

Comprehensive Lung Cancer Analysis Dashboard

This interactive dashboard provides a detailed analysis of patient data, including demographics, treatment outcomes, and key inferential statistics.

Interactive Data Visualizations

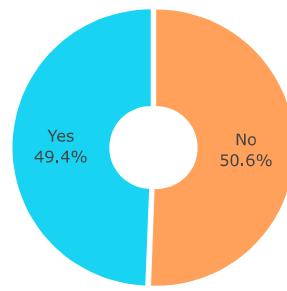
Patient Demographics at Diagnosis

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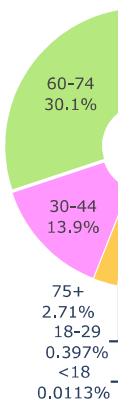
Smoking Status Distribution at Diagnosis



Family History Distribution at Diagnosis

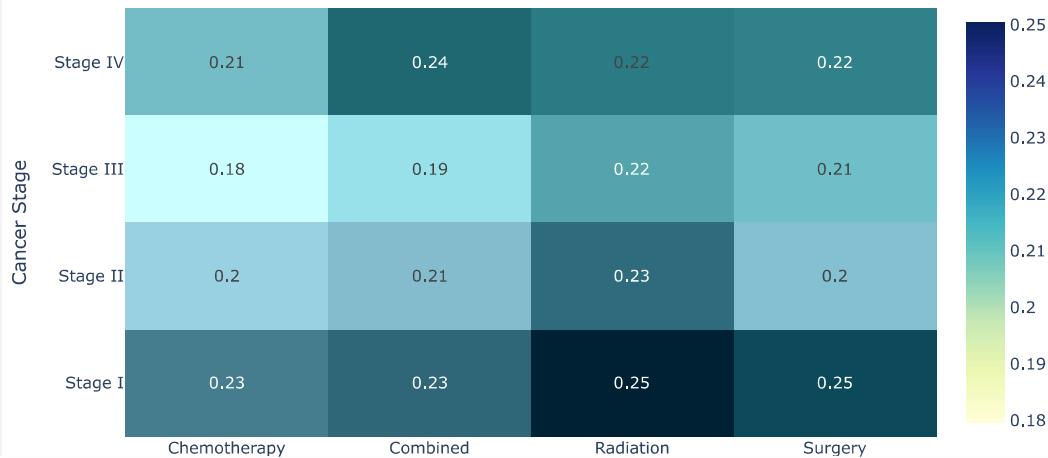


Age Group Distribution



Interactive Survival Rate by Treatment and Cancer Stage

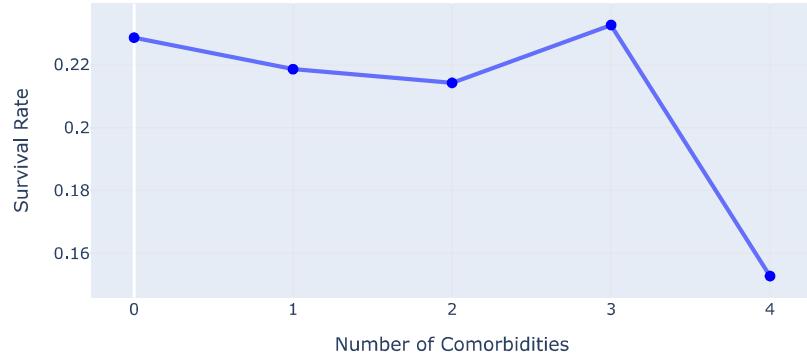
Interactive Survival Rate by Treatment and Cancer Stage



