



5263

2005

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6	. SPSS	
6		.1
		SPSS 12.0
8	SPSS	.2
8	SPSS 12.0	
12	SPSS	.3
16		.4
20		.5
25	.SPSS	.6
27	:	
29		.1
34		.2
39		.3
45		.4
49		.5
55	:	
56		.1
63	.	.2
69		.3
75	:	
77		.1
87	.()	.2

90	:	
91		.1
97		.2
104	:	
105		.1
109	()	.2
109		
113		
118	Mann . - Whitney Test	.3
124	-	.4
130		.5
138		.6
143	.	.7
146		.8

SPSS 12.0

SPSS

SPSS 12.0

SPSS 12.0

SPSS 12.0

SPSS

SPSS

:1

12.0

SPSS12.0

:

Processor (CPU): Pentium or Pentium-class processor running at 90MHz or faster. .1

Memory (RAM): 128MB minimum .2

Display type : SVGA (800 x 600 resolution) or higher .3

Hard Disk Space: Minimum of 220MB available disk space .4

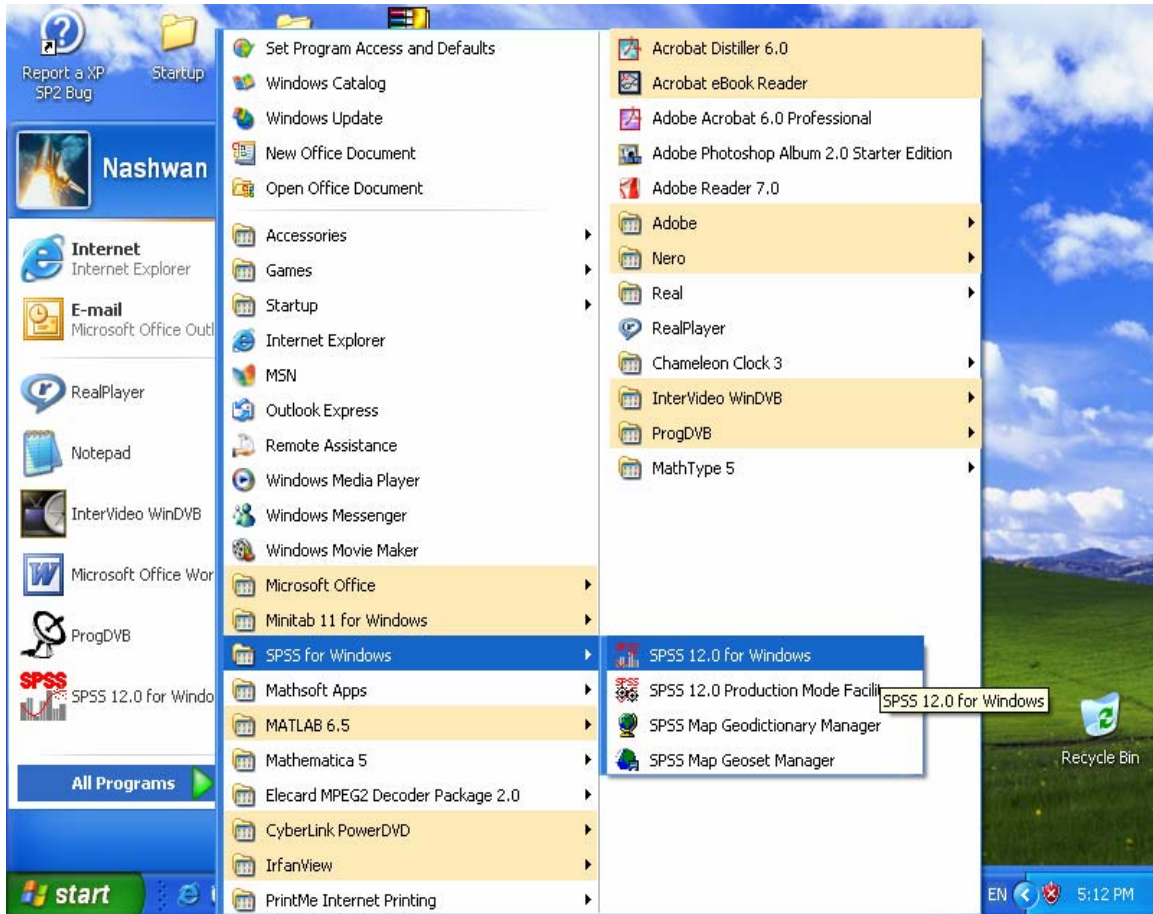
Media: CD-ROM (for installation). .5

Mouse: Required .6

Platform: Windows 98/Me/NT4 with SP6/2000/XP. .7

SPSS

SPSS 12.0




**SPSS 12.0
for Windows**

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Emad Nashwan
Al Quds Open University
687779



.SPSS 12.0

SPSS :2

SPSS 12.0 .1

8 SPSS 12.0

Data Editor

. Viewer

:(Data Editor)

SPSS

Spread Sheet

:

:Data View

•

Spread Sheet

:

1991 U.S. General Social Survey - SPSS Data Editor

File Edit View Data Transform Analyze Graphs Utilities Add-ons Window Help

1 : sex 2

	sex	race	region	happy	life	sibs	childs	age	educ	paedu
1	2	1	1.00	1	1	1	2	61	12	
2	2	1	1.00	2	1	2	1	32	20	
3	1	1	1.00	1	0	2	1	35	20	
4	2	1	1.00	9	2	2	0	26	20	
5	2	2	1.00	2	1	4	0	25	12	
6	1	2	1.00	2	0	7	5	59	10	
7	1	2	1.00	1	1	7	3	46	10	
8	2	2	1.00	2	0	7	4	99	16	
9	2	2	1.00	2	2	7	3	57	10	
10	2	1	1.00	2	1	1	2	64	14	
11	1	1	1.00	2	1	6	0	72	9	
12	2	1	1.00	1	0	2	5	67	12	
13	1	1	1.00	2	0	1	0	33	15	
14	1	3	1.00	2	2	2	1	23	14	

Data View Variable View

SPSS Processor is ready

: Variable View

...

:

	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	
1	sex	Numeric	1	0	Respondent's	{1, Male}...	None	8	Right	Noi
2	race	Numeric	1	0	Race of Res	{1, White}...	None	7	Right	Noi
3	region	Numeric	8	2	Region of the	{1.00, North	None	10	Right	Noi
4	happy	Numeric	1	0	General Hap	{0, NAP}...	0, 8, 9	10	Right	Orc
5	life	Numeric	1	0	Is Life Excitin	{0, NAP}...	0, 8, 9	8	Right	Orc
6	sibs	Numeric	2	0	Number of Br	{98, DK}...	98, 99	8	Right	Sca
7	childs	Numeric	1	0	Number of C	{0, 0}...	9	8	Right	Orc
8	age	Numeric	2	0	Age of Resp	{98, DK}...	0, 98, 99	8	Right	Sca
9	educ	Numeric	2	0	Highest Year	{97, NAP}...	97, 98, 99	8	Right	Sca
10	paeduc	Numeric	2	0	Highest Year	{97, NAP}...	97, 98, 99	8	Right	Sca
11	maeduc	Numeric	2	0	Highest Year	{97, NAP}...	97, 98, 99	8	Right	Sca
12	speduc	Numeric	2	0	Highest Year	{97, NAP}...	97, 98, 99	8	Right	Sca
13	prestg80	Numeric	2	0	R's Occupati	{0, DK,NA,NA	0	8	Right	Sca
14	occcat80	Numeric	8	2	Occupational	{1.00, Manag	None	8	Right	Orc
15	tax	Numeric	1	0	R's Federal I	{0, NAP}...	0, 8, 9	8	Right	Orc

Variable View

Data View

Variable View

Data View ()

.Variable View

Data Editor

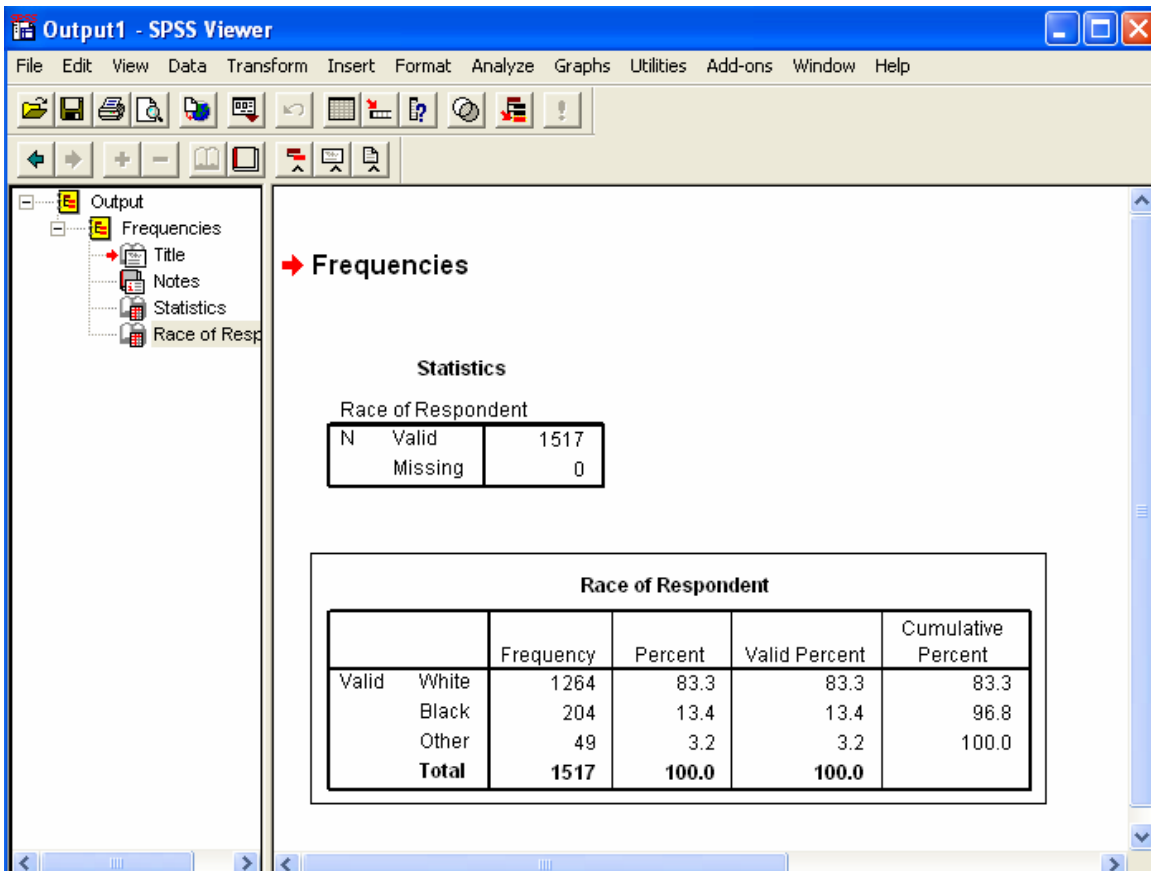
:Viewer

:

.Viewer

Viewer

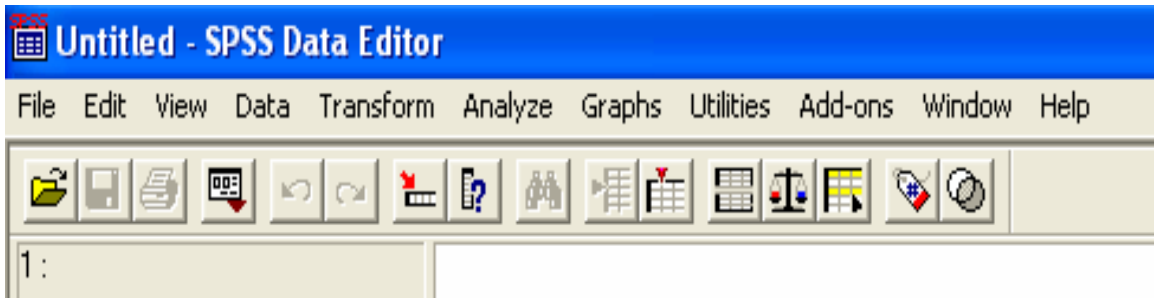
:



(Menus) .2

SPSS 12.0

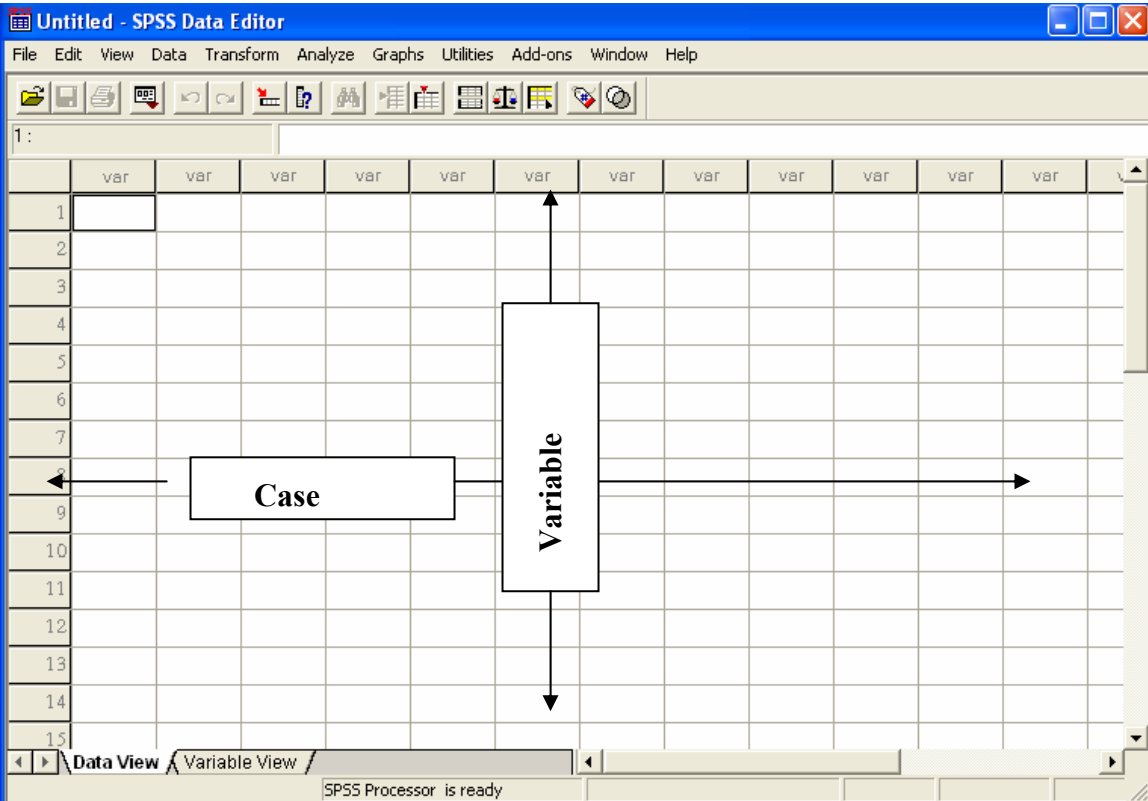
(Analyze, Graphs)



Age

SPSS

SPSS



()

Variable View

...

:

Variable Name

.1

Variables View

.gender

U3+1 - SPSS Data Editor

File Edit View Data Transform Analyze Graphs Utilities Add-ons Window Help

	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure
1	Degree	Numeric	8	0		None	None	8	Center	Scale
2	gender	Numeric	8	0		{1, ذَكَر}...	None	9	Center	Scale

64

& \$ # | ^ %

‘ ; “ * : !

SPSS

(ALL, NE, EQ, TO, LE, LT, BY, OR, GT, AND, NOT, GE, WITH, etc...).

Variable Types

.2

SPSS Variable View

2	Gender	Numeric	8	0	جنس الطالب
---	--------	---------	---	---	------------

Variable Type

Numeric

Comma

Dot

Scientific notation

Date

Dollar

Custom currency

String

Width: 8

Decimal Places: 0

OK

Cancel

Help

() :**(Numeric)** :1
Scientific Notation

:**Continuouse** .أ

:**Catogorial** .ب

.2= 1=

:**Comma** .2

:**Dot** .3

:**Scientific Notation** .4

Date .5

:**Custom Currency** .6

:**Dollar** .7

:**String** .8

:
:

." " "

:**Width** .3

:**Decimal** .4

.5 :Label ()

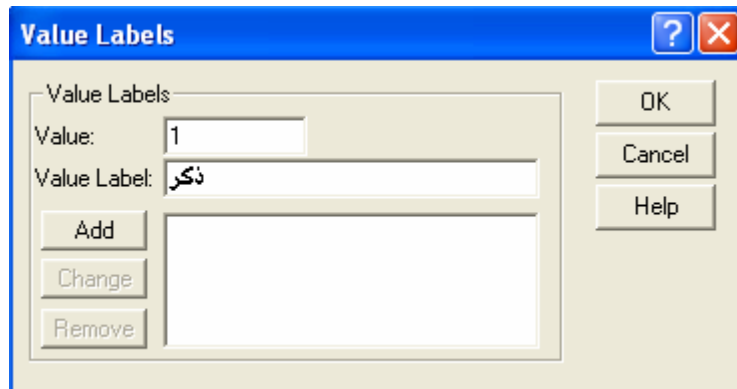
.6 :Values()

SPSS

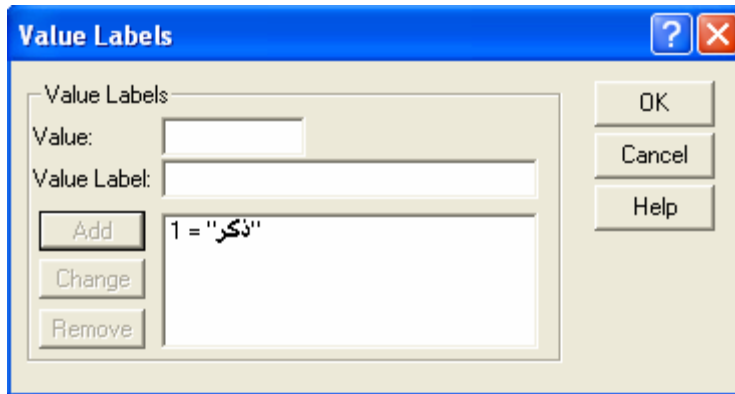
.Variable View

2	Gender	Numeric ...	8	0	جنس الطالب	{1, ذكر}...	None
---	--------	-------------	---	---	------------	-------------	------

↑



Value Label () Value 1
: Add



.Ok

2

Data

:Column .7

.View

:Missing Values .8

.Missing Values

:Align .9

:Measurement Scale .10

Scal () Ordinal Nominal

: :4

: SPSS

	Home
	End
	Ctrl+
	Ctrl+
	Ctrl+
	Ctrl+
	Ctrl+Home
	Ctrl + End

Excel

SPSS

:

.Data View

Enter

Data View

(Gender)

(Degree)

:1

80	85	75	65	55	52	44	33	30	25	45	80	95	50	30
95	88	90	77	72	75	60	40	57	55	52	48	84	87	78
												77	73	75

77	30	25	30	44	40	65	44	77	75	79	38	84	45	85
76	62	44	42	77	66	65	98	95	36	48	60	61	95	85
										70	80	98	93	75

start example - SPSS Da

File Edit View Data Transf

1:

	Degree	Gender
1	30	2
2	50	2
3	95	2
4	80	2
5	45	2
6	25	2
7	30	2
8	33	2
9	44	2
10	52	2
11	55	2
12	65	2
13	75	2
14	85	2
15	80	2
16	78	2

start example - SPSS Da

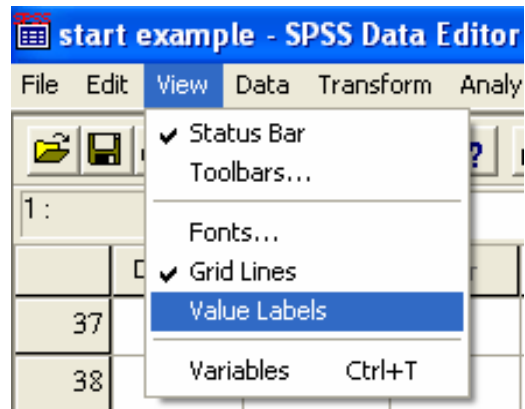
File Edit View Data Transf

1:

	Degree	Gender
37	38	1
38	79	1
39	75	1
40	77	1
41	44	1
42	65	1
43	40	1
44	44	1
45	30	1
46	25	1
47	30	1
48	77	1
49	85	1
50	95	1
51	61	1
52	60	1

Value Label

View



	Degree	Gender
28	90	انثى
29	88	انثى
30	95	انثى
31	75	انثى
32	73	انثى
33	77	انثى
34	85	ذكر
35	45	ذكر
36	84	ذكر
37	38	ذكر
38	79	ذكر
39	75	ذكر
40	77	ذكر
41	44	ذكر
42	65	ذكر
43	40	ذكر

:5

.SPSS

1

:2

()

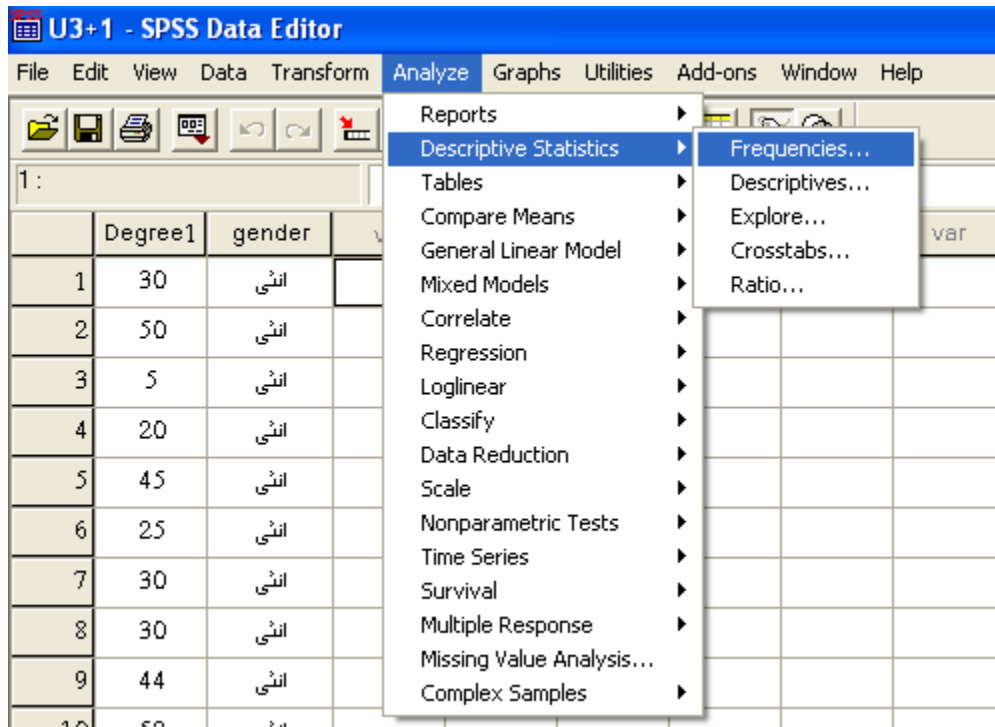
.1

Descriptive Statistics

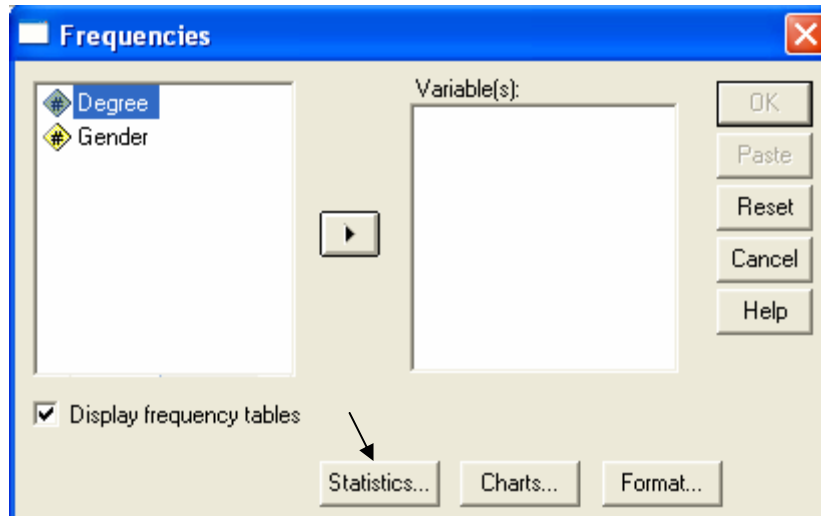
Analyze

.2

Frequency



.3



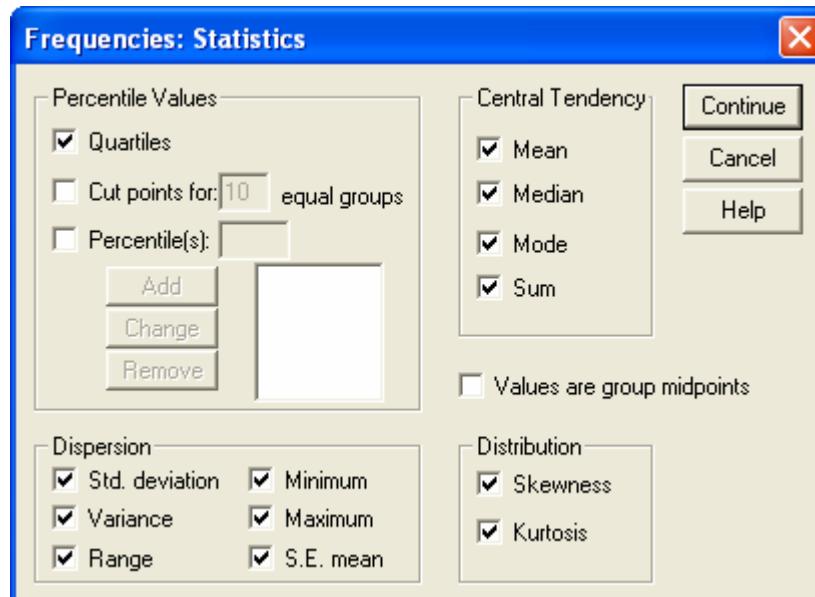
Variable *Degree* .4
.(Degree)

Statistics .5

Dispersion

Central Tendency

.....Quartile



Ok

Frequency

Continue

.6

Frequency

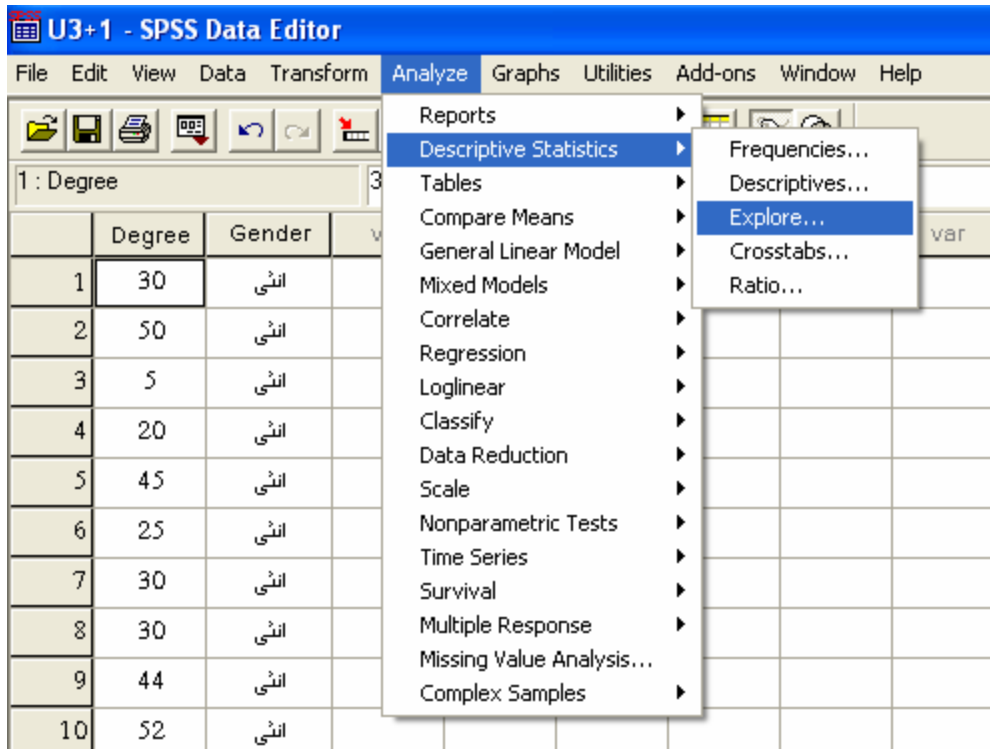
Statistics

Degree

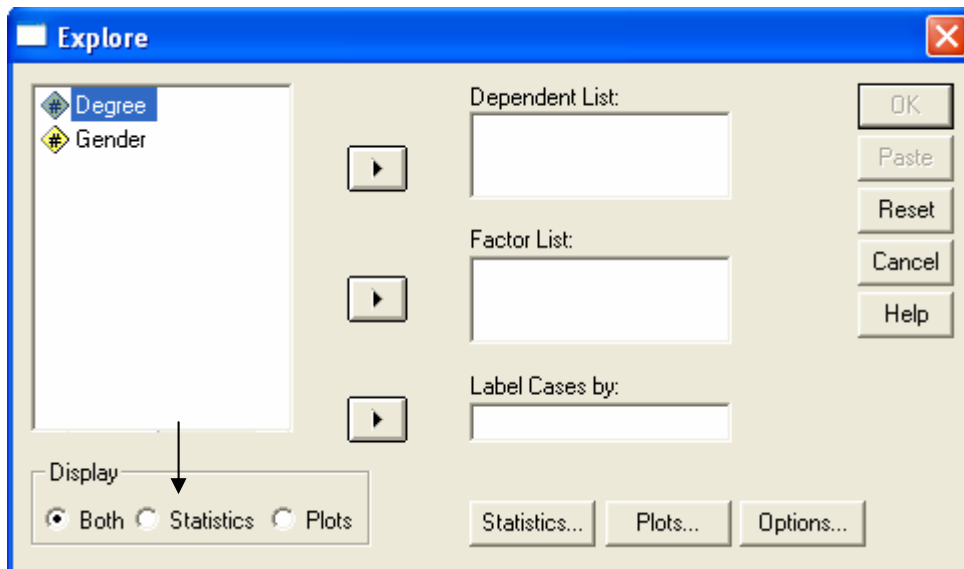
N	Valid	68	
	Missing	0	
	Mean	61.74	
	Std. Error of Mean	2.713	
	Median	65.00	
	Mode	30(a)	
	Std. Deviation	22.372	
	Variance	500.526	
	Skew ness	-.302	
	Std. Error of Skew ness	.291	
	Kurtosis	-.787	
	Std. Error of Kurtosis	.574	
	Range	93	
	Minimum	5	
	Maximum	98	
	Sum	4198	
Percentiles	25	44.00	25
	50	65.00	() 50
	75	77.75	75

a Multiple modes exist. The smallest value is shown

Descriptive Statistics .1
Analyze .2
Explore



.3



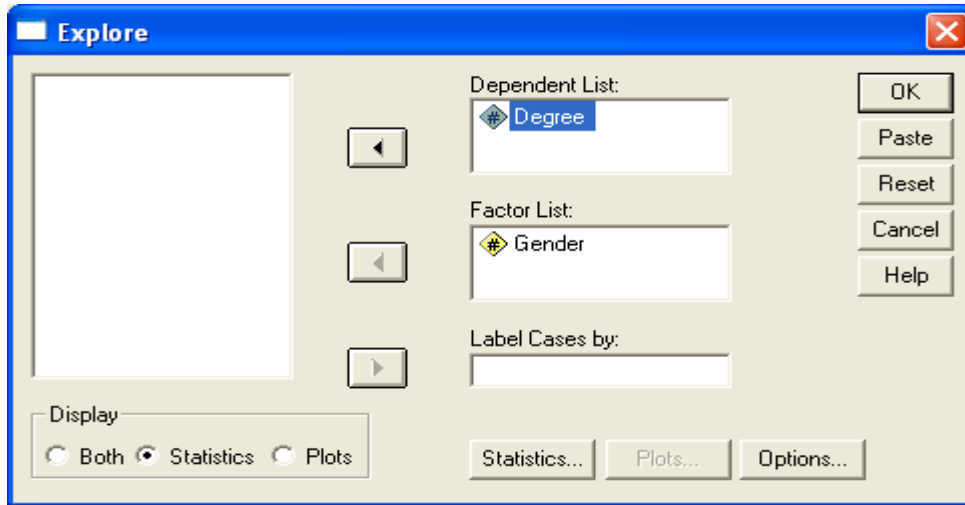
Gender

Degree

.4

Statistics

.Factor List



Ok .5

Descriptives

Gender			Statistic		
	Mean		64.69		
	95% Confidence Interval for Mean	Lower Bound	57.24	%95	
		Upper Bound	72.13	%95	
	5% Trimmed Mean		64.92		
					5 95
	Median		66.00		
	Variance		469.281		
	Std. Deviation		21.663		
	Minimum		25		
	Maximum		98		
	Range		73		
	Interquartile Range		36		
	Skewness		-.190		
	Kurtosis		-1.140		

	Mean	58.61	
95% Confidence Interval for Mean	Lower Bound	50.44	%95
	Upper Bound	66.77	%95
	5% Trimmed Mean	59.34	
	Median	57.00	5 95
	Variance	529.746	
	Std. Deviation	23.016	
	Minimum	5	
	Maximum	95	
	Range	90	
	Interquartile Range	35	
	Skewness	-.382	
	Kurtosis	-.644	

.SPSS 12.0

:6

.SPSS 12.0

: .1

$1 - \alpha$

α

0.025 0.01 0.05 0.1

0.95

0.05

(Sig.,

SPSS

:

.2

.Asymp. Sig. 2 tailed Sig.)

