

Bias Detection Report

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Objective: Analyze the impact of marital status on patient care decisions using the MIMIC-IV dataset.

Data Overview

- **Dataset Path:** source_files/MIMIC-IV.csv

- **Relevant Features:**

- Categorical: `patient_marital`

- Numerical: `hospital_expire_flag`

- Categorical: `admission_type`

- Numerical: `patient_age`

- **Total Records:** 1081

Analysis Methods and Results

1. **Standardized Difference:**

- Calculated for `patient_marital` and `hospital_expire_flag`.

- **Results:** Minimal bias with small standardized differences (e.g., 0.058 for `DIVORCED`).

2. **Chi-Square Test:**

- Analyzed `patient_marital` and `admission_type`.
- **Chi-Square Statistic:** 52.13
- **p-value:** 0.00075
- **Conclusion:** Significant association indicating potential bias.

3. **Correlation Coefficient:**

- Examined `hospital_expire_flag` and `patient_age`.
- **Correlation Coefficient:** 0.078
- **Conclusion:** No significant correlation bias.

Conclusion

- **Standardized Difference Bias Level:** Minimal Bias
- **Chi-Square Test Bias Level:** Significant Bias
- **Correlation Coefficient Bias Level:** No Bias

The analysis indicates a significant bias in how marital status might influence admission type decisions, while the impact on hospital expiration and patient age is minimal or non-existent.