Treatment Method

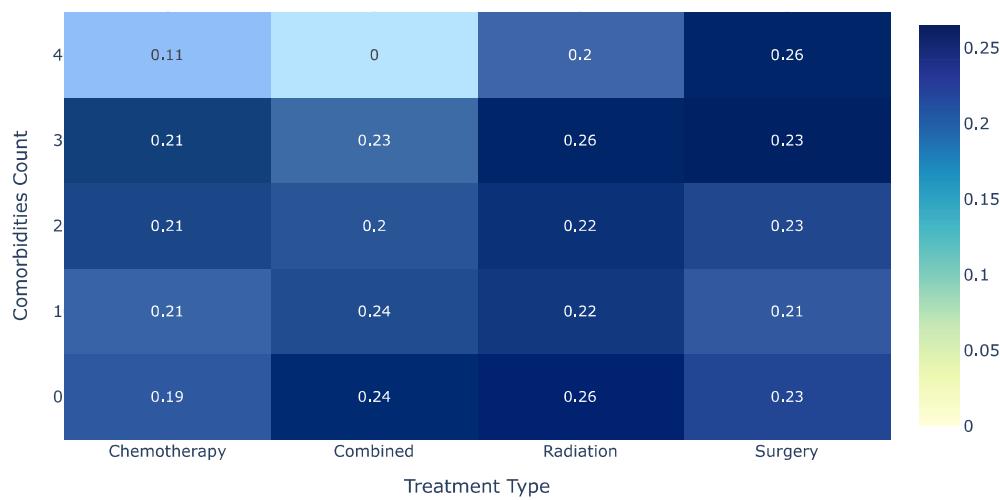
Interactive Survival Rate by Number of Comorbidities

Interactive Survival Rate by Number of Comorbidities



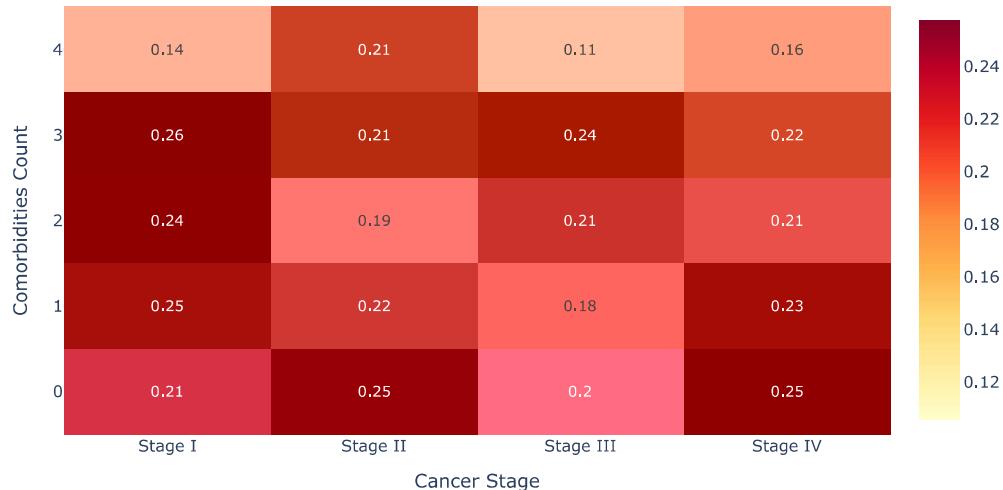
Interactive Survival Rate by Treatment Type and Comorbidities Count