Sig.=0.035

. 0.035 p 0.05

$\alpha = 0.05$

. 0.05 f 0.035
 SPSS
 . 0.025 0.05
 SPSS 0.025
 SPSS ()
 SPSS ()
 2 SPSS
 SPSS
 . $\alpha = 0.05$ ()
 0.10 Sig. SPSS
 .05 Sig.

:

....

.

)

(

:1

:

80	85	75	65	55	52	44	33	30	25	45	80	95	50	30
95	88	90	77	72	75	60	40	57	55	52	48	84	87	78

.1

: 2

(1)

.%90

:

(Arabic)

.1

	Arabic	var	var
1	30		
2	50		
3	95		
4	80		
5	45		
6	25		
7	30		
8	33		
9	44		
10	52		
11	55		
12	65		
13	75		
14	85		
15	80		

	Arabic	var	var
16	78		
17	87		
18	84		
19	48		
20	52		
21	55		
22	57		
23	40		
24	60		
25	75		
26	72		
27	77		
28	90		
29	88		
30	95		

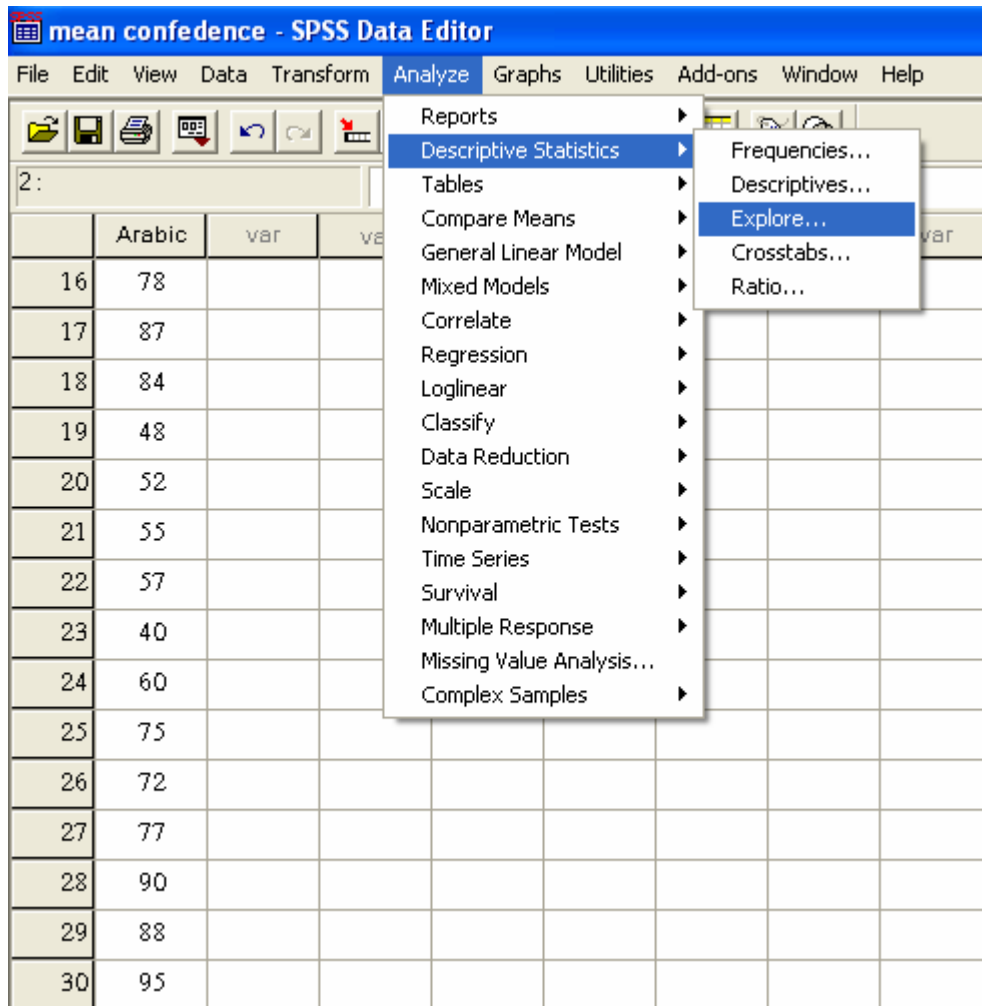
()

Explore

Analyze

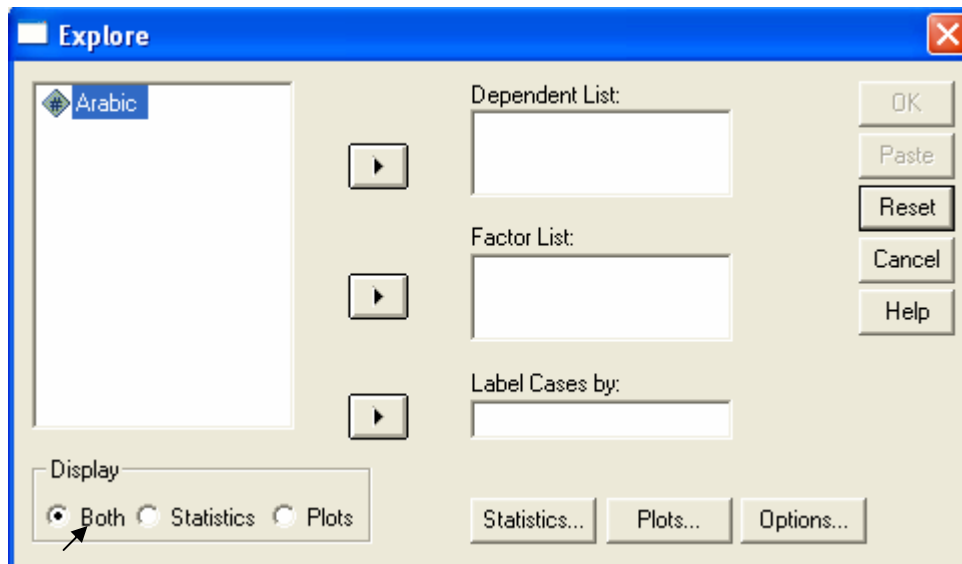
Descriptive Statistics

.2



. Explore

.3

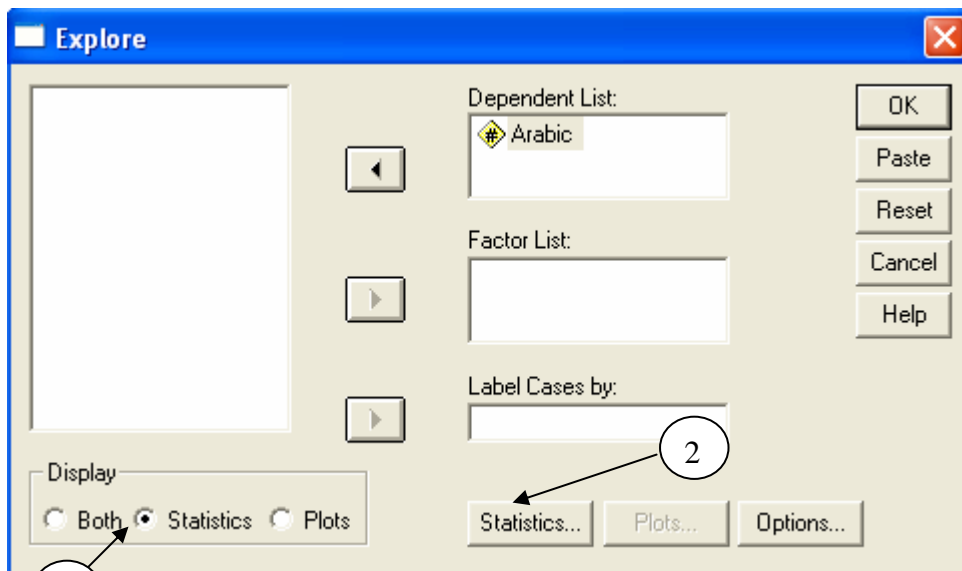


Dependent List

(Arabic)

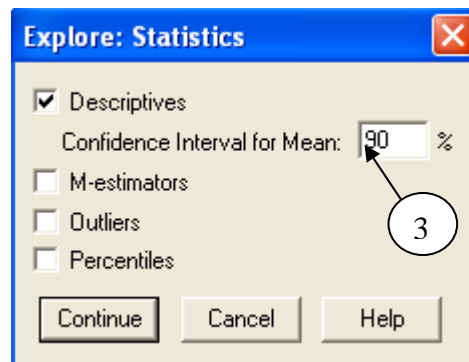
.4

. Statistics



Statistics

.5



Confidence

90

.6

Continue

Interval for Mean

Ok

:Explore

Explore

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Arabic	30	100.0%	0	.0%	30	100.0%

Descriptives

		Statistic	Std. Error
<i>Arabic</i>	Mean	63.40	3.838
	90% Confidence Interval for Mean	Lower Bound: 56.88 Upper Bound: 69.92	
	5% Trimmed Mean	63.69	
	Median	62.50	
	Variance	441.903	
	Std. Deviation	21.021	
	Minimum	25	
	Maximum	95	
	Range	70	
	Interquartile Range	34	
	Skewness	-.194	.427
	Kurtosis	-1.154	.833

Explore

(*Missing Value*)

56.88

63.40

. (56.88,69.92)

%90

69.92

.2

68

:3

(1)

$\alpha = 0.10$

80	85	75	65	55	52	44	33	30	25	45	80	95	50	30
95	88	90	77	72	75	60	40	57	55	52	48	84	87	78

:

:

68

:

68

:

Explore

:

(56.88,69.92)

Explore

68

%90

(

)

%90

%90

.

T

:

.(Arabic)

.1

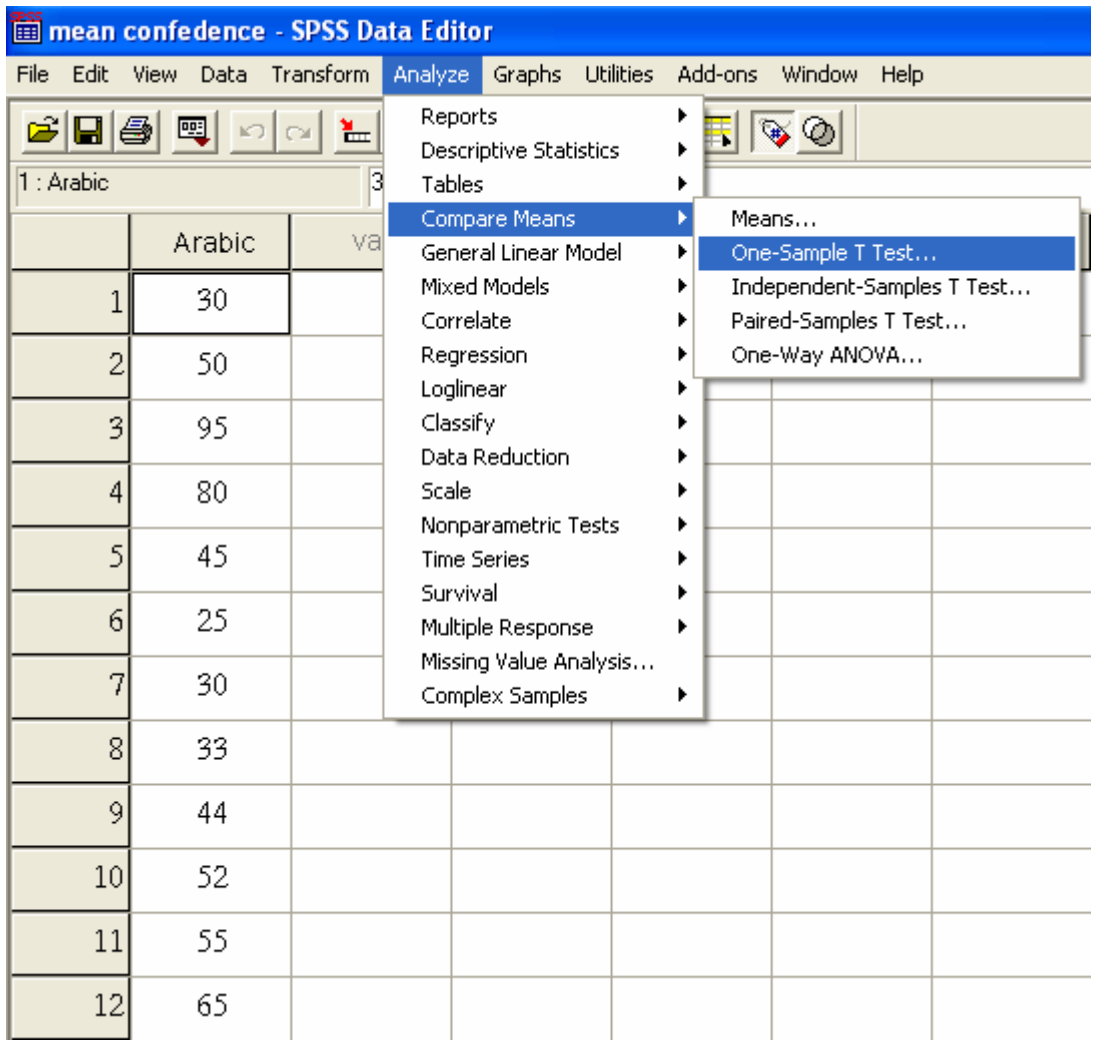
Compare ()

Analyze

.2

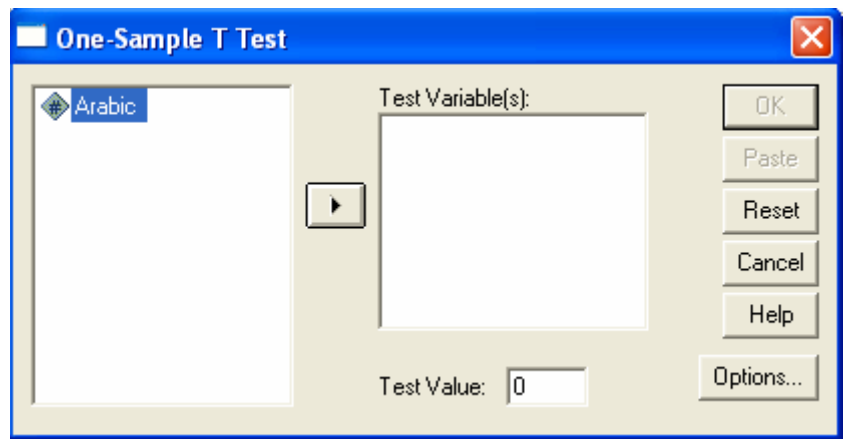
: *One Sample T Test* (T)

Means



T

.3



Test Variables

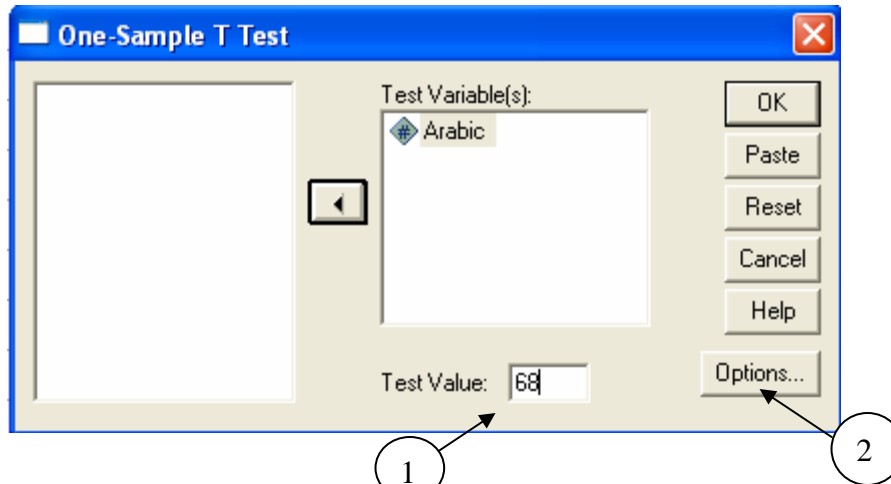
(Arabic)

.4

Test Value

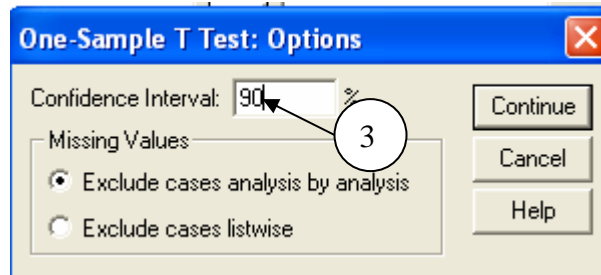
68

:



$$1 - \alpha = 1 - 0.10 = 0.90$$

Option .5



Continue

90

.6

:

Ok

T

T-Test

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Arabic	30	63.40	21.021	3.838

One-Sample Test

	Test Value = 68					
	t	df	Sig. (2-tailed)	Mean Difference	90% Confidence Interval of the Difference	
					Lower	Upper
Arabic	-1.199	29	.240	-4.600	-11.12	1.92

T

One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Arabic	30	63.40	21.021	3.838

63.4

30

. 21.021

:

One-Sample Test

	Test Value = 68					
	t	df	Sig. (2-tailed)	Mean Difference	90% Confidence Interval of the Difference	
					Lower	Upper
Arabic	-1.199	29	.240	-4.600	-11.12	1.92

T

68

T

(

) $n - 1 = 30 - 1 = 29$

1.199-

. 4.6-

:

$\alpha = 0.10$

Sig.(2-tailed) = 0.24

0.24

:

(-11.12,1.92)

:

68

(1)

68

T
.Explore

Test Value

1

.3

.j

:4

(1)

.1 (Arabic) .1
 0 1 (Code) .2

80	85	75	65	55	52	44	33	30	25	45	80	95	50	30
1	1	1	1	1	1	0	0	0	0	0	1	1	1	0
95	88	90	77	72	75	60	40	57	55	52	48	84	87	78
1	1	1	1	1	1	1	0	1	1	1	0	1	1	1

: (Code) (Arabic) .3

The screenshot shows the SPSS Data Editor window titled "Prop2 - SPSS Data Editor". The menu bar includes File, Edit, View, Data, Transform, Analyze, Graphs, Utilities, Add-ons, Window, and Help. The toolbar contains various icons for file operations and data manipulation. The active window is labeled "1: Arabic" and shows a data table with the following content:

	Arabic	Code	var	var	var
1	30	0			
2	50	1			
3	95	1			
4	80	1			
5	45	0			
6	25	0			
7	30	0			
8	33	0			
9	44	0			
10	52	1			
11	55	1			
12	65	1			

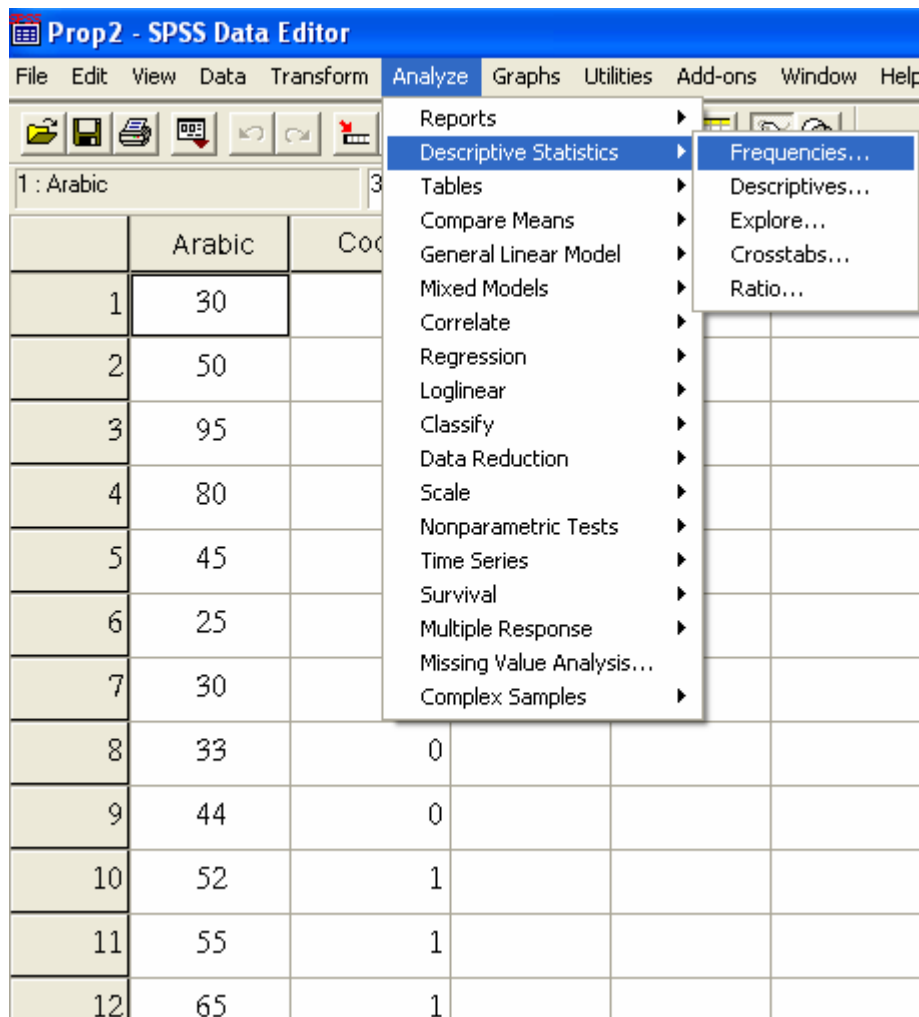
Descriptive ()

Analyze

.4

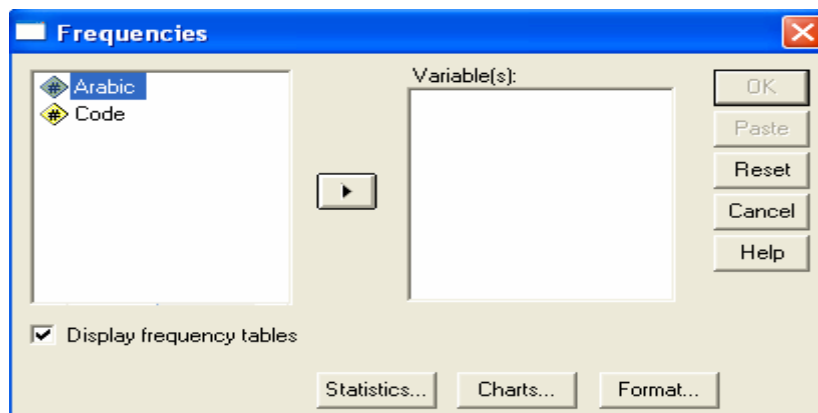
Frequencies

Statistics



Frequency

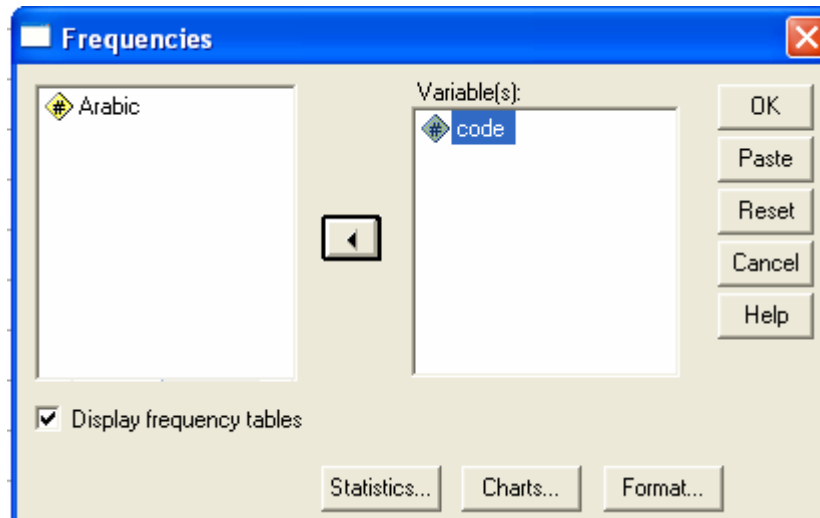
.5



. Variables

Code

.6



Ok .7

Frequencies

Statistics

code

N	Valid	30
	Missing	0

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	8	26.7	26.7	26.7
	1	22	73.3	73.3	100.0
	Total	30	100.0	100.0	

30

Code

%73.3 22 () 1

%.26.7

.7

SPSS

(2)

:5

8	1	5	7	1	3	7	8
6	7	2	9	3	2	9	6
5	6	6	6	5	6	1	1
3	2	3	4	7	4	8	4
3	5	6	4	5	9	8	7

%95

(Numbers)

.1

=1

=0)

(Code)

(3) (

4 :

	Number	Code	var	var	var	var	var
1	8	0					
2	1	1					
3	5	1					
4	7	1					
5	1	1					
6	3	1					
7	7	1					
8	8	0					
9	6	0					
10	7	1					
11	2	0					
12	9	1					
13	3	1					
14	2	0					
15	9	1					
16	6	0					

