

STROKE RISK FACTORS ANALYSIS

DATA-DRIVEN INSIGHTS FOR PREVENTION

CREATED FOR EDUCATIONAL PURPOSES BY MICHAL FILIPEK

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RESEARCH METHODOLOGY

- **DATA SOURCE:**

- HEALTHCARE DATASET STROKE DATA (5,100 RECORDS)

- **KEY STEPS:**

- DATA CLEANING (BMI IMPUTATION, DATA CONVERSION)
- STATISTICAL ANALYSIS (T-TESTS, CHI-SQUARE)
- VISUALIZATION (SEABORN/MATPLOTLIB)

- **TOOLS USED:**

- PYTHON, PANDAS, SCIPY, NUMPY, MATPLOTLIB, SEABORN



KEY FINDINGS

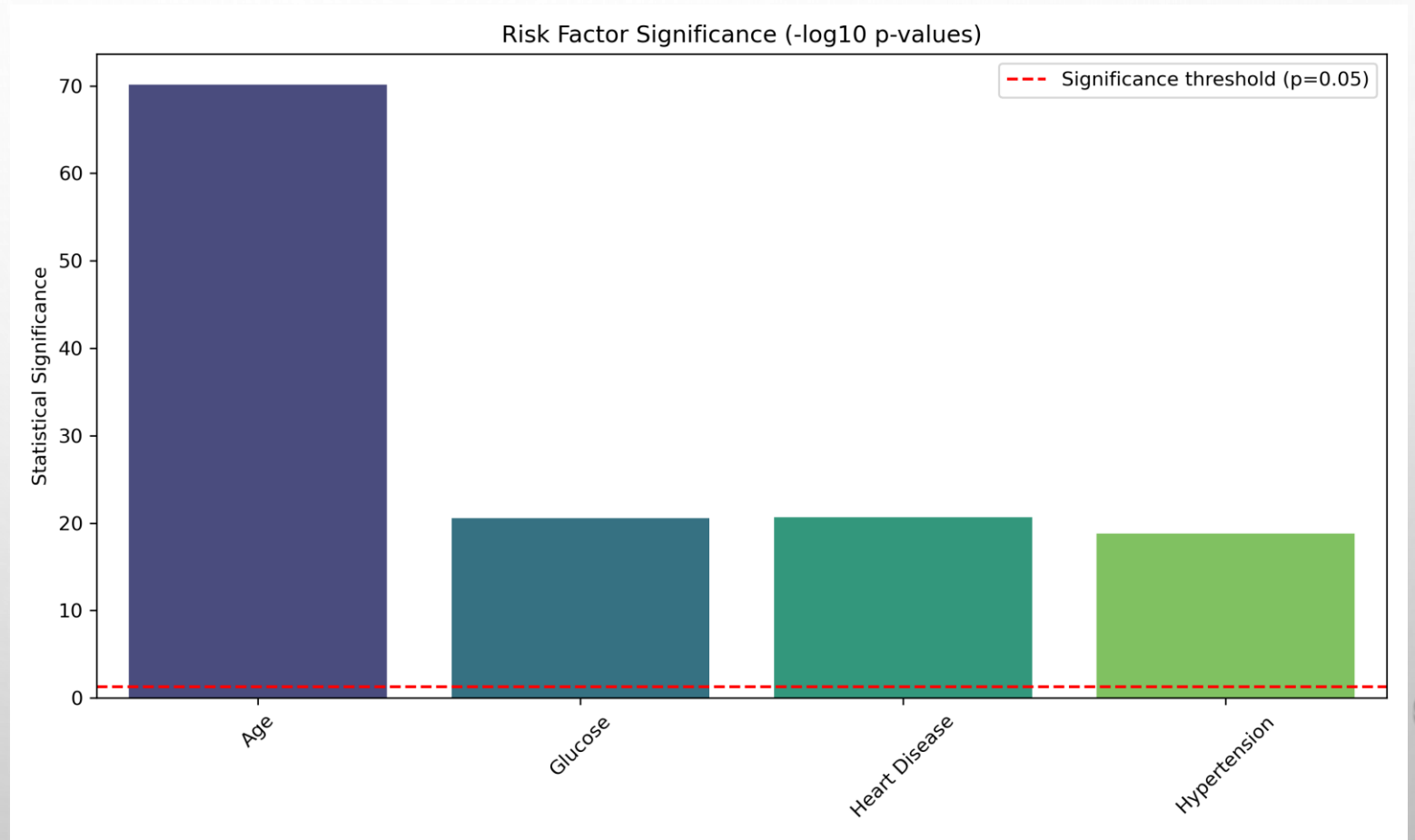
TOP 4 RISK FACTORS:

AGE ($p < 0.001$)

GLUCOSE LEVELS ($p < 0.001$)

HYPERTENSION (OR = 2.5)

