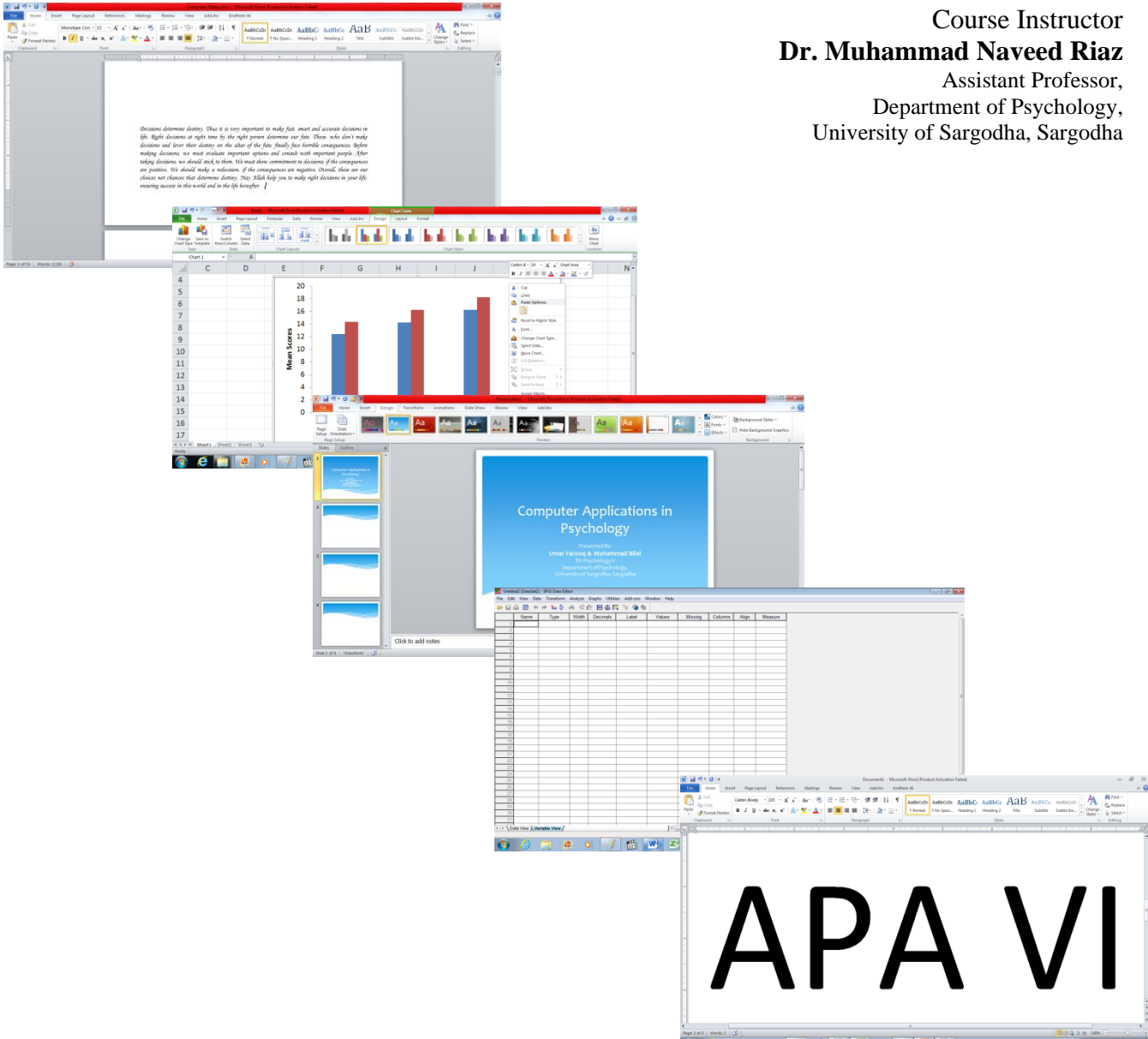
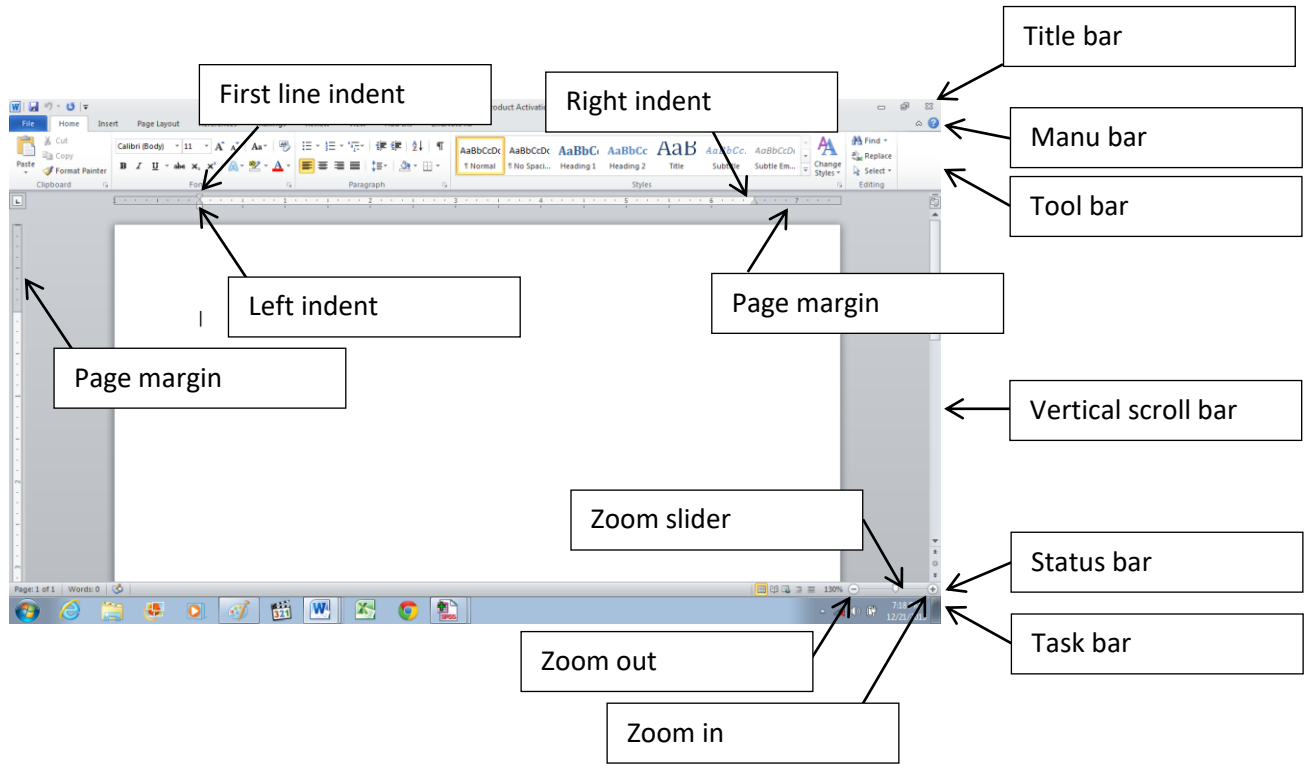


