not significantly impact access to PCI-capable hospitals

(OR 1.12 [95% CI: 0.85–1.47]).

- **Medically Attended Transports**: Women were more likely to arrive at hospitals without PCI

(OR 1.33 [95% CI: 1.06–1.67]).



Discussion - Urban vs Rural Disparities

Key Findings:

- Women face a disadvantage in medically attended transports regarding access to PCI hospitals.

Implications: Need for gender-sensitive medical protocols in EMS and better rural healthcare infrastructure.

Recommendations

- **Public Awareness Campaigns:** Educate rural populations about the risks of self-referral during AMI.
- **Medical Personnel Training:** Address gender biases in emergency medical response.

Conclusions

- Self-referral is driven by rural residence and younger age.
- No significant disadvantage for self-referral in accessing PCI hospitals, but disparities exist in emergency transport, particularly for women.
- **Future Research**: Further studies should focus on targeted interventions for rural populations and closing the gender gap in EMS transport.