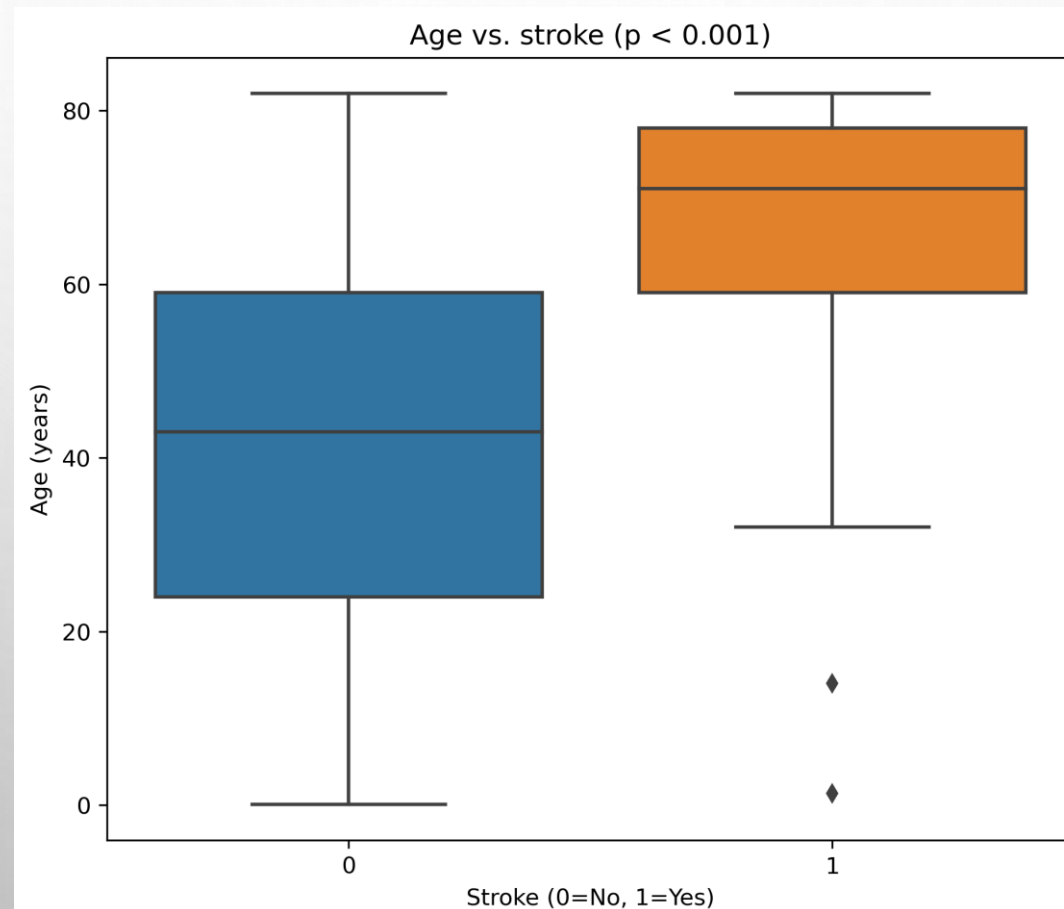
HEARTH DISSEASE (OR = 2.1)



AGE-VISE ANALYSIS

FINDING:

