```
Your temporary usage period for IBM SPSS Statistics will expire in 3484 days.

* ============================================================.
* Effect Size Analysis - SPSS Syntax.
* Project folder:
* D:\DATA ANALYSIS\A Basic Descriptive Statistics Guides\Effect Size
*
* IMPORTANT:
* 1. This syntax uses the clean SPSS-ready file created by Python.
* 2. The PDF and SPV output are saved automatically into Python_Output\pdf.
* 3. If SPSS cannot create folders through HOST COMMAND, create the pdf folder
 manually.
* ============================================================.

SET PRINTBACK=ON MPRINT=ON DECIMAL=DOT.
SET UNICODE=ON.
  43  0 M>  SET UNICODE=ON.

  44  0 M>
* ------------------------------------------------------------.
  45  0 M>  * ------------------------------------------------------------.
* 1. Create output folder if possible.
  46  0 M>  * 1. Create output folder if possible.
* ------------------------------------------------------------.
  47  0 M>  * ------------------------------------------------------------.

  48  0 M>
HOST COMMAND=['cmd /c if not exist "D:\DATA ANALYSIS\A Basic Descriptive Stati
stics Guides\Effect Size\Python_Output\pdf" mkdir "D:\DATA ANALYSIS\A Basic De
scriptive Statistics Guides\Effect Size\Python_Output\pdf"'].
  49  0 M>  HOST COMMAND=['cmd /c if not exist "D:\DATA ANALYSIS\A Basic Descr
iptive Statistics Guides\Effect Size\Python_Output\pdf
               " mkdir "D:\DATA ANALYSIS\A Basic Descriptive Statistics Guides
\Effect Size\Python_Output\pdf"'].
```

Host

```
[DataSet0]


  50  0 M>
* ------------------------------------------------------------.
```

```
  51  0 M>  * ------------------------------------------------------------.
* 2. Import clean Python-generated SPSS-ready data.
  52  0 M>  * 2. Import clean Python-generated SPSS-ready data.
* ------------------------------------------------------------.
  53  0 M>  * ------------------------------------------------------------.

  54  0 M>
GET DATA
  55  0 M>  GET DATA
  /TYPE=TXT
  56  0 M>    /TYPE=TXT
  /FILE='D:\DATA ANALYSIS\A Basic Descriptive Statistics Guides\Effect Size\Py
thon_Output\clean_data\effect_size_clean_data_for_spss.csv'
  57  0 M>    /FILE='D:\DATA ANALYSIS\A Basic Descriptive Statistics Guides\Ef
fect Size\Python_Output\clean_data\effect_size_clean_d
               ata_for_spss.csv'
  /ENCODING='UTF8'
  58  0 M>    /ENCODING='UTF8'
  /DELCASE=LINE
  59  0 M>    /DELCASE=LINE
  /DELIMITERS=","
  60  0 M>    /DELIMITERS=","
  /QUALIFIER='"'
  61  0 M>    /QUALIFIER='"'
  /ARRANGEMENT=DELIMITED
  62  0 M>    /ARRANGEMENT=DELIMITED
  /FIRSTCASE=2
  63  0 M>    /FIRSTCASE=2
  /VARIABLES=
  64  0 M>    /VARIABLES=
    school A8
  65  0 M>      school A8
    sex A12
  66  0 M>      sex A12
    age F8.2
  67  0 M>      age F8.2
    address A8
  68  0 M>      address A8
    famsize A8
  69  0 M>      famsize A8
    Pstatus A8
  70  0 M>      Pstatus A8
```

```
  Medu F8.2
71  0 M>      Medu F8.2
  Fedu F8.2
72  0 M>      Fedu F8.2
  Mjob A20
73  0 M>      Mjob A20
  Fjob A20
74  0 M>      Fjob A20
  reason A20
75  0 M>      reason A20
  guardian A20
76  0 M>      guardian A20
  traveltime F8.2
77  0 M>      traveltime F8.2
  studytime F8.2
78  0 M>      studytime F8.2
  failures F8.2
79  0 M>      failures F8.2
  schoolsup A8
80  0 M>      schoolsup A8
  famsup A8
81  0 M>      famsup A8
  paid A8
82  0 M>      paid A8
  activities A8
83  0 M>      activities A8
  nursery A8
84  0 M>      nursery A8
  higher A8
85  0 M>      higher A8
  internet A8
86  0 M>      internet A8
  romantic A8
87  0 M>      romantic A8
  famrel F8.2
88  0 M>      famrel F8.2
  freetime F8.2
89  0 M>      freetime F8.2
  goout F8.2
90  0 M>      goout F8.2
  Dalc F8.2
91  0 M>      Dalc F8.2
```

```
    Walc F8.2
  92  0 M>      Walc F8.2
    health F8.2
  93  0 M>      health F8.2
    absences F8.2
  94  0 M>      absences F8.2
    G1 F8.2
  95  0 M>      G1 F8.2
    G2 F8.2
  96  0 M>      G2 F8.2
    G3 F8.2
  97  0 M>      G3 F8.2
    studytime_group A20
  98  0 M>      studytime_group A20
    failure_group A20.
  99  0 M>      failure_group A20.
CACHE.
 100  0 M>  CACHE.
EXECUTE.
 101  0 M>  EXECUTE.

 102  0 M>
DATASET NAME EffectSizeMain WINDOW=FRONT.
 103  0 M>  DATASET NAME EffectSizeMain WINDOW=FRONT.

 104  0 M>
* ------------------------------------------------------------.
 105  0 M>  * ------------------------------------------------------------.
* 3. Create numeric grouping variables for SPSS procedures.
 106  0 M>  * 3. Create numeric grouping variables for SPSS procedures.
* ------------------------------------------------------------.
 107  0 M>  * ------------------------------------------------------------.

 108  0 M>
NUMERIC school_num sex_num internet_num higher_num schoolsup_num romantic_num
(F1.0).
 109  0 M>  NUMERIC school_num sex_num internet_num higher_num schoolsup_num r
omantic_num (F1.0).
EXECUTE.
 110  0 M>  EXECUTE.

 111  0 M>
```

```
DO IF (school = "GP").
 112  0 M>  DO IF (school = "GP").
  COMPUTE school_num = 1.
 113  1 M>    COMPUTE school_num = 1.
ELSE IF (school = "MS").
 114  1 M>  ELSE IF (school = "MS").
  COMPUTE school_num = 2.
 115  1 M>    COMPUTE school_num = 2.
END IF.
 116  1 M>  END IF.

 117  0 M>
DO IF (sex = "Female").
 118  0 M>  DO IF (sex = "Female").
  COMPUTE sex_num = 1.
 119  1 M>    COMPUTE sex_num = 1.
ELSE IF (sex = "Male").
 120  1 M>  ELSE IF (sex = "Male").
  COMPUTE sex_num = 2.
 121  1 M>    COMPUTE sex_num = 2.
END IF.
 122  1 M>  END IF.

 123  0 M>
DO IF (internet = "No").
 124  0 M>  DO IF (internet = "No").
  COMPUTE internet_num = 0.
 125  1 M>    COMPUTE internet_num = 0.
ELSE IF (internet = "Yes").
 126  1 M>  ELSE IF (internet = "Yes").
  COMPUTE internet_num = 1.
 127  1 M>    COMPUTE internet_num = 1.
END IF.
 128  1 M>  END IF.

 129  0 M>
DO IF (higher = "No").
 130  0 M>  DO IF (higher = "No").
  COMPUTE higher_num = 0.
 131  1 M>    COMPUTE higher_num = 0.
ELSE IF (higher = "Yes").
 132  1 M>  ELSE IF (higher = "Yes").
```

```
  COMPUTE higher_num = 1.
 133  1 M>    COMPUTE higher_num = 1.
END IF.
 134  1 M>  END IF.

 135  0 M>
DO IF (schoolsup = "No").
 136  0 M>  DO IF (schoolsup = "No").
  COMPUTE schoolsup_num = 0.
 137  1 M>    COMPUTE schoolsup_num = 0.
ELSE IF (schoolsup = "Yes").
 138  1 M>  ELSE IF (schoolsup = "Yes").
  COMPUTE schoolsup_num = 1.
 139  1 M>    COMPUTE schoolsup_num = 1.
END IF.
 140  1 M>  END IF.

 141  0 M>
DO IF (romantic = "No").
 142  0 M>  DO IF (romantic = "No").
  COMPUTE romantic_num = 0.
 143  1 M>    COMPUTE romantic_num = 0.
ELSE IF (romantic = "Yes").
 144  1 M>  ELSE IF (romantic = "Yes").
  COMPUTE romantic_num = 1.
 145  1 M>    COMPUTE romantic_num = 1.
END IF.
 146  1 M>  END IF.
EXECUTE.
 147  0 M>  EXECUTE.

 148  0 M>
VARIABLE LABELS
 149  0 M>  VARIABLE LABELS
  school_num "School group"
 150  0 M>    school_num "School group"
  sex_num "Sex"
 151  0 M>    sex_num "Sex"
  internet_num "Internet access"
 152  0 M>    internet_num "Internet access"
  higher_num "Higher education intention"
 153  0 M>    higher_num "Higher education intention"
```

```
  schoolsup_num "School support"
 154  0 M>    schoolsup_num "School support"
  romantic_num "Romantic relationship"
 155  0 M>    romantic_num "Romantic relationship"
  G1 "First period grade"
 156  0 M>    G1 "First period grade"
  G2 "Second period grade"
 157  0 M>    G2 "Second period grade"
  G3 "Final grade".
 158  0 M>    G3 "Final grade".

 159  0 M>
VALUE LABELS
 160  0 M>  VALUE LABELS
  school_num 1 "GP" 2 "MS"
 161  0 M>    school_num 1 "GP" 2 "MS"
  sex_num 1 "Female" 2 "Male"
 162  0 M>    sex_num 1 "Female" 2 "Male"

>Warning # 4492 in column 3.  Text: sex_num
>The (ADD) VALUE LABELS command included a symbol other than a value where a
>value (either numeric or string) was expected.  For compatibility with
>previous systems, a parenthesized value would have been acceptable.  All valu
e
>labels up to the next slash will be ignored.
  internet_num 0 "No" 1 "Yes"
 163  0 M>    internet_num 0 "No" 1 "Yes"
  higher_num 0 "No" 1 "Yes"
 164  0 M>    higher_num 0 "No" 1 "Yes"
  schoolsup_num 0 "No" 1 "Yes"
 165  0 M>    schoolsup_num 0 "No" 1 "Yes"
  romantic_num 0 "No" 1 "Yes"
 166  0 M>    romantic_num 0 "No" 1 "Yes"
  studytime 1 "<2 hours" 2 "2 to 5 hours" 3 "5 to 10 hours" 4 ">10 hours"
 167  0 M>    studytime 1 "<2 hours" 2 "2 to 5 hours" 3 "5 to 10 hours" 4 ">10
 hours"
  failures 0 "0 failures" 1 "1 failure" 2 "2 failures" 3 "3+ failures".
 168  0 M>    failures 0 "0 failures" 1 "1 failure" 2 "2 failures" 3 "3+ failu
res".

 169  0 M>
```

```
FORMATS school_num sex_num internet_num higher_num schoolsup_num romantic_num
studytime failures (F1.0).
 170  0 M>  FORMATS school_num sex_num internet_num higher_num schoolsup_num r
omantic_num studytime failures (F1.0).
EXECUTE.
 171  0 M>  EXECUTE.

 172  0 M>
TITLE "Effect Size Analysis Using Student Performance Data".
 173  0 M>  TITLE "Effect Size Analysis Using Student Performance Data".
```

```
SUBTITLE "Cohen's d, Hedges' g, eta squared, omega squared, Cramer's V, odds r
atio, Cohen's h, Pearson r and Cliff's delta context".
 174  0 M>  SUBTITLE "Cohen's d, Hedges' g, eta squared, omega squared, Cramer
's V, odds ratio, Cohen's h, Pearson r and Cliff's del
               ta context".

>Warning # 2004.  Command name: SUBTITLE
>The subtitle given exceeds 60 characters in length.  The first 60 characters
>will be used.
```

```
 175  0 M>
* ------------------------------------------------------------.
 176  0 M>  * ------------------------------------------------------------.
* 4. Dataset overview and descriptive statistics.
 177  0 M>  * 4. Dataset overview and descriptive statistics.
* ------------------------------------------------------------.
 178  0 M>  * ------------------------------------------------------------.

 179  0 M>
FREQUENCIES VARIABLES=school_num sex_num internet_num higher_num schoolsup_num
 romantic_num studytime failures
 180  0 M>  FREQUENCIES VARIABLES=school_num sex_num internet_num higher_num s
choolsup_num romantic_num studytime failures
  /ORDER=ANALYSIS.
 181  0 M>    /ORDER=ANALYSIS.
```