Interactive Survival Rate by Treatment Type and Comorbidities Count



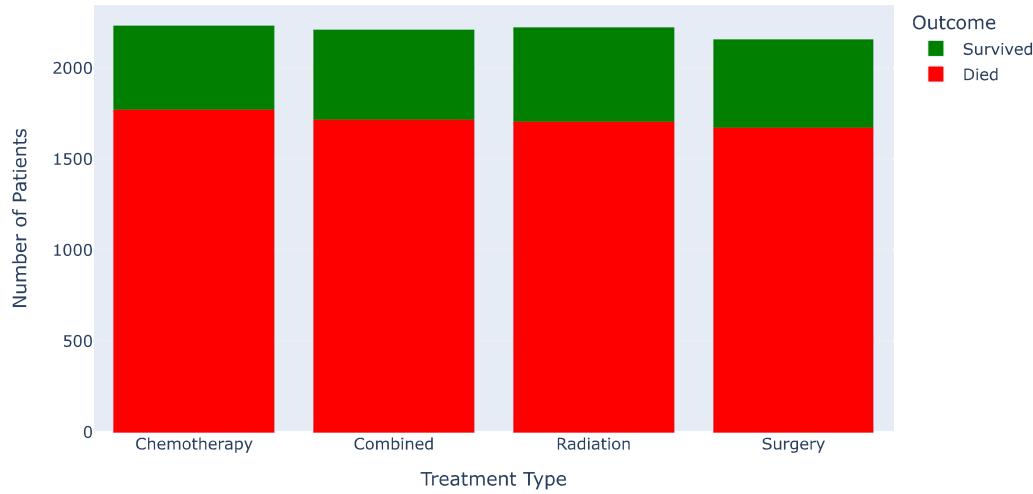
Interactive Survival Rate by Cancer Stage and Comorbidities Count

Interactive Survival Rate by Cancer Stage and Comorbidities Count



Interactive Treatment Outcomes: Survived vs Died

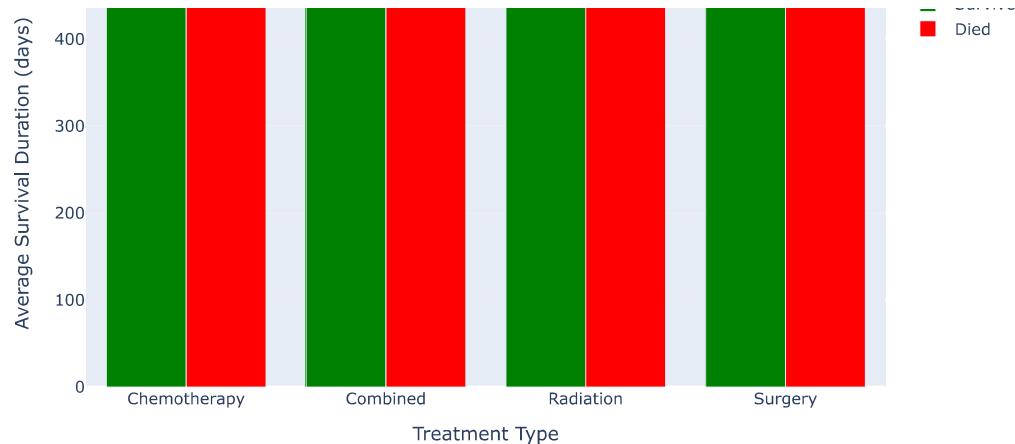
Interactive Treatment Outcomes: Survived vs Died



Interactive Average Survival Duration by Treatment Type

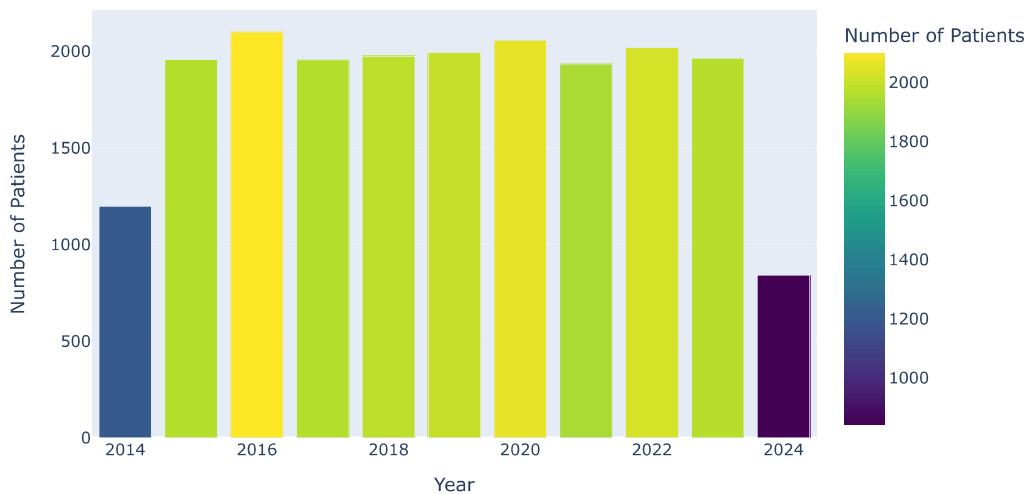
Interactive Average Survival Duration by Treatment Type