SPSS

2

Z T

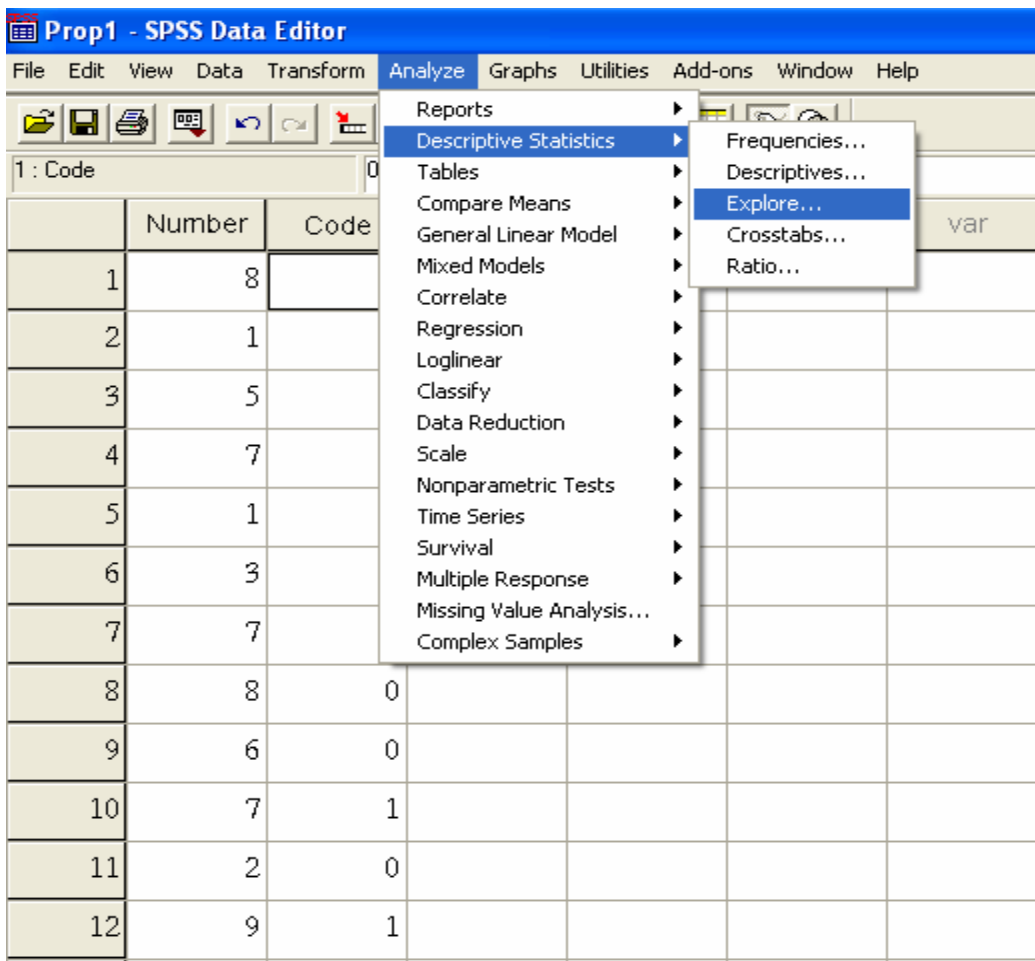
1 0

3

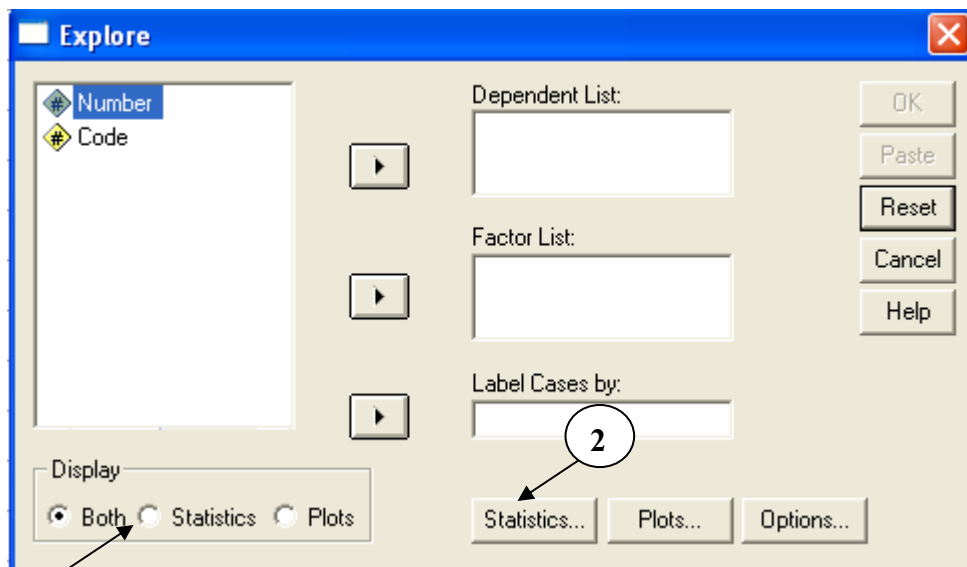
$E(X) = p$

Explore

()



. Explore



Dependent

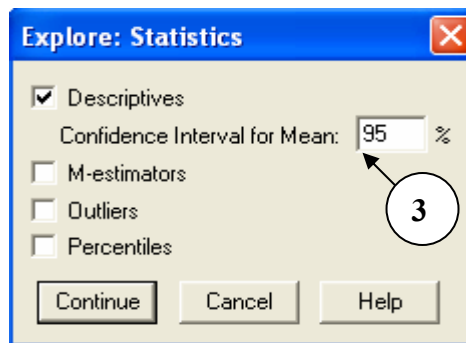
Code

Statistics

.4

Statistics

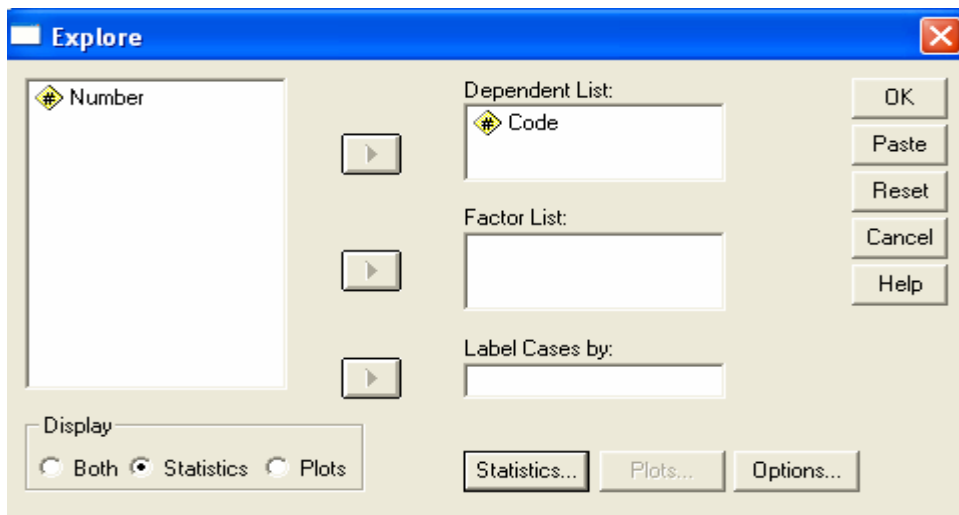
List



Continue

%95

.5



Ok

.6

		Statistic	Std. Error
Code	Mean	.55	.080
	95% Confidence Lower Bound	.39 ←	
	Interval for Mean Upper Bound	.71 ←	
	5% Trimmed Mean	.56	
	Median	1.00	
	Variance	.254	
	Std. Deviation	.504	
	Minimum	0	
	Maximum	1	
	Range	1	
	Interquartile Range	1	
	Skewness	-.209	.374
	Kurtosis	-2.062	.733

$(0.39, 0.71)^{(4)}$: .4
 : .6
 %40 :
 1

$\alpha = 0.05$

80	85	75	65	55	52	44	33	30	25	45	80	95	50	30
95	88	90	77	72	75	60	40	57	55	52	48	84	87	78

:
 .%40 :
 .%40 :
 : (Arabic) .1

	Arabic	var	var	var	var
1	30				
2	50				
3	95				
4	80				
5	45				
6	25				
7	30				
8	33				
9	44				
10	52				
11	55				
12	65				

. 0.55 : 1 0 : 4
 $E(X) = p$

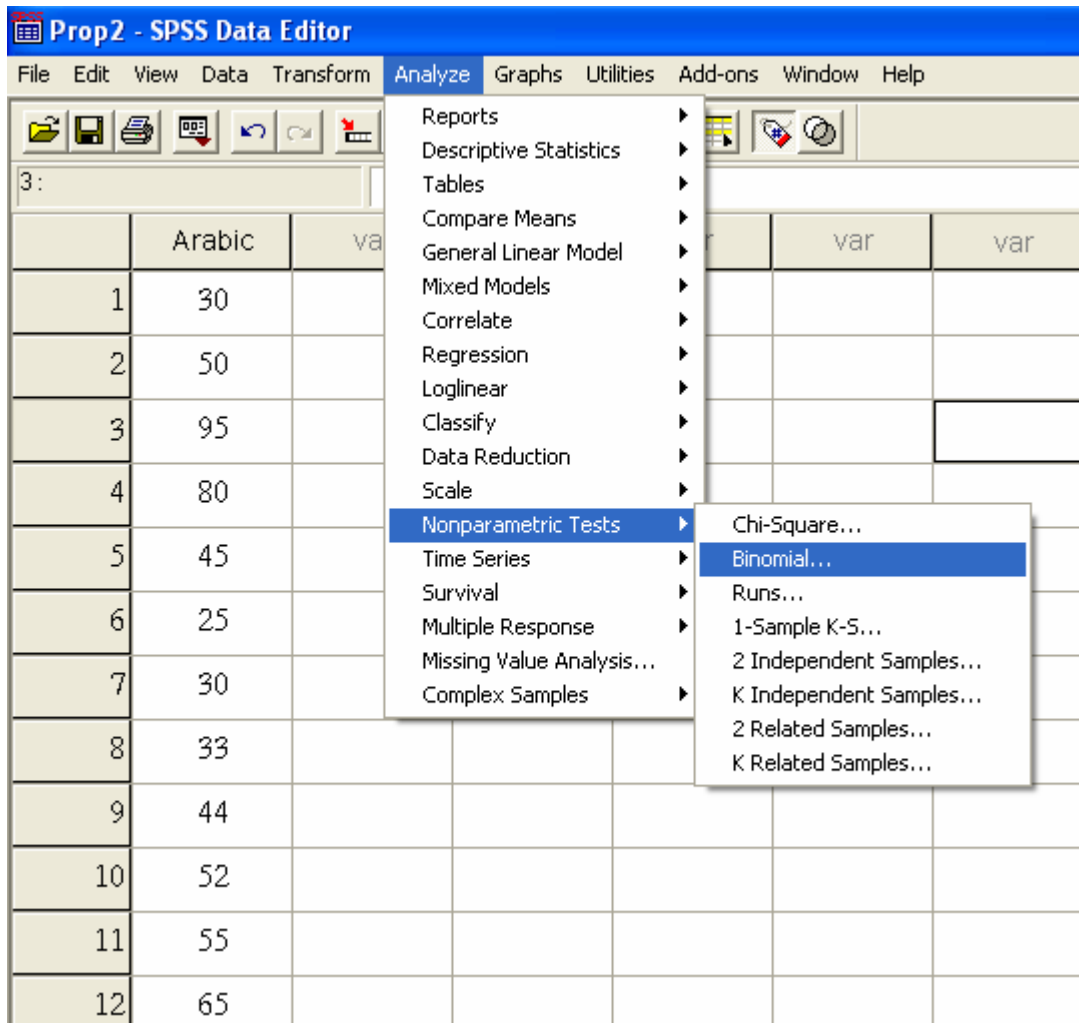
()

Analyze

.2

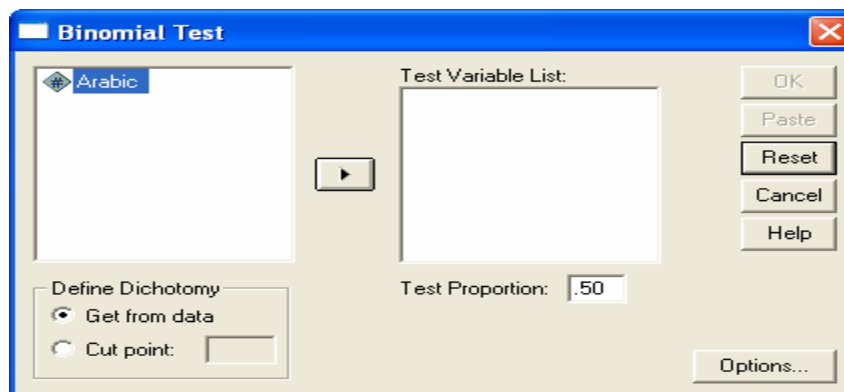
Binomial Test ()

Nonparametric Tests



:

.3



Test Variables List

Arabic

.4

49

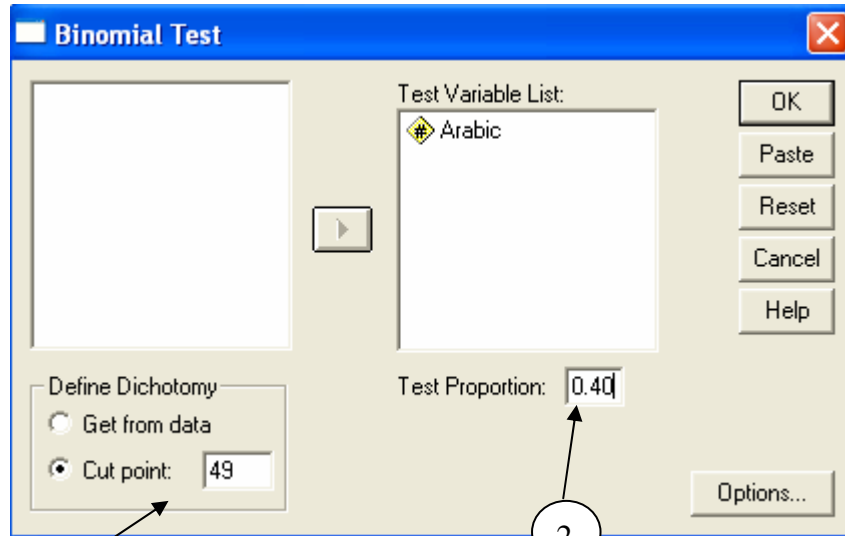
49

Cut point

50

49

0.40



1

2

Ok

.5

NPar Tests

Binomial Test

	Category	N	Observed Prop.	Test Prop.	Asymp. Sig. (1-tailed)
Arabic Group 1	<= 49	8	.27	.4	.094 ^{a,b}
Arabic Group 2	> 49	22	.73		
Total		30	1.0		

a. Alternative hypothesis states that the proportion of cases in the first group < .4.

b. Based on Z Approximation.

) 8

0.73

22

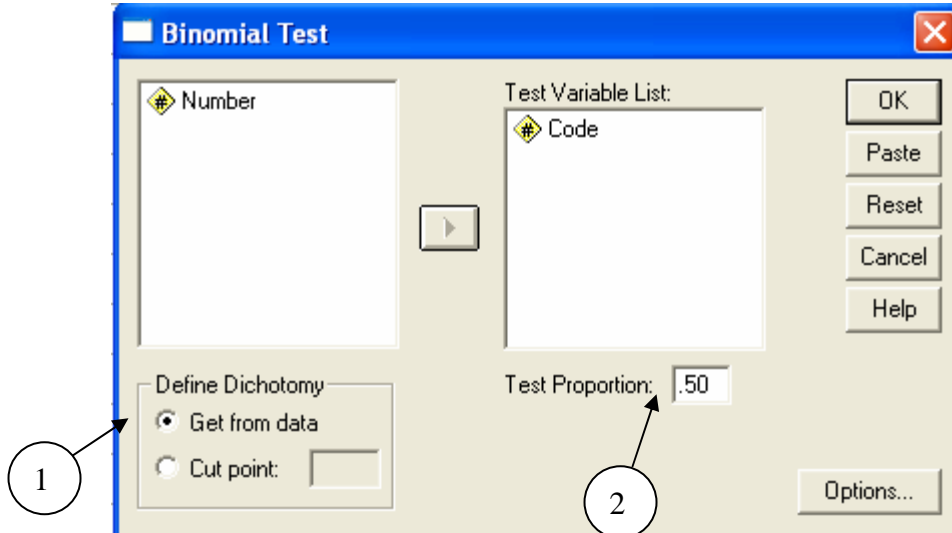
0.27

(49

. 0.4

Asymp. Sig. (1-tailed) = 0.094

a b a 0.094
Z b 0.4
5 :7
%.50
=0) Code Number 5 .1
(=1
() Analyze .2
Binomial Test () Nonparametric Tests
Test Variables Code .3
Ok 0.50 Test Proportion



.4

NPar Tests

Binomial Test

	Category	N	Observed Prop.	Test Prop.	Asymp. Sig. (2-tailed)
Code	Group 1	0	18	.45	.636 ^a
	Group 2	1	22	.55	
	Total	40	1.00		

a. Based on Z Approximation.

Asymp. Sig. (2-tailed)=0.636

$$\alpha = 0.05$$

.5

140 125 130 140 125 140 150 120 140 150

:8

%90

.300

:

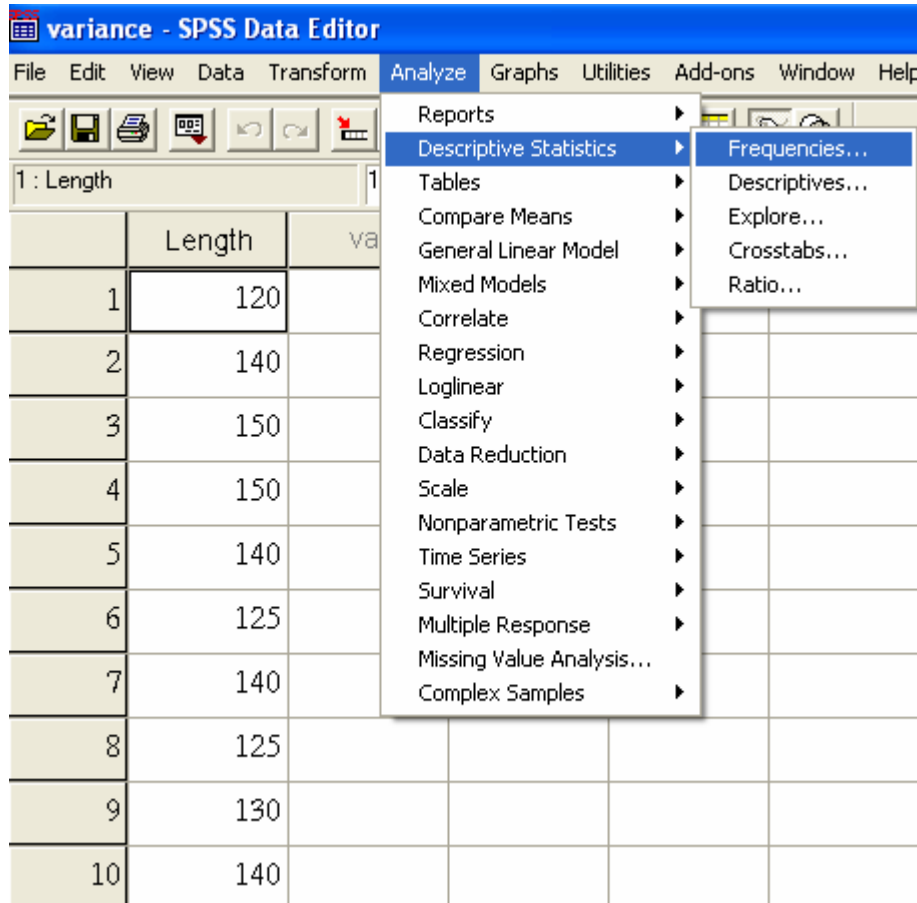
.Length

.1

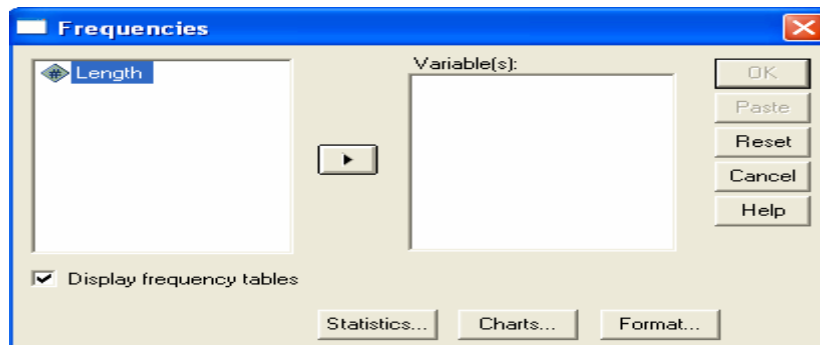
	Length	var	var	var	var
1	120				
2	140				
3	150				
4	150				
5	140				
6	125				
7	140				
8	125				
9	130				
10	140				
11					

()
Frequency

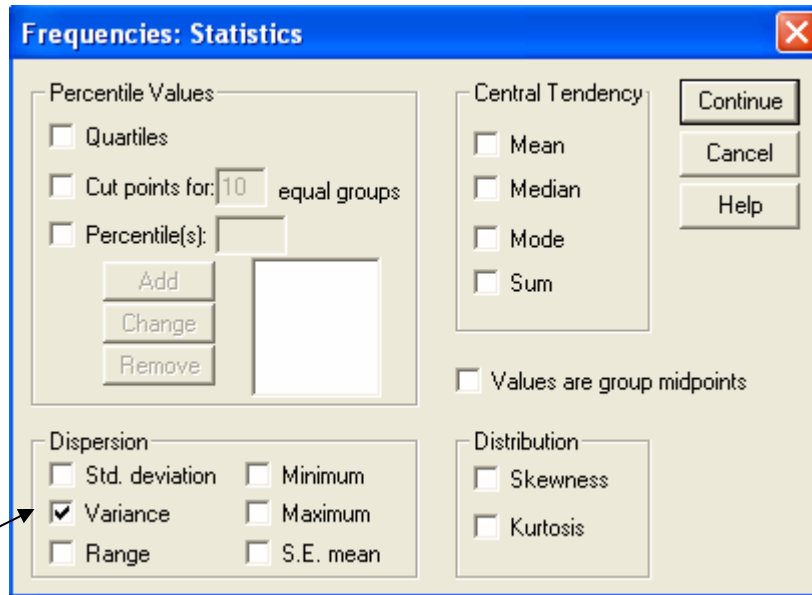
Analyze .2
Descriptive Statistics



.3



Variables : *Length* .4
Statistics



Continue

Variance

.5

Ok

Frequencies

Statistics

Length		
N	Valid	10
	Missing	0
Variance		110.000

.110

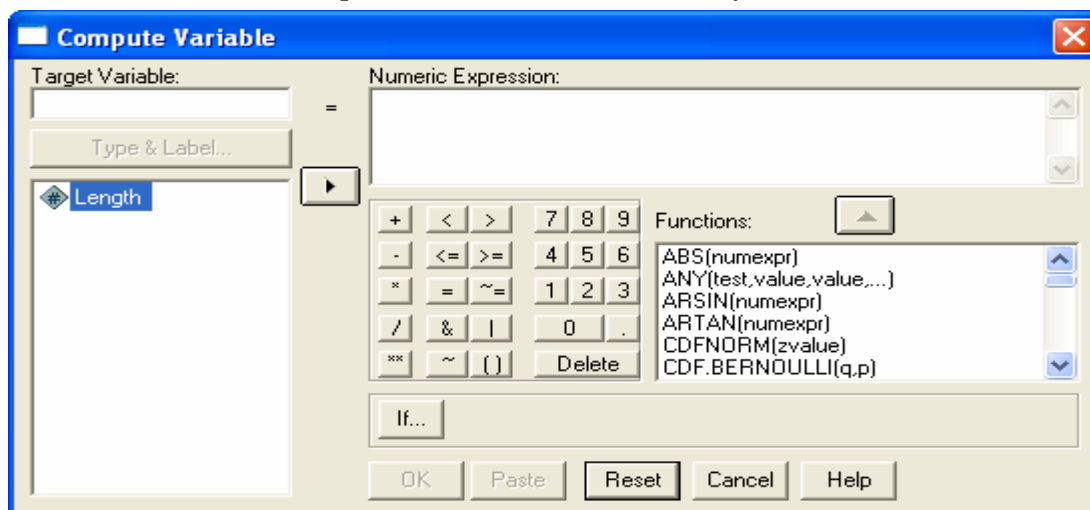
%90

:

Compute

Transform

.6

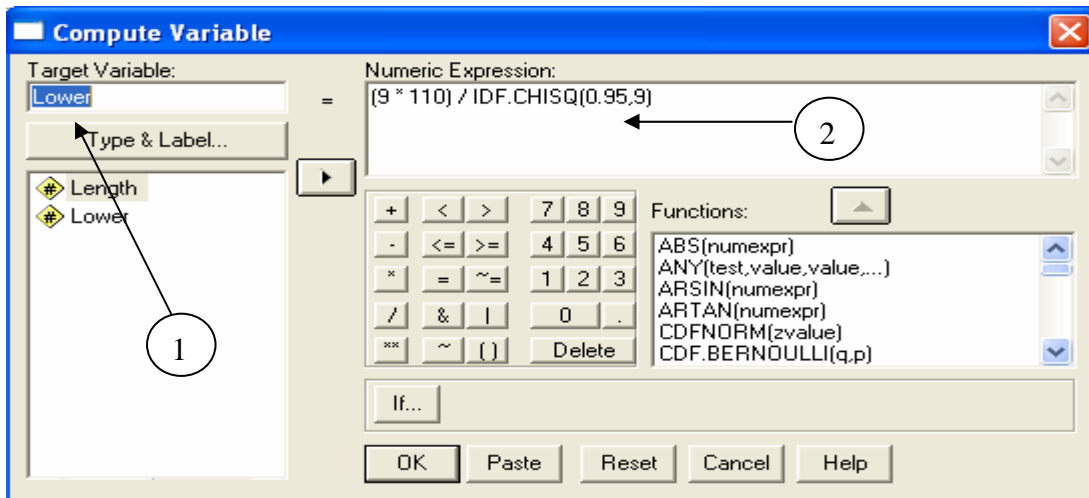


Compute

Target Variable .7

Numeric Expression Lower

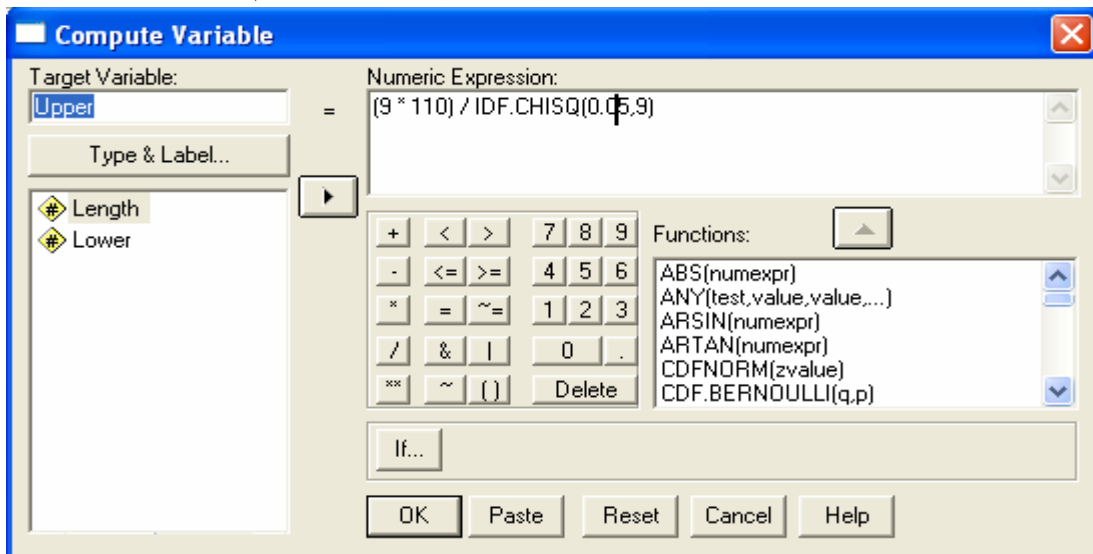
$$((n-1) \times S^2) / \text{IDF.CHISQ}(1-\alpha/2, n-1) = (9 \times 110) / \text{IDF.CHISQ}(0.95, 9)$$



.8

Upper Compute

$$((n-1) \times S^2) / \text{IDF.CHISQ}(\alpha/2, n-1) = (9 \times 110) / \text{IDF.CHISQ}(0.05, 9)$$



	Length	Lower	Upper	var	var
1	120	58.51	297.73		
2	140	58.51	297.73		
3	150	58.51	297.73		
4	150	58.51	297.73		
5	140	58.51	297.73		
6	125	58.51	297.73		
7	140	58.51	297.73		
8	125	58.51	297.73		
9	130	58.51	297.73		
10	140	58.51	297.73		

⁵(58.51, 297.73) %90

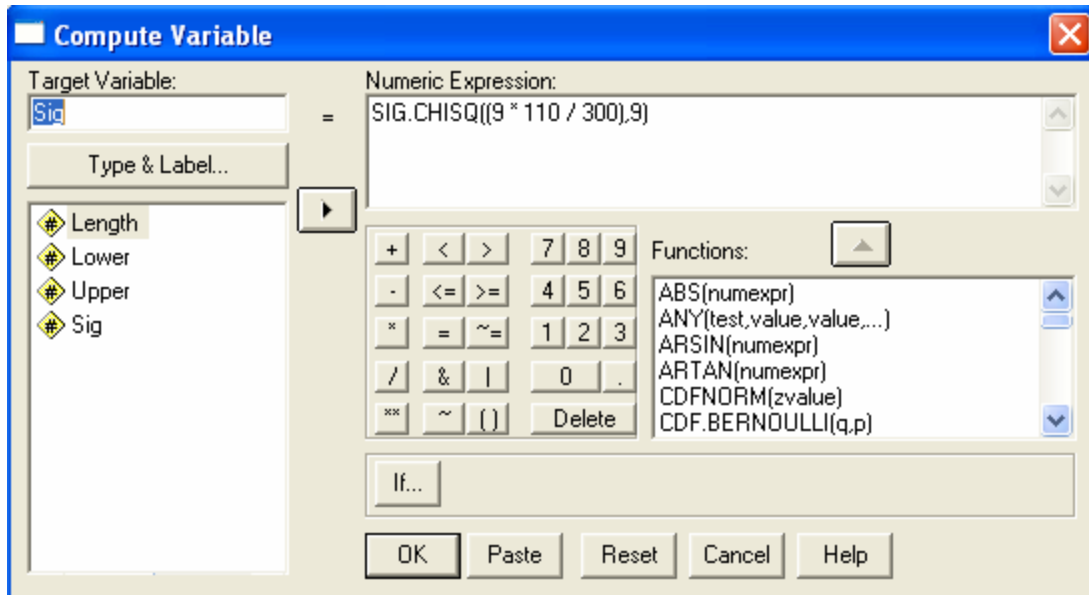
$H_0 : \sigma^2 = 300$.300 :