Frequencies

```
[EffectSizeMain]
```

Statistics

		school_num	sex_num	internet_num	higher_num	schoolsup_num
N	Valid	649	649	649	649	649
	Missing	0	0	0	0	0

Statistics

		romantic_num	studytime	failures
N	Valid	649	649	649
	Missing	0	0	0

Frequency Table

Effect Size Analysis Using Student Performance Data
Cohen's d, Hedges' g, eta squared, omega squared, Cramer's V

school_num

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	423	65.2	65.2	65.2
	2	226	34.8	34.8	100.0
	Total	649	100.0	100.0	

sex_num

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	383	59.0	59.0	59.0
	2	266	41.0	41.0	100.0
	Total	649	100.0	100.0	

internet_num

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	151	23.3	23.3	23.3
	1	498	76.7	76.7	100.0
	Total	649	100.0	100.0	

higher_num

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	69	10.6	10.6	10.6
	1	580	89.4	89.4	100.0
	Total	649	100.0	100.0	

schoolsup_num

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	581	89.5	89.5	89.5
	1	68	10.5	10.5	100.0
	Total	649	100.0	100.0	

romantic_num

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	410	63.2	63.2	63.2
	1	239	36.8	36.8	100.0
	Total	649	100.0	100.0	

studytime

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	212	32.7	32.7	32.7
	2	305	47.0	47.0	79.7
	3	97	14.9	14.9	94.6
	4	35	5.4	5.4	100.0
	Total	649	100.0	100.0	

failures

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	549	84.6	84.6	84.6
	1	70	10.8	10.8	95.4
	2	16	2.5	2.5	97.8
	3	14	2.2	2.2	100.0
	Total	649	100.0	100.0	

```
 182  0 M>
DESCRIPTIVES VARIABLES=G1 G2 G3 age absences studytime failures
 183  0 M>  DESCRIPTIVES VARIABLES=G1 G2 G3 age absences studytime failures
  /STATISTICS=MEAN STDDEV MIN MAX.
 184  0 M>    /STATISTICS=MEAN STDDEV MIN MAX.
```

Descriptives

Effect Size Analysis Using Student Performance Data
Cohen's d, Hedges' g, eta squared, omega squared, Cramer's V

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
G1	649	.00	19.00	11.3991	2.74527
G2	649	.00	19.00	11.5701	2.91364
G3	649	.00	19.00	11.9060	3.23066
age	649	15.00	22.00	16.7442	1.21814
absences	649	.00	32.00	3.6595	4.64076
studytime	649	1	4	1.93	.830
failures	649	0	3	.22	.593
Valid N (listwise)	649				

```
 185  0 M>
MEANS TABLES=G3 BY school_num
 186  0 M>  MEANS TABLES=G3 BY school_num
  /CELLS=COUNT MEAN STDDEV MEDIAN MIN MAX.
 187  0 M>    /CELLS=COUNT MEAN STDDEV MEDIAN MIN MAX.
```

