# Poisson Regression

## Host

**Notes**

| | | |
|---|---|---|
| Output Created | | 11-JUL-2026 22:42:04 |
| Comments | | |
| Input | Data | D:\DATA ANALYSIS\H Regression Tests and Models\Polynomial Regression\SPSS_Output\sav\Polynomial-Regression-data.sav |
| | Active Dataset | PolynomialData |
| | Filter | <none> |
| | Weight | <none> |
| | Split File | <none> |
| | N of Rows in Working Data File | 649 |
| Syntax | | HOST COMMAND=['cmd /c if not exist "D:\DATA ANALYSIS\H Regression Tests and Models\Poisson Regression\SPSS_Output " mkdir "D:\DATA ANALYSIS\H Regression Tests and Models\Poisson Regression\SPSS_Output "']. |
| Resources | Processor Time | 00:00:00.00 |
| | Elapsed Time | 00:00:00.14 |

## Host

## Notes

| | | |
|---|---|---|
| Output Created | | 11-JUL-2026 22:42:04 |
| Comments | | |
| Input | Data | D:\DATA ANALYSIS\H Regression Tests and Models\Polynomial Regression\SPSS_Output\sav\Polynomial-Regression-data.sav |
| | Active Dataset | PolynomialData |
| | Filter | <none> |
| | Weight | <none> |
| | Split File | <none> |
| | N of Rows in Working Data File | 649 |
| Syntax | | HOST COMMAND=['cmd /c if not exist "D:\DATA ANALYSIS\H Regression Tests and Models\Poisson Regression\SPSS_Output\sav" mkdir "D:\DATA ANALYSIS\H Regression Tests and Models\Poisson Regression\SPSS_Output\sav"']. |
| Resources | Processor Time | 00:00:00.00 |
| | Elapsed Time | 00:00:00.15 |

## Host

## Notes

| | | |
|---|---|---|
| Output Created | | 11-JUL-2026 22:42:04 |
| Comments | | |
| Input | Data | D:\DATA ANALYSIS\H Regression Tests and Models\Polynomial Regression\SPSS_Output\sav\Polynomial-Regression-data.sav |
| | Active Dataset | PolynomialData |
| | Filter | <none> |
| | Weight | <none> |
| | Split File | <none> |
| | N of Rows in Working Data File | 649 |
| Syntax | | HOST COMMAND=['cmd /c if not exist "D:\DATA ANALYSIS\H Regression Tests and Models\Poisson Regression\SPSS_Output\spv" mkdir "D:\DATA ANALYSIS\H Regression Tests and Models\Poisson Regression\SPSS_Output\spv"']. |
| Resources | Processor Time | 00:00:00.00 |
| | Elapsed Time | 00:00:00.30 |

## Host

## Notes

| | | |
|---|---|---|
| Output Created | | 11-JUL-2026 22:42:04 |
| Comments | | |
| Input | Data | D:\DATA ANALYSIS\H Regression Tests and Models\Polynomial Regression\SPSS_Output\sav\Polynomial-Regression-data.sav |
| | Active Dataset | PolynomialData |
| | Filter | <none> |
| | Weight | <none> |
| | Split File | <none> |
| | N of Rows in Working Data File | 649 |
| Syntax | | HOST COMMAND=['cmd /c if not exist "D:\DATA ANALYSIS\H Regression Tests and Models\Poisson Regression\SPSS_Output\pdf" mkdir "D:\DATA ANALYSIS\H Regression Tests and Models\Poisson Regression\SPSS_Output\pdf"']. |
| Resources | Processor Time | 00:00:00.00 |
| | Elapsed Time | 00:00:00.62 |

Poisson Regression
Variable preparation

Poisson Regression
Prepared data summary

# Frequencies

**Notes**

| | | |
|---|---|---|
| Output Created | | 11-JUL-2026 22:42:06 |
| Comments | | |
| Input | Data | D:\DATA ANALYSIS\H Regression Tests and Models\Poisson Regression\dataset.csv |
| | Active Dataset | PoissonData |
| | Filter | <none> |
| | Weight | <none> |
| | Split File | <none> |
| | N of Rows in Working Data File | 649 |
| Missing Value Handling | Definition of Missing | User-defined missing values are treated as missing. |
| | Cases Used | Statistics are based on all cases with valid data. |
| Syntax | | FREQUENCIES VARIABLES=poisson_count school_ms sex_male address_urban higher_yes internet_yes schoolsup_yes famsup_yes activities_yes /ORDER=ANALYSIS. |
| Resources | Processor Time | 00:00:00.05 |
| | Elapsed Time | 00:00:00.18 |

[PoissonData]

Poisson Regression
Prepared data summary

**Statistics**

| | | Poisson count outcome from rounded G3 | School dummy: 1 = MS, 0 = GP | Sex dummy: 1 = male, 0 = female | Address dummy: 1 = urban, 0 = rural | Higher education intention dummy: yes |
|---|---|---|---|---|---|---|
| N | Valid | 649 | 649 | 649 | 649 | 649 |
| | Missing | 0 | 0 | 0 | 0 | 0 |

**Statistics**

| | | Internet access dummy: yes | School support dummy: yes | Family support dummy: yes | Activities dummy: yes |
|---|---|---|---|---|---|
| N | Valid | 649 | 649 | 649 | 649 |
| | Missing | 0 | 0 | 0 | 0 |

