Accuracy: 0.8028

95% CI: (0.7278, 0.8648)

No Information Rate: 0.5915

P-Value [Acc > NIR]: 6.975e-08

Kappa: 0.5898

Mcnemar's Test P-Value: 0.8501

CLASS-SPECIFIC PERFOMANCE

Sensitivity: 0.8452

Specificity: 0.7414

Pos Pred Value: 0.8256

Neg Pred Value: 0.7679

Prevalence: 0.5915

Detection Rate: 0.5000

Detection Prevalence: 0.6056

Balanced Accuracy: 0.7933

'Positive' Class : No

MODEL EVALUATION SUMMARY.

To evaluate the classification model, several performance metrics were analyzed to understand not only how accurate the model is, but also how well it performs across both classes.

The model achieved an **accuracy of 80.3%**, meaning it correctly predicted outcomes for most observations. This performance is significantly better than simply predicting the most common outcome in the dataset, which would only achieve about **59% accuracy**. A statistical test confirms that this improvement is not due to chance.

Sensitivity and specificity were examined to ensure the model performs reasonably for both outcome categories. The model correctly identifies **84.5% of "No" cases** (the positive class) and **74.1% of "Yes" cases**, showing that it does not overly favor one class at the expense of the other. This balance is further supported by a **balanced accuracy of 79.3%**.

The **Kappa score of 0.59** indicates moderate to strong agreement beyond random guessing, which is appropriate for real-world data. Additionally, McNemar's test shows no evidence of systematic classification bias, suggesting the model's errors are evenly distributed.

Overall, the results indicate that the model provides **reliable and interpretable predictions** and would be suitable as a decision-support tool rather than a simple baseline classified