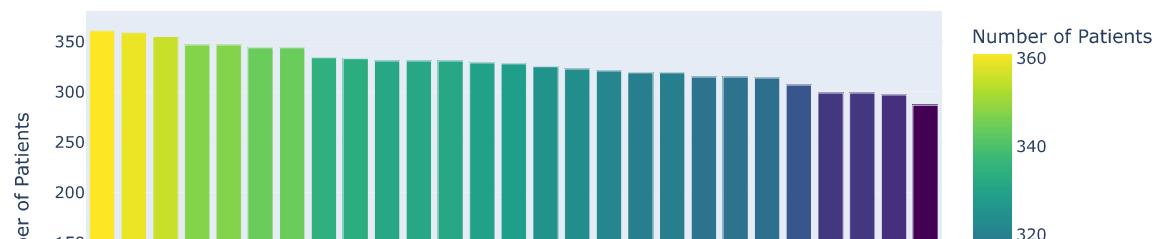
Interactive Number of Patients Admitted per Year

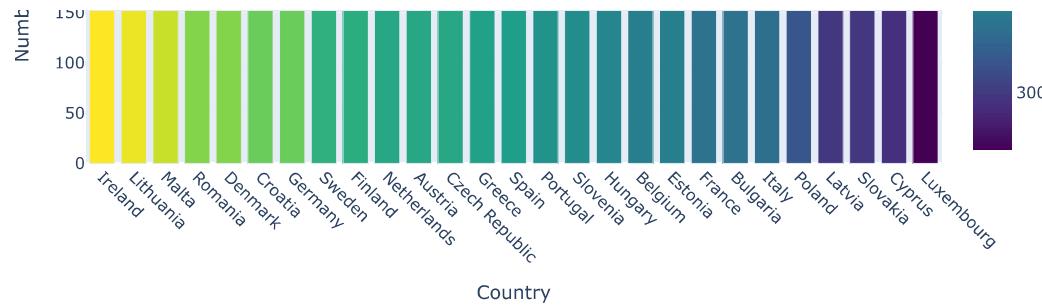
Interactive Number of Patients Admitted per Year



Interactive Number of Patients Diagnosed with Lung Cancer by Country

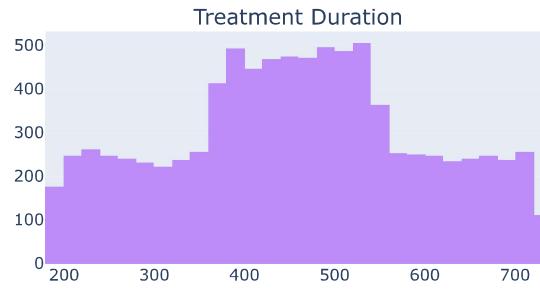
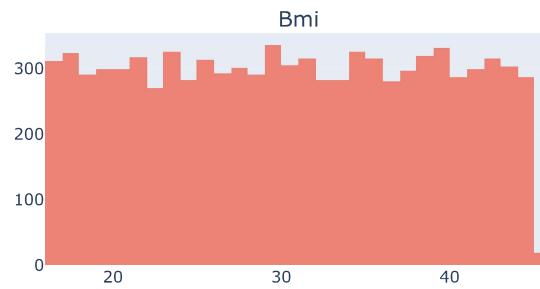
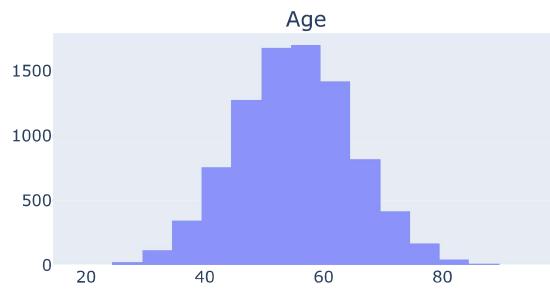
Interactive Number of Patients Diagnosed with Lung Cancer by Country





