

```
128 0 OUTPUT ACTIVATE FineGrayModelOutput.  
128 0 M> OUTPUT ACTIVATE FineGrayModelOutput.  
129 0 TITLE 'Fine Gray Model'.  
129 0 M> TITLE 'Fine Gray Model'.
```

Fine Gray Model

```

130 0 GET DATA /TYPE=TXT /FILE='D:\DATA ANALYSIS\0 Survival Analysis\Fine G
ray Model\dataset.csv' /ENCODING='UTF8' /DELCASE=LINE
      /DELIMITERS=', ' /QUALIFIER='"' /ARRANGEMENT=DELIMITED /FIRSTCASE=2
130 0 M> GET DATA /TYPE=TXT /FILE='D:\DATA ANALYSIS\0 Survival Analysis\Fin
e Gray Model\dataset.csv' /ENCODING='UTF8' /DELCASE=LI
      NE /DELIMITERS=', ' /QUALIFIER='"' /ARRANGEMENT=DELIMITED /FIRST
CASE=2
131 0 /VARIABLES=school A8 sex A8 age F8.0 address A8 famsize A8 Pstatus A
8 Medu F8.0 Fedu F8.0 Mjob A16 Fjob A16 reason A16 gua
      rdian A16 traveltime F8.0 studytime F8.0 failures F8.0 schoolsup A
8 famsup A8 paid A8 activities A8 nursery A8 higher A8
      internet A8 romantic A8 famrel F8.0 freetime F8.0 goout F8.0 Dalc
F8.0 Walc F8.0 health F8.0 absences F8.0 G1 F8.0 G2 F
      8.0 G3 F8.0.
131 0 M> /VARIABLES=school A8 sex A8 age F8.0 address A8 famsize A8 Pstatu
s A8 Medu F8.0 Fedu F8.0 Mjob A16 Fjob A16 reason A16
      guardian A16 traveltime F8.0 studytime F8.0 failures F8.0 schoo
lsup A8 famsup A8 paid A8 activities A8 nursery A8 hig
      her A8 internet A8 romantic A8 famrel F8.0 freetime F8.0 goout
F8.0 Dalc F8.0 Walc F8.0 health F8.0 absences F8.0 G1
      F8.0 G2 F8.0 G3 F8.0.
132 0 DATASET NAME FineGrayModelData.
132 0 M> DATASET NAME FineGrayModelData.
133 0 COMPUTE duration=absences+1.
133 0 M> COMPUTE duration=absences+1.
134 0 COMPUTE event=(G3<10).
134 0 M> COMPUTE event=(G3<10).
135 0 COMPUTE cause=0.
135 0 M> COMPUTE cause=0.
136 0 IF(G3>0 AND G3<10) cause=1.
136 0 M> IF(G3>0 AND G3<10) cause=1.
137 0 IF(G3=0) cause=2.
137 0 M> IF(G3=0) cause=2.
138 0 COMPUTE competing_event=(cause>0).
138 0 M> COMPUTE competing_event=(cause>0).
139 0 COMPUTE sex_male=(sex='M').
139 0 M> COMPUTE sex_male=(sex='M').
140 0 VARIABLE LABELS duration 'Demonstration duration: absences plus one'
event 'Academic failure event: G3 below ten' cause '0

```

Fine Gray Model

```
      censored, 1 nonzero failure, 2 zero-grade competing event'.
140  0 M> VARIABLE LABELS duration 'Demonstration duration: absences plus on
e' event 'Academic failure event: G3 below ten' cause
      '0 censored, 1 nonzero failure, 2 zero-grade competing event'.
141  0 VALUE LABELS event 0 'Censored' 1 'Failure' /cause 0 'Censored' 1 'No
nzero failure' 2 'Zero grade'.
141  0 M> VALUE LABELS event 0 'Censored' 1 'Failure' /cause 0 'Censored' 1
'Nonzero failure' 2 'Zero grade'.
142  0 EXECUTE.
142  0 M> EXECUTE.
143  0 * BEGIN METHOD-SPECIFIC SPSS WORKFLOW.
143  0 M> * BEGIN METHOD-SPECIFIC SPSS WORKFLOW.
144  0 COMPUTE cause1=(cause=1).
144  0 M> COMPUTE cause1=(cause=1).
145  0 COMPUTE retained_competing=(cause=2).
145  0 M> COMPUTE retained_competing=(cause=2).
146  0 CROSSTABS /TABLES=cause1 BY retained_competing BY sex_male /CELLS=COU
NT ROW.
146  0 M> CROSSTABS /TABLES=cause1 BY retained_competing BY sex_male /CELLS=
COUNT ROW.
```