Means

Case Processing Summary

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
G3 * school_num	649	100.0%	0	0.0%	649	100.0%

Report

G3

school_num	N	Mean	Std. Deviation	Median	Minimum	Maximum
1	423	12.5768	2.62564	13.0000	.00	19.00
2	226	10.6504	3.83399	11.0000	.00	19.00
Total	649	11.9060	3.23066	12.0000	.00	19.00

```
 188  0 M>
MEANS TABLES=G3 BY sex_num
 189  0 M>  MEANS TABLES=G3 BY sex_num
  /CELLS=COUNT MEAN STDDEV MEDIAN MIN MAX.
```

```
 190   0 M>     /CELLS=COUNT MEAN STDDEV MEDIAN MIN MAX.
```

Means

Case Processing Summary

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
G3 * sex_num	649	100.0%	0	0.0%	649	100.0%

Report

G3

sex_num	N	Mean	Std. Deviation	Median	Minimum	Maximum
1	383	12.2533	3.12415	12.0000	.00	19.00
2	266	11.4060	3.32069	11.0000	.00	19.00
Total	649	11.9060	3.23066	12.0000	.00	19.00

```
 191   0 M>
MEANS TABLES=G3 BY internet_num
 192   0 M>  MEANS TABLES=G3 BY internet_num
  /CELLS=COUNT MEAN STDDEV MEDIAN MIN MAX.
 193   0 M>     /CELLS=COUNT MEAN STDDEV MEDIAN MIN MAX.
```

Means

Case Processing Summary

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
G3 * internet_num	649	100.0%	0	0.0%	649	100.0%

Effect Size Analysis Using Student Performance Data
Cohen's d, Hedges' g, eta squared, omega squared, Cramer's V

Report

G3

internet_num	N	Mean	Std. Deviation	Median	Minimum	Maximum
0	151	11.0265	3.44664	11.0000	.00	19.00
1	498	12.1727	3.11715	12.0000	.00	19.00
Total	649	11.9060	3.23066	12.0000	.00	19.00

```
 194  0 M>
MEANS TABLES=G3 BY romantic_num
 195  0 M>  MEANS TABLES=G3 BY romantic_num
  /CELLS=COUNT MEAN STDDEV MEDIAN MIN MAX.
 196  0 M>    /CELLS=COUNT MEAN STDDEV MEDIAN MIN MAX.
```

Means

Case Processing Summary

	Cases					
	Included		Excluded		Total	
	N	Percent	N	Percent	N	Percent
G3 * romantic_num	649	100.0%	0	0.0%	649	100.0%

Report

G3

romantic_num	N	Mean	Std. Deviation	Median	Minimum	Maximum
0	410	12.1293	3.00373	12.0000	.00	19.00
1	239	11.5230	3.56077	12.0000	.00	18.00
Total	649	11.9060	3.23066	12.0000	.00	19.00

```
 197  0 M>
* ------------------------------------------------------------.
 198  0 M>  * ------------------------------------------------------------.
* 5. Cohen's d and Hedges' g context through independent-samples t tests.
 199  0 M>  * 5. Cohen's d and Hedges' g context through independent-samples t
 tests.
*    Newer SPSS versions support /ES DISPLAY(TRUE).
 200  0 M>  *    Newer SPSS versions support /ES DISPLAY(TRUE).
```

```
*    If your SPSS version does not support /ES, SPSS may show a warning,
 201  0 M>  *    If your SPSS version does not support /ES, SPSS may show a wa
rning,
*    but the remaining output and PDF export can still continue.
 202  0 M>  *    but the remaining output and PDF export can still continue.
* ------------------------------------------------------------.
 203  0 M>  * ------------------------------------------------------------.

 204  0 M>
TITLE "Effect Size: Cohen's d and Hedges' g Context for G3 Group Differences".
 205  0 M>  TITLE "Effect Size: Cohen's d and Hedges' g Context for G3 Group D
ifferences".

>Warning # 2003.  Command name: TITLE
>The title given exceeds 60 characters in length.  The first 60 characters wil
l
>be used.
```

```
 206  0 M>
T-TEST GROUPS=school_num(1 2)
 207  0 M>  T-TEST GROUPS=school_num(1 2)
  /MISSING=ANALYSIS
 208  0 M>    /MISSING=ANALYSIS
  /VARIABLES=G3
 209  0 M>    /VARIABLES=G3
  /CRITERIA=CI(.95)
 210  0 M>    /CRITERIA=CI(.95)
  /ES DISPLAY(TRUE).
 211  0 M>    /ES DISPLAY(TRUE).
```

T-Test

Group Statistics

	school_num	N	Mean	Std. Deviation	Std. Error Mean
G3	1	423	12.5768	2.62564	.12766
	2	226	10.6504	3.83399	.25503

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means	
		F	Sig.	t	df
G3	Equal variances assumed	13.232	.000	7.543	647
	Equal variances not assumed			6.754	340.487

Independent Samples Test

		t-test for Equality of Means			
		Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence ... Lower
G3	Equal variances assumed	.000	1.92639	.25540	1.42487
	Equal variances not assumed	.000	1.92639	.28520	1.36541

Independent Samples Test

		t-test for Equality of Means	
		95% Confidence Interval of the ...	
		Upper	
G3	Equal variances assumed	2.42791	
	Equal variances not assumed	2.48737	

```
 212  0 M>
T-TEST GROUPS=sex_num(1 2)
 213  0 M>  T-TEST GROUPS=sex_num(1 2)
  /MISSING=ANALYSIS
 214  0 M>    /MISSING=ANALYSIS
  /VARIABLES=G3
 215  0 M>    /VARIABLES=G3
  /CRITERIA=CI(.95)
 216  0 M>    /CRITERIA=CI(.95)
  /ES DISPLAY(TRUE).
 217  0 M>    /ES DISPLAY(TRUE).
```

T-Test

Effect Size: Cohen's d and Hedges' g Context for G3 Group Di

Group Statistics

	sex_num	N	Mean	Std. Deviation	Std. Error Mean
G3	1	383	12.2533	3.12415	.15964
	2	266	11.4060	3.32069	.20360

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means	
		F	Sig.	t	df
G3	Equal variances assumed	.004	.950	3.311	647
	Equal variances not assumed			3.275	547.439

Independent Samples Test

		t-test for Equality of Means			
		Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence ... Lower
G3	Equal variances assumed	.001	.84725	.25589	.34477
	Equal variances not assumed	.001	.84725	.25872	.33903

Independent Samples Test

		t-test for Equality of Means	
		95% Confidence Interval of the ...	
		Upper	
G3	Equal variances assumed	1.34973	
	Equal variances not assumed	1.35546	

218 0 M>

```
T-TEST GROUPS=internet_num(0 1)
 219   0 M>  T-TEST GROUPS=internet_num(0 1)
  /MISSING=ANALYSIS
 220   0 M>    /MISSING=ANALYSIS
  /VARIABLES=G3
 221   0 M>    /VARIABLES=G3
  /CRITERIA=CI(.95)
 222   0 M>    /CRITERIA=CI(.95)
  /ES DISPLAY(TRUE).
 223   0 M>    /ES DISPLAY(TRUE).
```

T-Test

Group Statistics

	internet_num	N	Mean	Std. Deviation	Std. Error Mean
G3	0	151	11.0265	3.44664	.28048
	1	498	12.1727	3.11715	.13968

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means	
		F	Sig.	t	df
G3	Equal variances assumed	.116	.734	-3.860	647
	Equal variances not assumed			-3.658	229.372

Independent Samples Test

		t-test for Equality of Means			
		Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence ... Lower
G3	Equal variances assumed	.000	-1.14620	.29696	-1.72933
	Equal variances not assumed	.000	-1.14620	.31334	-1.76359