Interactive Distribution of Numerical Features

Interactive Distribution of Numerical Features



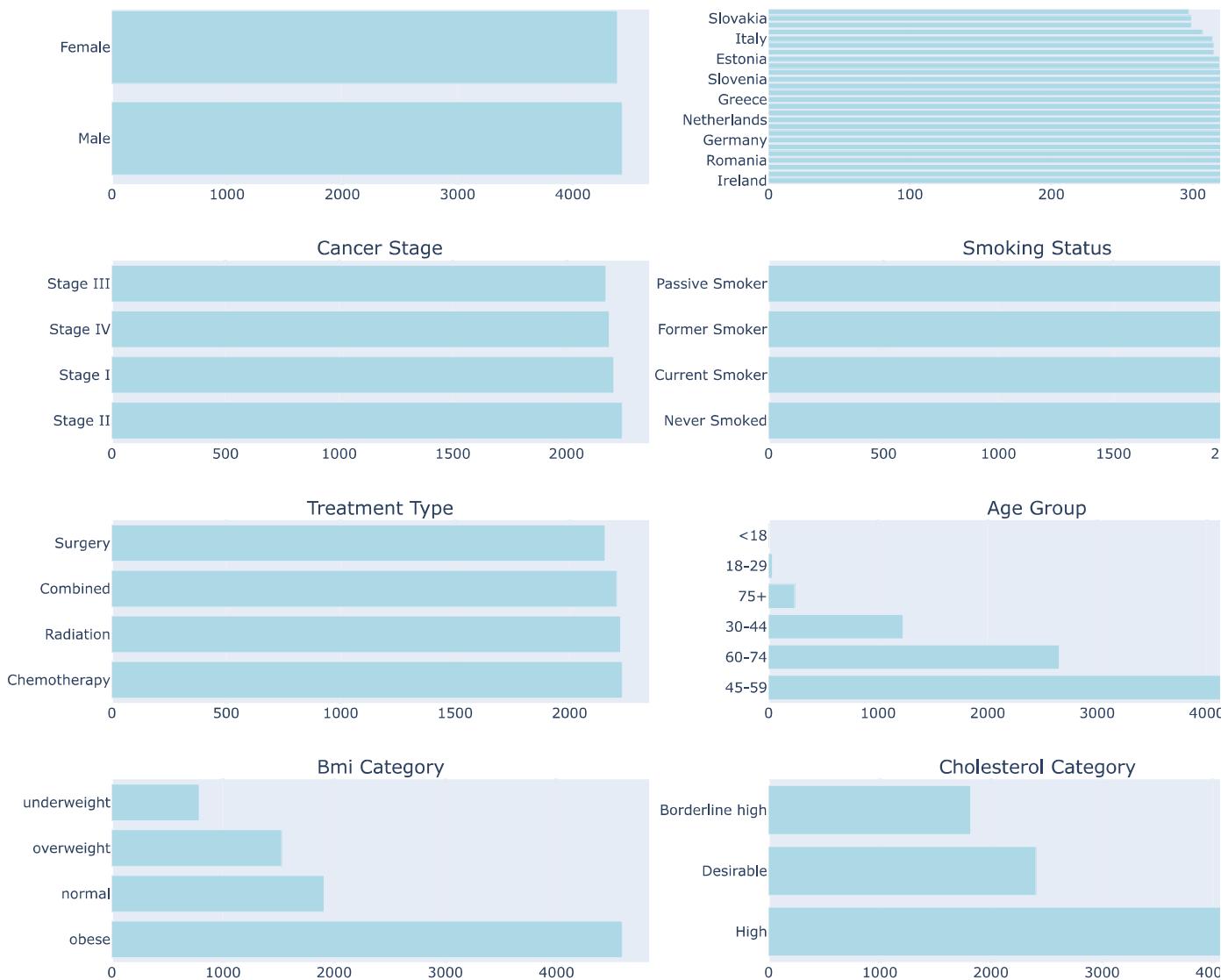
Interactive Count of Categorical Features