## Frequency Table

**Poisson count outcome from rounded G3**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | .00 | 15 | 2.3 | 2.3 | 2.3 |
| | 1.00 | 1 | .2 | .2 | 2.5 |
| | 5.00 | 1 | .2 | .2 | 2.6 |
| | 6.00 | 3 | .5 | .5 | 3.1 |
| | 7.00 | 10 | 1.5 | 1.5 | 4.6 |
| | 8.00 | 35 | 5.4 | 5.4 | 10.0 |
| | 9.00 | 35 | 5.4 | 5.4 | 15.4 |
| | 10.00 | 97 | 14.9 | 14.9 | 30.4 |
| | 11.00 | 104 | 16.0 | 16.0 | 46.4 |
| | 12.00 | 72 | 11.1 | 11.1 | 57.5 |
| | 13.00 | 82 | 12.6 | 12.6 | 70.1 |
| | 14.00 | 63 | 9.7 | 9.7 | 79.8 |
| | 15.00 | 49 | 7.6 | 7.6 | 87.4 |
| | 16.00 | 36 | 5.5 | 5.5 | 92.9 |
| | 17.00 | 29 | 4.5 | 4.5 | 97.4 |
| | 18.00 | 15 | 2.3 | 2.3 | 99.7 |

Poisson Regression
Prepared data summary

**Poisson count outcome from rounded G3**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| | 19.00 | 2 | .3 | .3 | 100.0 |
| | Total | 649 | 100.0 | 100.0 | |

**School dummy: 1 = MS, 0 = GP**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | No / reference | 423 | 65.2 | 65.2 | 65.2 |
| | Yes / target | 226 | 34.8 | 34.8 | 100.0 |
| | Total | 649 | 100.0 | 100.0 | |

**Sex dummy: 1 = male, 0 = female**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | No / reference | 383 | 59.0 | 59.0 | 59.0 |
| | Yes / target | 266 | 41.0 | 41.0 | 100.0 |
| | Total | 649 | 100.0 | 100.0 | |

**Address dummy: 1 = urban, 0 = rural**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | No / reference | 197 | 30.4 | 30.4 | 30.4 |
| | Yes / target | 452 | 69.6 | 69.6 | 100.0 |
| | Total | 649 | 100.0 | 100.0 | |

**Higher education intention dummy: yes**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | No / reference | 69 | 10.6 | 10.6 | 10.6 |
| | Yes / target | 580 | 89.4 | 89.4 | 100.0 |
| | Total | 649 | 100.0 | 100.0 | |

Poisson Regression
Prepared data summary

### Internet access dummy: yes

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | No / reference | 151 | 23.3 | 23.3 | 23.3 |
| | Yes / target | 498 | 76.7 | 76.7 | 100.0 |
| | Total | 649 | 100.0 | 100.0 | |

### School support dummy: yes

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | No / reference | 581 | 89.5 | 89.5 | 89.5 |
| | Yes / target | 68 | 10.5 | 10.5 | 100.0 |
| | Total | 649 | 100.0 | 100.0 | |

### Family support dummy: yes

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | No / reference | 251 | 38.7 | 38.7 | 38.7 |
| | Yes / target | 398 | 61.3 | 61.3 | 100.0 |
| | Total | 649 | 100.0 | 100.0 | |

### Activities dummy: yes

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | No / reference | 334 | 51.5 | 51.5 | 51.5 |
| | Yes / target | 315 | 48.5 | 48.5 | 100.0 |
| | Total | 649 | 100.0 | 100.0 | |

## Descriptives

Poisson Regression
Prepared data summary

## Notes

| | | |
|---|---|---|
| Output Created | | 11-JUL-2026 22:42:06 |
| Comments | | |
| Input | Data | D:\DATA ANALYSIS\H Regression Tests and Models\Poisson Regression\dataset.csv |
| | Active Dataset | PoissonData |
| | Filter | <none> |
| | Weight | <none> |
| | Split File | <none> |
| | N of Rows in Working Data File | 649 |
| Missing Value Handling | Definition of Missing | User defined missing values are treated as missing. |
| | Cases Used | All non-missing data are used. |
| Syntax | | DESCRIPTIVES VARIABLES=poisson_count G1 G2 studytime failures absences age Medu Fedu traveltime health /STATISTICS=MEAN STDDEV MIN MAX. |
| Resources | Processor Time | 00:00:00.05 |
| | Elapsed Time | 00:00:00.08 |

Poisson Regression
Prepared data summary

### Descriptive Statistics

| | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| Poisson count outcome from rounded G3 | 649 | .00 | 19.00 | 11.9060 | 3.23066 |
| First period grade | 649 | 0 | 19 | 11.40 | 2.745 |
| Second period grade | 649 | 0 | 19 | 11.57 | 2.914 |
| Weekly study time group | 649 | 1 | 4 | 1.93 | .830 |
| Number of past class failures | 649 | 0 | 3 | .22 | .593 |
| School absences | 649 | 0 | 32 | 3.66 | 4.641 |
| Age | 649 | 15 | 22 | 16.74 | 1.218 |
| Mother education | 649 | 0 | 4 | 2.51 | 1.135 |
| Father education | 649 | 0 | 4 | 2.31 | 1.100 |
| Home to school travel time | 649 | 1 | 4 | 1.57 | .749 |
| Current health status | 649 | 1 | 5 | 3.54 | 1.446 |
| Valid N (listwise) | 649 | | | | |

## Correlations

Poisson Regression
Prepared data summary

## Notes

| | | |
|---|---|---|
| Output Created | | 11-JUL-2026 22:42:07 |
| Comments | | |
| Input | Data | D:\DATA ANALYSIS\H Regression Tests and Models\Poisson Regression\dataset.csv |
| | Active Dataset | PoissonData |
| | Filter | <none> |
| | Weight | <none> |
| | Split File | <none> |
| | N of Rows in Working Data File | 649 |
| Missing Value Handling | Definition of Missing | User-defined missing values are treated as missing. |
| | Cases Used | Statistics for each pair of variables are based on all the cases with valid data for that pair. |
| Syntax | | CORRELATIONS<br><br>/VARIABLES=poisson_count G1 G2 studytime failures absences age Medu Fedu traveltime health<br>/PRINT=TWOTAIL NOSIG<br>/MISSING=PAIRWISE. |
| Resources | Processor Time | 00:00:00.11 |
| | Elapsed Time | 00:00:00.22 |