$H_a : \sigma^2 \neq 300$ 300 :

$300 \notin (58.51, 297.73)$

Compute

$SIG.CHISQ(((n-1) \times S^2 / \sigma_0^2), n-1) = SIG.CHISQ(((10-1) \times 110 / 300), 9) = 0.951$



variance - SPSS Data Editor

File Edit View Data Transform Analyze Graphs Utilities Add-ons

1 : Sig 0.951204690684097

	Length	Lower	Upper	Sig
1	120	58.51	297.73	.951
2	140	58.51	297.73	.951
3	150	58.51	297.73	.951
4	150	58.51	297.73	.951
5	140	58.51	297.73	.951
6	125	58.51	297.73	.951
7	140	58.51	297.73	.951
8	125	58.51	297.73	.951
9	130	58.51	297.73	.951
10	140	58.51	297.73	.951

.0.95

0.951

:

SPSS

.SPSS

.1

σ_1, σ_2 .1

σ_1, σ_2 .2

σ_1, σ_2 .3

SPSS

Compute

SPSS

:1

:

:

80	85	75	65	55	52	44	33	30	25	45	80	95	50	30
95	88	90	77	72	75	60	40	57	55	52	48	84	87	78
												77	73	75

:

77	30	25	30	44	40	65	44	77	75	79	38	84	45	85
76	62	44	42	77	66	65	98	95	36	48	60	61	95	85
										70	80	98	93	75

%95
()

$\alpha = 0.05$

:

:

:

() () .1

(2= 1=)

() .2

:

()

U3+1 - SPSS Data Editor								
File Edit View Data Transform Analyze Graphs Utilities Add-ons Window Help								
4 :								
	الدرجة	الجنس	var	var	var	var	var	
28	90	انثى						
29	88	انثى						
30	95	انثى						
31	75	انثى						
32	73	انثى						
33	77	انثى						
34	85	ذكر						
35	45	ذكر						
36	84	ذكر						
37	38	ذكر						
38	79	ذكر						
39	75	ذكر						
40	77	ذكر						
41	44	ذكر						
42	65	ذكر						

(Compare mean)

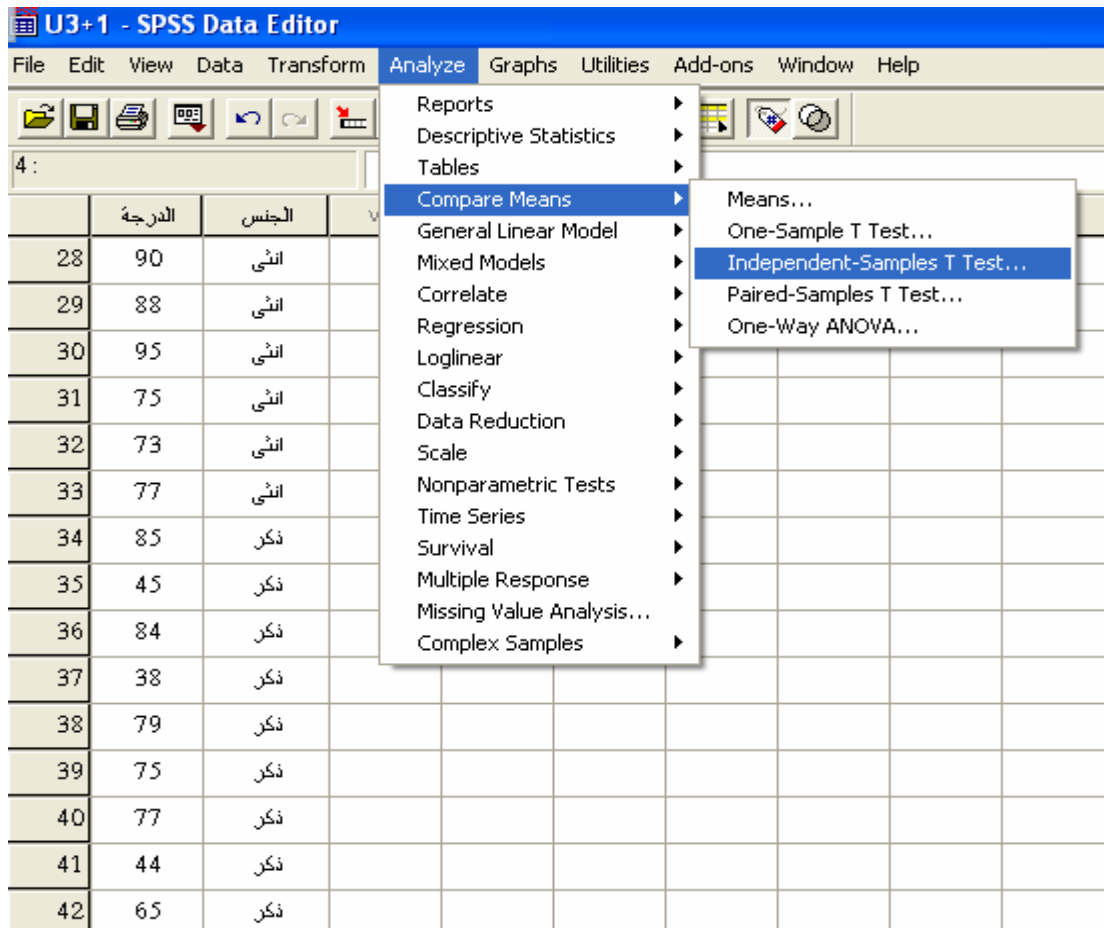
Analyze

.3

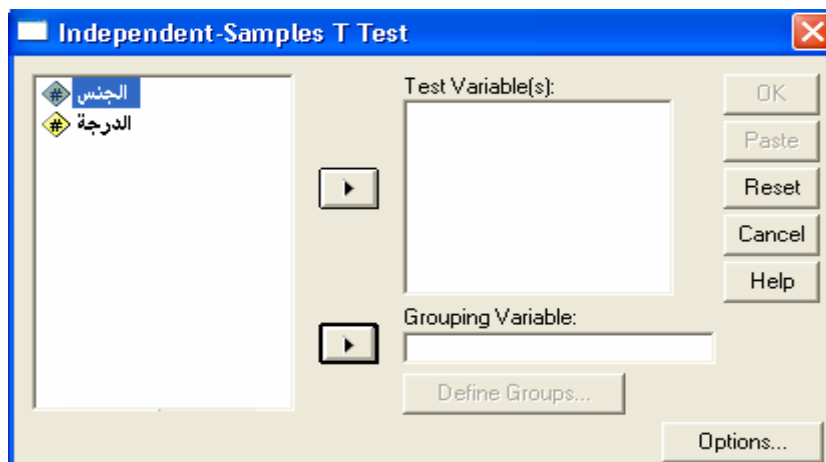
(Independent –Samples T-test)

T

:



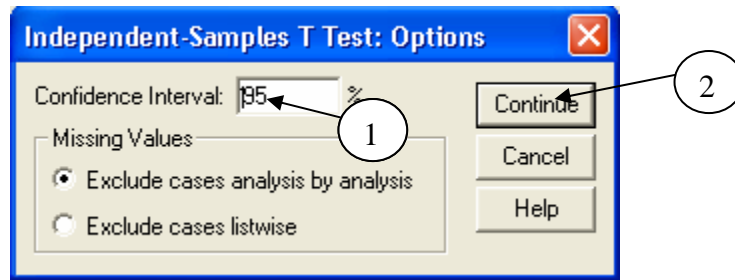
.4



$1 - \alpha = 1 - 0.05 = 0.95$

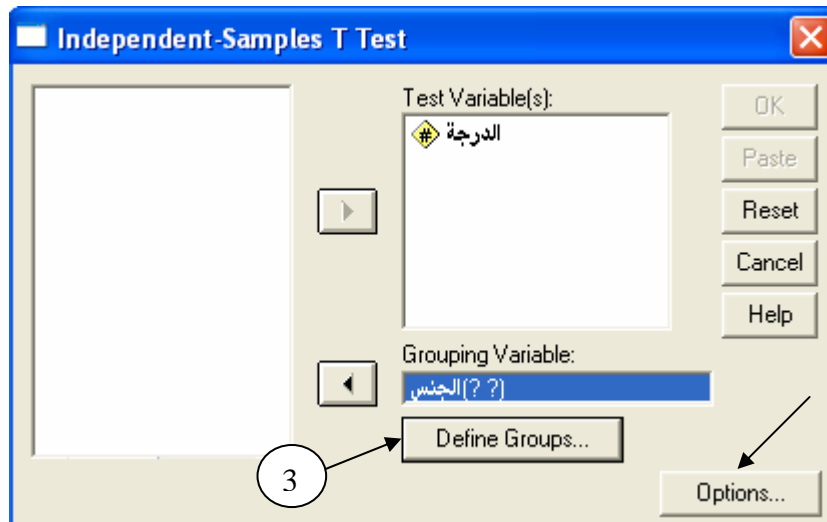
Options .5

Continue

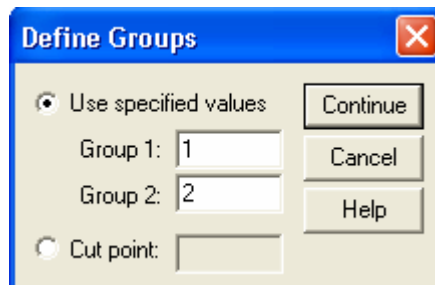


Test Variable () .6

.Grouping Variable



Define Group () .7

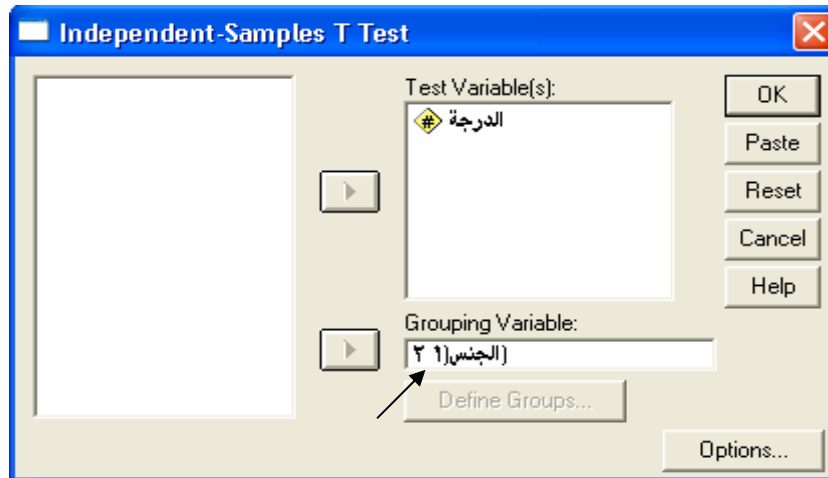


Group 2 Group1 .8

(6)

:

Continue



.Ok

.9

T

Group Statistics

	الجنس	N	Mean	Std. Deviation	Std. Error Mean
الدرجة	ذكر	35	70.66	18.346	3.101
	انثى	33	63.24	19.604	3.413

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
الدرجة	Equal variances assumed	.595	.443	1.611	66	.112	7.415	4.602	-1.774	16.603
	Equal variances not assumed			1.608	64.972	.113	7.415	4.611	-1.794	16.624

T

Group Statistics

.⁽⁷⁾ T

Independent Samples Test

SPSS

7

SPSS

:

Group Statistics

	الجنس	N	Mean	Std. Deviation	Std. Error Mean
الدرجة	ذكر	35	70.66	18.346	3.101
	انثى	33	63.24	19.604	3.413

70.66

35

.3.101

18.346

63.24

33

.3.413

19.604

:

T

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
الدرجة	Equal variances assumed	.595	.443	1.611	66	.112	7.415	4.602	-1.774	16.603
	Equal variances not assumed			1.608	64.972	.113	7.415	4.611	-1.794	16.624

0.433

0.595

(8) *Levene*

.1

$\alpha = 0.05$

(Equal Variance Assumed)

Sig ()
Levene .

Levene 8
 α

Equality of Variance

	. (9)	<i>Assumed</i>	
(T-Test for Equality of <i>T</i>			.2
<i>T</i>		<i>Mean</i>)	
$df = n_1 + n_2 - 2 = 35 + 33 - 2 = 66$	66	1.611	
7.415 <i>Mean Difference</i>			
	. 4.602		
			-
	:		
<i>Sig</i> (2-	:	<i>Sig</i> (2- <i>tailed</i>)	.1
	$\alpha = 0.05$	<i>tailed</i>)=0.112	
(<i>Confidence Interval of the Difference</i>)			.2
<i>Upper</i>	<i>Lower</i>		
(-1.774,16.603)			

:

.2

:

20

:2

	1	2	3	4	5	6	7	8	9	10
	85	80	50	85	40	80	90	80	60	60
	80	50	50	65	50	90	95	84	40	30
	11	12	13	14	15	16	17	18	19	20
	87	80	85	90	75	70	60	55	80	85
	80	75	65	70	75	60	40	70	90	75

$\alpha = 0.10$

:

:

:

()

.1

()

()

U3+2 - SPSS Data Editor

File Edit View Data Transform Analyze Graphs Utilities Add-ons Window Help

	العربي	الانجليزي	var	var	var
1	85	80			
2	80	50			
3	50	50			
4	85	65			
5	40	50			
6	80	90			
7	90	95			
8	80	84			
9	60	40			
10	60	30			
11	87	80			
12	80	75			
13	85	65			

(Compare mean)

Analyze

.2

.(Paired-Sample T-test)

T

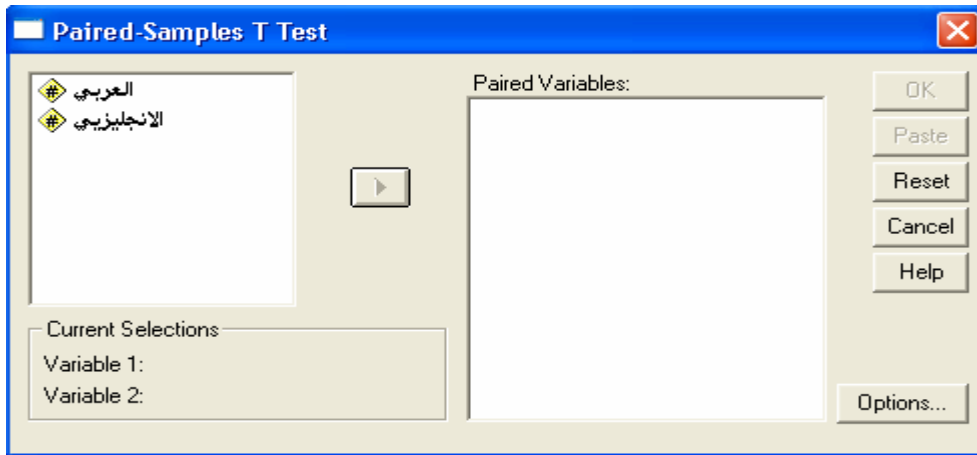
U3+2 - SPSS Data Editor

File Edit View Data Transform Analyze Graphs Utilities Add-ons Window Help

	العربي	الانجليزي	var	var	var
1	85				
2	80				
3	50				
4	85				
5	40				
6	80				
7	90				
8	80	84			

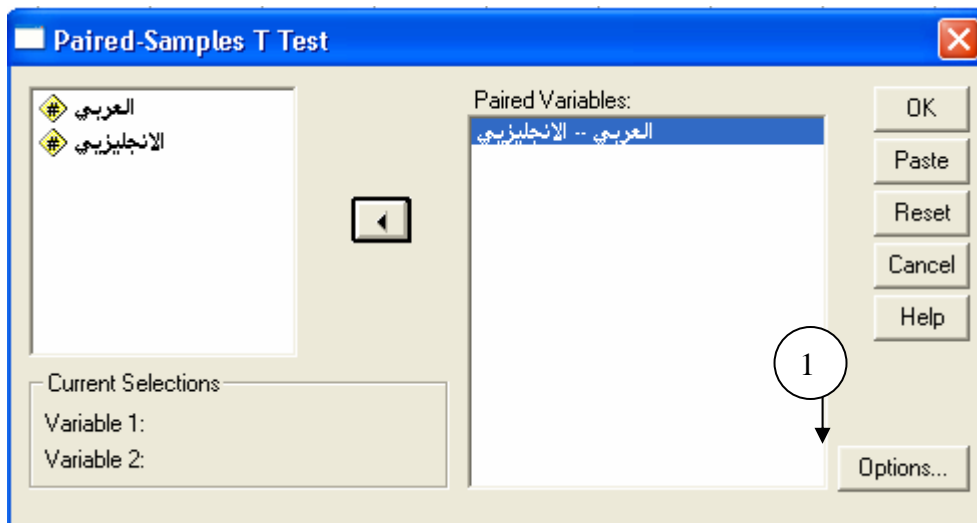
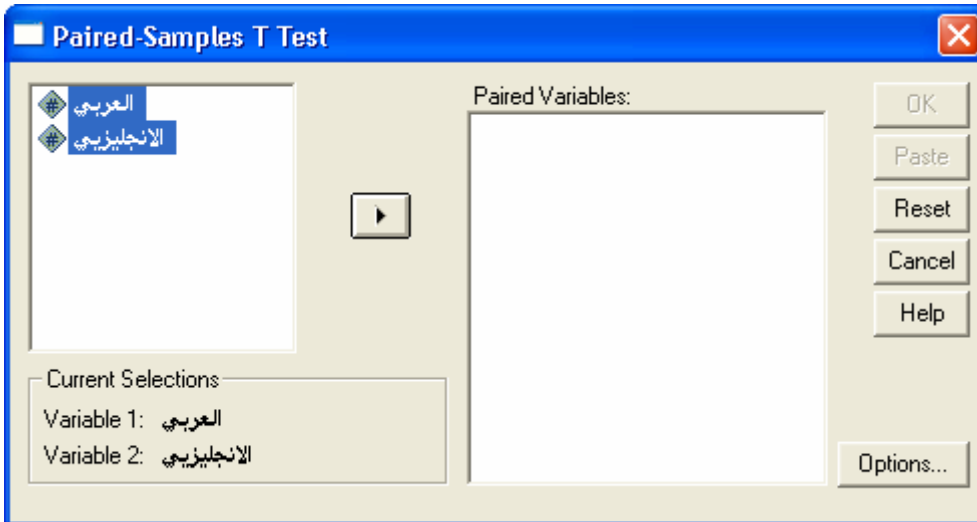
- Reports
- Descriptive Statistics
- Tables
- Compare Means
 - Means...
 - One-Sample T Test...
 - Independent-Samples T Test...
 - Paired-Samples T Test...
 - One-Way ANOVA...
- General Linear Model
- Mixed Models
- Correlate
- Regression
- Loglinear
- Classify
- Data Reduction
- Scale
- Nonparametric Tests
- Time Series
- Survival
- Multiple Response
- Missing Value Analysis...
- Complex Samples

: 3



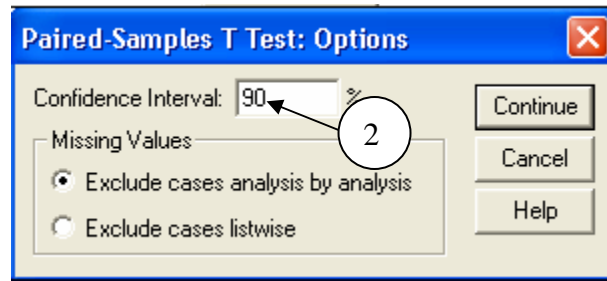
() () 4

: . Paired Variables



Option .5

$$1 - 0.1 = 0.9 \quad (\quad)$$



Ok

.Continue .6

T

Paired Samples Statistics

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 العربي	73.85	20	14.586	3.262
الانجليزي	66.70	20	18.394	4.113

Paired Samples Correlations

	N	Correlation	Sig.
Pair 1 العربي & الانجليزي	20	.670	.001

Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	90% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1 العربي - الانجليزي	7.150	13.846	3.096	1.796	12.504	2.309	19	.032

3

T

(Paired Samples Statistics)

(Paired Sample Correlation)

.(Paired Samples Test)

T

Paired Samples Statistics

	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 العربي	73.85	20	14.586	3.262
الانجليزي	66.70	20	18.394	4.113

20 ()

14.586

73.85

66.70

3.262

.4.113

18.394

Paired Samples Correlations

	N	Correlation	Sig.
Pair 1 العربي & الانجليزي	20	.670	.001

0.67

0.001

Paired Samples Test								
	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	90% Confidence Interval of the Difference				
				Lower	Upper			
Pair 1	7.150	13.486	3.096	0.670	13.63		19	.032

$$T = \frac{(\bar{d} - \mu_0)}{\frac{s_d}{\sqrt{n}}} = \frac{7.150 - 0}{\frac{3.096}{\sqrt{20}}} = 2.309$$

: -
 :
 :
 : Sig. (2- tailed) .1
 Sig. (2- tailed)= 0.032
 (10)

(Confidence Interval of the Difference)
 (0.67,13.63)

.3

:3

50	55	52	65	35	40	55	60
70	68	72	75	48	52	60	70

40	45	40	55	42	56	58	60
60	62	35	40	50	55		

%90

.Frequency

()

()

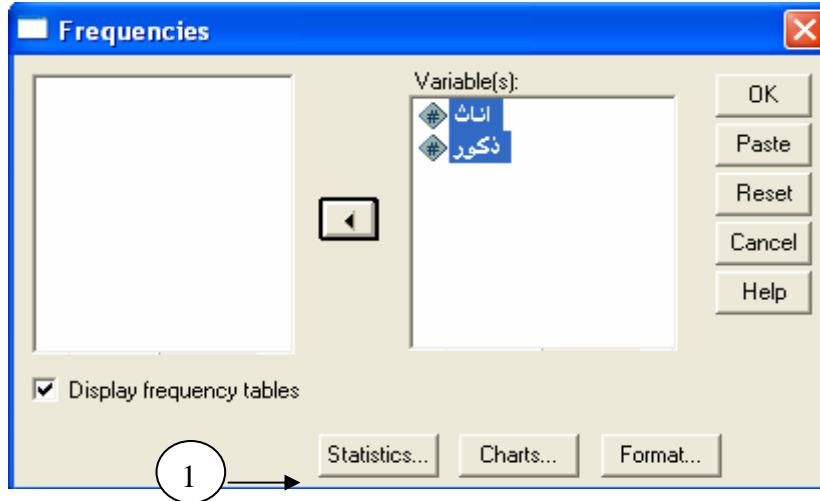
.1

	انٹ	نکوں	var	var	var	var	var
1	50	40					
2	55	45					
3	52	40					
4	65	55					
5	35	42					
6	40	56					
7	55	58					
8	60	60					
9	70	60					
10	68	62					
11	72	35					
12	75	40					
13	48	50					
14	52	55					
15	60	.					
16	70	.					

()
Frequencies

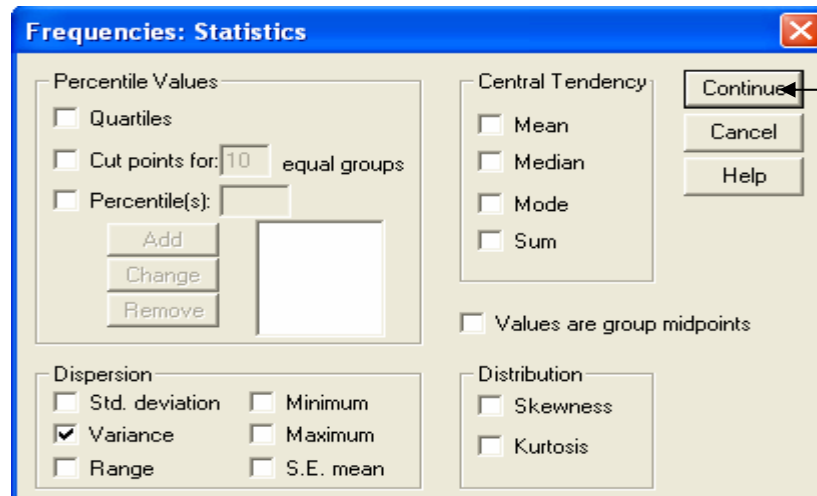
Analyze .2
Descriptive Statistics

:



Statistics .3

Variance



←
2

Ok Continue

.4

Frequencies

Statistics

		اناث	ذکور
N	Valid	16	14
	Missing	0	2
Variance		135.796	85.209

135.796 16 .5

.85.209 14

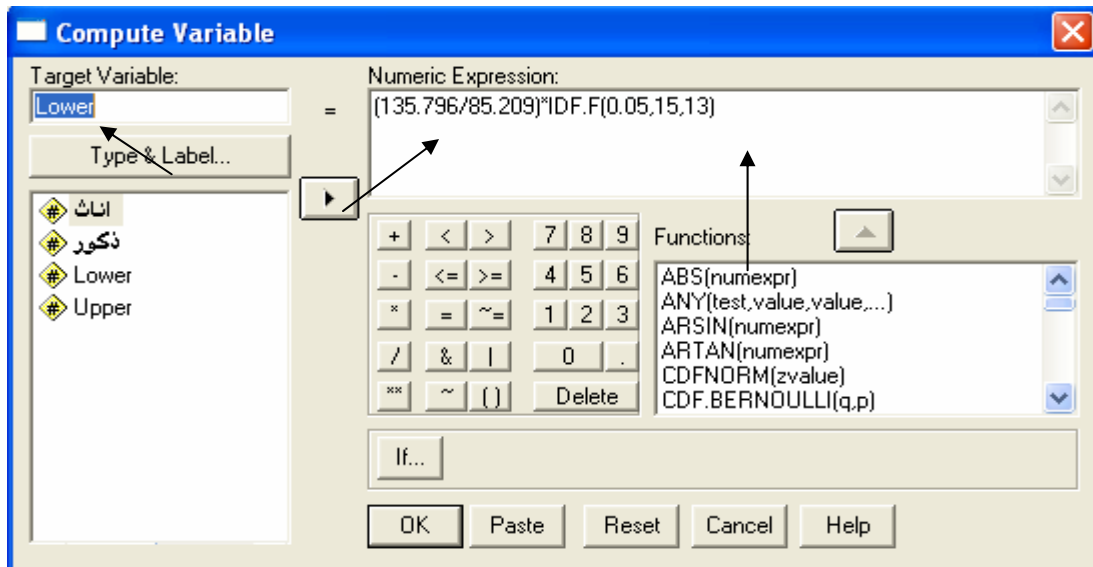
Compute *Transform* .6

Upper *Lower*

:

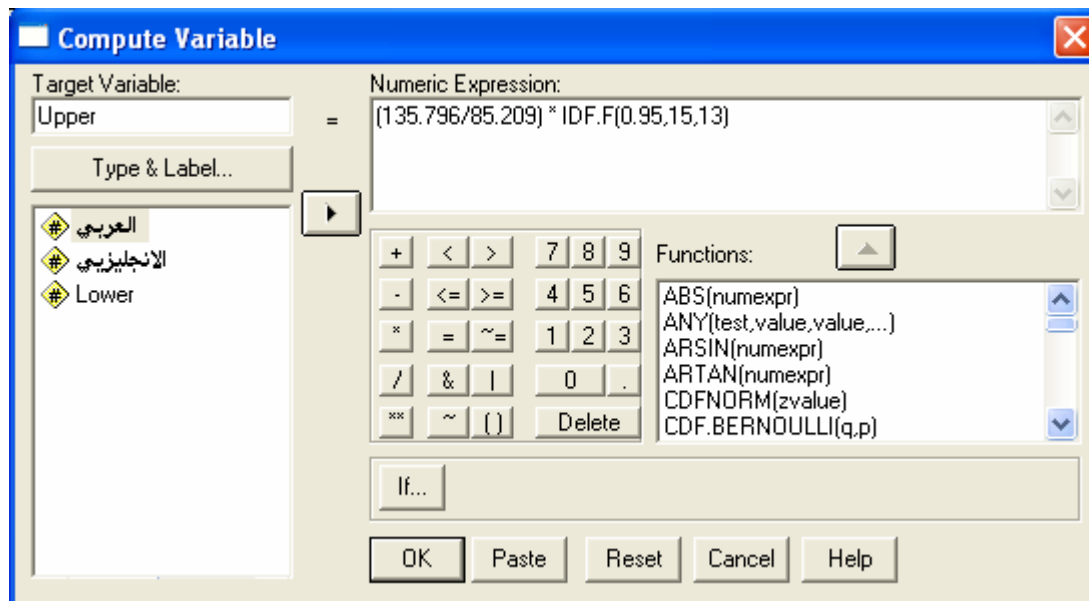
$$^{(11)} (S_1^2/S_2^2)*IDF.F(\alpha/2,15,13)=(135.796/85.209)*IDF.F(0.05,15,13)$$

.7



: *Upper*

$$(S_1^2/S_2^2)*IDF.F(1-\alpha/2,15,13)=(135.796/85.209)*IDF.F(0.95,15,13)$$



.8

Untitled - SPSS Data Editor

File Edit View Data Transform Analyze Graphs Utilities Add-ons Window

7:

	الاناث	الذكور	Lower	Upper	var	var	var
1	50	40	.651	4.037			
2	55	45	.651	4.037			
3	52	40	.651	4.037			
4	65	55	.651	4.037			
5	35	42	.651	4.037			
6	40	56	.651	4.037			
7	55	58	.651	4.037			
8	60	60	.651	4.037			
9	70	60	.651	4.037			
10	68	62	.651	4.037			
11	72	35	.651	4.037			
12	75	40	.651	4.037			
13	48	50	.651	4.037			
14	52	55	.651	4.037			
15	60	.	.651	4.037			
16	70	.	.651	4.037			

(0.651,4.037) %90

$$H_0 : \frac{\sigma_1^2}{\sigma_2^2} = 1$$

$$H_a : \frac{\sigma_1^2}{\sigma_2^2} \neq 1$$

$$1 \in (0.635, 4.037)$$

Compute

Transform

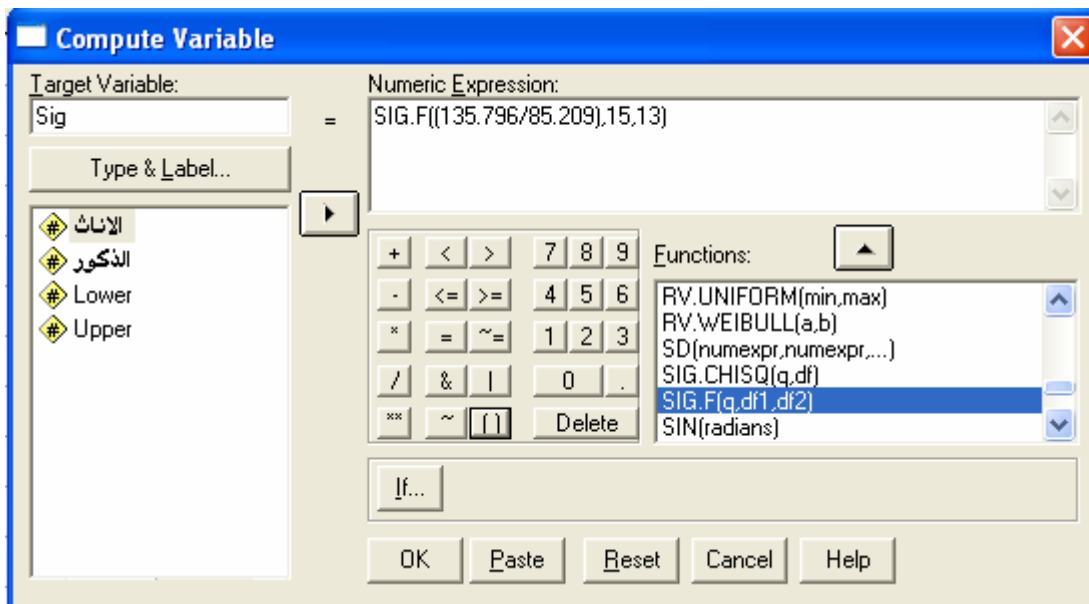
Sig

Sig

$$\text{SIG.F}(S_1^2 / S_2^2, n-1, m-1) = \text{SIG.F}(135.796 / 85.209, 15, 13)$$

n

m



Sig

Untitled - SPSS Data Editor

File Edit View Data Transform Analyze Graphs Utilities Add-ons Window

16 :

	الإناث	الذكور	Lower	Upper	Sig	var	var
1	50	40	.651	4.037	.202		
2	55	45	.651	4.037	.202		
3	52	40	.651	4.037	.202		
4	65	55	.651	4.037	.202		
5	35	42	.651	4.037	.202		
6	40	56	.651	4.037	.202		
7	55	58	.651	4.037	.202		
8	60	60	.651	4.037	.202		
9	70	60	.651	4.037	.202		
10	68	62	.651	4.037	.202		
11	72	35	.651	4.037	.202		
12	75	40	.651	4.037	.202		
13	48	50	.651	4.037	.202		
14	52	55	.651	4.037	.202		
15	60	.	.651	4.037	.202		
16	70	.	.651	4.037	.202		
17							

0.202

$\alpha = 0.10$

:

.1

Y

$$Y = B_0 + B_1 X$$

. X

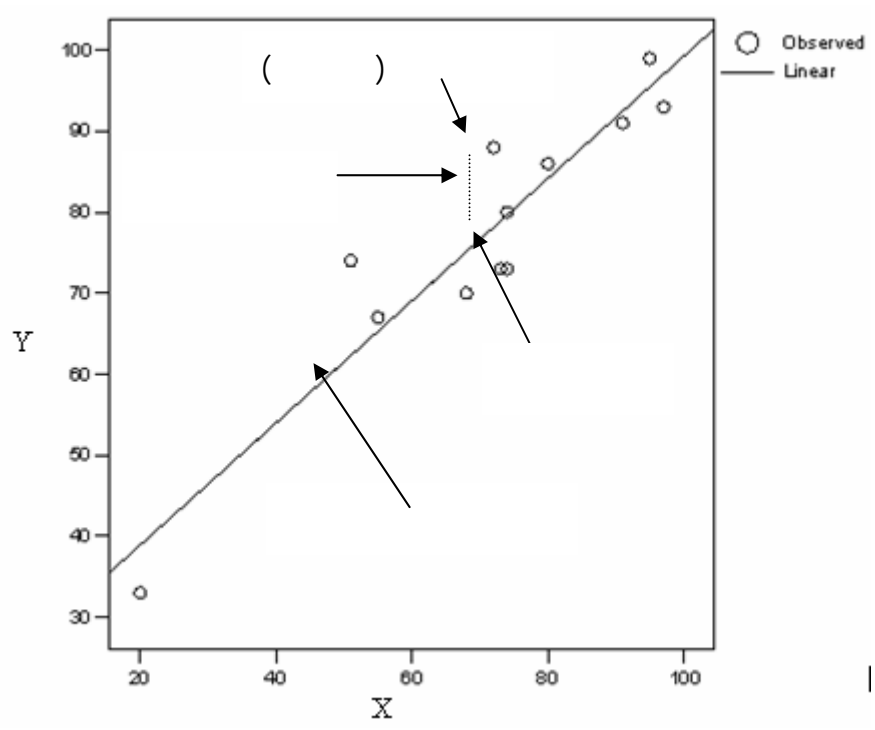
B₁ y

B₀

Y X

)

(



()

Y X

()

•
:1
:

51	74	.1
68	70	.2
72	88	.3
97	93	.4
55	67	.5
73	73	.6
95	99	.7
74	73	.8
20	33	.9
91	91	.10
74	80	.11
80	86	.12

()
 $\alpha = 0.05$

() : () : .1

Regression - SPSS Data Editor

File Edit View Data Transform Analyze Graphs Utilities Add-ons Window Help

14 :

	الرياضيات	الحاسوب	var	var	var	var	var
1	51	74					
2	68	70					
3	72	88					
4	97	93					
5	55	67					
6	73	73					
7	95	99					
8	74	73					
9	20	33					
10	91	91					
11	74	80					
12	80	86					

Regression

Analyze

.2

: .

Linear

Regression - SPSS Data Editor

File Edit View Data Transform Analyze Graphs Utilities Add-ons Window Help

14 :

	الرياضيات	الحاسوب
1	51	74
2	68	70
3	72	88
4	97	93
5	55	67
6	73	73
7	95	99
8	74	73
9	20	33
10	91	91
11	74	80
12	80	86

Reports

Descriptive Statistics

Tables

Compare Means

General Linear Model

Mixed Models

Correlate

Regression

Loglinear

Classify

Data Reduction

Scale

Nonparametric Tests

Time Series

Survival

Multiple Response

Missing Value Analysis...

Complex Samples

Linear...

Curve Estimation...

Binary Logistic...

Multinomial Logistic...

Ordinal...

Probit...

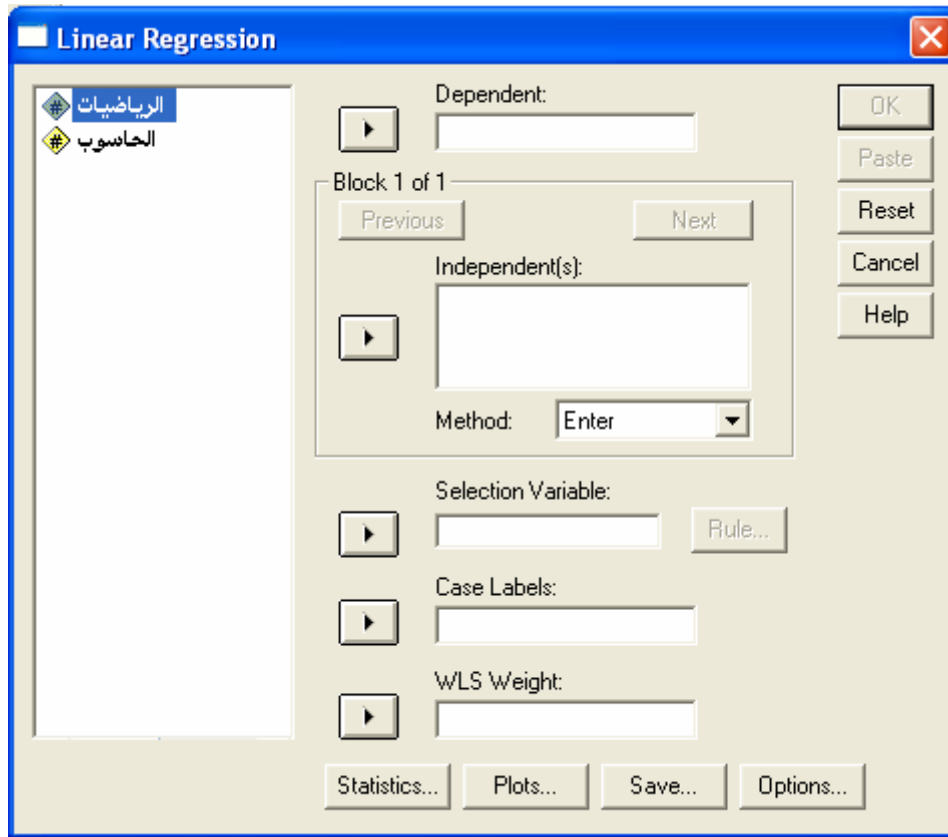
Nonlinear...

Weight Estimation...

2-Stage Least Squares...

Optimal Scaling...

.3

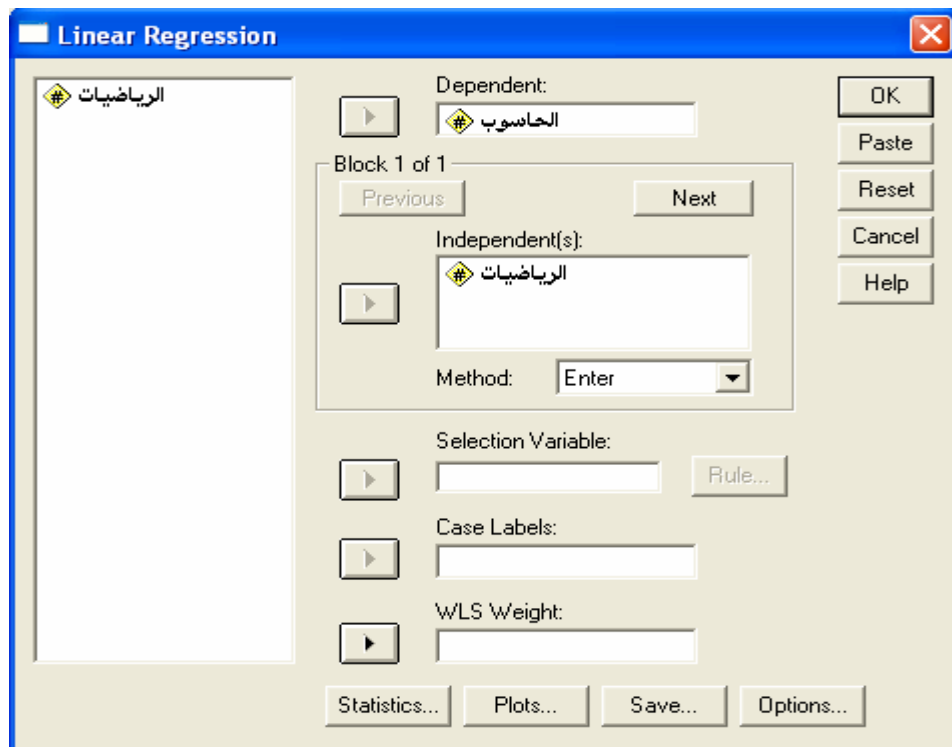


() .4

Dependent

()

Independents



Regression

Variables Entered/Removed^b

Model	Variables Entered	Variables Removed	Method
1	الرياضيات ^a	.	Enter

a. All requested variables entered.

b. Dependent Variable: الحسوب

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.935 ^a	.874	.862	6.411

a. Predictors: (Constant), الرياضيات

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2861.180	1	2861.180	69.603	.000 ^a
	Residual	411.070	10	41.107		
	Total	3272.250	11			

a. Predictors: (Constant), الرياضيات

b. Dependent Variable: الطوب

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	23.783	6.671		3.565	.005
	الرياضيات	.755	.090	.935	8.343	.000

a. Dependent Variable: الطوب

()

()

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.935 ^a	.874	.862	6.411

a. Predictors: (Constant), الرياضيات

(12) R^2

R

0.935

.%87.4 ()

() :

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2861.180	1	2861.180	69.603	.000 ^a
	Residual	411.070	10	41.107		
	Total	3272.250	11			

a. Predictors: (Constant), الرياضيات

b. Dependent Variable: الحاسوب

"

"

:

411.070

2861.180

.1

.3272.25

.10

1

.2

.41.107

2861.18

.3

. 69.603

.4

0.05

0.000

.5

(13)

()

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	23.783	6.671		3.565	.005
	الرياضيات	.755	.090	.935	8.343	.000

a. Dependent Variable: الحاسوب

$$Y = 23.783 + 0.755X$$

Y () X ()

$H_0 : H_0 : B_0 = 0$
 $H_a : H_a : B_0 \neq 0$

T 3.565
 Sig. 0.005
 $\alpha = 0.05$

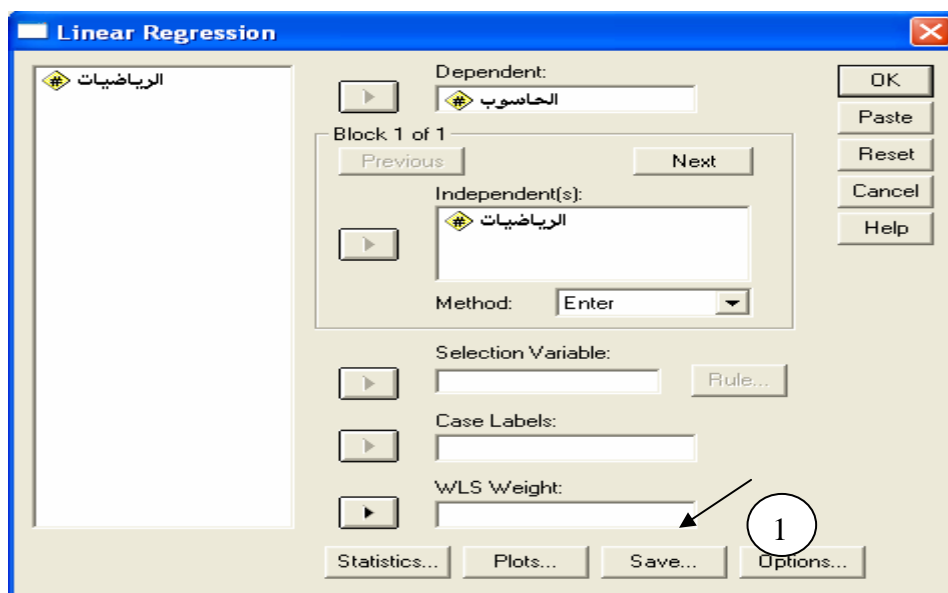
23.783

$H_0 : H_0 : B_1 = 0$
 $H_a : H_a : B_1 \neq 0$

T 8.343
 Sig. 0.000
 $\alpha = 0.05$

0.755

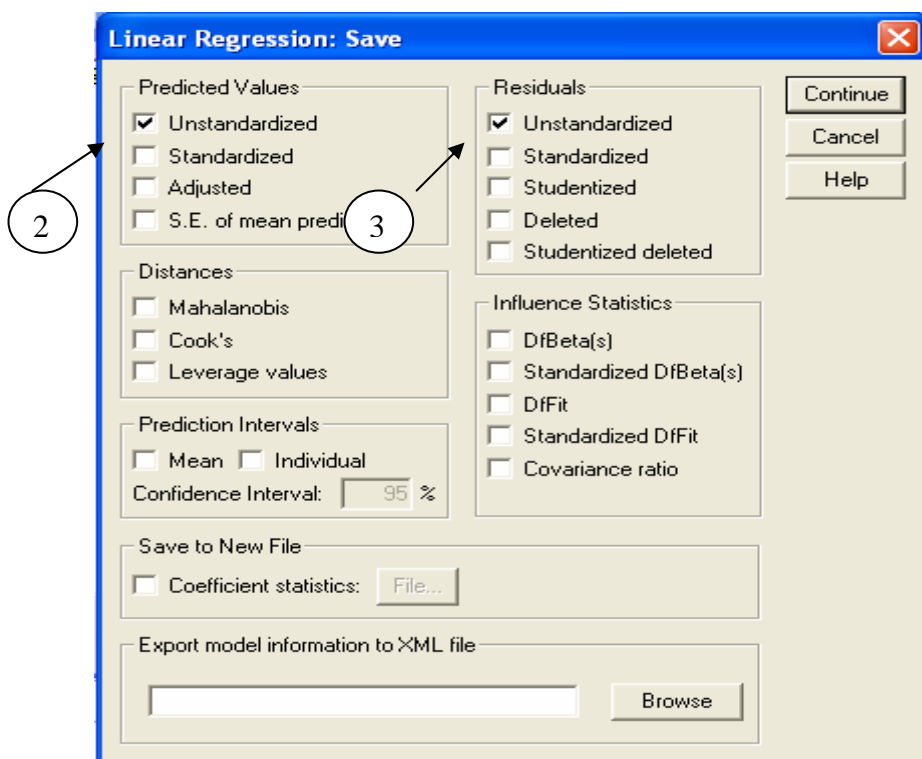
.1



:

Save

.2



Residuals *Un Standardized* .3
Continue *Predicted Values*

() SPSS

.Res_1 Pre_1

74 51

62.27922 (14) ()

.11.72078

Regression - SPSS Data Editor				
File Edit View Data Transform Analyze Graphs Utilities Ac				
1 : RES_1 11.7207766345835				
	الرياضيات	الحاسوب	PRE_1	RES_1
1	51	74	62.27922	11.72078 Uns
2	68	70	75.11132	-5.11132
3	72	88	78.13063	9.86937
4	97	93	97.00136	-4.00136
5	55	67	65.29854	1.70146
6	73	73	78.88546	-5.88546
7	95	99	95.49170	3.50830
8	74	73	79.64029	-6.64029
9	20	33	38.87952	-5.87952
10	91	91	92.47239	-1.47239
11	74	80	79.64029	.35971
12	80	86	84.16927	1.83073

$$Y = 23.785 + 0.755X^{14}$$

.() .2

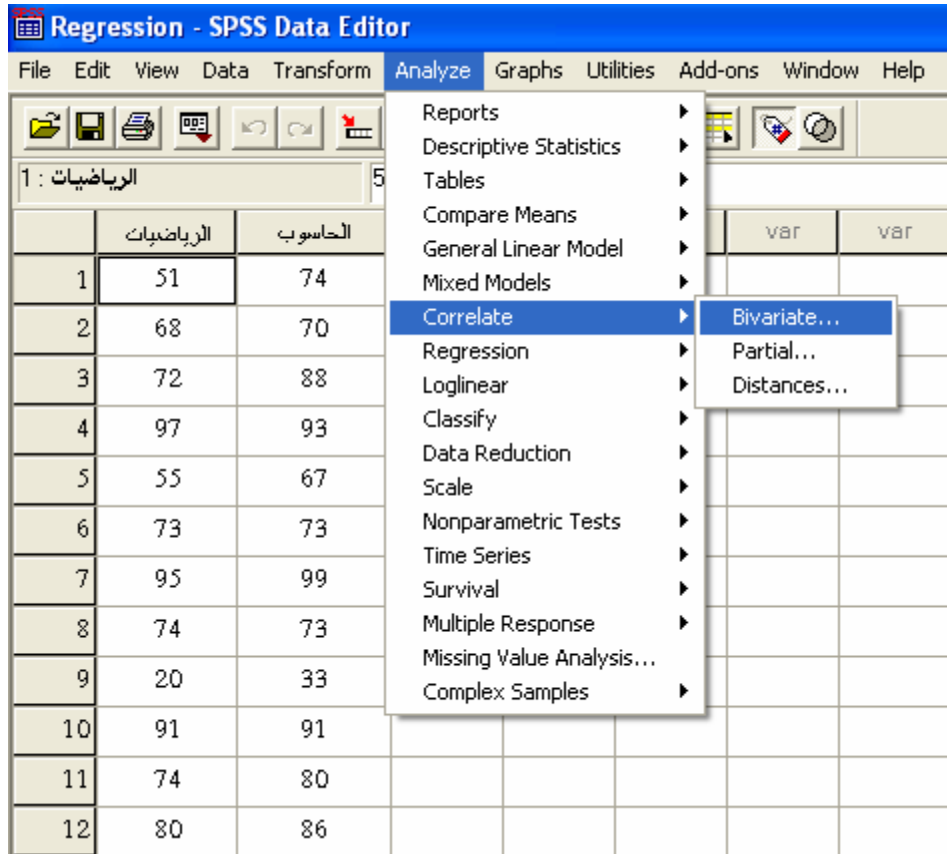
:2

:
 $(H_0 : \rho_0 = 0)$: H_0
 $(H_0 : \rho_0 \neq 0)$: H_a

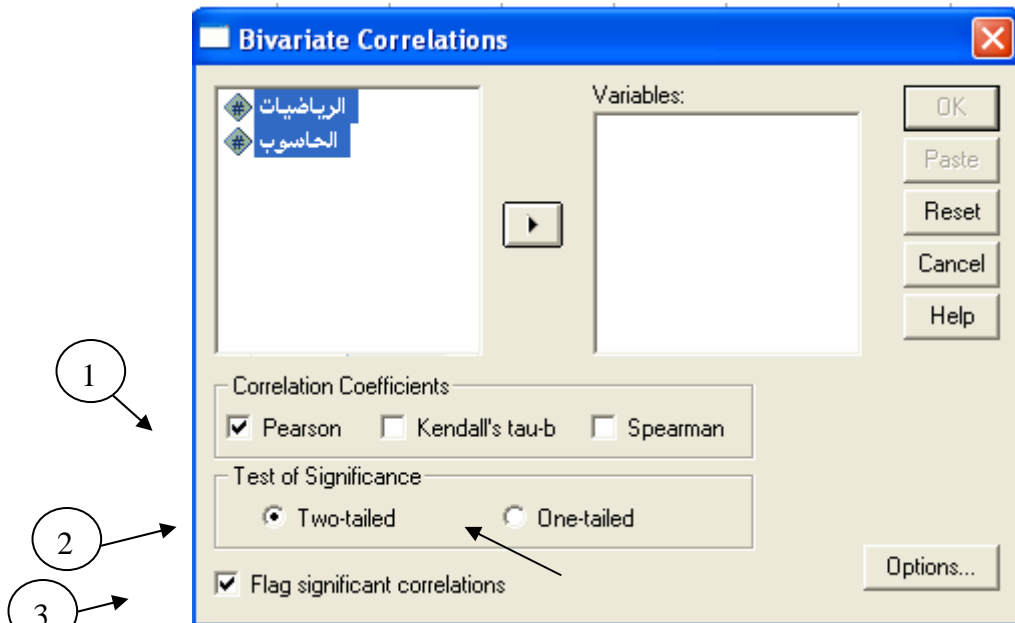
.1

Regression - SPSS Data Editor							
File Edit View Data Transform Analyze Graphs Utilities Add-ons Window Help							
14 :							
	الرياضيات	الحاسوب	var	var	var	var	var
1	51	74					
2	68	70					
3	72	88					
4	97	93					
5	55	67					
6	73	73					
7	95	99					
8	74	73					
9	20	33					
10	91	91					
11	74	80					
12	80	86					

Correlation : *Analyze* : *Bivariate* .2



: .3



Variables ()
()

.4

Flag Significant Correlations

(0.1, 0.5, 0.01, 0.005, 0.000)

()

Correlations

		الرياضيات	الحاسوب
الرياضيات	Pearson Correlation	1	.935**
	Sig. (2-tailed)	.	.000
	N	12	12
الحاسوب	Pearson Correlation	.935**	1
	Sig. (2-tailed)	.000	.
	N	12	12

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

3

.5

0.000

()

0.935

.12

One

$H_0 : \rho_0 < 0$ $H_0 : \rho_0 > 0$

:

.Tailed

:

.1

)

(15)

(

)

(

3

3

:

()

:

)

:

.(

$$H_0 : \mu_1 = \mu_2 = \mu_3 = \dots \mu_n$$

:

•

•

•

:1

()

50 40 55 60	80 70 75 66	30 40 55 70	80 85 90 40
70 65 70 42	75 85 82 90	40 30 50 40	85 75 76 65
43 45 80 95	40 30 50 60	60 55 50 30	62 63 67 88
60 40 85 30	80 90 77 42		30 35 44
	50 60		

Arabic

$\alpha = 0.05$

Level

T

:

:

$$\alpha = 0.05$$

.