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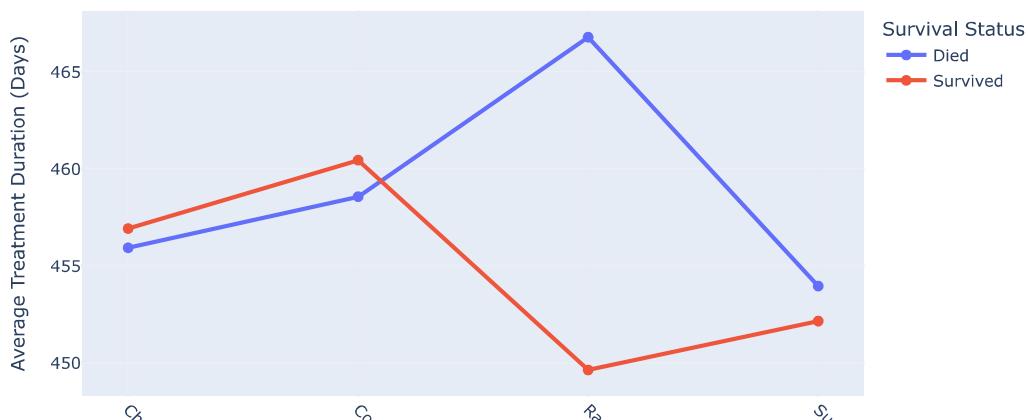
Gender

Country

Enhanced Interactive Dashboard

**Interactive: Average Treatment Duration by Treatment Type and Survival Status**

Interactive: Average Treatment Duration by Treatment Type and Survival Status



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Treatment Type

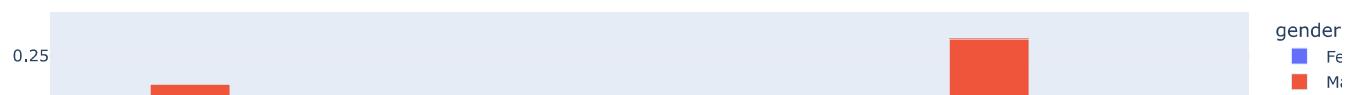
Interactive Comorbidity Association Matrix (Confidence Scores)

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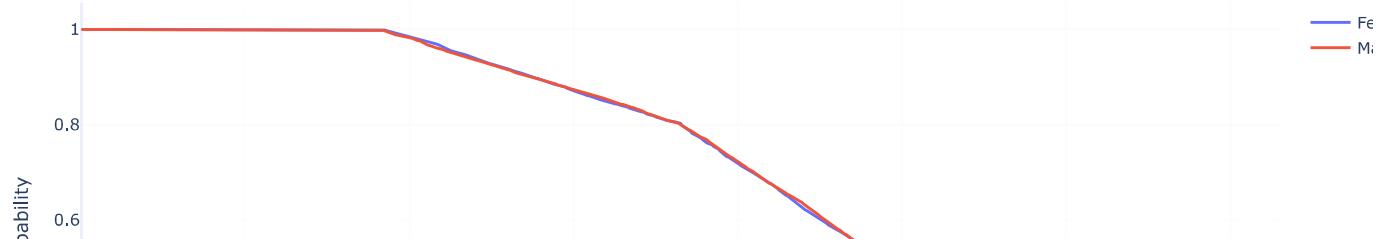