Poisson Regression
Prepared data summary

## Correlations

| | | Poisson count outcome from rounded G3 | First period grade | Second period grade |
|---|---|---|---|---|
| Poisson count outcome from rounded G3 | Pearson Correlation | 1 | .826** | .919** |
| | Sig. (2-tailed) | | .000 | .000 |
| | N | 649 | 649 | 649 |
| First period grade | Pearson Correlation | .826** | 1 | .865** |
| | Sig. (2-tailed) | .000 | | .000 |
| | N | 649 | 649 | 649 |
| Second period grade | Pearson Correlation | .919** | .865** | 1 |
| | Sig. (2-tailed) | .000 | .000 | |
| | N | 649 | 649 | 649 |
| Weekly study time group | Pearson Correlation | .250** | .261** | .240** |
| | Sig. (2-tailed) | .000 | .000 | .000 |
| | N | 649 | 649 | 649 |
| Number of past class failures | Pearson Correlation | -.393** | -.384** | -.386** |
| | Sig. (2-tailed) | .000 | .000 | .000 |
| | N | 649 | 649 | 649 |
| School absences | Pearson Correlation | -.091* | -.147** | -.125** |
| | Sig. (2-tailed) | .020 | .000 | .001 |
| | N | 649 | 649 | 649 |
| Age | Pearson Correlation | -.107** | -.174** | -.107** |
| | Sig. (2-tailed) | .007 | .000 | .006 |
| | N | 649 | 649 | 649 |
| Mother education | Pearson Correlation | .240** | .260** | .264** |
| | Sig. (2-tailed) | .000 | .000 | .000 |
| | N | 649 | 649 | 649 |
| Father education | Pearson Correlation | .212** | .218** | .225** |
| | Sig. (2-tailed) | .000 | .000 | .000 |
| | N | 649 | 649 | 649 |
| Home to school travel time | Pearson Correlation | -.127** | -.154** | -.154** |
| | Sig. (2-tailed) | .001 | .000 | .000 |
| | N | 649 | 649 | 649 |

Poisson Regression
Prepared data summary

## Correlations

| | | Weekly study time group | Number of past class failures | School absences |
|---|---|---|---|---|
| Poisson count outcome from rounded G3 | Pearson Correlation | .250** | -.393** | -.091* |
| | Sig. (2-tailed) | .000 | .000 | .020 |
| | N | 649 | 649 | 649 |
| First period grade | Pearson Correlation | .261** | -.384** | -.147** |
| | Sig. (2-tailed) | .000 | .000 | .000 |
| | N | 649 | 649 | 649 |
| Second period grade | Pearson Correlation | .240** | -.386** | -.125** |
| | Sig. (2-tailed) | .000 | .000 | .001 |
| | N | 649 | 649 | 649 |
| Weekly study time group | Pearson Correlation | 1 | -.147** | -.118** |
| | Sig. (2-tailed) | | .000 | .003 |
| | N | 649 | 649 | 649 |
| Number of past class failures | Pearson Correlation | -.147** | 1 | .123** |
| | Sig. (2-tailed) | .000 | | .002 |
| | N | 649 | 649 | 649 |
| School absences | Pearson Correlation | -.118** | .123** | 1 |
| | Sig. (2-tailed) | .003 | .002 | |
| | N | 649 | 649 | 649 |
| Age | Pearson Correlation | -.008 | .320** | .150** |
| | Sig. (2-tailed) | .831 | .000 | .000 |
| | N | 649 | 649 | 649 |
| Mother education | Pearson Correlation | .097* | -.172** | -.009 |
| | Sig. (2-tailed) | .013 | .000 | .827 |
| | N | 649 | 649 | 649 |
| Father education | Pearson Correlation | .050 | -.166** | .030 |
| | Sig. (2-tailed) | .200 | .000 | .448 |
| | N | 649 | 649 | 649 |
| Home to school travel time | Pearson Correlation | -.063 | .098* | -.008 |
| | Sig. (2-tailed) | .108 | .013 | .836 |
| | N | 649 | 649 | 649 |

## Correlations

| | | Age | Mother education | Father education |
|---|---|---|---|---|
| Poisson count outcome from rounded G3 | Pearson Correlation | -.107** | .240** | .212** |
| | Sig. (2-tailed) | .007 | .000 | .000 |
| | N | 649 | 649 | 649 |
| First period grade | Pearson Correlation | -.174** | .260** | .218** |
| | Sig. (2-tailed) | .000 | .000 | .000 |
| | N | 649 | 649 | 649 |
| Second period grade | Pearson Correlation | -.107** | .264** | .225** |
| | Sig. (2-tailed) | .006 | .000 | .000 |
| | N | 649 | 649 | 649 |
| Weekly study time group | Pearson Correlation | -.008 | .097* | .050 |
| | Sig. (2-tailed) | .831 | .013 | .200 |
| | N | 649 | 649 | 649 |
| Number of past class failures | Pearson Correlation | .320** | -.172** | -.166** |
| | Sig. (2-tailed) | .000 | .000 | .000 |
| | N | 649 | 649 | 649 |
| School absences | Pearson Correlation | .150** | -.009 | .030 |
| | Sig. (2-tailed) | .000 | .827 | .448 |
| | N | 649 | 649 | 649 |
| Age | Pearson Correlation | 1 | -.108** | -.121** |
| | Sig. (2-tailed) | | .006 | .002 |
| | N | 649 | 649 | 649 |
| Mother education | Pearson Correlation | -.108** | 1 | .647** |
| | Sig. (2-tailed) | .006 | | .000 |
| | N | 649 | 649 | 649 |
| Father education | Pearson Correlation | -.121** | .647** | 1 |
| | Sig. (2-tailed) | .002 | .000 | |
| | N | 649 | 649 | 649 |
| Home to school travel time | Pearson Correlation | .034 | -.265** | -.208** |
| | Sig. (2-tailed) | .380 | .000 | .000 |
| | N | 649 | 649 | 649 |