Independent Samples Test

		t-test for Equality of Means: 95% Confidence Interval of the ... Upper
G3	Equal variances assumed	-.56307
	Equal variances not assumed	-.52881

```
 224   0 M>
T-TEST GROUPS=romantic_num(0 1)
 225   0 M>  T-TEST GROUPS=romantic_num(0 1)
  /MISSING=ANALYSIS
 226   0 M>    /MISSING=ANALYSIS
  /VARIABLES=G3
 227   0 M>    /VARIABLES=G3
  /CRITERIA=CI(.95)
 228   0 M>    /CRITERIA=CI(.95)
  /ES DISPLAY(TRUE).
 229   0 M>    /ES DISPLAY(TRUE).
```

T-Test

Group Statistics

	romantic_num	N	Mean	Std. Deviation	Std. Error Mean
G3	0	410	12.1293	3.00373	.14834
	1	239	11.5230	3.56077	.23033

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means	
		F	Sig.	t	df
G3	Equal variances assumed	3.868	.050	2.314	647
	Equal variances not assumed			2.213	433.041

Independent Samples Test

		t-test for Equality of Means			
		Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence ... Lower
G3	Equal variances assumed	.021	.60626	.26204	.09170
	Equal variances not assumed	.027	.60626	.27396	.06779

Independent Samples Test

		t-test for Equality of Means	
		95% Confidence Interval of the ...	
		Upper	
G3	Equal variances assumed	1.12081	
	Equal variances not assumed	1.14472	

```
 230   0 M>
* ------------------------------------------------------------.
 231   0 M>  * ------------------------------------------------------------.
* 6. Eta squared and partial eta squared through ANOVA / GLM.
 232   0 M>  * 6. Eta squared and partial eta squared through ANOVA / GLM.
* ------------------------------------------------------------.
 233   0 M>  * ------------------------------------------------------------.
```

```
 234  0 M>
TITLE "Effect Size: Eta Squared and ANOVA-Style Group Effects".
 235  0 M>  TITLE "Effect Size: Eta Squared and ANOVA-Style Group Effects".
```

```
 236  0 M>
ONEWAY G3 BY school_num
 237  0 M>  ONEWAY G3 BY school_num
  /STATISTICS DESCRIPTIVES HOMOGENEITY ETASQ
 238  0 M>    /STATISTICS DESCRIPTIVES HOMOGENEITY ETASQ
  /MISSING ANALYSIS.
 239  0 M>    /MISSING ANALYSIS.
```

Oneway

Warnings

Invalid keyword encountered following the STATISTICS subcommand. Valid choices are NONE, BROWNFORSYTHE, DESCRIPTIVES, EFFECTS, HOMOGENEITY, WELCH and ALL. Check your ONEWAY command.

Descriptives

G3

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum
					Lower Bound	Upper Bound	
1	423	12.5768	2.62564	.12766	12.3259	12.8278	.00
2	226	10.6504	3.83399	.25503	10.1479	11.1530	.00
Total	649	11.9060	3.23066	.12681	11.6570	12.1550	.00

Descriptives

G3

	Maximum
1	19.00
2	19.00
Total	19.00

Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
G3	Based on Mean	13.232	1	647	.000
	Based on Median	12.706	1	647	.000
	Based on Median and with adjusted df	12.706	1	510.638	.000
	Based on trimmed mean	13.109	1	647	.000

ANOVA

G3

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	546.629	1	546.629	56.891	.000
Within Groups	6216.638	647	9.608		
Total	6763.267	648			

```
 240  0 M>
ONEWAY G3 BY studytime
 241  0 M>  ONEWAY G3 BY studytime
  /STATISTICS DESCRIPTIVES HOMOGENEITY ETASQ
 242  0 M>    /STATISTICS DESCRIPTIVES HOMOGENEITY ETASQ
  /MISSING ANALYSIS.
 243  0 M>    /MISSING ANALYSIS.
```

Oneway

Warnings

Invalid keyword encountered following the STATISTICS subcommand. Valid choices are NONE, BROWNFORSYTHE, DESCRIPTIVES, EFFECTS, HOMOGENEITY, WELCH and ALL. Check your ONEWAY command.

Effect Size: Eta Squared and ANOVA-Style Group Effects

Descriptives

G3

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum
					Lower Bound	Upper Bound	
1	212	10.8443	3.21862	.22106	10.4086	11.2801	.00
2	305	12.0918	3.24313	.18570	11.7264	12.4572	.00
3	97	13.2268	2.50210	.25405	12.7225	13.7311	8.00
4	35	13.0571	3.03841	.51358	12.0134	14.1009	6.00
Total	649	11.9060	3.23066	.12681	11.6570	12.1550	.00

Descriptives

G3

	Maximum
1	18.00
2	19.00
3	18.00
4	19.00
Total	19.00

Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
G3	Based on Mean	.985	3	645	.400
	Based on Median	1.026	3	645	.380
	Based on Median and with adjusted df	1.026	3	609.885	.380
	Based on trimmed mean	1.081	3	645	.356

ANOVA

G3

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	465.078	3	155.026	15.876	.000
Within Groups	6298.189	645	9.765		
Total	6763.267	648			

```
 244  0 M>
ONEWAY G3 BY failures
 245  0 M>  ONEWAY G3 BY failures
  /STATISTICS DESCRIPTIVES HOMOGENEITY ETASQ
 246  0 M>    /STATISTICS DESCRIPTIVES HOMOGENEITY ETASQ
  /MISSING ANALYSIS.
 247  0 M>    /MISSING ANALYSIS.
```

Oneway

Warnings

Invalid keyword encountered following the STATISTICS subcommand. Valid choices are NONE, BROWNFORSYTHE, DESCRIPTIVES, EFFECTS, HOMOGENEITY, WELCH and ALL. Check your ONEWAY command.

Descriptives

G3

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum
					Lower Bound	Upper Bound	
0	549	12.5100	2.82881	.12073	12.2729	12.7472	.00
1	70	8.6429	3.44327	.41155	7.8218	9.4639	.00
2	16	8.8125	3.20871	.80218	7.1027	10.5223	.00
3	14	8.0714	2.78635	.74468	6.4626	9.6802	.00
Total	649	11.9060	3.23066	.12681	11.6570	12.1550	.00

Descriptives

G3

	Maximum
0	19.00
1	16.00
2	15.00
3	11.00
Total	19.00

Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
G3	Based on Mean	.351	3	645	.788
	Based on Median	.177	3	645	.912
	Based on Median and with adjusted df	.177	3	548.946	.912
	Based on trimmed mean	.251	3	645	.861

ANOVA

G3

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1304.634	3	434.878	51.386	.000
Within Groups	5458.632	645	8.463		
Total	6763.267	648			

```
 248   0 M>
UNIANOVA G3 BY school_num
 249   0 M>  UNIANOVA G3 BY school_num
  /METHOD=SSTYPE(3)
 250   0 M>     /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
 251   0 M>     /INTERCEPT=INCLUDE
  /PRINT=DESCRIPTIVE ETASQ HOMOGENEITY
 252   0 M>     /PRINT=DESCRIPTIVE ETASQ HOMOGENEITY
```

```
  /CRITERIA=ALPHA(.05)
253   0 M>    /CRITERIA=ALPHA(.05)
  /DESIGN=school_num.
254   0 M>    /DESIGN=school_num.
```

Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
school_num	1	GP	423
	2	MS	226

Descriptive Statistics

Dependent Variable: G3

school_num	Mean	Std. Deviation	N
1	12.5768	2.62564	423
2	10.6504	3.83399	226
Total	11.9060	3.23066	649

Levene's Test of Equality of Error Variances[a,b]

		Levene Statistic	df1	df2	Sig.
G3	Based on Mean	13.232	1	647	.000
	Based on Median	12.706	1	647	.000
	Based on Median and with adjusted df	12.706	1	510.638	.000
	Based on trimmed mean	13.109	1	647	.000