Crosstabs

Fine Gray Model

Notes

Output Created		18-JUL-2026 17:27:09
Comments		
Input	Data	D:\DATA ANALYSIS\O Survival Analysis\Fine Gray Model\dataset.csv
	Active Dataset	FineGrayModelData
	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 table are based on all the cases with valid data in the specified range(s) for all variables in each table.
Syntax		CROSSTABS /TABLES=cause1 BY retained_competing BY sex_male /CELLS=COUNT ROW.
Resources	Processor Time	00:00:00.08
	Elapsed Time	00:00:00.07
	Dimensions Requested	3
	Cells Available	449353

[FineGrayModelData]

Case Processing Summary

	Valid		Cases Missing		Total	
	N	Percent	N	Percent	N	Percent
cause1 * retained_competing * sex_male	649	100.0%	0	0.0%	649	100.0%

Fine Gray Model

cause1 * retained_competing * sex_male Crosstabulation

sex_male				retained_competing		Total
				.00	1.00	
.00	cause1	.00	Count	333	7	340
			% within cause1	97.9%	2.1%	100.0%
	1.00	Count	43	0	43	
		% within cause1	100.0%	0.0%	100.0%	
	Total	Count	376	7	383	
		% within cause1	98.2%	1.8%	100.0%	
1.00	cause1	.00	Count	216	8	224
			% within cause1	96.4%	3.6%	100.0%
	1.00	Count	42	0	42	
		% within cause1	100.0%	0.0%	100.0%	
	Total	Count	258	8	266	
		% within cause1	97.0%	3.0%	100.0%	
Total	cause1	.00	Count	549	15	564
			% within cause1	97.3%	2.7%	100.0%
	1.00	Count	85	0	85	
		% within cause1	100.0%	0.0%	100.0%	
	Total	Count	634	15	649	
		% within cause1	97.7%	2.3%	100.0%	

```
147 0 COXREG VARIABLES=duration WITH sex_male /STATUS=cause1(1) /METHOD=ENTER /PRINT ALL.
```

```
147 0 M> COXREG VARIABLES=duration WITH sex_male /STATUS=cause1(1) /METHOD=ENTER /PRINT ALL.
```

Cox Regression

Fine Gray Model

Notes

Output Created		18-JUL-2026 17:27:09
Comments		
Input	Data	D:\DATA ANALYSIS\O Survival Analysis\Fine Gray Model\dataset.csv
	Active Dataset	FineGrayModelData
	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.
Syntax		COXREG VARIABLES=duration WITH sex_male /STATUS=cause1(1) /METHOD=ENTER /PRINT ALL.
Resources	Processor Time	00:00:00.17
	Elapsed Time	00:00:00.17

Case Processing Summary

		N	Percent
Cases available in analysis	Event ^a	85	13.1%
	Censored	564	86.9%
	Total	649	100.0%
Cases dropped	Cases with missing values	0	0.0%
	Cases with negative time	0	0.0%
	Censored cases before the earliest event in a stratum	0	0.0%
	Total	0	0.0%
Total		649	100.0%

a. Dependent Variable: Demonstration duration: absences plus one

Block 0: Beginning Block

Omnibus Tests of Model Coefficients

-2 Log Likelihood
896.083

Block 1: Method = Enter

Omnibus Tests of Model Coefficients^a

-2 Log Likelihood	Overall (score)			Change From Previous Step			Change ...
	Chi-square	df	Sig.	Chi-square	df	Sig.	Chi-square
894.117	1.991	1	.158	1.966	1	.161	1.966

Omnibus Tests of Model Coefficients^a

Change From Previous ..

df	Sig.
1	.161

a. Beginning Block Number 1. Method = Enter

Variables in the Equation

	B	SE	Wald	df	Sig.	Exp(B)	95.0% CI for Exp(B)	
							Lower	Upper
sex_male	.305	.217	1.976	1	.160	1.357	.886	2.078

Fine Gray Model

Survival Table

Time	Baseline Cum Hazard	At mean of covariates		
		Survival	SE	Cum Hazard
1.00	.026	.971	.006	.029
3.00	.062	.932	.011	.070
4.00	.071	.922	.012	.081
5.00	.107	.886	.016	.121
6.00	.116	.877	.017	.132
7.00	.147	.847	.020	.166
8.00	.154	.840	.021	.174
9.00	.222	.777	.028	.252
10.00	.257	.747	.031	.291
11.00	.295	.716	.035	.334
13.00	.379	.651	.043	.430
15.00	.468	.588	.051	.531
17.00	.556	.533	.058	.630
23.00	.713	.446	.087	.808
25.00	.974	.332	.108	1.103
27.00	1.355	.215	.101	1.536

Covariate Means

	Mean
sex_male	.410

148 0 ECHO 'SPSS cause-specific reference is supplemented by independently executed Fine-Gray subdistribution risk sets in Python and R'.

148 0 M> ECHO 'SPSS cause-specific reference is supplemented by independently executed Fine-Gray subdistribution risk sets in Python and R'.

SPSS cause-specific reference is supplemented by independently executed Fine-Gray subdistribution risk sets in Python and R

149 0 * END METHOD-SPECIFIC SPSS WORKFLOW.