Poisson Regression
Prepared data summary

## Correlations

| | | Home to school travel time | Current health status |
|---|---|---|---|
| Poisson count outcome from rounded G3 | Pearson Correlation | -.127** | -.099* |
| | Sig. (2-tailed) | .001 | .012 |
| | N | 649 | 649 |
| First period grade | Pearson Correlation | -.154** | -.052 |
| | Sig. (2-tailed) | .000 | .189 |
| | N | 649 | 649 |
| Second period grade | Pearson Correlation | -.154** | -.082* |
| | Sig. (2-tailed) | .000 | .036 |
| | N | 649 | 649 |
| Weekly study time group | Pearson Correlation | -.063 | -.056 |
| | Sig. (2-tailed) | .108 | .151 |
| | N | 649 | 649 |
| Number of past class failures | Pearson Correlation | .098* | .036 |
| | Sig. (2-tailed) | .013 | .365 |
| | N | 649 | 649 |
| School absences | Pearson Correlation | -.008 | -.030 |
| | Sig. (2-tailed) | .836 | .442 |
| | N | 649 | 649 |
| Age | Pearson Correlation | .034 | -.009 |
| | Sig. (2-tailed) | .380 | .824 |
| | N | 649 | 649 |
| Mother education | Pearson Correlation | -.265** | .005 |
| | Sig. (2-tailed) | .000 | .907 |
| | N | 649 | 649 |
| Father education | Pearson Correlation | -.208** | .045 |
| | Sig. (2-tailed) | .000 | .253 |
| | N | 649 | 649 |
| Home to school travel time | Pearson Correlation | 1 | -.048 |
| | Sig. (2-tailed) | | .220 |
| | N | 649 | 649 |

Poisson Regression
Prepared data summary

## Correlations

| | | Poisson count outcome from rounded G3 | First period grade | Second period grade |
|---|---|---|---|---|
| Current health status | Pearson Correlation | -.099* | -.052 | -.082* |
| | Sig. (2-tailed) | .012 | .189 | .036 |
| | N | 649 | 649 | 649 |

## Correlations

| | | Weekly study time group | Number of past class failures | School absences |
|---|---|---|---|---|
| Current health status | Pearson Correlation | -.056 | .036 | -.030 |
| | Sig. (2-tailed) | .151 | .365 | .442 |
| | N | 649 | 649 | 649 |

## Correlations

| | | Age | Mother education | Father education |
|---|---|---|---|---|
| Current health status | Pearson Correlation | -.009 | .005 | .045 |
| | Sig. (2-tailed) | .824 | .907 | .253 |
| | N | 649 | 649 | 649 |

## Correlations

| | | Home to school travel time | Current health status |
|---|---|---|---|
| Current health status | Pearson Correlation | -.048 | 1 |
| | Sig. (2-tailed) | .220 | |
| | N | 649 | 649 |

**. Correlation is significant at the 0.01 level (2-tailed).

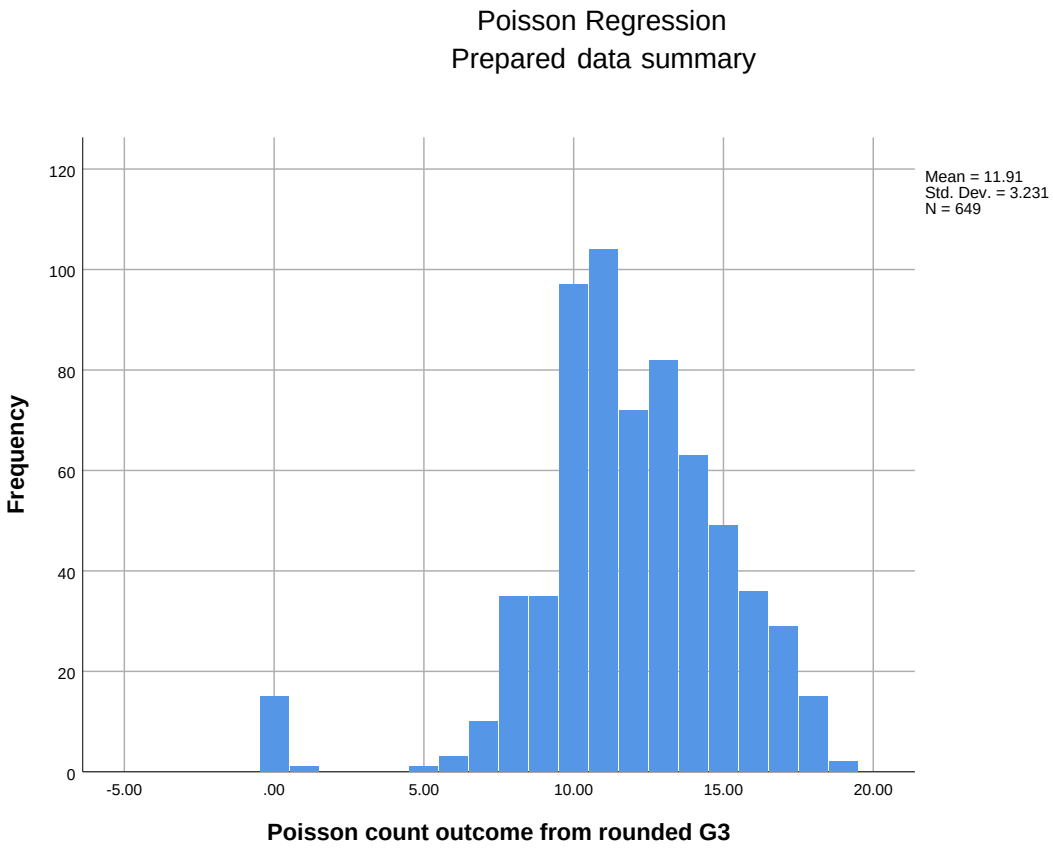
*. Correlation is significant at the 0.05 level (2-tailed).