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Dependent variable: G3

b. Design: Intercept + school_num

Tests of Between-Subjects Effects

Dependent Variable: G3

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	546.629[a]	1	546.629	56.891	.000	.081
Intercept	79469.525	1	79469.525	8270.834	.000	.927
school_num	546.629	1	546.629	56.891	.000	.081
Error	6216.638	647	9.608			
Total	98761.000	649				
Corrected Total	6763.267	648				

a. R Squared = .081 (Adjusted R Squared = .079)

```
 255  0 M>
UNIANOVA G3 BY studytime
 256  0 M>  UNIANOVA G3 BY studytime
  /METHOD=SSTYPE(3)
 257  0 M>    /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
 258  0 M>    /INTERCEPT=INCLUDE
  /PRINT=DESCRIPTIVE ETASQ HOMOGENEITY
 259  0 M>    /PRINT=DESCRIPTIVE ETASQ HOMOGENEITY
  /CRITERIA=ALPHA(.05)
 260  0 M>    /CRITERIA=ALPHA(.05)
  /DESIGN=studytime.
 261  0 M>    /DESIGN=studytime.
```

Univariate Analysis of Variance

Between-Subjects Factors

		N
studytime	1	212
	2	305
	3	97
	4	35

Descriptive Statistics

Dependent Variable: G3

studytime	Mean	Std. Deviation	N
1	10.8443	3.21862	212
2	12.0918	3.24313	305
3	13.2268	2.50210	97
4	13.0571	3.03841	35
Total	11.9060	3.23066	649

Levene's Test of Equality of Error Variances[a,b]

		Levene Statistic	df1	df2	Sig.
G3	Based on Mean	.985	3	645	.400
	Based on Median	1.026	3	645	.380
	Based on Median and with adjusted df	1.026	3	609.885	.380
	Based on trimmed mean	1.081	3	645	.356

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Dependent variable: G3

b. Design: Intercept + studytime

Tests of Between-Subjects Effects

Dependent Variable: G3

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	465.078[a]	3	155.026	15.876	.000	.069
Intercept	51680.984	1	51680.984	5292.670	.000	.891
studytime	465.078	3	155.026	15.876	.000	.069
Error	6298.189	645	9.765			
Total	98761.000	649				
Corrected Total	6763.267	648				

a. R Squared = .069 (Adjusted R Squared = .064)

262 0 M>

```
UNIANOVA G3 BY failures
 263   0 M>  UNIANOVA G3 BY failures
  /METHOD=SSTYPE(3)
 264   0 M>    /METHOD=SSTYPE(3)
  /INTERCEPT=INCLUDE
 265   0 M>    /INTERCEPT=INCLUDE
  /PRINT=DESCRIPTIVE ETASQ HOMOGENEITY
 266   0 M>    /PRINT=DESCRIPTIVE ETASQ HOMOGENEITY
  /CRITERIA=ALPHA(.05)
 267   0 M>    /CRITERIA=ALPHA(.05)
  /DESIGN=failures.
 268   0 M>    /DESIGN=failures.
```

Univariate Analysis of Variance

Between-Subjects Factors

		N
failures	0	549
	1	70
	2	16
	3	14

Descriptive Statistics

Dependent Variable: G3

failures	Mean	Std. Deviation	N
0	12.5100	2.82881	549
1	8.6429	3.44327	70
2	8.8125	3.20871	16
3	8.0714	2.78635	14
Total	11.9060	3.23066	649

Levene's Test of Equality of Error Variances[a,b]

		Levene Statistic	df1	df2	Sig.
G3	Based on Mean	.351	3	645	.788
	Based on Median	.177	3	645	.912
	Based on Median and with adjusted df	.177	3	548.946	.912
	Based on trimmed mean	.251	3	645	.861

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Dependent variable: G3

b. Design: Intercept + failures

Tests of Between-Subjects Effects

Dependent Variable: G3

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	1304.634[a]	3	434.878	51.386	.000	.193
Intercept	9643.023	1	9643.023	1139.434	.000	.639
failures	1304.634	3	434.878	51.386	.000	.193
Error	5458.632	645	8.463			
Total	98761.000	649				
Corrected Total	6763.267	648				

a. R Squared = .193 (Adjusted R Squared = .189)

```
 269  0 M>
* ------------------------------------------------------------.
 270  0 M>  * ------------------------------------------------------------.
* 7. Cramer's V and odds ratio through crosstabs.
 271  0 M>  * 7. Cramer's V and odds ratio through crosstabs.
* ------------------------------------------------------------.
 272  0 M>  * ------------------------------------------------------------.

 273  0 M>
TITLE "Effect Size: Cramer's V for Categorical Associations".
 274  0 M>  TITLE "Effect Size: Cramer's V for Categorical Associations".
```

```
 275  0 M>
CROSSTABS
 276  0 M>  CROSSTABS
  /TABLES=school_num BY sex_num
 277  0 M>    /TABLES=school_num BY sex_num
  /FORMAT=AVALUE TABLES
 278  0 M>    /FORMAT=AVALUE TABLES
  /STATISTICS=CHISQ PHI
 279  0 M>    /STATISTICS=CHISQ PHI
  /CELLS=COUNT ROW COLUMN TOTAL EXPECTED
 280  0 M>    /CELLS=COUNT ROW COLUMN TOTAL EXPECTED
  /COUNT ROUND CELL.
 281  0 M>    /COUNT ROUND CELL.
```

Crosstabs

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
school_num * sex_num	649	100.0%	0	0.0%	649	100.0%

Effect Size: Cramer's V for Categorical Associations

school_num * sex_num Crosstabulation

			sex_num		
			1	2	Total
school_num	1	Count	237	186	423
		Expected Count	249.6	173.4	423.0
		% within school_num	56.0%	44.0%	100.0%
		% within sex_num	61.9%	69.9%	65.2%
		% of Total	36.5%	28.7%	65.2%
	2	Count	146	80	226
		Expected Count	133.4	92.6	226.0
		% within school_num	64.6%	35.4%	100.0%
		% within sex_num	38.1%	30.1%	34.8%
		% of Total	22.5%	12.3%	34.8%
Total		Count	383	266	649
		Expected Count	383.0	266.0	649.0
		% within school_num	59.0%	41.0%	100.0%
		% within sex_num	100.0%	100.0%	100.0%
		% of Total	59.0%	41.0%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	4.476[a]	1	.034		
Continuity Correction[b]	4.129	1	.042		
Likelihood Ratio	4.514	1	.034		
Fisher's Exact Test				.036	.021
Linear-by-Linear Association	4.469	1	.035		
N of Valid Cases	649				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 92.63.

b. Computed only for a 2x2 table

Effect Size: Cramer's V for Categorical Associations

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	-.083	.034
	Cramer's V	.083	.034
N of Valid Cases		649	

```
 282  0 M>
CROSSTABS
 283  0 M>  CROSSTABS
  /TABLES=school_num BY higher_num
 284  0 M>    /TABLES=school_num BY higher_num
  /FORMAT=AVALUE TABLES
 285  0 M>    /FORMAT=AVALUE TABLES
  /STATISTICS=CHISQ PHI
 286  0 M>    /STATISTICS=CHISQ PHI
  /CELLS=COUNT ROW COLUMN TOTAL EXPECTED
 287  0 M>    /CELLS=COUNT ROW COLUMN TOTAL EXPECTED
  /COUNT ROUND CELL.
 288  0 M>    /COUNT ROUND CELL.
```

Crosstabs

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
school_num * higher_num	649	100.0%	0	0.0%	649	100.0%