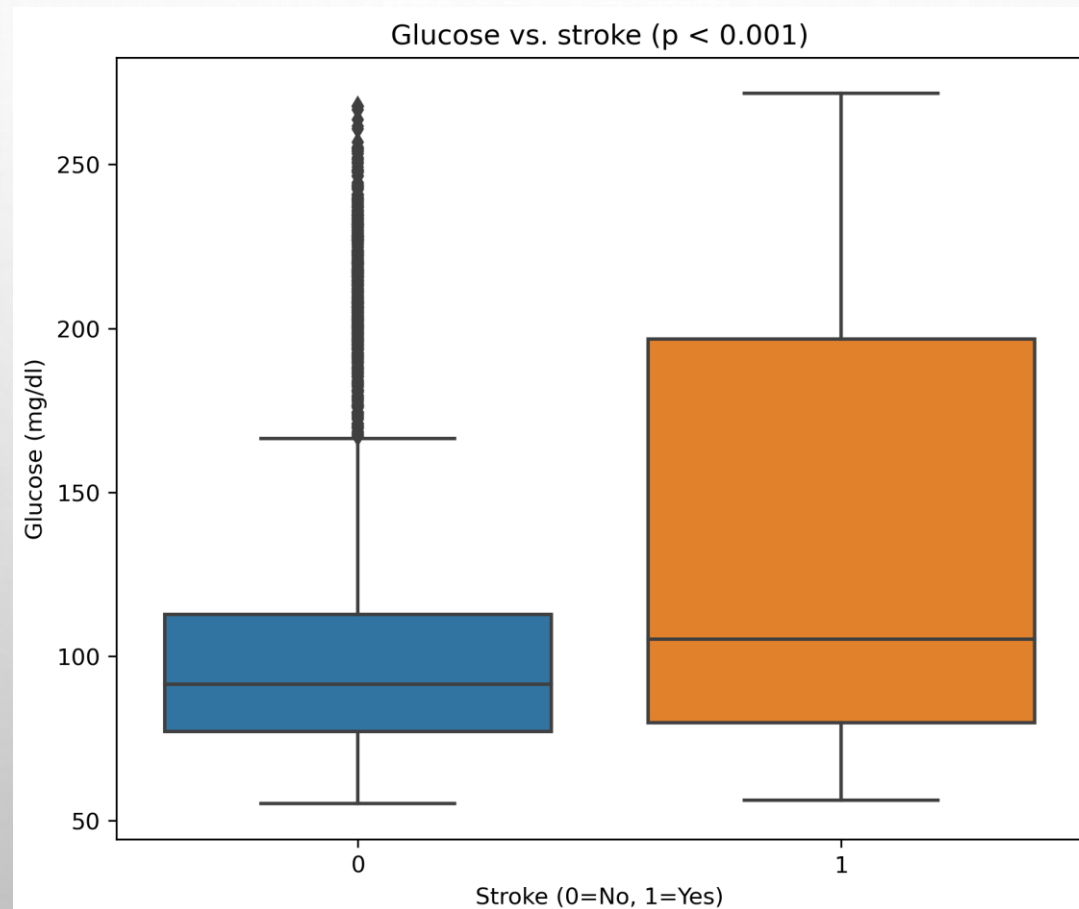
Patients with stroke were significantly older (median 71 vs 43 years)



GLUCOSE-VISE ANALYSIS

FINDING:

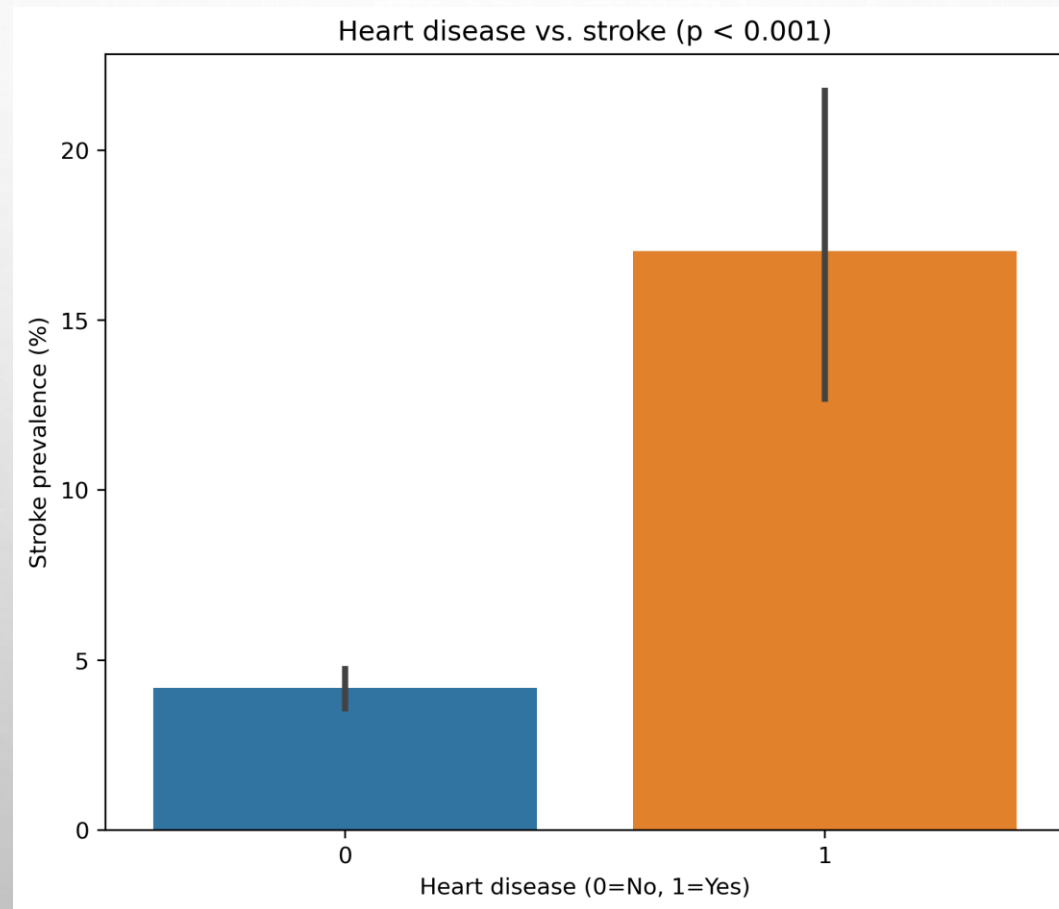
Patients with stroke had higher glucose level (median 105,2 mg/dl vs 91,5 mg/dl)