Poisson Regression
Prepared data summary

## Graph

### Notes

| | | |
|---|---|---|
| Output Created | | 11-JUL-2026 22:42:07 |
| Comments | | |
| Input | Data | D:\DATA ANALYSIS\H Regression Tests and Models\Poisson Regression\dataset.csv |
| | Active Dataset | PoissonData |
| | Filter | <none> |
| | Weight | <none> |
| | Split File | <none> |
| | N of Rows in Working Data File | 649 |
| Syntax | | GRAPH<br><br>/HISTOGRAM=poisson_count. |
| Resources | Processor Time | 00:00:00.53 |
| | Elapsed Time | 00:00:01.18 |


Poisson Regression
Prepared data summary
Mean = 11.91
Std. Dev. = 3.231
N = 649
Frequency
120
100
80
60
40
20
0
-5.00
.00
5.00
10.00
15.00
20.00
Poisson count outcome from rounded G3

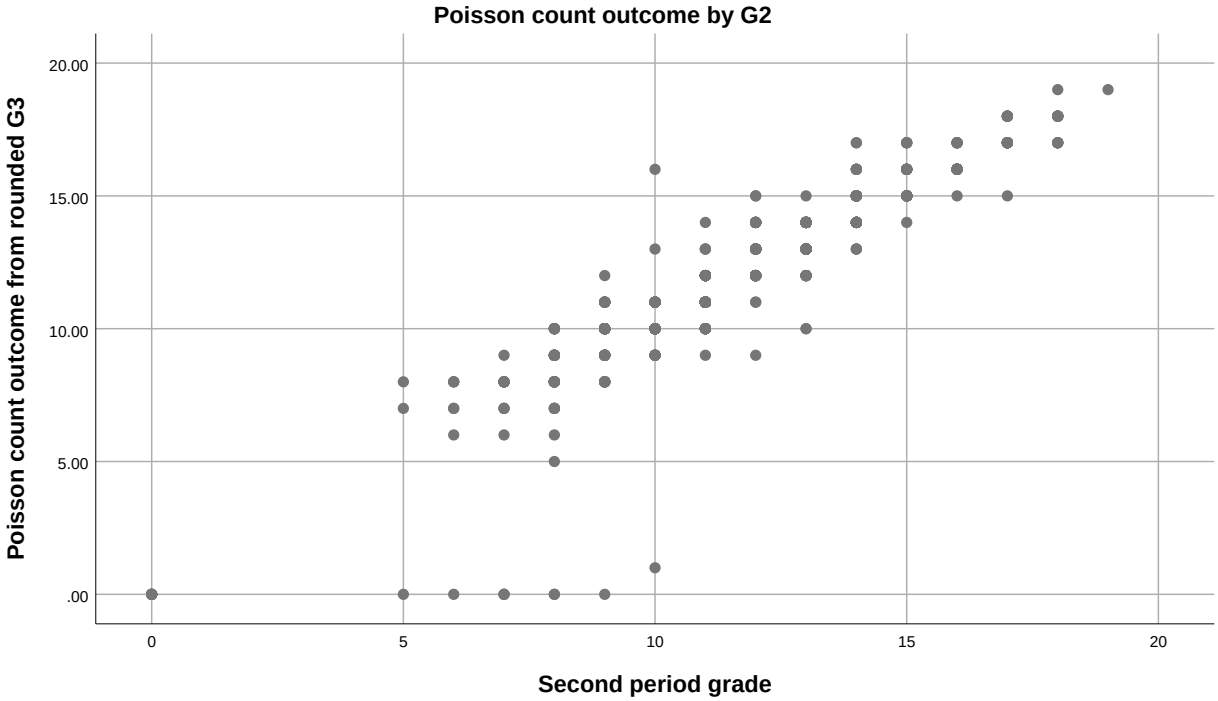
## Graph

Poisson Regression
Prepared data summary

## Notes

| | | |
|---|---|---|
| Output Created | | 11-JUL-2026 22:42:08 |
| Comments | | |
| Input | Data | D:\DATA ANALYSIS\H Regression Tests and Models\Poisson Regression\dataset.csv |
| | Active Dataset | PoissonData |
| | Filter | <none> |
| | Weight | <none> |
| | Split File | <none> |
| | N of Rows in Working Data File | 649 |
| Syntax | | GRAPH /SCATTERPLOT(BIVAR) =G2 WITH poisson_count /TITLE='Poisson count outcome by G2'. |
| Resources | Processor Time | 00:00:00.42 |
| | Elapsed Time | 00:00:00.56 |

Poisson Regression
Prepared data summary



# Generalized Linear Models

## Notes

| | | |
|---|---|---|
| Output Created | | 11-JUL-2026 22:42:09 |
| Comments | | |
| Input | Data | D:\DATA ANALYSIS\H Regression Tests and Models\Poisson Regression\dataset.csv |
| | Active Dataset | PoissonData |
| | Filter | <none> |
| | Weight | <none> |
| | Split File | <none> |
| | N of Rows in Working Data File | 649 |
| Missing Value Handling | Definition of Missing | User-defined missing values for factor, subject and within-subject variables are treated as missing. |
| | Cases Used | Statistics are based on cases with valid data for all variables in the model. |
| Weight Handling | | not applicable |