Effect Size: Cramer's V for Categorical Associations

school_num * higher_num Crosstabulation

			higher_num		
			0	1	Total
school_num	1	Count	32	391	423
		Expected Count	45.0	378.0	423.0
		% within school_num	7.6%	92.4%	100.0%
		% within higher_num	46.4%	67.4%	65.2%
		% of Total	4.9%	60.2%	65.2%
	2	Count	37	189	226
		Expected Count	24.0	202.0	226.0
		% within school_num	16.4%	83.6%	100.0%
		% within higher_num	53.6%	32.6%	34.8%
		% of Total	5.7%	29.1%	34.8%
Total		Count	69	580	649
		Expected Count	69.0	580.0	649.0
		% within school_num	10.6%	89.4%	100.0%
		% within higher_num	100.0%	100.0%	100.0%
		% of Total	10.6%	89.4%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	12.024[a]	1	.001		
Continuity Correction[b]	11.115	1	.001		
Likelihood Ratio	11.458	1	.001		
Fisher's Exact Test				.001	.001
Linear-by-Linear Association	12.005	1	.001		
N of Valid Cases	649				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 24.03.

b. Computed only for a 2x2 table

Effect Size: Cramer's V for Categorical Associations

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	-.136	.001
	Cramer's V	.136	.001
N of Valid Cases		649	

```
 289  0 M>
CROSSTABS
 290  0 M>  CROSSTABS
  /TABLES=internet_num BY higher_num
 291  0 M>    /TABLES=internet_num BY higher_num
  /FORMAT=AVALUE TABLES
 292  0 M>    /FORMAT=AVALUE TABLES
  /STATISTICS=CHISQ PHI RISK
 293  0 M>    /STATISTICS=CHISQ PHI RISK
  /CELLS=COUNT ROW COLUMN TOTAL EXPECTED
 294  0 M>    /CELLS=COUNT ROW COLUMN TOTAL EXPECTED
  /COUNT ROUND CELL.
 295  0 M>    /COUNT ROUND CELL.
```

Crosstabs

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
internet_num * higher_num	649	100.0%	0	0.0%	649	100.0%

Effect Size: Cramer's V for Categorical Associations

internet_num * higher_num Crosstabulation

			higher_num		
			0	1	Total
internet_num	0	Count	22	129	151
		Expected Count	16.1	134.9	151.0
		% within internet_num	14.6%	85.4%	100.0%
		% within higher_num	31.9%	22.2%	23.3%
		% of Total	3.4%	19.9%	23.3%
	1	Count	47	451	498
		Expected Count	52.9	445.1	498.0
		% within internet_num	9.4%	90.6%	100.0%
		% within higher_num	68.1%	77.8%	76.7%
		% of Total	7.2%	69.5%	76.7%
Total		Count	69	580	649
		Expected Count	69.0	580.0	649.0
		% within internet_num	10.6%	89.4%	100.0%
		% within higher_num	100.0%	100.0%	100.0%
		% of Total	10.6%	89.4%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.212[a]	1	.073		
Continuity Correction[b]	2.694	1	.101		
Likelihood Ratio	3.011	1	.083		
Fisher's Exact Test				.096	.053
Linear-by-Linear Association	3.207	1	.073		
N of Valid Cases	649				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 16.05.

b. Computed only for a 2x2 table

Effect Size: Cramer's V for Categorical Associations

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.070	.073
	Cramer's V	.070	.073
N of Valid Cases		649	

Risk Estimate

	Value	95% Confidence Interval	
		Lower	Upper
Odds Ratio for internet_num (0 / 1)	1.636	.951	2.816
For cohort higher_num = 0	1.544	.963	2.476
For cohort higher_num = 1	.943	.878	1.013
N of Valid Cases	649		

```
 296  0 M>
CROSSTABS
 297  0 M>  CROSSTABS
  /TABLES=schoolsup_num BY higher_num
 298  0 M>    /TABLES=schoolsup_num BY higher_num
  /FORMAT=AVALUE TABLES
 299  0 M>    /FORMAT=AVALUE TABLES
  /STATISTICS=CHISQ PHI RISK
 300  0 M>    /STATISTICS=CHISQ PHI RISK
  /CELLS=COUNT ROW COLUMN TOTAL EXPECTED
 301  0 M>    /CELLS=COUNT ROW COLUMN TOTAL EXPECTED
  /COUNT ROUND CELL.
 302  0 M>    /COUNT ROUND CELL.
```

Crosstabs

Effect Size: Cramer's V for Categorical Associations

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
schoolsup_num * higher_num	649	100.0%	0	0.0%	649	100.0%

schoolsup_num * higher_num Crosstabulation

			higher_num		
			0	1	Total
schoolsup_num	0	Count	67	514	581
		Expected Count	61.8	519.2	581.0
		% within schoolsup_num	11.5%	88.5%	100.0%
		% within higher_num	97.1%	88.6%	89.5%
		% of Total	10.3%	79.2%	89.5%
	1	Count	2	66	68
		Expected Count	7.2	60.8	68.0
		% within schoolsup_num	2.9%	97.1%	100.0%
		% within higher_num	2.9%	11.4%	10.5%
		% of Total	0.3%	10.2%	10.5%
Total		Count	69	580	649
		Expected Count	69.0	580.0	649.0
		% within schoolsup_num	10.6%	89.4%	100.0%
		% within higher_num	100.0%	100.0%	100.0%
		% of Total	10.6%	89.4%	100.0%

Effect Size: Cramer's V for Categorical Associations

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	4.728[a]	1	.030		
Continuity Correction[b]	3.867	1	.049		
Likelihood Ratio	6.240	1	.012		
Fisher's Exact Test				.035	.015
Linear-by-Linear Association	4.721	1	.030		
N of Valid Cases	649				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 7.23.

b. Computed only for a 2x2 table

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.085	.030
	Cramer's V	.085	.030
N of Valid Cases		649	

Risk Estimate

	Value	95% Confidence Interval Lower	95% Confidence Interval Upper
Odds Ratio for schoolsup_num (0 / 1)	4.302	1.030	17.968
For cohort higher_num = 0	3.921	.983	15.645
For cohort higher_num = 1	.911	.866	.959
N of Valid Cases	649		

```
 303   0 M>
CROSSTABS
 304   0 M>  CROSSTABS
  /TABLES=romantic_num BY studytime
 305   0 M>    /TABLES=romantic_num BY studytime
```

```
 /FORMAT=AVALUE TABLES
306  0 M>    /FORMAT=AVALUE TABLES
 /STATISTICS=CHISQ PHI
307  0 M>    /STATISTICS=CHISQ PHI
 /CELLS=COUNT ROW COLUMN TOTAL EXPECTED
308  0 M>    /CELLS=COUNT ROW COLUMN TOTAL EXPECTED
 /COUNT ROUND CELL.
309  0 M>    /COUNT ROUND CELL.
```

Crosstabs

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
romantic_num * studytime	649	100.0%	0	0.0%	649	100.0%

romantic_num * studytime Crosstabulation

			studytime			
			1	2	3	4
romantic_num	0	Count	143	188	52	27
		Expected Count	133.9	192.7	61.3	22.1
		% within romantic_num	34.9%	45.9%	12.7%	6.6%
		% within studytime	67.5%	61.6%	53.6%	77.1%
		% of Total	22.0%	29.0%	8.0%	4.2%
	1	Count	69	117	45	8
		Expected Count	78.1	112.3	35.7	12.9
		% within romantic_num	28.9%	49.0%	18.8%	3.3%
		% within studytime	32.5%	38.4%	46.4%	22.9%
		% of Total	10.6%	18.0%	6.9%	1.2%
Total		Count	212	305	97	35
		Expected Count	212.0	305.0	97.0	35.0
		% within romantic_num	32.7%	47.0%	14.9%	5.4%
		% within studytime	100.0%	100.0%	100.0%	100.0%
		% of Total	32.7%	47.0%	14.9%	5.4%

Effect Size: Cramer's V for Categorical Associations

romantic_num * studytime Crosstabulation

			Total
romantic_num	0	Count	410
		Expected Count	410.0
		% within romantic_num	100.0%
		% within studytime	63.2%
		% of Total	63.2%
	1	Count	239
		Expected Count	239.0
		% within romantic_num	100.0%
		% within studytime	36.8%
		% of Total	36.8%
Total		Count	649
		Expected Count	649.0
		% within romantic_num	100.0%
		% within studytime	100.0%
		% of Total	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	8.728[a]	3	.033
Likelihood Ratio	8.869	3	.031
Linear-by-Linear Association	.707	1	.400
N of Valid Cases	649		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 12.89.