HEART DISEASE-VISE ANALYSIS

FINDING:

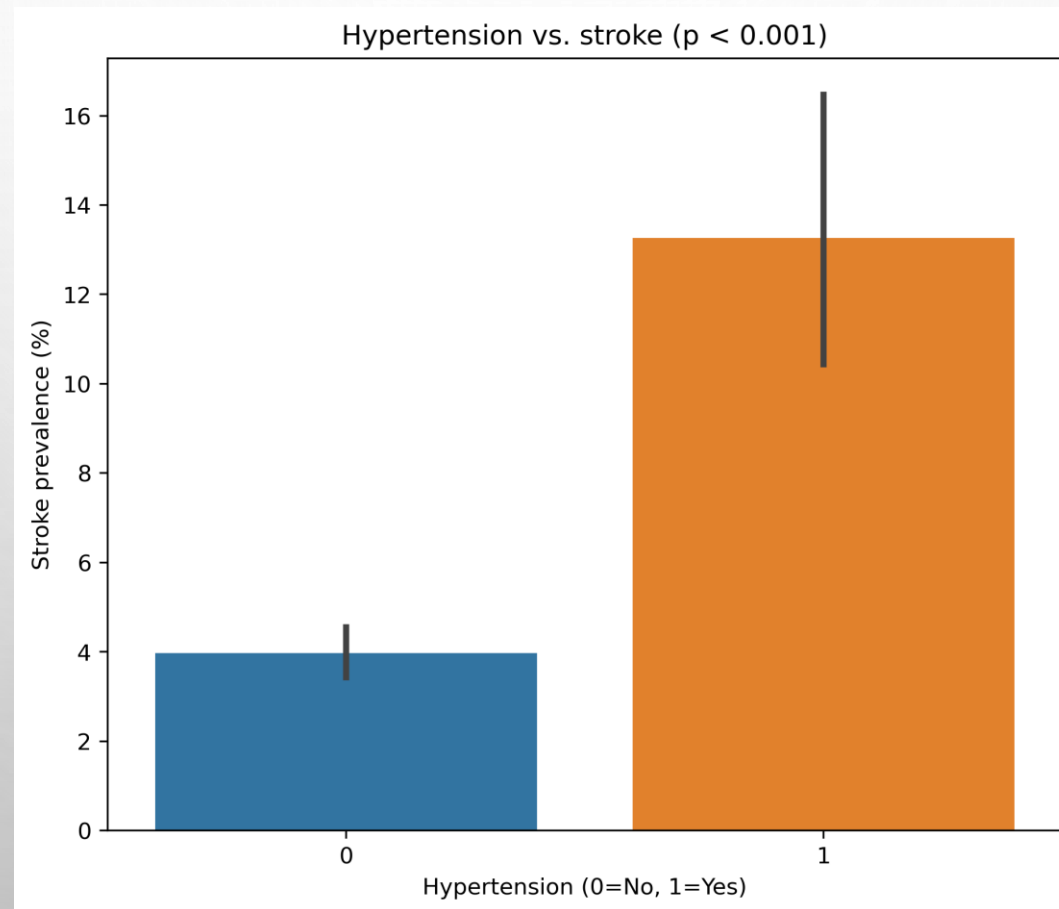
Patients with heart disease had 4,1x more stroke occurrences (17,1% with disease and 4,2% without)



HYPERTENSION-VISE ANALYSIS

FINDING:

Patients with hypertension had 3,3x more stroke occurrences (13,3% with hypertension and 4,0% without)



CONCLUSIONS & CLINICAL RECOMMENDATIONS

- **KEY TAKEAWAYS**
- **AGE IS THE STRONGEST PREDICTOR**
 - PATIENTS >70 YEARS HAVE 3× HIGHER STROKE RISK
 - *RECOMMENDATION:* PRIORITIZE SCREENING IN ELDERLY POPULATIONS
- **CONTROLLABLE RISK FACTORS MATTER**
 - HYPERTENSION (13.3% VS 4.0%, $P < 0.001$)
 - HEART DISEASE (17.0% VS 4.2%, $P < 0.001$)
 - *RECOMMENDATION:* AGGRESSIVE BP CONTROL AND CARDIAC MONITORING
- **GLUCOSE LEVELS SIGNAL RISK**
 - EVEN MODERATELY ELEVATED LEVELS (105 VS 92 MG/DL) INCREASE RISK
 - *RECOMMENDATION:* ANNUAL GLUCOSE CHECKS FOR PATIENTS >50