Poisson Regression
Main Poisson GENLINmodel

## Notes

| | | |
|---|---|---|
| Syntax | | GENLIN poisson_count WITH G1 G2 studytime failures absences age Medu Fedu traveltime health school_ms sex_male address_urban higher_yes internet_yes schoolsup_yes famsup_yes activities_yes /MODEL G1 G2 studytime failures absences age Medu Fedu traveltime health school_ms sex_male address_urban higher_yes internet_yes schoolsup_yes famsup_yes activities_yes INTERCEPT=YES DISTRIBUTION=POISSON LINK=LOG /CRITERIA METHOD=FISHER(1) SCALE=1 COVB=MODEL MAXITERATIONS=100 PCONVERGE=1E-006 (ABSOLUTE) SINGULAR=1E-012 /PRINT CPS DESCRIPTIVES MODELINFO FIT SUMMARY SOLUTION. |
| Resources | Processor Time | 00:00:00.33 |
| | Elapsed Time | 00:00:00.51 |

## Model Information

| | |
|---|---|
| Dependent Variable | Poisson count outcome from rounded G3 |
| Probability Distribution | Poisson |
| Link Function | Log |

Poisson Regression
Main Poisson GENLINmodel

## Case Processing Summary

| | N | Percent |
|---|---|---|
| Included | 649 | 100.0% |
| Excluded | 0 | 0.0% |
| Total | 649 | 100.0% |

## Continuous Variable Information

| | | N | Minimum | Maximum | Mean |
|---|---|---|---|---|---|
| Dependent Variable | Poisson count outcome from rounded G3 | 649 | .00 | 19.00 | 11.9060 |
| Covariate | First period grade | 649 | 0 | 19 | 11.40 |
| | Second period grade | 649 | 0 | 19 | 11.57 |
| | Weekly study time group | 649 | 1 | 4 | 1.93 |
| | Number of past class failures | 649 | 0 | 3 | .22 |
| | School absences | 649 | 0 | 32 | 3.66 |
| | Age | 649 | 15 | 22 | 16.74 |
| | Mother education | 649 | 0 | 4 | 2.51 |
| | Father education | 649 | 0 | 4 | 2.31 |
| | Home to school travel time | 649 | 1 | 4 | 1.57 |
| | Current health status | 649 | 1 | 5 | 3.54 |
| | School dummy: 1 = MS, 0 = GP | 649 | 0 | 1 | .35 |
| | Sex dummy: 1 = male, 0 = female | 649 | 0 | 1 | .41 |
| | Address dummy: 1 = urban, 0 = rural | 649 | 0 | 1 | .70 |
| | Higher education intention dummy: yes | 649 | 0 | 1 | .89 |
| | Internet access dummy: yes | 649 | 0 | 1 | .77 |
| | School support dummy: yes | 649 | 0 | 1 | .10 |
| | Family support dummy: yes | 649 | 0 | 1 | .61 |
| | Activities dummy: yes | 649 | 0 | 1 | .49 |

Poisson Regression
Main Poisson GENLINmodel

## Continuous Variable Information

| | | Std. Deviation |
|---|---|---|
| Dependent Variable | Poisson count outcome from rounded G3 | 3.23066 |
| Covariate | First period grade | 2.745 |
| | Second period grade | 2.914 |
| | Weekly study time group | .830 |
| | Number of past class failures | .593 |
| | School absences | 4.641 |
| | Age | 1.218 |
| | Mother education | 1.135 |
| | Father education | 1.100 |
| | Home to school travel time | .749 |
| | Current health status | 1.446 |
| | School dummy: 1 = MS, 0 = GP | .477 |
| | Sex dummy: 1 = male, 0 = female | .492 |
| | Address dummy: 1 = urban, 0 = rural | .460 |
| | Higher education intention dummy: yes | .308 |
| | Internet access dummy: yes | .423 |
| | School support dummy: yes | .307 |
| | Family support dummy: yes | .487 |
| | Activities dummy: yes | .500 |

Poisson Regression
Main Poisson GENLINmodel

**Goodness of Fit[a]**

| | Value | df | Value/df |
|---|---|---|---|
| Deviance | 244.266 | 630 | .388 |
| Scaled Deviance | 244.266 | 630 | |
| Pearson Chi-Square | 153.641 | 630 | .244 |
| Scaled Pearson Chi-Square | 153.641 | 630 | |
| Log Likelihood[b] | -1493.500 | | |
| Akaike's Information Criterion (AIC) | 3024.999 | | |
| Finite Sample Corrected AIC (AICC) | 3026.208 | | |
| Bayesian Information Criterion (BIC) | 3110.032 | | |
| Consistent AIC (CAIC) | 3129.032 | | |

Dependent Variable: Poisson count outcome from rounded G3
Model: (Intercept), First period grade, Second period grade, Weekly study time group, Number of past class failures, School absences, Age, Mother education, Father education, Home to school travel time, Current health status, School dummy: 1 = MS, 0 = GP, Sex dummy: 1 = male, 0 = female, Address dummy: 1 = urban, 0 = rural, Higher education intention dummy: yes, Internet access dummy: yes, School support dummy: yes, Family support dummy: yes, Activities dummy: yes

a. Information criteria are in smaller-is-better form.

b. The full log likelihood function is displayed and used in computing information criteria.