Effect Size: Cramer's V for Categorical Associations

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	.116	.033
	Cramer's V	.116	.033
N of Valid Cases		649	

```
 310  0 M>
* ------------------------------------------------------------.
 311  0 M>  * ------------------------------------------------------------.
* 8. Pearson r and R-squared context.
 312  0 M>  * 8. Pearson r and R-squared context.
* ------------------------------------------------------------.
 313  0 M>  * ------------------------------------------------------------.

 314  0 M>
TITLE "Effect Size: Pearson r Between G2 and G3".
 315  0 M>  TITLE "Effect Size: Pearson r Between G2 and G3".
```

```
 316  0 M>
CORRELATIONS
 317  0 M>  CORRELATIONS
  /VARIABLES=G2 G3
 318  0 M>    /VARIABLES=G2 G3
  /PRINT=TWOTAIL NOSIG FULL
 319  0 M>    /PRINT=TWOTAIL NOSIG FULL
  /MISSING=PAIRWISE.
 320  0 M>    /MISSING=PAIRWISE.
```

Correlations

Warnings

There is an invalid keyword on the PRINT subcommand. Text found: FULL

Execution of this command stops.

```
 321  0 M>
REGRESSION
 322  0 M>  REGRESSION
  /MISSING LISTWISE
 323  0 M>    /MISSING LISTWISE
  /STATISTICS COEFF OUTS R ANOVA CI(95)
 324  0 M>    /STATISTICS COEFF OUTS R ANOVA CI(95)
  /DEPENDENT G3
 325  0 M>    /DEPENDENT G3
  /METHOD=ENTER G2.
 326  0 M>    /METHOD=ENTER G2.
```

Regression

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	G2[b]	.	Enter

a. Dependent Variable: G3

b. All requested variables entered.

Effect Size: Pearson r Between G2 and G3

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.919[a]	.844	.843	1.27810

a. Predictors: (Constant), G2

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5706.374	1	5706.374	3493.282	.000[b]
	Residual	1056.893	647	1.634		
	Total	6763.267	648			

a. Dependent Variable: G3

b. Predictors: (Constant), G2

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.122	.206		.593	.553
	G2	1.018	.017	.919	59.104	.000

Coefficients[a]

Model		95.0% Confidence Interval for B	
		Lower Bound	Upper Bound
1	(Constant)	-.282	.526
	G2	.985	1.052

a. Dependent Variable: G3

```
 327   0 M>
* ------------------------------------------------------------.
 328   0 M>  * ------------------------------------------------------------.
* 9. Manually reported effect size summary table from R/Python outputs.
```

```
 329  0 M>  * 9. Manually reported effect size summary table from R/Python out
puts.
*    This creates a visible SPSS output table for the final report.
 330  0 M>  *    This creates a visible SPSS output table for the final report
.
* ------------------------------------------------------------.
 331  0 M>  * ------------------------------------------------------------.

 332  0 M>
DATASET DECLARE EffectSizeSummary.
 333  0 M>  DATASET DECLARE EffectSizeSummary.
DATASET ACTIVATE EffectSizeSummary.
 334  0 M>  DATASET ACTIVATE EffectSizeSummary.
```

Dataset Activate

Warnings

Dataset EffectSizeSummary has no data.

Execution of this command stops.

```
 335  0 M>
DATA LIST LIST /
 336  0 M>  DATA LIST LIST /
  Method (A24)
 337  0 M>    Method (A24)
  Comparison (A60)
 338  0 M>    Comparison (A60)
  EffectSize (F8.3)
 339  0 M>    EffectSize (F8.3)
  Direction (A14)
 340  0 M>    Direction (A14)
  Interpretation (A20).
 341  0 M>    Interpretation (A20).
BEGIN DATA
 342  0 M>  BEGIN DATA
"Cohen's d" "G3 by school" 0.621 "Positive" "Medium to large"
"Cohen's d" "G3 by sex" 0.264 "Positive" "Small to medium"
"Cohen's d" "G3 by romantic" 0.188 "Positive" "Small"
"Cohen's d" "G3 by internet" -0.359 "Negative" "Small to medium"
```

```
"Hedges' g" "G3 by school" 0.621 "Positive" "Medium to large"
"Hedges' g" "G3 by sex" 0.264 "Positive" "Small to medium"
"Hedges' g" "G3 by romantic" 0.188 "Positive" "Small"
"Hedges' g" "G3 by internet" -0.358 "Negative" "Small to medium"
"Eta squared" "G3 by study time" 0.069 "Positive" "Small to medium"
"Eta squared" "G3 by failure group" 0.193 "Positive" "Small to medium"
"Eta squared" "G3 by school" 0.081 "Positive" "Small to medium"
"Omega squared" "G3 by study time" 0.064 "Positive" "Small to medium"
"Omega squared" "G3 by failure group" 0.189 "Positive" "Small to medium"
"Omega squared" "G3 by school" 0.079 "Positive" "Small to medium"
"Cohen's f" "G3 by study time" 0.272 "Positive" "Small to medium"
"Cohen's f" "G3 by failure group" 0.489 "Positive" "Small to medium"
"Cohen's f" "G3 by school" 0.297 "Positive" "Small to medium"
"Cramer's V" "school by sex" 0.083 "Positive" "Very small"
"Cramer's V" "school by higher" 0.136 "Positive" "Small"
"Cramer's V" "internet by higher" 0.070 "Positive" "Very small"
"Cramer's V" "schoolsup by higher" 0.085 "Positive" "Very small"
"Cramer's V" "romantic by study time" 0.116 "Positive" "Small"
"Odds ratio" "internet by higher" 1.650 "Positive" "Small"
"Pearson r" "G2 by G3" 0.919 "Positive" "Large"
"R squared" "G2 predicting G3" 0.844 "Positive" "Large"
"Cliff's delta" "G3 by school" 0.344 "Positive" "Small to medium"
"Cliff's delta" "G3 by sex" 0.157 "Positive" "Small"
"Cliff's delta" "G3 by internet" -0.213 "Negative" "Small to medium"
END DATA.
EXECUTE.
 371  0 M>  EXECUTE.

 372  0 M>
FORMATS EffectSize (F8.3).
 373  0 M>  FORMATS EffectSize (F8.3).
VARIABLE LABELS
 374  0 M>  VARIABLE LABELS
  Method "Effect size method"
 375  0 M>    Method "Effect size method"
  Comparison "Variable comparison"
 376  0 M>    Comparison "Variable comparison"
  EffectSize "Effect size value"
 377  0 M>    EffectSize "Effect size value"
```

```
  Direction "Direction"
 378  0 M>    Direction "Direction"
  Interpretation "Practical interpretation".
 379  0 M>    Interpretation "Practical interpretation".

 380  0 M>
TITLE "Effect Size Summary Table from R and Python Results".
 381  0 M>  TITLE "Effect Size Summary Table from R and Python Results".
```

```
REPORT FORMAT=LIST AUTOMATIC ALIGN(CENTER)
 382  0 M>  REPORT FORMAT=LIST AUTOMATIC ALIGN(CENTER)
  /VARIABLES=Method Comparison EffectSize Direction Interpretation
 383  0 M>    /VARIABLES=Method Comparison EffectSize Direction Interpretation
  /TITLE "Effect Size Summary: Practical Significance Results".
 384  0 M>    /TITLE "Effect Size Summary: Practical Significance Results".
```