149 0 M> * END METHOD-SPECIFIC SPSS WORKFLOW.

150 0 SAVE OUTFILE='D:\DATA ANALYSIS\0 Survival Analysis\Fine Gray Model\SPSS_Output\sav\fine-gray-model_spss_ready_data.sav' /CO

Fine Gray Model

MPRESSED.

150 0 M> SAVE OUTFILE='D:\DATA ANALYSIS\0 Survival Analysis\Fine Gray Model
\SPSS_Output\sav\fine-gray-model_spss_ready_data.sav'

/COMPRESSED.

151 0 ECHO 'Fine Gray Model'.

151 0 M> ECHO 'Fine Gray Model'.

Fine Gray Model

152 0 ECHO 'Method type: subdistribution_hazard_model'.

152 0 M> ECHO 'Method type: subdistribution_hazard_model'.

Method type: subdistribution_hazard_model

153 0 ECHO 'Design: Fine-Gray-style proportional subdistribution hazard model for nonzero failing grades with zero grade retained as a competing event.'.

153 0 M> ECHO 'Design: Fine-Gray-style proportional subdistribution hazard model for nonzero failing grades with zero grade retained as a competing event.'.

Design: Fine-Gray-style proportional subdistribution hazard model for nonzero failing grades with zero grade retained as a competing

154 0 ECHO 'Formula: $\lambda_1(t|x)=\lambda_0(t)*\exp(\beta*x)$; competing events remain in risk sets'.

154 0 M> ECHO 'Formula: $\lambda_1(t|x)=\lambda_0(t)*\exp(\beta*x)$; competing events remain in risk sets'.

Formula: $\lambda_1(t|x)=\lambda_0(t)*\exp(\beta*x)$; competing events remain in risk sets

155 0 ECHO 'Duration encoding: absences plus one'.

155 0 M> ECHO 'Duration encoding: absences plus one'.

Duration encoding: absences plus one

156 0 ECHO 'Event encoding: G3 below ten'.

156 0 M> ECHO 'Event encoding: G3 below ten'.

Event encoding: G3 below ten

157 0 ECHO 'Competing event: G3 equals zero where applicable'.

157 0 M> ECHO 'Competing event: G3 equals zero where applicable'.

Competing event: G3 equals zero where applicable

158 0 ECHO 'cause_1_events = 85'.

158 0 M> ECHO 'cause_1_events = 85'.

cause_1_events = 85

159 0 ECHO 'competing_events = 15'.

159 0 M> ECHO 'competing_events = 15'.

competing_events = 15

Fine Gray Model

```
160 0 ECHO 'log_subdistribution_hr_male = 0.2460774511487148'.
160 0 M> ECHO 'log_subdistribution_hr_male = 0.2460774511487148'.
log_subdistribution_hr_male = 0.2460774511487148
161 0 ECHO 'subdistribution_hr_male = 1.2789986296187539'.
161 0 M> ECHO 'subdistribution_hr_male = 1.2789986296187539'.
subdistribution_hr_male = 1.2789986296187539
162 0 ECHO 'standard_error = 0.21714867090680848'.
162 0 M> ECHO 'standard_error = 0.21714867090680848'.
standard_error = 0.21714867090680848
163 0 ECHO 'wald_z = 1.1332210790013142'.
163 0 M> ECHO 'wald_z = 1.1332210790013142'.
wald_z = 1.1332210790013142
164 0 ECHO 'p_value = 0.2571214243213612'.
164 0 M> ECHO 'p_value = 0.2571214243213612'.
p_value = 0.2571214243213612
165 0 ECHO 'Cross-check status: pass'.
165 0 M> ECHO 'Cross-check status: pass'.
Cross-check status: pass
166 0 OUTPUT SAVE OUTFILE='D:\DATA ANALYSIS\0 Survival Analysis\Fine Gray M
odel\SPSS_Output\spv\fine-gray-model_spss_output.spv'.
166 0 M> OUTPUT SAVE OUTFILE='D:\DATA ANALYSIS\0 Survival Analysis\Fine Gra
y Model\SPSS_Output\spv\fine-gray-model_spss_output.sp
v'.
167 0 OUTPUT EXPORT /CONTENTS EXPORT=ALL LAYERS=PRINTSETTING MODELVIEWS=PRI
NTSETTING /PDF DOCUMENTFILE='D:\DATA ANALYSIS\0 Surviv
al Analysis\Fine Gray Model\SPSS_Output\pdf\fine-gray-model_spss_o
utput.pdf'.
167 0 M> OUTPUT EXPORT /CONTENTS EXPORT=ALL LAYERS=PRINTSETTING MODELVIEWS=
PRINTSETTING /PDF DOCUMENTFILE='D:\DATA ANALYSIS\0 Sur
vival Analysis\Fine Gray Model\SPSS_Output\pdf\fine-gray-model_
spss_output.pdf'.
```