=1) *Level* (Level) (Arabic) .1

. (=4 =3 =2 (Arabic) .2

(Level)

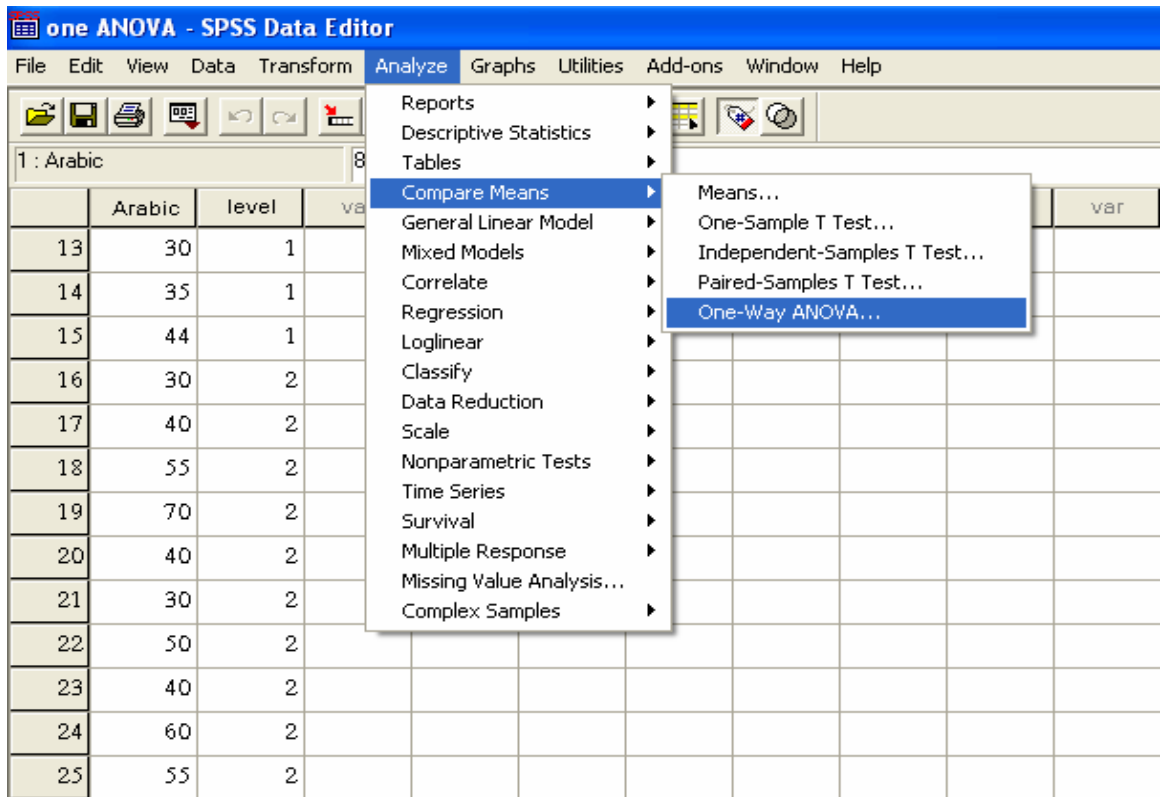
:

	Arabic	level	var	var	var	var	var	var
13	30	1						
14	35	1						
15	44	1						
16	30	2						
17	40	2						
18	55	2						
19	70	2						
20	40	2						
21	30	2						
22	50	2						
23	40	2						
24	60	2						
25	55	2						

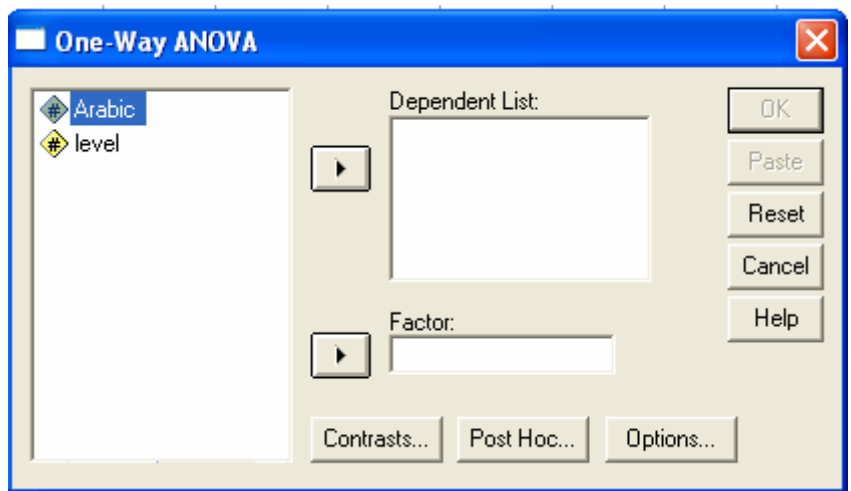
() Analyze .3

One Way ANOVA () Compare Mean

:



.4



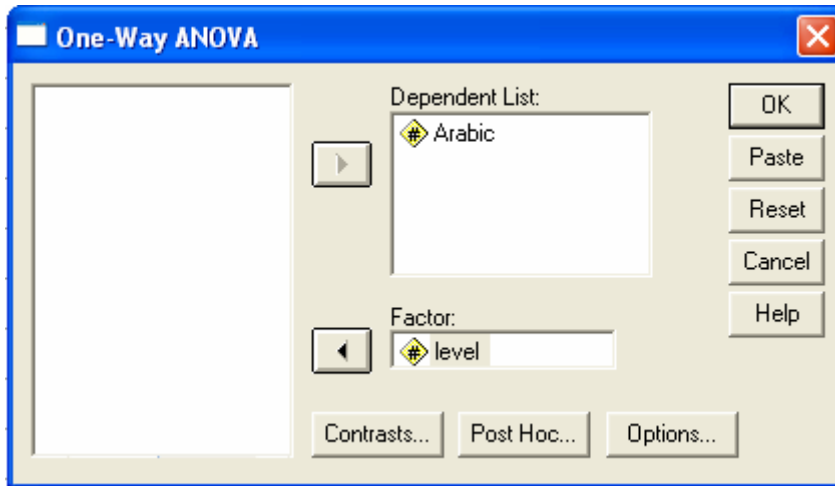
Dependent List

(Arabic)

.5

. Factor

(Level)



: Ok .6

Oneway

Arabic	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3772.336	3	1257.445	3.959	.012
Within Groups	18105.861	57	317.647		
Total	21878.197	60			

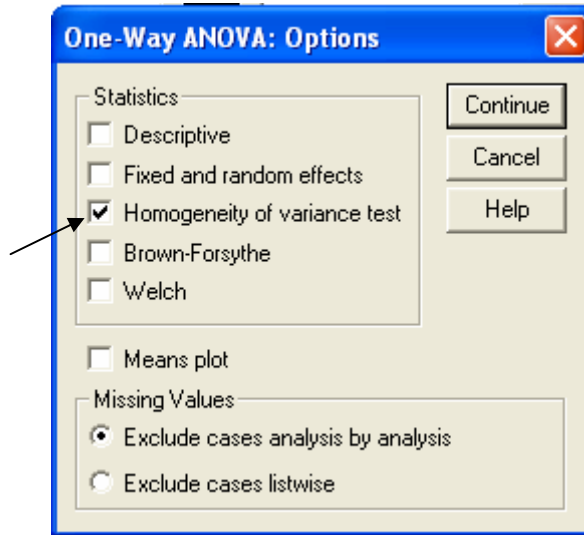
:

.60) 3
 18105.861 3772.336
 .21878.197
 57 (1

Sig.=0.012

$\alpha = 0.05$

Options



Homogeneity of Variance test

Continue

Ok

Levene

Test of Homogeneity of Variances

Arabic

Levene Statistic	df1	df2	Sig.
.785	3	57	.507

0.507

0.785

$\alpha = 0.05$

(16)

.2

) ()
() (3
()
()

3

.1

.2

.3

(Arabic)

:2

:

(Gender)

(Level)

	50 40 55 60 70 65 70	80 70 75 66 75 85 82 90	30 40 55 70 40 30 50	80 85 90 40 85 75 76 65
	42 43 45 80 95 60 40 85 30	40 30 50 60 80 90 77 42 50 60	40 60 55 50 30	62 63 67 88 30 35 44

:

-

-

:

:

.1

$\alpha = 0.05$

.2

$$\alpha = 0.05$$

.3

$$. \alpha = 0.05$$

Level (Gender) (Level) (Arabic) 3 .1
 = 4 = 3 =2 =1)
 . (=2 =1) (Gender) (

.2

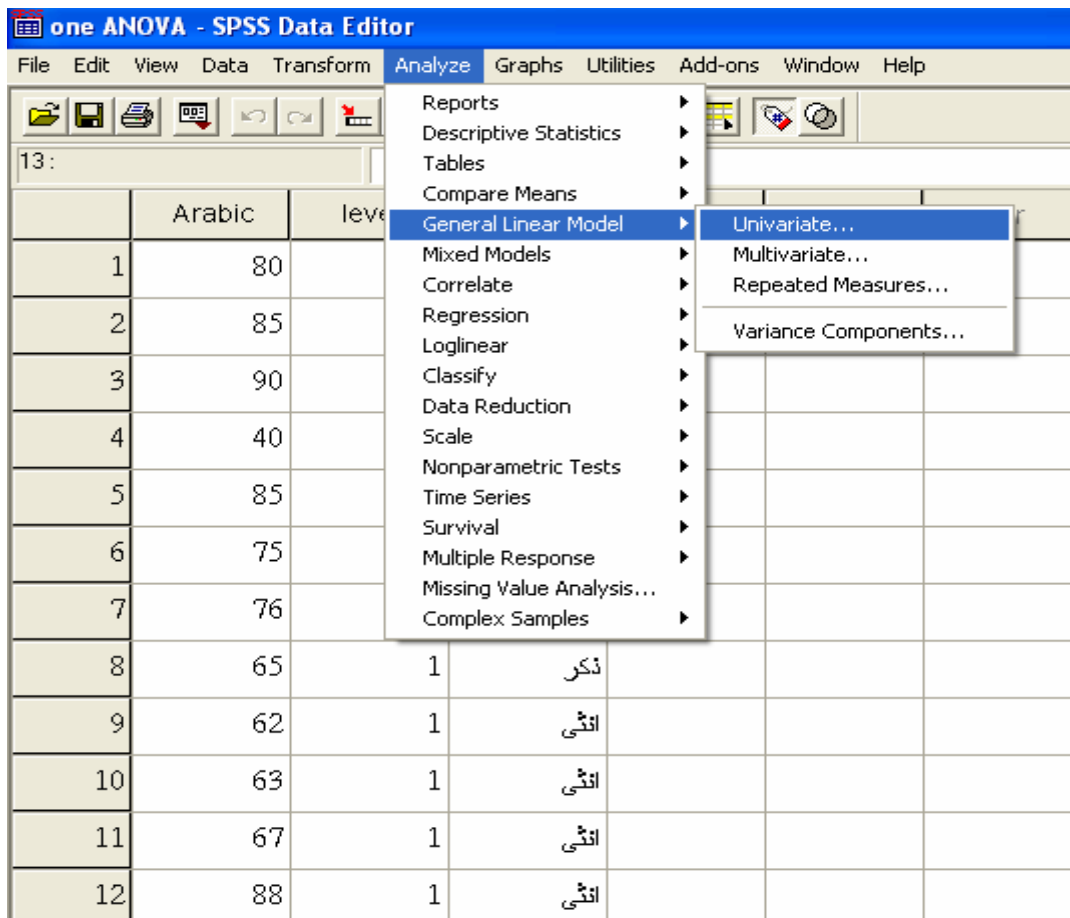
one ANOVA - SPSS Data Editor

File Edit View Data Transform Analyze Graphs Utilities Add-ons Window Help

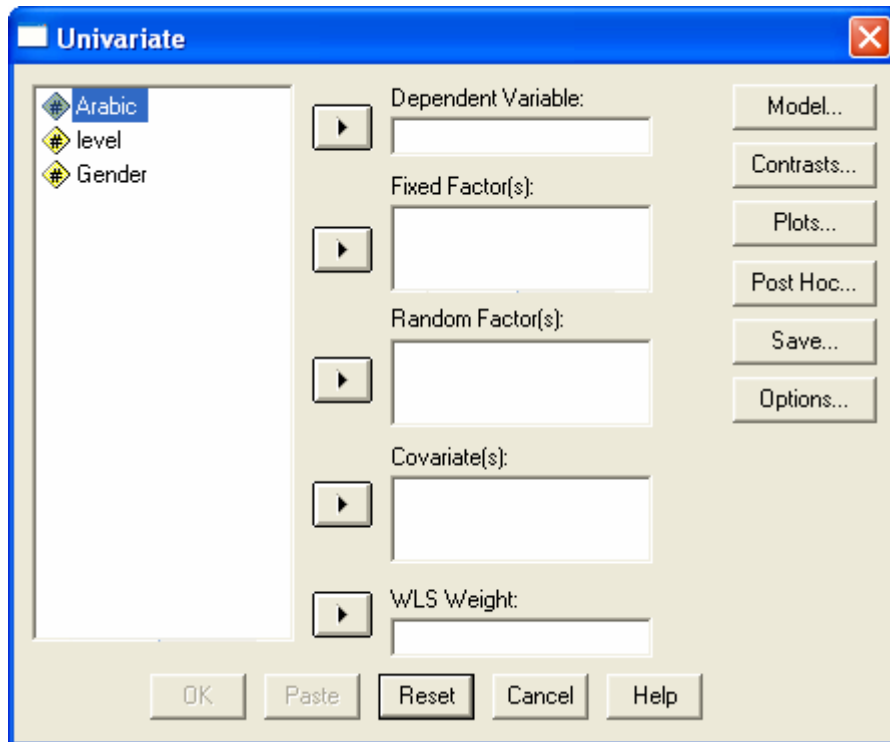
1 : Arabic 80

	Arabic	level	Gender	var	var	var	var	var
1	80	1	ذكر					
2	85	1	ذكر					
3	90	1	ذكر					
4	40	1	ذكر					
5	85	1	ذكر					
6	75	1	ذكر					
7	76	1	ذكر					
8	65	1	ذكر					
9	62	1	انثى					
10	63	1	انثى					
11	67	1	انثى					
12	88	1	انثى					
13	30	1	انثى					
14	35	1	انثى					
15	44	1	انثى					
16	30	2	ذكر					

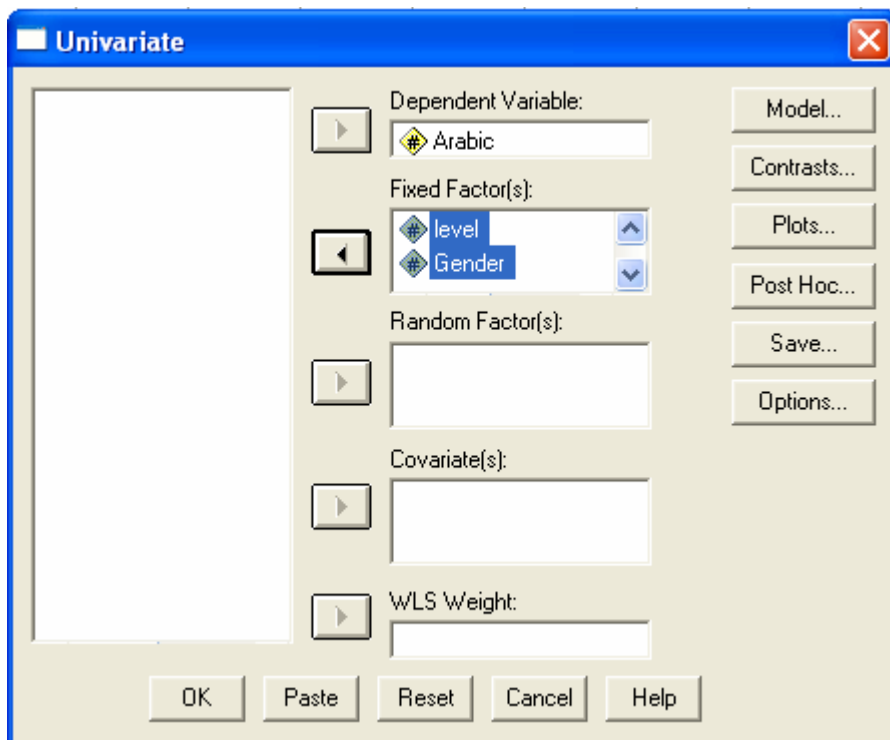
Univariate



:



Dependent Variable (Arabic) .5
Fixed Factors (Gender) (Level)



Ok .6

Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
level	1		15
	2		12
	3		18
	4		16
Gender	1	ذكر	30
	2	انثى	31

Tests of Between-Subjects Effects

Dependent Variable: Arabic

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	6897.438 ^a	7	985.348	3.486	.004
Intercept	206355.055	1	206355.055	730.058	.000
level	3814.776	3	1271.592	4.499	.007
Gender	1304.123	1	1304.123	4.614	.036
level * Gender	1490.835	3	496.945	1.758	.166
Error	14980.759	53	282.656		
Total	242319.000	61			
Corrected Total	21878.197	60			

a. R Squared = .315 (Adjusted R Squared = .225)

Univariate Analysis of Variance

Between-Subjects Factors

		Value Label	N
level	1		15
	2		12
	3		18
	4		16
Gender	1	ذكر	30
	2	انثى	31

18

12

15)

.(

31

30

16

Tests of Between-Subjects Effects

Dependent Variable: Arabic

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	6897.438 ^a	7	985.348	3.486	.004
Intercept	206355.055	1	206355.055	730.058	.000
level	3814.776	3	1271.592	4.499	.007
Gender	1304.123	1	1304.123	4.614	.036
level * Gender	1490.835	3	496.945	1.758	.166
Error	14980.759	53	282.656		
Total	242319.000	61			
Corrected Total	21878.197	60			

a. R Squared = .315 (Adjusted R Squared = .225)

SPSS

SPSS

3814.776 : -
1490.835 1304.123
.21878.197 14980.759
3 1 3) -
.(60 53
1304.123 1271.592) -
.(282.656 496.945
4.614 4.499) **F** -
.(1.758

$\alpha = 0.05$ Sig. =0.007

$\alpha = 0.05$ Sig. =0.036

$\alpha = 0.05$ Sig. =0.166

-
-
-

:

(17)

.1

.1.1

18

:1

42	34	37	38	41	38	35	37	39
44	25	39	36	39	30	36	37	30

$\alpha = 0.1$

39

:

$$H_0 : M = 39 \quad P = \frac{1}{2}$$

39

:

$$H_a : M \neq 39 \quad P \neq \frac{1}{2}$$

39

:

()

39

.1

:

median one sample - SPSS Data

File Edit View Data Transform Ana

1 :

	الحرارة	var	var
1	30		
2	37		
3	36		
4	30		
5	36		
6	25		
7	44		
8	37		
9	35		
10	38		
11	41		
12	38		
13	37		
14	34		
15	42		

Non

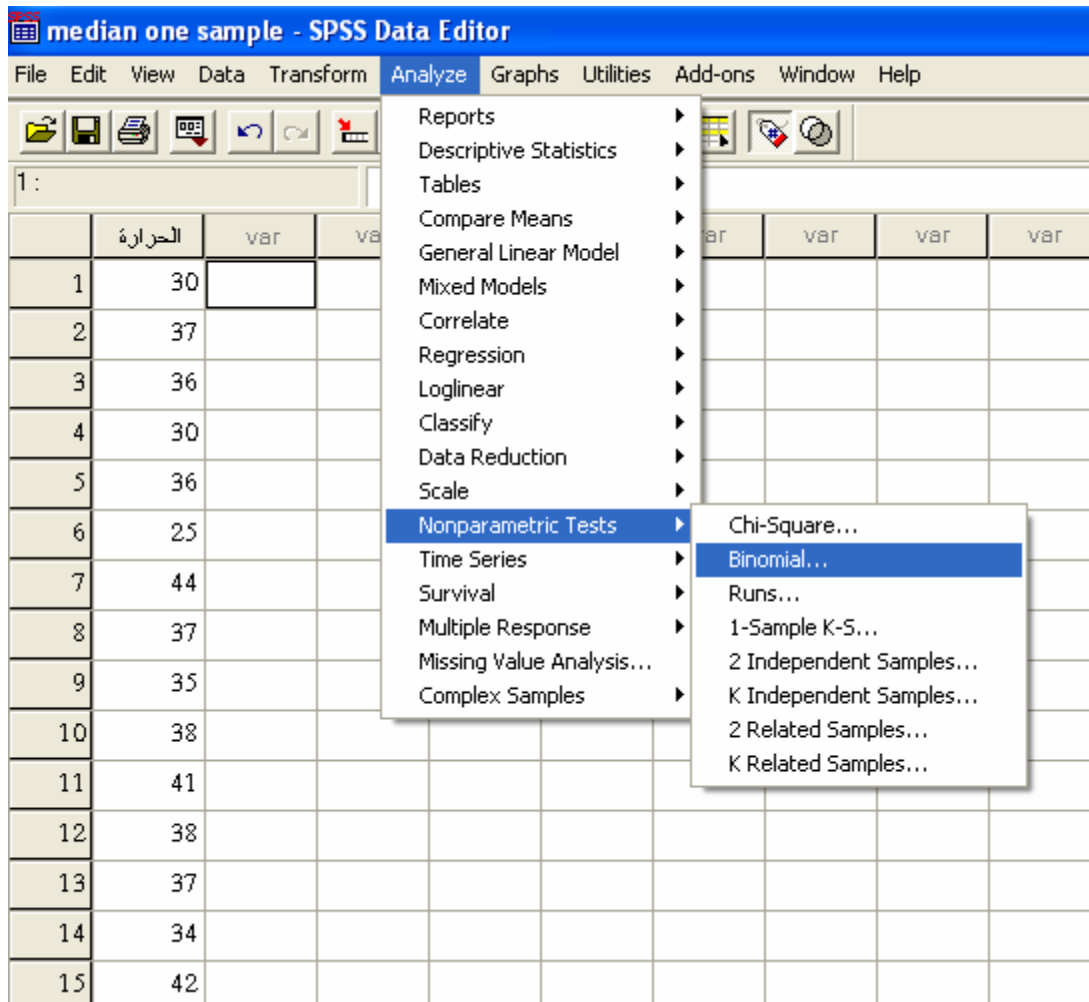
Analyze

.2

:

Binomial

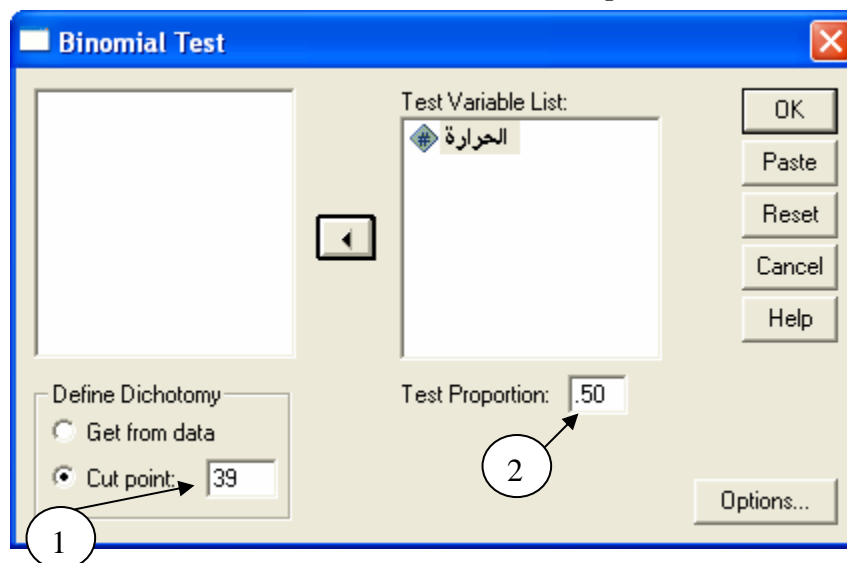
Parametric Test



Test () .3

0.50 39 Cut Point Variable List

.Test Proportion



Ok

NPar Tests

Binomial Test

		Category	N	Observed Prop.	Test Prop.	Exact Sig. (2-tailed)
الحرارة	Group 1	<= 39	12	.80	.50	.035
	Group 2	> 39	3	.20		
	Total		15	1.00		

:

3

Exact Sig. (2-tailed)=0.035

$\alpha = 0.05$

.39

.1.2

:2

25	25	49	30	30	30	30	33	36	38	40
40	42	44	44	49	44	44	45	45	48	48
50	52	49	52	55	55	57	60	60	61	62
65	65	65	66	49	70	72	73	75	75	75

$\alpha = 0.05$

40

:

$H_0 : M = 40$

$H_a : M \neq 40$

40

(income)

:

NPar Tests

Binomial Test

		Category	N	Observed Prop.	Test Prop.	Asymp. Sig. (2-tailed)
income	Group 1	<= 40	9	.21	.50	.000 ^a
	Group 2	> 40	33	.79		
	Total		42	1.00		

→ a. Based on Z Approximation.

33

42

0.05

Exact Sig. (2-tailed)=0.000

Z

()

.2

()

:

20

:3

	1	2	3	4	5	6	7	8	9	10
	85	80	50	85	40	80	90	80	60	50
	80	50	50	65	50	90	95	84	40	30
	11	12	13	14	15	16	17	18	19	20
	87	80	85	90	75	40	30	55	80	45
	80	75	65	70	75	60	40	70	90	75

$\alpha = 0.05$

()

:

:

()

:

(English)

(Arabic)

.1

(Arabic)

.2

:

(English)

	Arabic	English	var	var	var	var	va
1	85	80					
2	80	50					
3	50	50					
4	85	65					
5	40	50					
6	80	90					
7	90	95					
8	80	84					
9	60	40					
10	50	30					
11	87	80					
12	80	75					
13	85	65					

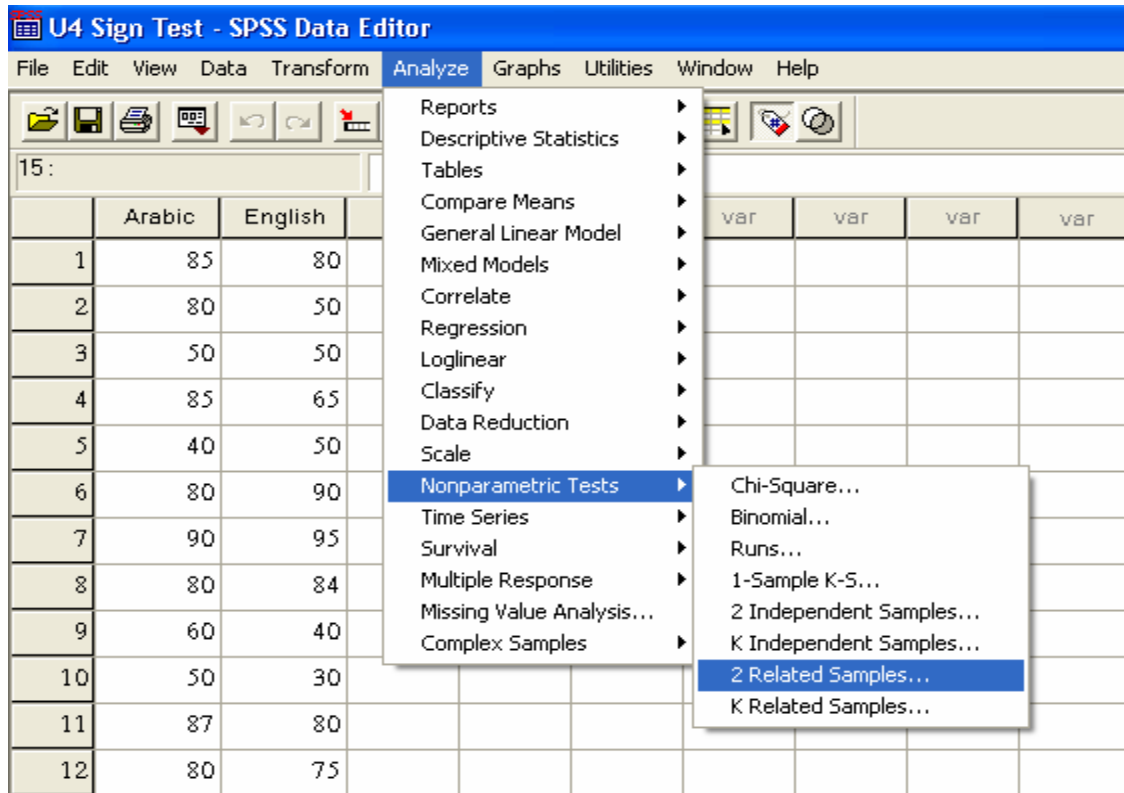
Non-Parametric)

Analyze

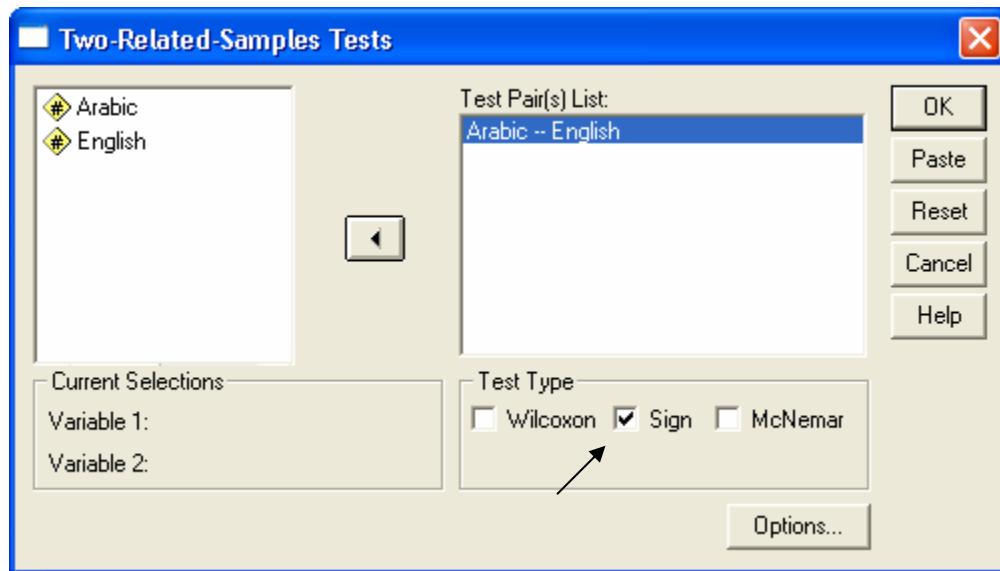
.3

(2 Related Samples)

(Statistics)



.4



Test

(English) (Arabic)

.5

Ok

Sign

Pairs List

NPar Tests

Sign Test

Frequencies

		N
English - Arabic	Negative Differences ^a	10
	Positive Differences ^b	8
	Ties ^c	2
	Total	20

a. English < Arabic

b. English > Arabic

c. English = Arabic

Test Statistics^b

	English - Arabic
Exact Sig. (2-tailed)	.815 ^a

a. Binomial distribution used.

b. Sign Test

(NPar=Non-Parametric)

Frequencies

Statistics Test

Frequencies

		N
English - Arabic	Negative Differences ^a	10
	Positive Differences ^b	8
	Ties ^c	2
	Total	20

a. English < Arabic

b. English > Arabic

c. English = Arabic

10

8 *Negative Differences* (a. English < Arabic)

(b.