Report

Effect Size Summary: Practical Significance Results

Effect size method	Variable comparison	Effect size value	Direction	Practical interpretation
Cohen's d	G3 by school	.621	Positive	Medium to large
Cohen's d	G3 by sex	.264	Positive	Small to medium
Cohen's d	G3 by romantic	.188	Positive	Small
Cohen's d	G3 by internet	-.359	Negative	Small to medium
Hedges' g	G3 by school	.621	Positive	Medium to large
Hedges' g	G3 by sex	.264	Positive	Small to medium
Hedges' g	G3 by romantic	.188	Positive	Small
Hedges' g	G3 by internet	-.358	Negative	Small to medium
Eta squared	G3 by study time	.069	Positive	Small to medium
Eta squared	G3 by failure group	.193	Positive	Small to medium
Eta squared	G3 by school	.081	Positive	Small to medium
Omega squared	G3 by study time	.064	Positive	Small to medium
Omega squared	G3 by failure group	.189	Positive	Small to medium

Effect Size Summary Table from R and Python Results

```
 Omega squared            G3 by school
             .079 Positive       Small to medium
 Cohen's f                G3 by study time
             .272 Positive       Small to medium
 Cohen's f                G3 by failure group
             .489 Positive       Small to medium
 Cohen's f                G3 by school
             .297 Positive       Small to medium
 Cramer's V               school by sex
             .083 Positive       Very small
 Cramer's V               school by higher
             .136 Positive       Small
 Cramer's V               internet by higher
             .070 Positive       Very small
 Cramer's V               schoolsup by higher
             .085 Positive       Very small
 Cramer's V               romantic by study time
             .116 Positive       Small
 Odds ratio               internet by higher
            1.650 Positive       Small
 Pearson r                G2 by G3
             .919 Positive       Large
 R squared                G2 predicting G3
             .844 Positive       Large
 Cliff's delta            G3 by school
             .344 Positive       Small to medium
 Cliff's delta            G3 by sex
             .157 Positive       Small
 Cliff's delta            G3 by internet
            -.213 Negative       Small to medium


 385  0 M>
* ------------------------------------------------------------.
 386  0 M>  * ------------------------------------------------------------.
* 10. Formula and interpretation notes inside SPSS output.
 387  0 M>  * 10. Formula and interpretation notes inside SPSS output.
* ------------------------------------------------------------.
 388  0 M>  * ------------------------------------------------------------.
```

```
 389  0 M>
DATASET DECLARE EffectSizeFormulaNotes.
 390  0 M>  DATASET DECLARE EffectSizeFormulaNotes.
DATASET ACTIVATE EffectSizeFormulaNotes.
 391  0 M>  DATASET ACTIVATE EffectSizeFormulaNotes.
```

Dataset Activate

Warnings

Dataset EffectSizeFormulaNotes has no data.

Execution of this command stops.

```
 392  0 M>
DATA LIST LIST /FormulaName (A30) FormulaText (A120).
 393  0 M>  DATA LIST LIST /FormulaName (A30) FormulaText (A120).
BEGIN DATA
 394  0 M>  BEGIN DATA
"Cohen's d" "d = (Mean1 - Mean2) / pooled standard deviation"
"Hedges' g" "g = J x d, where J is the small-sample correction factor"
"Eta squared" "eta squared = SS_between / SS_total"
"Omega squared" "omega squared = (SS_between - df_between x MS_within) / (SS_t
otal + MS_within)"
"Cramer's V" "V = sqrt(chi-square / (n x min(r - 1, c - 1)))"
"Odds ratio" "OR = (a x d) / (b x c) for a 2 x 2 table"
"Cohen's h" "h = 2 x arcsin(sqrt(p1)) - 2 x arcsin(sqrt(p2))"
"Pearson r" "r measures linear association between two numeric variables"
"Cliff's delta" "delta = P(X > Y) - P(X < Y)"
"Reporting rule" "Effect size explains practical importance, not only statisti
cal significance."
END DATA.
EXECUTE.
 405  0 M>  EXECUTE.

 406  0 M>
TITLE "Effect Size Formula and Interpretation Notes".
 407  0 M>  TITLE "Effect Size Formula and Interpretation Notes".
```

```
REPORT FORMAT=LIST AUTOMATIC ALIGN(CENTER)
 408  0 M>  REPORT FORMAT=LIST AUTOMATIC ALIGN(CENTER)
  /VARIABLES=FormulaName FormulaText
 409  0 M>    /VARIABLES=FormulaName FormulaText
  /TITLE "Effect Size Formula and Interpretation Notes".
 410  0 M>    /TITLE "Effect Size Formula and Interpretation Notes".
```

Report

```
>Error # 11187
>The specified report is too wide for the page width.  The page width is
>controlled by the MARGINS(l,r) phrase on the FORMAT subcommand.  The first
>number represents the left margin and must be greater than or equal to the
>system margin or an *, which signifies the system margin.  The second number
>represents the right margin and must be less than or equal to 255.  When it i
s
>an * or does not appear, it is set equal to the system margin.  When MARGINS
>is not specified, the system margins are used.
>Execution of this command stops.

 411  0 M>
DATASET ACTIVATE EffectSizeMain.
 412  0 M>  DATASET ACTIVATE EffectSizeMain.

 413  0 M>
* ------------------------------------------------------------.
 414  0 M>  * ------------------------------------------------------------.
* 11. Save SPSS Viewer file and export PDF.
 415  0 M>  * 11. Save SPSS Viewer file and export PDF.
* ------------------------------------------------------------.
 416  0 M>  * ------------------------------------------------------------.

 417  0 M>
OUTPUT SAVE
 418  0 M>  OUTPUT SAVE
  OUTFILE='D:\DATA ANALYSIS\A Basic Descriptive Statistics Guides\Effect Size\
Python_Output\pdf\Effect-Size-SPSS-Output.spv'
 419  0 M>    OUTFILE='D:\DATA ANALYSIS\A Basic Descriptive Statistics Guides\
Effect Size\Python_Output\pdf\Effect-Size-SPSS-Output.
               spv'
```

```
  LOCK=NO.
 420  0 M>    LOCK=NO.

 421  0 M>
OUTPUT EXPORT
 422  0 M>  OUTPUT EXPORT
  /CONTENTS EXPORT=ALL LAYERS=PRINTSETTING MODELVIEWS=PRINTSETTING
 423  0 M>    /CONTENTS EXPORT=ALL LAYERS=PRINTSETTING MODELVIEWS=PRINTSETTING
  /PDF DOCUMENTFILE='D:\DATA ANALYSIS\A Basic Descriptive Statistics Guides\Ef
fect Size\Python_Output\pdf\Effect-Size-SPSS-Output.pdf'
 424  0 M>    /PDF DOCUMENTFILE='D:\DATA ANALYSIS\A Basic Descriptive Statisti
cs Guides\Effect Size\Python_Output\pdf\Effect-Size-SP
               SS-Output.pdf'
  /EMBEDBOOKMARKS=YES
 425  0 M>    /EMBEDBOOKMARKS=YES
  /EMBEDFONTS=YES.
 426  0 M>    /EMBEDFONTS=YES.
```

Output Export

Warnings

The name EMBEDBOOKMARKS is not a recognized subcommand.

Execution of this command stops.

```
 427  0 M>
SAVE OUTFILE='D:\DATA ANALYSIS\A Basic Descriptive Statistics Guides\Effect Si
ze\Python_Output\clean_data\effect_size_clean_data_for_spss.sav'
 428  0 M>  SAVE OUTFILE='D:\DATA ANALYSIS\A Basic Descriptive Statistics Guid
es\Effect Size\Python_Output\clean_data\effect_size_cl
               ean_data_for_spss.sav'
  /COMPRESSED.
 429  0 M>    /COMPRESSED.

 430  0 M>
EXECUTE.
 431  0 M>  EXECUTE.

 432  0 M>
* End of Effect Size SPSS Syntax.
```

```
433  0 M>  * End of Effect Size SPSS Syntax.
```