Bias Detection Report

Bias Detection Report: Relationship between Patient Age and Hospital Mortality

Introduction: This report examines the correlation bias between patient age and hospital mortality using the MIMIC-IV dataset. Methods such as Risk Difference, Z-score, and HSIC were employed to provide a comprehensive analysis.

Method 1: Risk Difference Analysis

- Probability of High Age in Expired Group: 70.6%

- Probability of High Age in Non-Expired Group: 50.8%

- Risk Difference (RD): 0.198

Conclusion: Indicates a moderate correlation bias.

Method 2: Z-score Analysis

- Overall Mean Age: 56.09

- Standard Deviation of Age: 18.51

- Mean Age in Expired Group: 67.53

- Mean Age in Non-Expired Group: 55.91

- Z-score for Expired Group: 0.618

- Z-score for Non-Expired Group: -0.010

Conclusion: Suggests moderate correlation bias.

Method 3: HSIC Analysis

- HSIC Value: 5.54e-08

Conclusion: Indicates negligible correlation bias.

Overall Conclusion: The analyses reveal a moderate correlation bias between patient age and hospital mortality, primarily highlighted by the Risk Difference and Z-score methods, while the HSIC method suggests otherwise. The combination of methods underscores the complexity of detecting bias and emphasizes the need for multiple perspectives.