Positive Differences English > Arabic)

.Ties (c. English = Arabic)

Test Statistics (b)

	English - Arabic
Exact Sig. (2-tailed)	.815 ^(a)

a Binomial distribution used.

b Sign Test

Exact Sig. (2-tailed) = 0.815

$\alpha = 0.05$

.ب

12

:4

.B A

9.4	27.3	12.6	12.9	30.1	22.1	8.3	32.5	16.5	15.8	10.3	26.4	A
8.6	25.5	11.6	13.1	28.6	22.4	7.9	30.5	17.2	16.9	9.8	24.3	B

B

A

$\alpha = 0.05$

:

.B A

:

.B A

:

()

.1

(B) (A)

	A	B	var	var	var	var
1	9.4	8.6				
2	27.3	25.5				
3	12.6	11.6				
4	12.9	13.1				
5	30.1	28.6				
6	22.1	22.4				
7	8.3	7.9				
8	32.5	30.5				
9	16.5	17.2				
10	15.8	16.9				
11	10.3	9.8				
12	26.4	24.3				

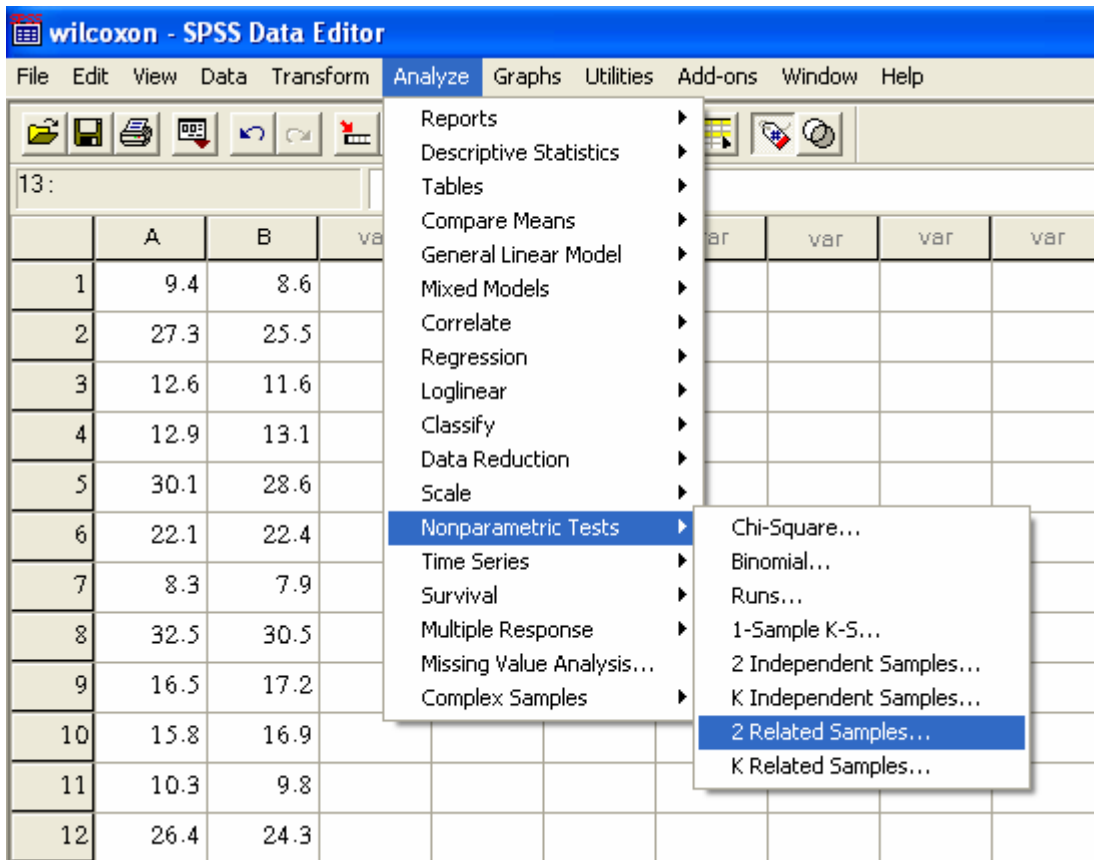
Non-Parametric)

Analyze

.2

(2 Related Samples)

(Statistics)



Test Pairs

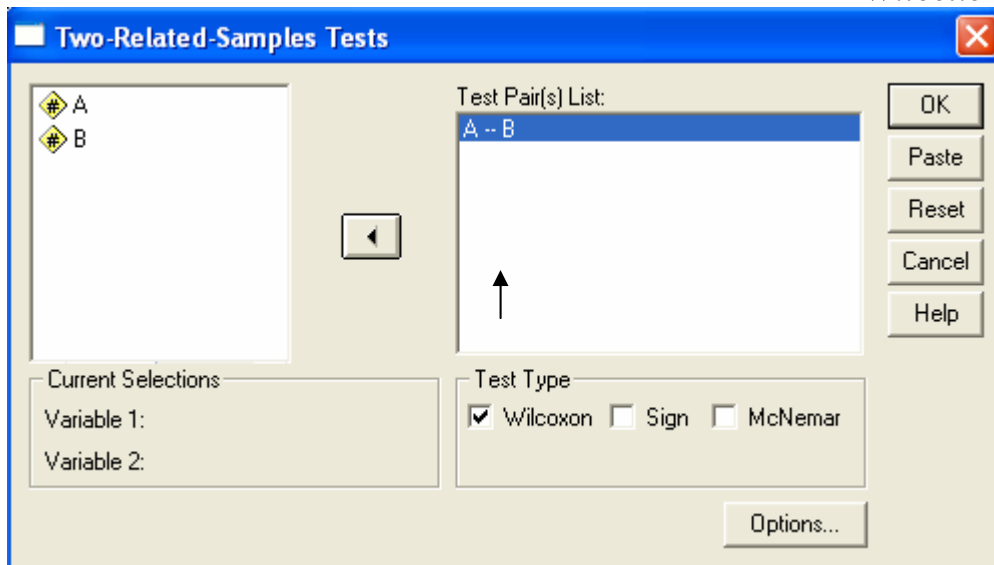
(B) (A)

.3



List

Wilcoxon



Ok

.4

NPar Tests

Wilcoxon Signed Ranks Test

Ranks

		N	Mean Rank	Sum of Ranks
B - A	Negative Ranks	8 ^a	7.75	62.00
	Positive Ranks	4 ^b	4.00	16.00
	Ties	0 ^c		
	Total	12		

- a. B < A
- b. B > A
- c. B = A

Test Statistics^b

	B - A
Z	-1.804 ^a
Asymp. Sig. (2-tailed)	.071

- a. Based on positive ranks.
- b. Wilcoxon Signed Ranks Test

Wilcoxon Signed Ranks Test

Ranks

		N	Mean Rank	Sum of Ranks
B - A	Negative Ranks	8 ^a	7.75	62.00
	Positive Ranks	4 ^b	4.00	16.00
	Ties	0 ^c		
	Total	12		

- a. B < A
- b. B > A
- c. B = A

B

8

12

62

7.75

A

4

Negative Ranks (a. $B < A$)

16

4

A

B

Positive Ranks (b. $B > A$)

.Ties (c. $A = B$)

:

Test Statistics^b

	B - A
Z	-1.804 ^a
Asymp. Sig. (2-tailed)	.071

a. Based on positive ranks.

b. Wilcoxon Signed Ranks Test

Z

Asymp.

$\alpha = 0.05$

1.804-

Sig. (2- tailed)=0.071

Mann Whitney .

**- .3
Test**

T

T

:5

72	52
62	78
91	56
88	90
90	65
74	86
98	64
80	90
81	49
71	78

:

:

:

:

$\alpha = 0.1$

(Group)

(Degree)

.1

.(2=

1=

)

(Degree)

.2

(Group)

Untitled - SPSS Data Editor

File Edit View Data Transform Analyze Graphs Utilities Add-ons Window Help

1 : Degree 52

	Degree	Group	var	var	var	var
1	52	1				
2	78	1				
3	56	1				
4	90	1				
5	65	1				
6	86	1				
7	64	1				
8	90	1				
9	49	1				
10	78	1				
11	72	2				
12	62	2				
13	91	2				
14	88	2				

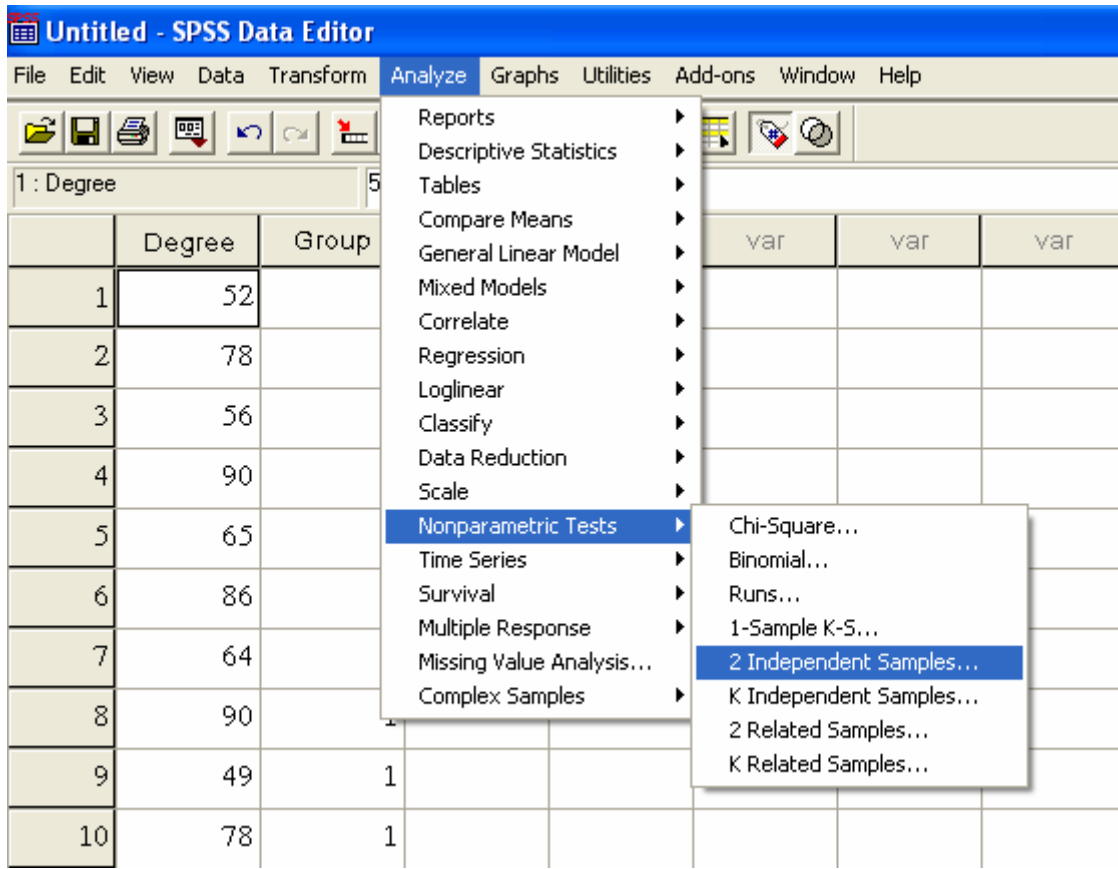
Non-Parametric)

(2 Independent Samples)

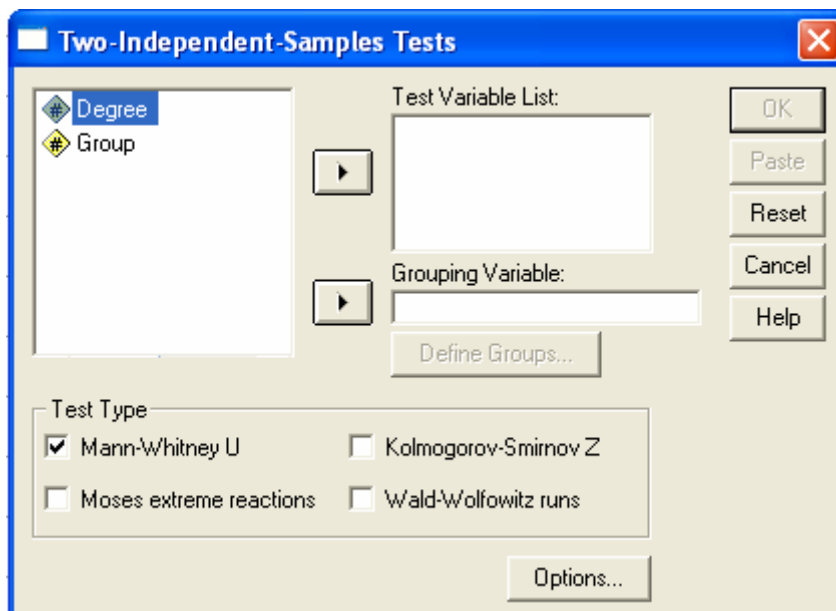
Analyze

.3

(Statistics



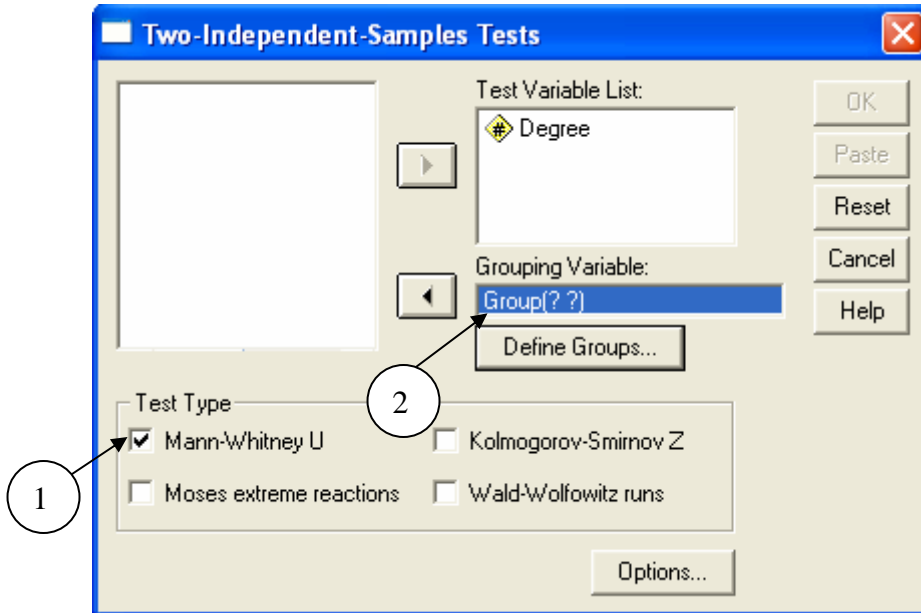
.4



Test Variable List (Degree)

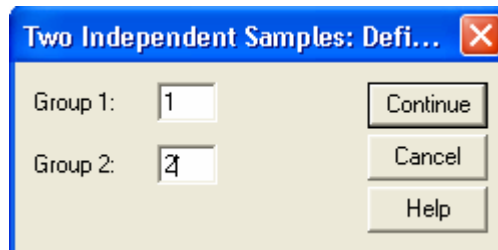
.Grouping Variable (Group)

.5



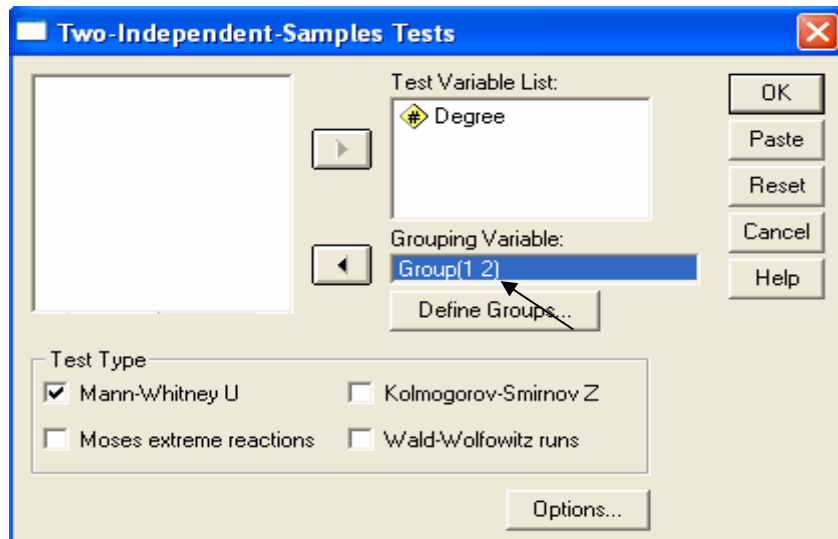
Define .6
.(Group)

: (2= 1=) .7



Continue .8

Ok



NPar Tests

Mann-Whitney Test

Ranks

	Group	N	Mean Rank	Sum of Ranks
Degree	1	10	8.60	86.00
	2	10	12.40	124.00
	Total	20		

Test Statistics^b

	Degree
Mann-Whitney U	31.000
Wilcoxon W	86.000
Z	-1.439
Asymp. Sig. (2-tailed)	.150
Exact Sig. [2*(1-tailed Sig.)]	.165 ^a

a. Not corrected for ties.

b. Grouping Variable: Group

Mann-Whitney Test

	Group	N	Mean Rank	Sum of Ranks
Degree	1	10	8.60	86.00
	2	10	12.40	124.00
	Total	20		

↓ ↓ ↓
Ranks

10

10

86

8.6

.20

124

12.4

Test Statistics^b

	Degree
Mann-Whitney U	31.000
Wilcoxon W	86.000
Z	-1.439
Asymp. Sig. (2-tailed)	.150
Exact Sig. [2*(1-tailed Sig.)]	.165 ^a

a. Not corrected for ties.

b. Grouping Variable: Group

.31

Asymp. Sig. (2-tailed) = 0.150

$\alpha = 0.05$

Kruskal-

-

.4

Wallis

3

:

3

.1

.2

.3

.4

.()

:

.()

: H_0

.()

: H_a

:6

:

50 90 80	70 65 70	65 55 75
40 40 31	80 75 40	45 30 35
42 85 95	35 55 70	65 80 90
98 75 65	65 55 45	65 60 62
85 90 75	30 74 78	68
77 40 85	82 88	
95 90		

$\alpha = 0.05$

() : H_0

() : H_a

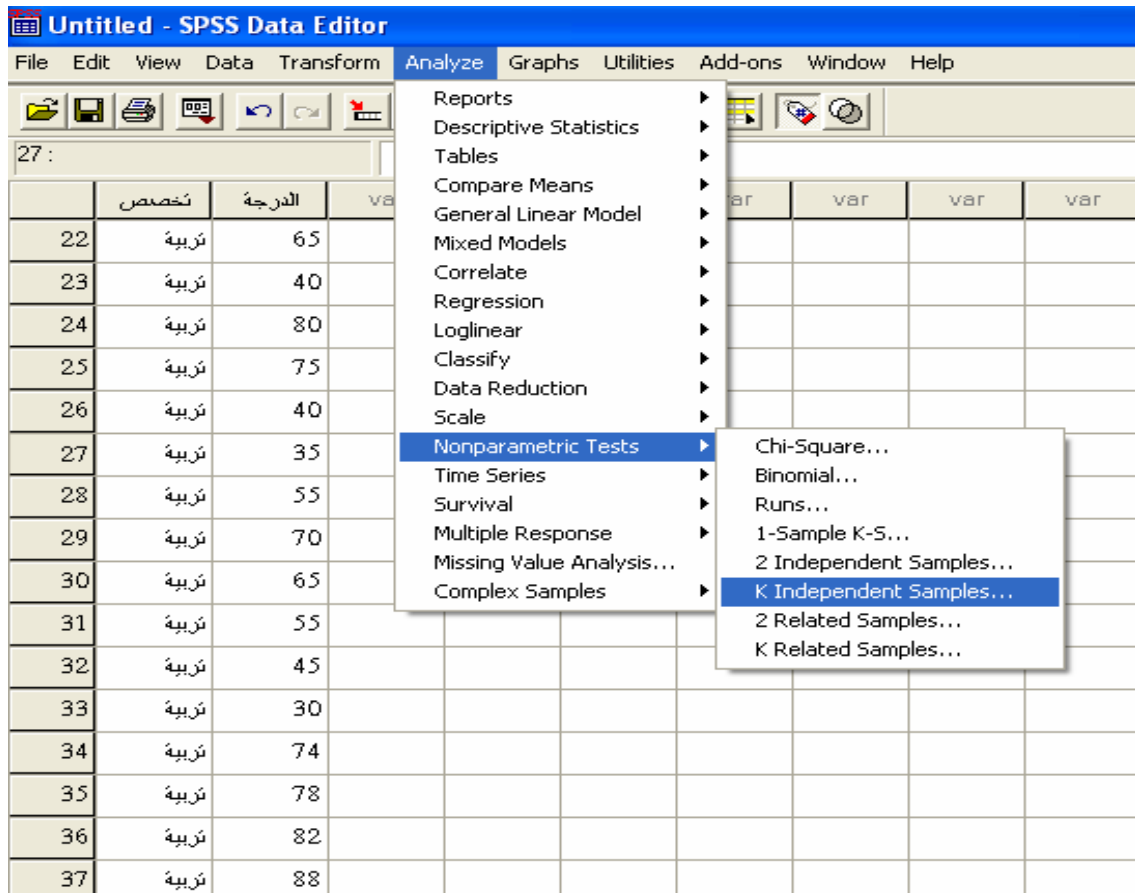
-

() () .1
 (3= 2= 1=)

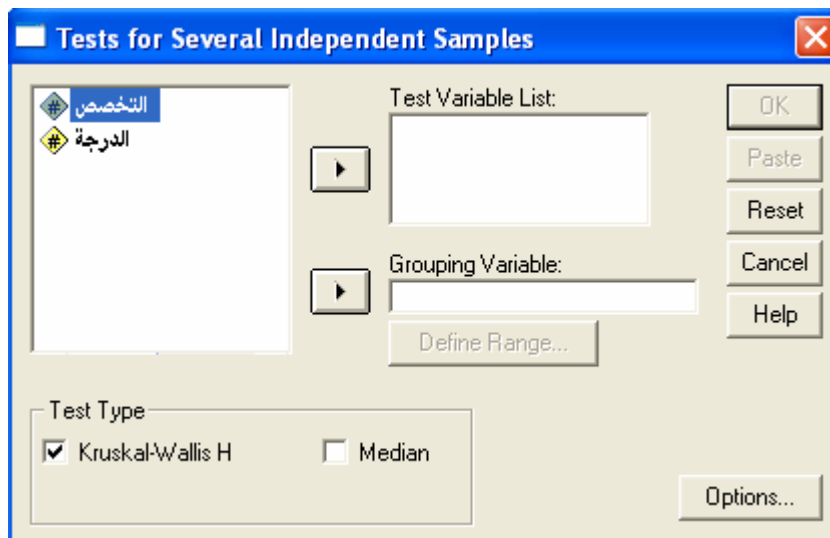
:

	تربيته	الدرجة	var	var	var	var	var	var
22	تربية	65						
23	تربية	40						
24	تربية	80						
25	تربية	75						
26	تربية	40						
27	تربية	35						
28	تربية	55						
29	تربية	70						
30	تربية	65						
31	تربية	55						
32	تربية	45						
33	تربية	30						
34	تربية	74						
35	تربية	78						
36	تربية	82						
37	تربية	88						

Non-Parametric) Analyze .2
(k Independent Samples) (Statistics



.3



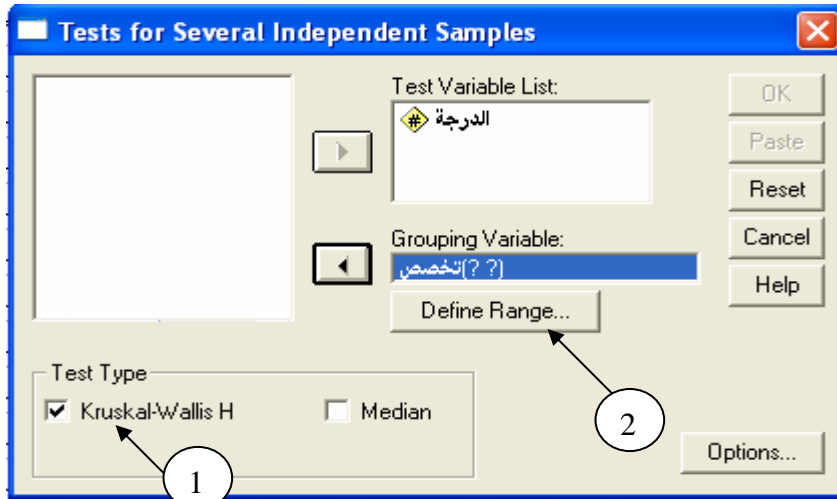
Test Variable List

()

.4

.Grouping Variable

()



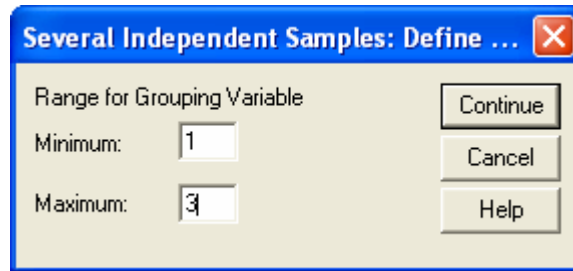
Kruskal-Wallis H

.5

:

()

Define



3

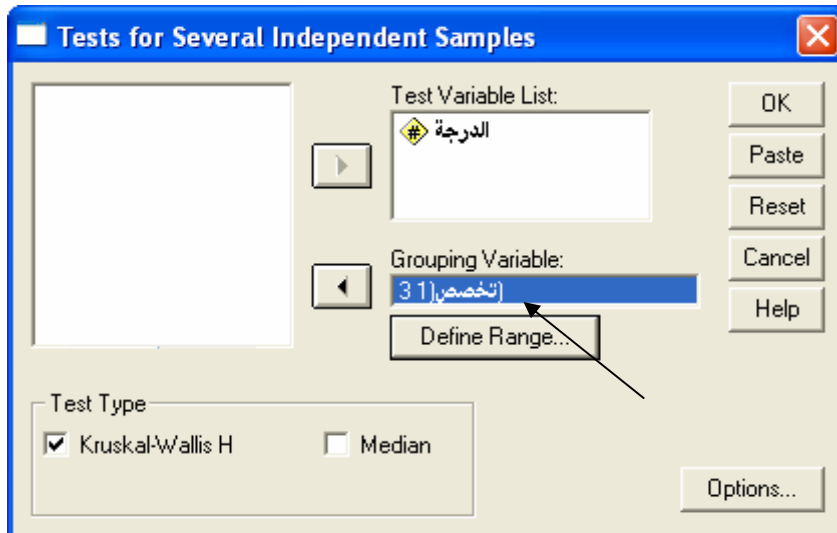
1

()

.6

Continue

:



()

3 1

.7

:

Ok

NPar Tests

Kruskal-Wallis Test

Ranks

الأخصيص	N	Mean Rank
الدرجة الحاسوب	20	30.75
الدرجة التربة	17	22.41
الدرجة التفتة	13	21.46
Total	50	

Test Statistics^{a,b}

	الدرجة
Chi-Square	4.374
df	2
Asymp. Sig.	.112

a. Kruskal Wallis Test

b. Grouping Variable: الأخصيص

()

Kruskal-Wallis Test

Ranks

الأخصيص	N	Mean Rank
الدرجة الحاسوب	20	30.75
الدرجة التربة	17	22.41
الدرجة التفتة	13	21.46
Total	50	

Ranks

30.75

20

(21.46 22.41)

(13 17

. 50

:

Test Statistics^{a,b}

	الدرجة
Chi-Square	4.374
df	2
Asymp. Sig.	.112

a. Kruskal Wallis Test
b. Grouping Variable: التخصص

) 2

4.374

-

Asymp. Sig. = 0.112

(1

$\alpha = 0.05$

.5

:7

:

:

:

$\alpha = 0.05$

:

()

:

()

:

(Gender) (Result)

.1

(=4 3 =2 =1 =0) (Result)

(=2 =1) (Gender)

:

.2

dependency chi - SPSS Data Edit

File Edit View Data Transform Analy

3:

	Gender	Result	var
1	انثى	ممتاز	
2	انثى	مقبول	
3	انثى	ممتاز	
4	انثى	جيد جدا	
5	انثى	راسب	
6	انثى	راسب	
7	انثى	راسب	
8	انثى	راسب	
9	انثى	راسب	
10	انثى	مقبول	
11	انثى	مقبول	
12	انثى	مقبول	
13	انثى	جيد	
14	انثى	جيد جدا	
15	انثى	جيد جدا	
16	انثى	جيد	

Descriptive

:

Cross tabs

dependency chi - SPSS Data Edit

File Edit View Data Transform Analy

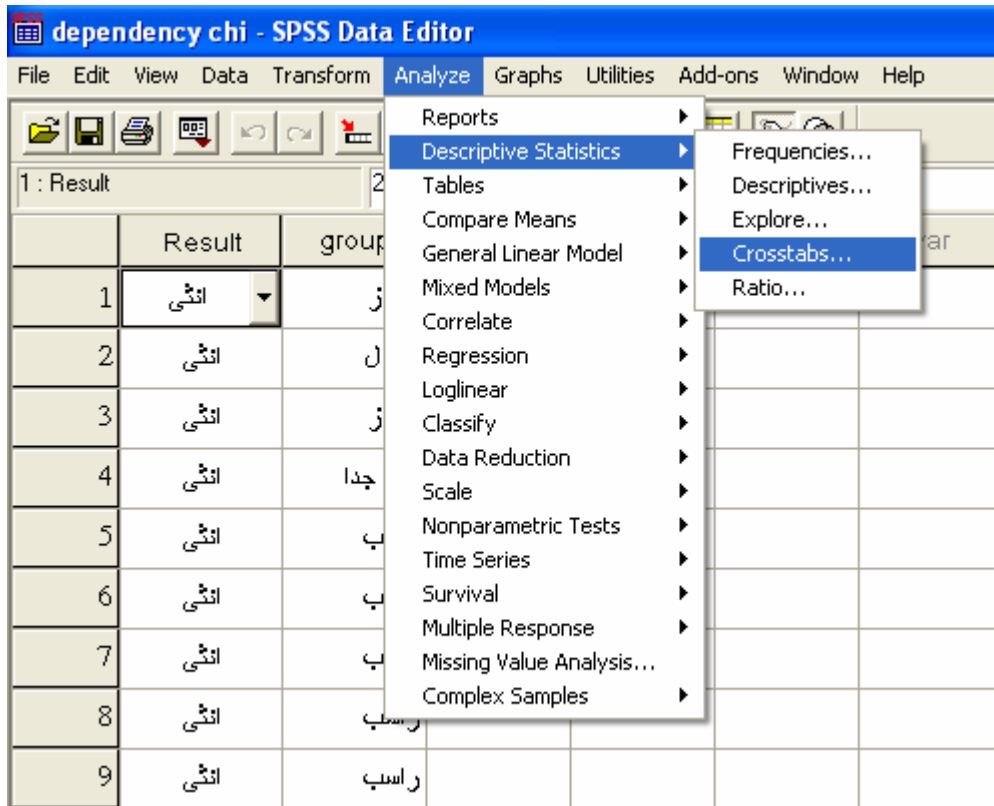
3:

	Gender	Result	var
37	نكر	راسب	
38	نكر	جيد جدا	
39	نكر	راسب	
40	نكر	جيد	
41	نكر	جيد	
42	نكر	جيد	
43	نكر	راسب	
44	نكر	مقبول	
45	نكر	راسب	
46	نكر	راسب	
47	نكر	راسب	
48	نكر	راسب	
49	نكر	راسب	
50	نكر	جيد	
51	نكر	جيد جدا	
52	نكر	ممتاز	