**Omnibus Test[a]**

| Likelihood Ratio Chi-Square | df | Sig. |
|---|---|---|
| 501.342 | 18 | .000 |

Dependent Variable: Poisson count outcome from rounded G3
Model: (Intercept), First period grade, Second period grade, Weekly study time group, Number of past class failures, School absences, Age, Mother education, Father education, Home to school travel time, Current health status, School dummy: 1 = MS, 0 = GP, Sex dummy: 1 = male, 0 = female, Address dummy: 1 = urban, 0 = rural, Higher education intention dummy: yes, Internet access dummy: yes, School support dummy: yes, Family support dummy: yes, Activities dummy: yes

a. Compares the fitted model against the intercept-only model.

Poisson Regression
Main Poisson GENLINmodel

## Tests of Model Effects

| Source | Type III Wald Chi-Square | df | Sig. |
|---|---|---|---|
| (Intercept) | 54.121 | 1 | .000 |
| First period grade | .076 | 1 | .783 |
| Second period grade | 94.115 | 1 | .000 |
| Weekly study time group | .009 | 1 | .925 |
| Number of past class failures | 2.262 | 1 | .133 |
| School absences | .855 | 1 | .355 |
| Age | .217 | 1 | .641 |
| Mother education | .766 | 1 | .381 |
| Father education | .152 | 1 | .697 |
| Home to school travel time | .941 | 1 | .332 |
| Current health status | .014 | 1 | .906 |
| School dummy: 1 = MS, 0 = GP | 1.720 | 1 | .190 |
| Sex dummy: 1 = male, 0 = female | .337 | 1 | .562 |
| Address dummy: 1 = urban, 0 = rural | .367 | 1 | .545 |
| Higher education intention dummy: yes | .564 | 1 | .452 |
| Internet access dummy: yes | .173 | 1 | .677 |
| School support dummy: yes | .078 | 1 | .780 |
| Family support dummy: yes | .256 | 1 | .613 |
| Activities dummy: yes | .000 | 1 | .992 |

Poisson Regression
Main Poisson GENLINmodel

Dependent Variable: Poisson count outcome from rounded G3
Model: (Intercept), First period grade, Second period grade, Weekly study time group, Number of past class failures, School absences, Age, Mother education, Father education, Home to school travel time, Current health status, School dummy: 1 = MS, 0 = GP, Sex dummy: 1 = male, 0 = female, Address dummy: 1 = urban, 0 = rural, Higher education intention dummy: yes, Internet access dummy: yes, School support dummy: yes, Family support dummy: yes, Activities dummy: yes

## Parameter Estimates

| Parameter | B | Std. Error | 95% Wald Confidence Interval | | Hypothesis Test |
|---|---|---|---|---|---|
| | | | Lower | Upper | Wald Chi-Square |
| (Intercept) | 1.505 | .2046 | 1.104 | 1.906 | 54.121 |
| First period grade | -.003 | .0092 | -.020 | .015 | .076 |
| Second period grade | .087 | .0089 | .069 | .104 | 94.115 |
| Weekly study time group | .001 | .0148 | -.028 | .030 | .009 |
| Number of past class failures | -.039 | .0259 | -.090 | .012 | 2.262 |
| School absences | .002 | .0026 | -.003 | .008 | .855 |
| Age | -.005 | .0107 | -.026 | .016 | .217 |
| Mother education | -.012 | .0140 | -.040 | .015 | .766 |
| Father education | .005 | .0137 | -.021 | .032 | .152 |
| Home to school travel time | .017 | .0174 | -.017 | .051 | .941 |
| Current health status | -.001 | .0080 | -.017 | .015 | .014 |
| School dummy: 1 = MS, 0 = GP | -.038 | .0287 | -.094 | .019 | 1.720 |
| Sex dummy: 1 = male, 0 = female | -.015 | .0253 | -.064 | .035 | .337 |
| Address dummy: 1 = urban, 0 = rural | .017 | .0285 | -.039 | .073 | .367 |
| Higher education intention dummy: yes | .035 | .0472 | -.057 | .128 | .564 |
| Internet access dummy: yes | .012 | .0297 | -.046 | .071 | .173 |

Poisson Regression
Main Poisson GENLINmodel

## Parameter Estimates

| Parameter | Hypothesis Test df | Hypothesis Test Sig. |
|---|---|---|
| (Intercept) | 1 | .000 |
| First period grade | 1 | .783 |
| Second period grade | 1 | .000 |
| Weekly study time group | 1 | .925 |
| Number of past class failures | 1 | .133 |
| School absences | 1 | .355 |
| Age | 1 | .641 |
| Mother education | 1 | .381 |
| Father education | 1 | .697 |
| Home to school travel time | 1 | .332 |
| Current health status | 1 | .906 |
| School dummy: 1 = MS, 0 = GP | 1 | .190 |
| Sex dummy: 1 = male, 0 = female | 1 | .562 |
| Address dummy: 1 = urban, 0 = rural | 1 | .545 |
| Higher education intention dummy: yes | 1 | .452 |
| Internet access dummy: yes | 1 | .677 |

## Parameter Estimates

| Parameter | B | Std. Error | 95% Wald Confidence Interval Lower | 95% Wald Confidence Interval Upper | Hypothesis Test Wald Chi-Square |
|---|---|---|---|---|---|
| School support dummy: yes | -.011 | .0401 | -.090 | .067 | .078 |
| Family support dummy: yes | .012 | .0244 | -.035 | .060 | .256 |
| Activities dummy: yes | .000 | .0234 | -.046 | .046 | .000 |
| (Scale) | 1[a] | | | | |

Poisson Regression
Main Poisson GENLINmodel

## Parameter Estimates

| Parameter | Hypothesis Test df | Hypothesis Test Sig. |
|---|---|---|
| School support dummy: yes | 1 | .780 |
| Family support dummy: yes | 1 | .613 |
| Activities dummy: yes | 1 | .992 |
| (Scale) | | |

Dependent Variable: Poisson count outcome from rounded G3
Model: (Intercept), First period grade, Second period grade, Weekly study time group, Number of past class failures, School absences, Age, Mother education, Father education, Home to school travel time, Current health status, School dummy: 1 = MS, 0 = GP, Sex dummy: 1 = male, 0 = female, Address dummy: 1 = urban, 0 = rural, Higher education intention dummy: yes, Internet access dummy: yes, School support dummy: yes, Family support dummy: yes, Activities dummy: yes

a. Fixed at the displayed value.