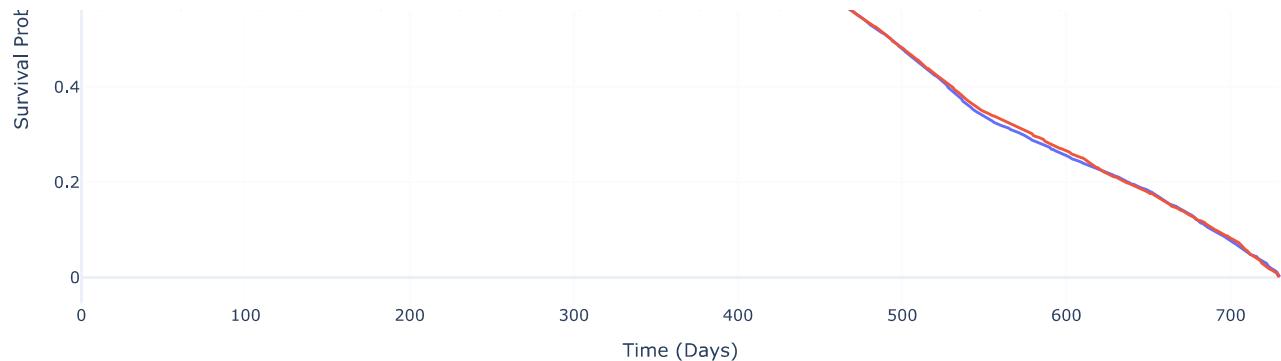
Survival Rate by Age Group and Gender

Survival Rate by Age Group and Gender



Kaplan-Meier Survival Curves by Gender





Chi-Squared Test: Comorbidities vs. Survival Status

A Chi-Squared test was conducted to determine if there is a significant association between the number of comorbidities and survival status. The p-value is greater than 0.05, suggesting no statistically significant association.

Statistic	Value
P-value	0.3925
Chi-squared statistic	4.1009

Chi-Squared Test: Treatment Type vs. Survival Status

This test checks for a significant association between the type of treatment and survival status. The results suggest there is no statistically significant association between the two variables.

Statistic	Value
P-value	0.1613
Chi-squared statistic	5.1481

Point-Biserial Correlation: Age vs. Survival

The Point-Biserial correlation measures the strength of the linear relationship between a patient's age and their survival status. The low correlation value suggests a weak relationship.

Statistic	Value
P-value	0.0853

Point-Biserial Correlation (r_pb)

0.0183

Multiple Linear Regression Analysis

This section provides a multiple linear regression analysis to understand the relationship between treatment duration and various predictors.

Statistic

Value

Model Summary

OLS Regression Results

Dep. Variable:	treatment_duration	R-squared:	0.091			
Model:	OLS	Adj. R-squared:	0.090			
Method:	Least Squares	F-statistic:	175.7			
Date:	Tue, 05 Aug 2025	Prob (F-statistic):	9.10e-179			
Time:	16:21:55	Log-Likelihood:	-55605.			
No. Observations:	8814	AIC:	1.112e+05			
Df Residuals:	8808	BIC:	1.113e+05			
Df Model:	5					
Covariance Type:	nonrobust					
	coef	std err	t	P> t	[0.025	0.975]
const	561.9706	11.608	48.413	0.000	539.217	584.725
age	-0.1629	0.143	-1.142	0.254	-0.443	0.117
cancer_stage_numeric	-37.4950	1.268	-29.563	0.000	-39.981	-35.009
bmi	-0.0032	0.252	-0.013	0.990	-0.498	0.492
cholesterol_level	-0.0196	0.048	-0.405	0.686	-0.115	0.075
comorbidities_count	1.9817	1.575	1.258	0.208	-1.106	5.069
Omnibus:	326.001	Durbin-Watson:	2.019			
Prob(Omnibus):	0.000	Jarque-Bera (JB):	144.716			
Skew:	-0.011	Prob(JB):	3.76e-32			
Kurtosis:	2.373	Cond. No.	2.01e+03			

Notes:

- [1] Standard Errors assume that the covariance matrix of the errors is correctly specified.
- [2] The condition number is large, 2.01e+03. This might indicate that there are strong multicollinearity or other numerical problems.