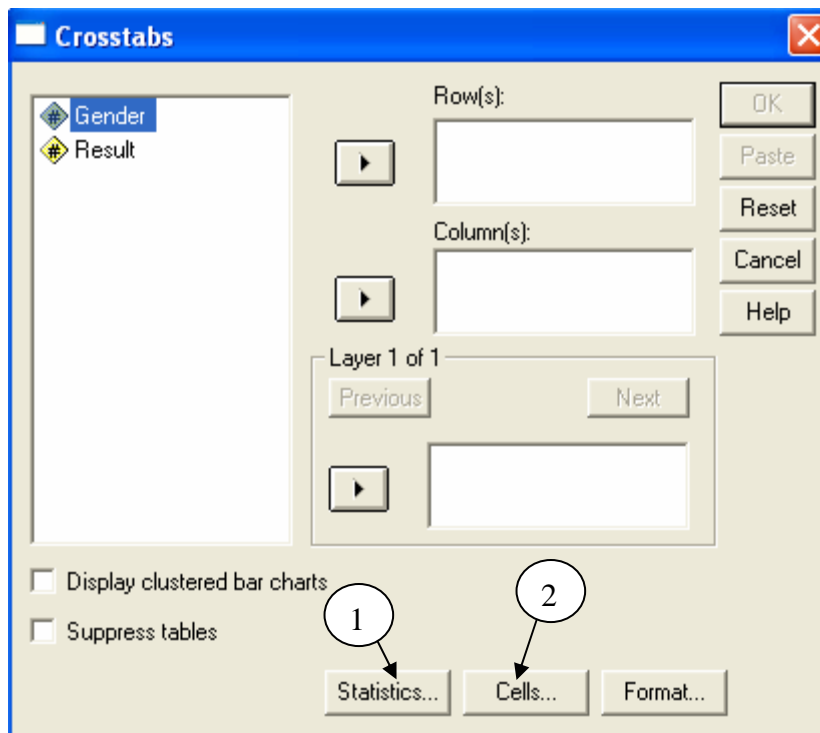
Analyze

.3

Statistics



.4



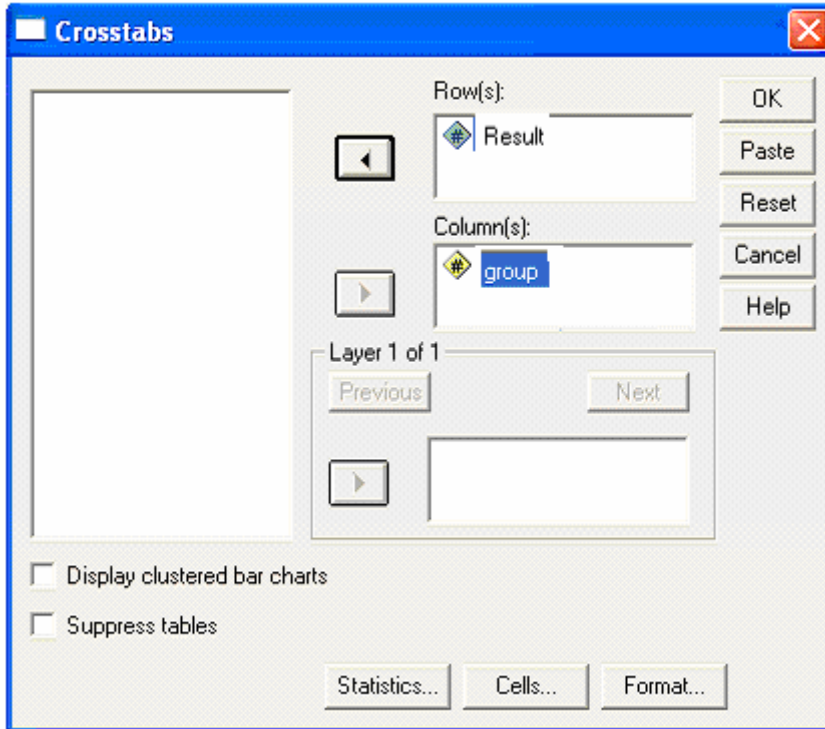
Gender

Rows

Result

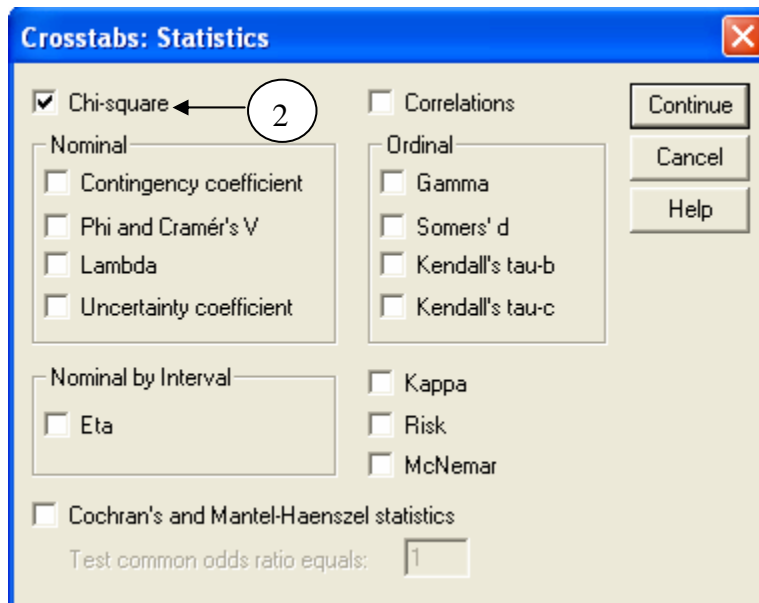
.5

Columns



Statistics

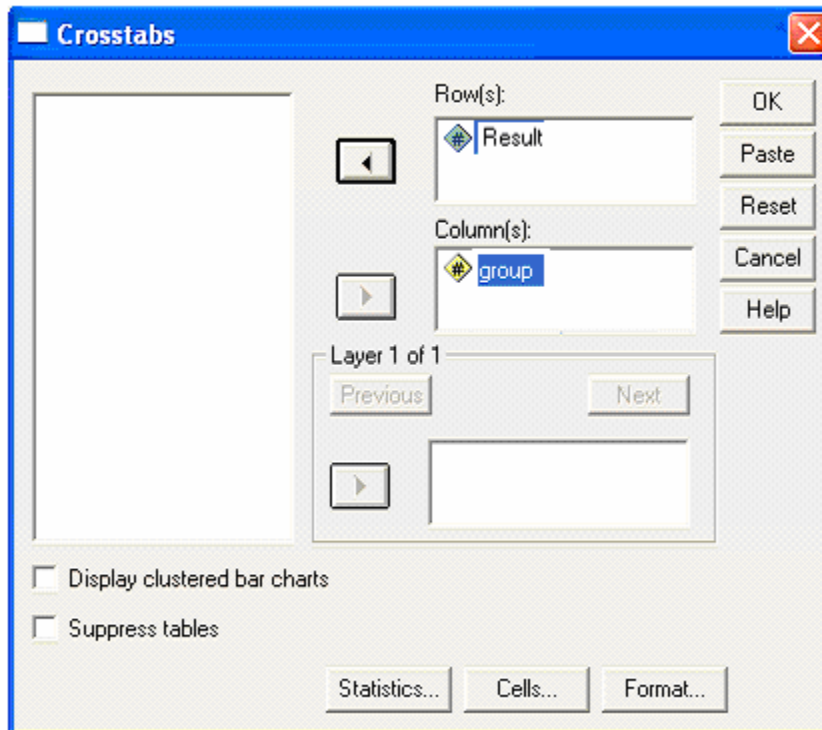
.6



Chi-Square

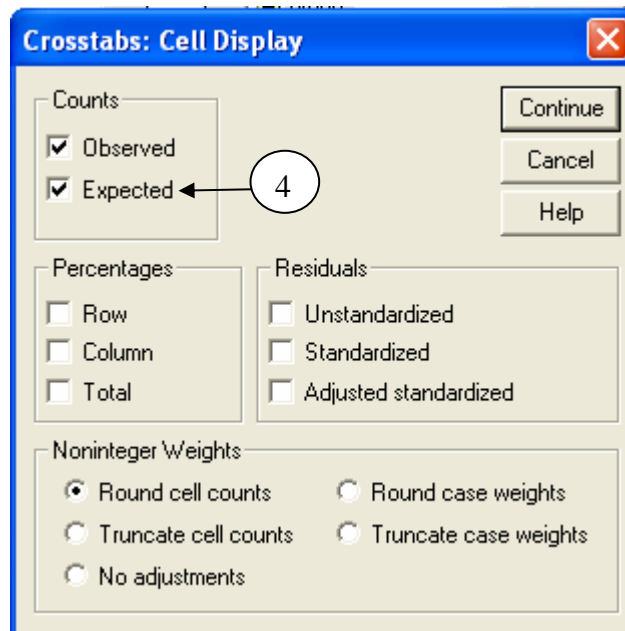
.7

Continue



Cell

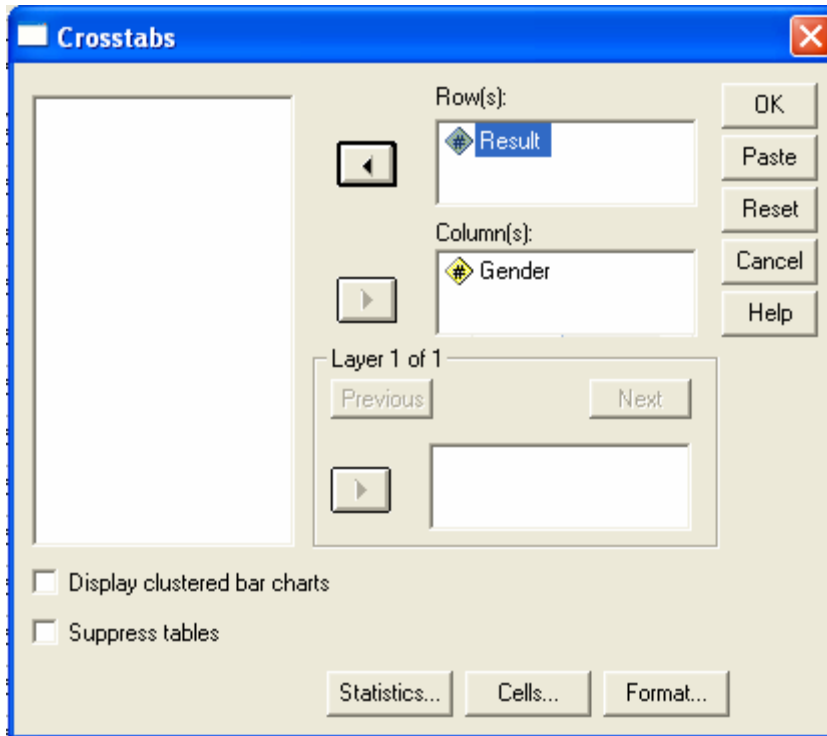
.8



Continue

Expected

.9



Ok

.10

Crosstabs

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
group * Result	72	100.0%	0	.0%	72	100.0%

group * Result Crosstabulation

			Result		Total
			ذكر	انثى	
group	راسب	Count	12.00	7.00	19
		Expected Count	9.76	9.24	19.0
	مقبول	Count	5.00	8.00	13
		Expected Count	6.68	6.32	13.0
	جيد	Count	9.00	8.00	17
		Expected Count	8.74	8.26	17.0
	جيد جدا	Count	5.00	7.00	12
		Expected Count	6.17	5.83	12.0
	ممتاز	Count	6.00	5.00	11
		Expected Count	5.65	5.35	11.0
Total		Count	37.00	35.00	72
		Expected Count	37.00	35.00	72.0

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.437 ^a	4	.656
Likelihood Ratio	2.459	4	.652
Linear-by-Linear Association	.298	1	.585
N of Valid Cases	72		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.35.

Cross tabulation

:

group * Result Crosstabulation

		Result		Total
		ذكر	انثى	
group	راسب	Count 2.00	7.00	19
		Expected Count 9.76	9.24	19.0
	مقبول	Count 5.00	8.00	13
		Expected Count 6.68	6.32	13.0
	جيد	Count 9.00	8.00	17
		Expected Count 8.74	8.26	17.0
	جيد جدا	Count 5.00	7.00	12
		Expected Count 6.17	5.83	12.0
	ممتاز	Count 6.00	5.00	11
		Expected Count 5.65	5.35	11.0
Total		Count 37.00	35.00	72
		Expected Count 37.00	35.00	72.0

12) 37 72
 5 8.74 9 6.68 5 9.76
 7) 35 (5.65 6 6.17
 7 8.26 8 6.32 8 9.24
 .(5.35 5 5.83
 :

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.437 ^a	4	.656
Likelihood Ratio	2.459	4	.652
Linear-by-Linear Association	.298	1	.585
N of Valid Cases	72		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 5.35.

4

2.437

Asymp. Sig. (2-sided) = 0.656

$\alpha = 0.005$

Goodness of Fit

.6

SPSS

:8

: 50

20	12	16	19	24	6	10	1	15	23
8	30	25	7	10	8	16	24	22	8
12	10	5	14	27	20	21	16	18	12
16	23	20	4	17	27	19	16	8	6
9	7	12	14	19	22	20	16	14	15

$\alpha = 0.05$

:

:

:

:

Dinner

.1

Goodness of fit - SPSS Data Editor

File Edit View Data Transform Analyze Graphs Utilities Add-ons

2 :

	Dinner	var	var	var	var	var
1	20					
2	12					
3	16					
4	19					
5	24					
6	6					
7	10					
8	1					
9	15					
10	23					
11	8					
12	30					
13	25					
14	7					
15	10					
16	8					

Non-

Analyze

.2

1-Sample K-S

Parametric Test

Goodness of fit - SPSS Data Editor

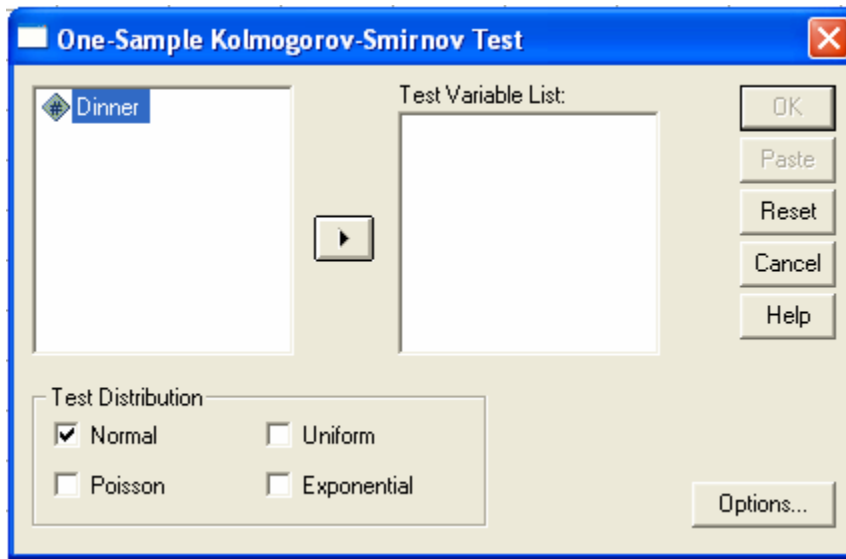
File Edit View Data Transform Analyze Graphs Utilities Add-ons Window Help

1 : Dinner 2

	Dinner	var	var	var
1	20			
2	12			
3	16			
4	19			
5	24			
6	6			
7	10			
8	1			
9	15			

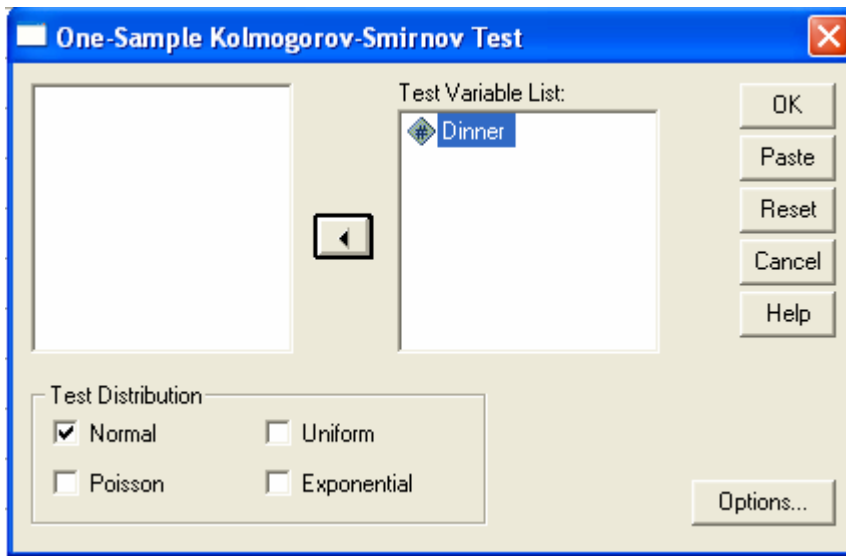
- Reports
- Descriptive Statistics
- Tables
- Compare Means
- General Linear Model
- Mixed Models
- Correlate
- Regression
- Loglinear
- Classify
- Data Reduction
- Scale
- Nonparametric Tests**
 - Chi-Square...
 - Binomial...
 - Runs...
 - 1-Sample K-S...**
 - 2 Independent Samples...
 - K Independent Samples...
 - 2 Related Samples...
 - K Related Samples...
- Time Series
- Survival
- Multiple Response
- Missing Value Analysis...
- Complex Samples

.3



Test Variable List Dinner

.4



Exponential Uniform Poisson Normal

: *Ok*

.5

NPar Tests

NPar Tests

One-Sample Kolmogorov-Smirnov Test

		Dinner
N		50
Normal Parameters ^{a,b}	Mean	15.26
	Std. Deviation	6.782
Most Extreme Differences	Absolute	.081
	Positive	.081
	Negative	-.069
Kolmogorov-Smirnov Z		.573
Asymp. Sig. (2-tailed)		.898

a. Test distribution is Normal.

b. Calculated from data.

6.782

15.26

.0573

Asymp. Sig. (2-tailed) = 0.898

$\alpha = 0.05$

$.X : N(15.26, 6.782)$

15.26

()

:9

Exponential

Poisson

:

Run Test

.7

:9

:

8 1 5 7 1 3 7 8	7 2 9 3 2 9 6 5 6 6 6
5 6 1 1 3 2 3 4 7 4 8 4 3 5 6 4 5 9 8 7	

$\alpha = 0.05$

$:H_a$

$:H_0$

. (Number)

.1

1

Random

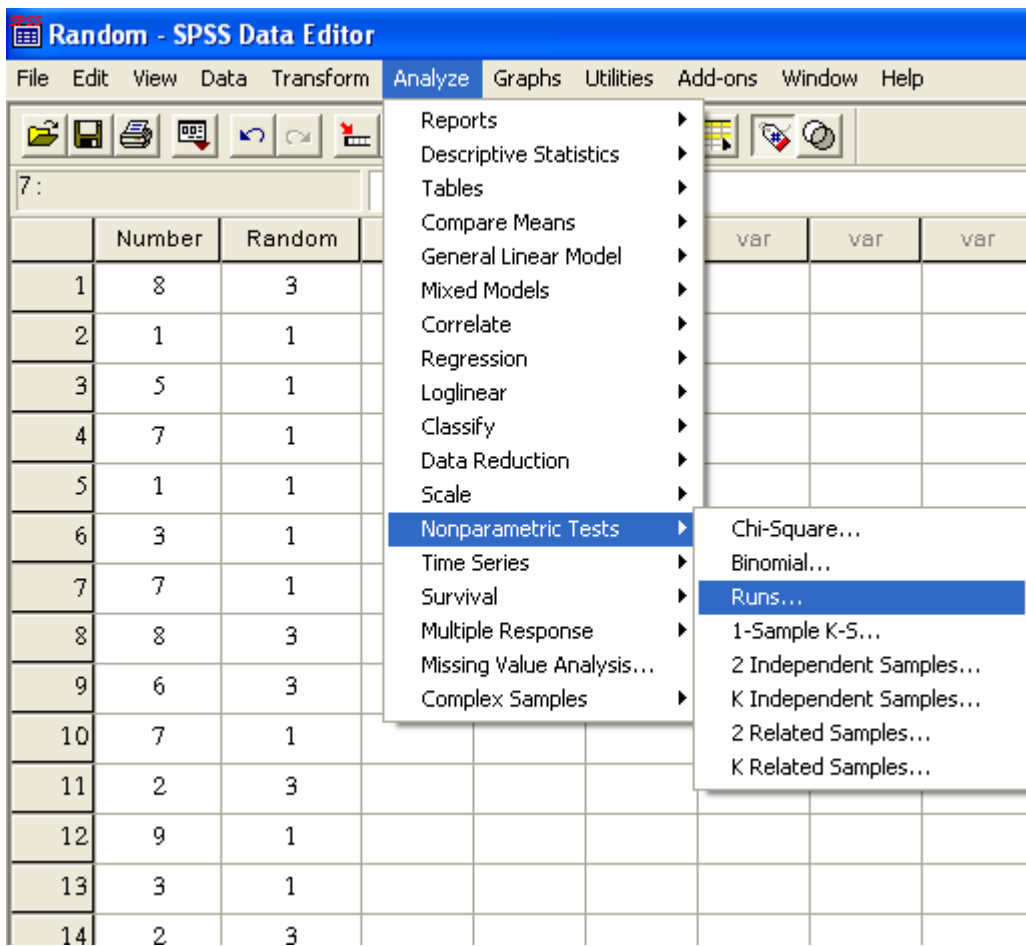
.2

3

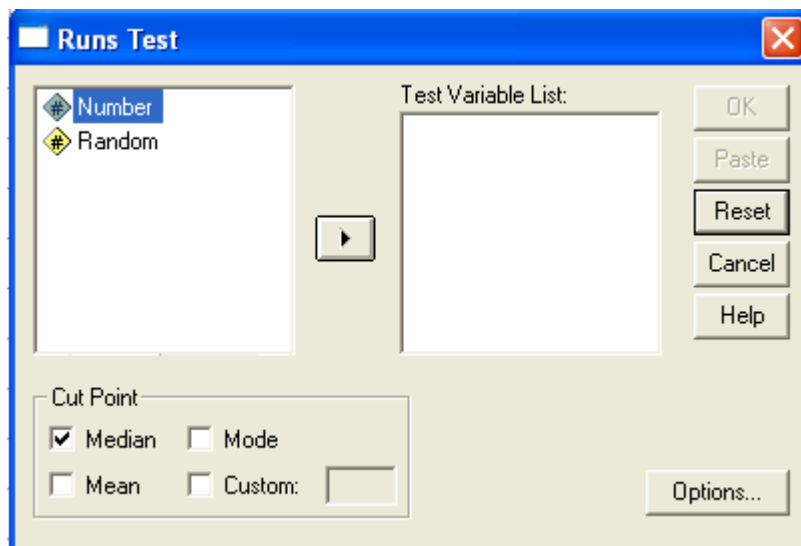
	Number	Random	var	var	var	var	var
1	8	3					
2	1	1					
3	5	1					
4	7	1					
5	1	1					
6	3	1					
7	7	1					
8	8	3					
9	6	3					
10	7	1					
11	2	3					
12	9	1					
13	3	1					
14	2	3					
15	9	1					
16	6	3					

: *Runs*

(Statistics

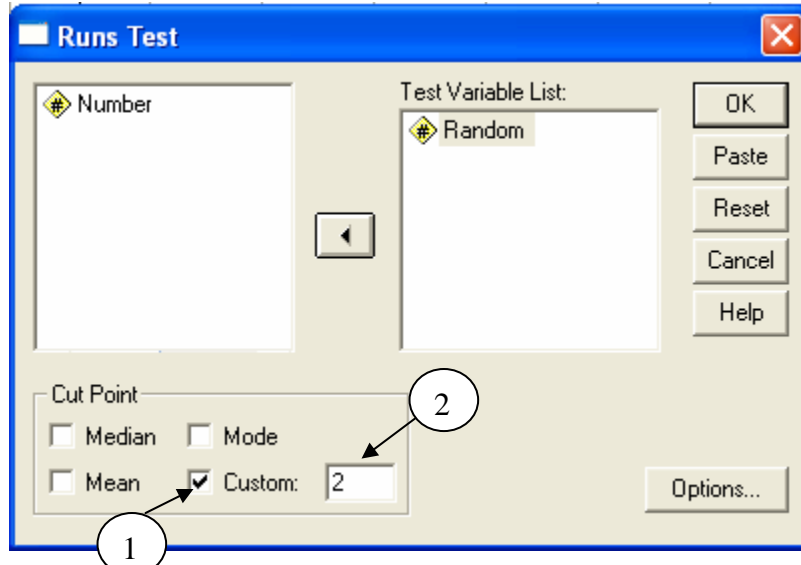


.4



Test Variable List Random .5
 Custom Median

: 2



()

: Ok .6

NPar Tests

Runs Test

	Random
Test Value ^a	2.00
Total Cases	40
Number of Runs	24
Z	.874
Asymp. Sig. (2-tailed)	.382

a. User-specified.

40

0.874

$\alpha = 0.05$

0.382

24 ()

Z

Friedman Test

.8

Repeated Measure Design

:

.1

.2

.3

:

: H_0

.(

)

: H_a

:10

	T_1	T_2	T_3
1.	10	18	7
2.	12	19	8
3.	15	17	16
4.	13	14	12
5.	15	20	17
6.	12	15	10
7.	11	7	6
8.	13	18	11
9.	15	19	11
10.	7	13	12
11.	12	13	18
12.	10	8	5

$\alpha = 0.05$

:

: H_0

: H_a

:

.1

Friedman - SPSS Data Editor

File Edit View Data Transform Analyze Graphs Utilities Add-ons Window Help

3:

	T1	T2	T3	var	var	var	var	var
1	10	18	7					
2	12	19	8					
3	15	17	16					
4	13	14	12					
5	15	20	17					
6	12	15	10					
7	11	7	6					
8	13	18	11					
9	15	19	11					
10	7	13	12					
11	12	13	18					
12	10	8	5					

Non-Parametric)

Analyze

.2

(k Related Samples)

(Statistics

Friedman - SPSS Data Editor

File Edit View Data Transform Analyze Graphs Utilities Add-ons Window Help

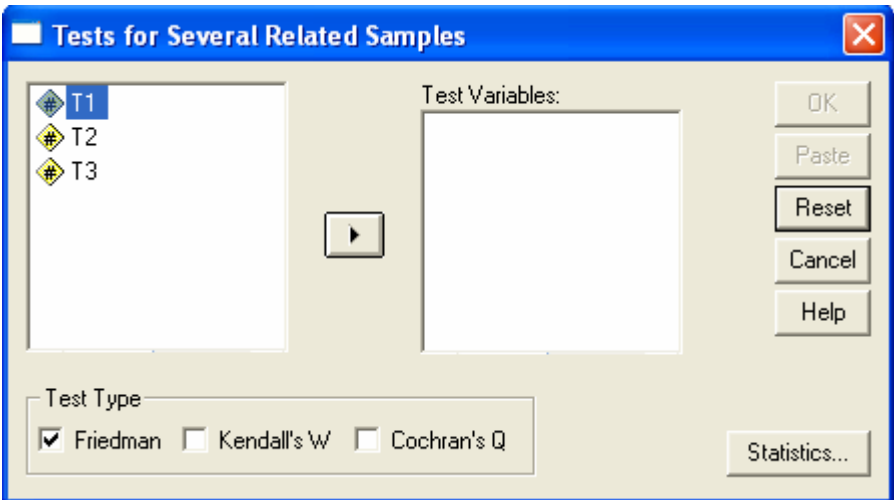
3:

	T1	T2	T3	var	var	var	var
1	10	18					
2	12	19					
3	15	17					
4	13	14					
5	15	20					
6	12	15					
7	11	7					
8	13	18					
9	15	19					
10	7	13	12				
11	12	13	18				
12	10	8	5				
13							

- Reports
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 - 2 Related Samples...
 - K Related Samples...**
- Time Series
- Survival
- Multiple Response
- Missing Value Analysis...
- Complex Samples

:

.3

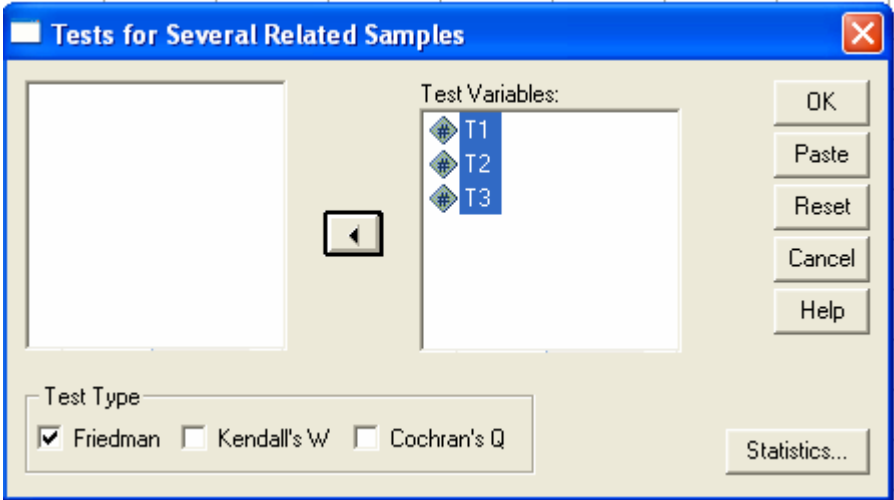


Test Variables

.4

:

Friedman



:

Ok

.5

NPar Tests

Friedman Test

Ranks

	Mean Rank
T1	1.83
T2	2.75
T3	1.42

Test Statistics(a)

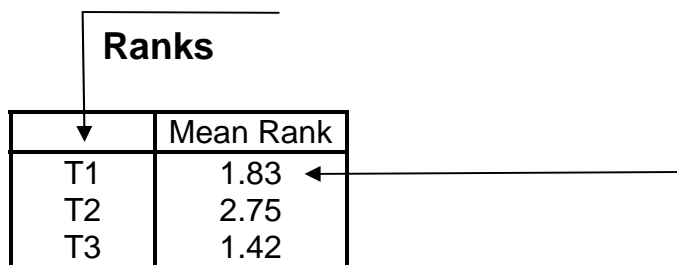
N	12
Chi-Square	11.167
df	2
Asymp. Sig.	.004

a. Friedman Test

Friedman Test

Ranks

	Mean Rank
T1	1.83
T2	2.75
T3	1.42



. 1.42 2.75 1.83

Test Statistics (a)

N	12	←
Chi-Square	11.167	←
df	2	←
Asymp. Sig.	.004	←

a Friedman Test

) 2

12

11.167

(

Asymp. Sig. = 0.004

. $\alpha = 0.05$