# Generalized Linear Models

## Notes

| | | |
|---|---|---|
| Output Created | | 11-JUL-2026 22:42:10 |
| Comments | | |
| Input | Data | D:\DATA ANALYSIS\H Regression Tests and Models\Poisson Regression\dataset.csv |
| | Active Dataset | PoissonData |
| | Filter | <none> |
| | Weight | <none> |
| | Split File | <none> |
| | N of Rows in Working Data File | 649 |
| Missing Value Handling | Definition of Missing | User-defined missing values for factor, subject and within-subject variables are treated as missing. |
| | Cases Used | Statistics are based on cases with valid data for all variables in the model. |
| Weight Handling | | not applicable |
| Syntax | | GENLIN poisson_count WITH G1 G2 studytime failures absences age<br>/MODEL G1 G2 studytime failures absences age<br>INTERCEPT=YES DISTRIBUTION=POISSON LINK=LOG<br>/CRITERIA METHOD=FISHER(1) SCALE=1 COVB=MODEL MAXITERATIONS=100 PCONVERGE=1E-006 (ABSOLUTE) SINGULAR=1E-012<br>/PRINT CPS MODELINFO FIT SUMMARY SOLUTION. |

Poisson Regression
Core grade predictors model

## Notes

| | | |
|---|---|---|
| Resources | Processor Time | 00:00:00.23 |
| | Elapsed Time | 00:00:00.54 |

## Model Information

| | |
|---|---|
| Dependent Variable | Poisson count outcome from rounded G3 |
| Probability Distribution | Poisson |
| Link Function | Log |

## Case Processing Summary

| | N | Percent |
|---|---|---|
| Included | 649 | 100.0% |
| Excluded | 0 | 0.0% |
| Total | 649 | 100.0% |

## Goodness of Fit[a]

| | Value | df | Value/df |
|---|---|---|---|
| Deviance | 249.333 | 642 | .388 |
| Scaled Deviance | 249.333 | 642 | |
| Pearson Chi-Square | 156.844 | 642 | .244 |
| Scaled Pearson Chi-Square | 156.844 | 642 | |
| Log Likelihood[b] | -1496.033 | | |
| Akaike's Information Criterion (AIC) | 3006.067 | | |
| Finite Sample Corrected AIC (AICC) | 3006.241 | | |
| Bayesian Information Criterion (BIC) | 3037.395 | | |
| Consistent AIC (CAIC) | 3044.395 | | |

Poisson Regression
Core grade predictors model

Dependent Variable: Poisson count outcome from rounded G3
Model: (Intercept), First period grade, Second period grade, Weekly study time group, Number of past class failures, School absences, Age

a. Information criteria are in smaller-is-better form.

b. The full log likelihood function is displayed and used in computing information criteria.

## Omnibus Test[a]

| Likelihood Ratio Chi-Square | df | Sig. |
|---|---|---|
| 496.274 | 6 | .000 |

Dependent Variable: Poisson count outcome from rounded G3
Model: (Intercept), First period grade, Second period grade, Weekly study time group, Number of past class failures, School absences, Age

a. Compares the fitted model against the intercept-only model.

## Tests of Model Effects

| Source | Type III Wald Chi-Square | df | Sig. |
|---|---|---|---|
| (Intercept) | 76.812 | 1 | .000 |
| First period grade | .009 | 1 | .925 |
| Second period grade | 96.554 | 1 | .000 |
| Weekly study time group | .218 | 1 | .641 |
| Number of past class failures | 2.651 | 1 | .103 |
| School absences | 1.893 | 1 | .169 |
| Age | .418 | 1 | .518 |

Dependent Variable: Poisson count outcome from rounded G3
Model: (Intercept), First period grade, Second period grade, Weekly study time group, Number of past class failures, School absences, Age

Poisson Regression
Core grade predictors model

## Parameter Estimates

| Parameter | B | Std. Error | 95% Wald Confidence Interval | | Hypothesis Test |
|---|---|---|---|---|---|
| | | | Lower | Upper | Wald Chi-Square |
| (Intercept) | 1.545 | .1763 | 1.199 | 1.890 | 76.812 |
| First period grade | -.001 | .0090 | -.019 | .017 | .009 |
| Second period grade | .087 | .0088 | .069 | .104 | 96.554 |
| Weekly study time group | .007 | .0142 | -.021 | .034 | .218 |
| Number of past class failures | -.041 | .0255 | -.091 | .008 | 2.651 |
| School absences | .004 | .0025 | -.001 | .008 | 1.893 |
| Age | -.007 | .0102 | -.027 | .013 | .418 |
| (Scale) | 1[a] | | | | |

## Parameter Estimates

| Parameter | Hypothesis Test | |
|---|---|---|
| | df | Sig. |
| (Intercept) | 1 | .000 |
| First period grade | 1 | .925 |
| Second period grade | 1 | .000 |
| Weekly study time group | 1 | .641 |
| Number of past class failures | 1 | .103 |
| School absences | 1 | .169 |
| Age | 1 | .518 |
| (Scale) | | |

Dependent Variable: Poisson count outcome from rounded G3
Model: (Intercept), First period grade, Second period grade, Weekly study time group, Number of past class failures, School absences, Age

a. Fixed at the displayed value.