# COMPUTER APPLICATIONS IN PSYCHOLOGY

Course Instructor  
**Dr. Muhammad Naveed Riaz**  
Assistant Professor,  
Department of Psychology,  
University of Sargodha, Sargodha

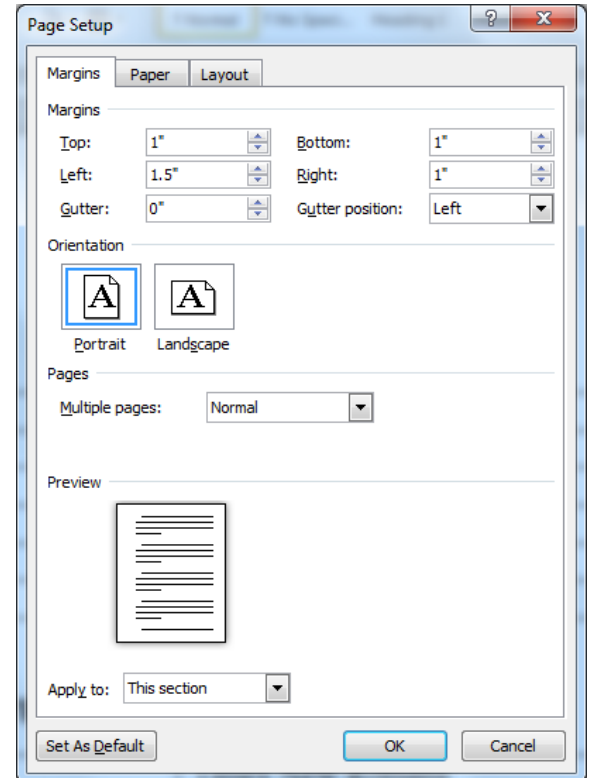


# MS Word



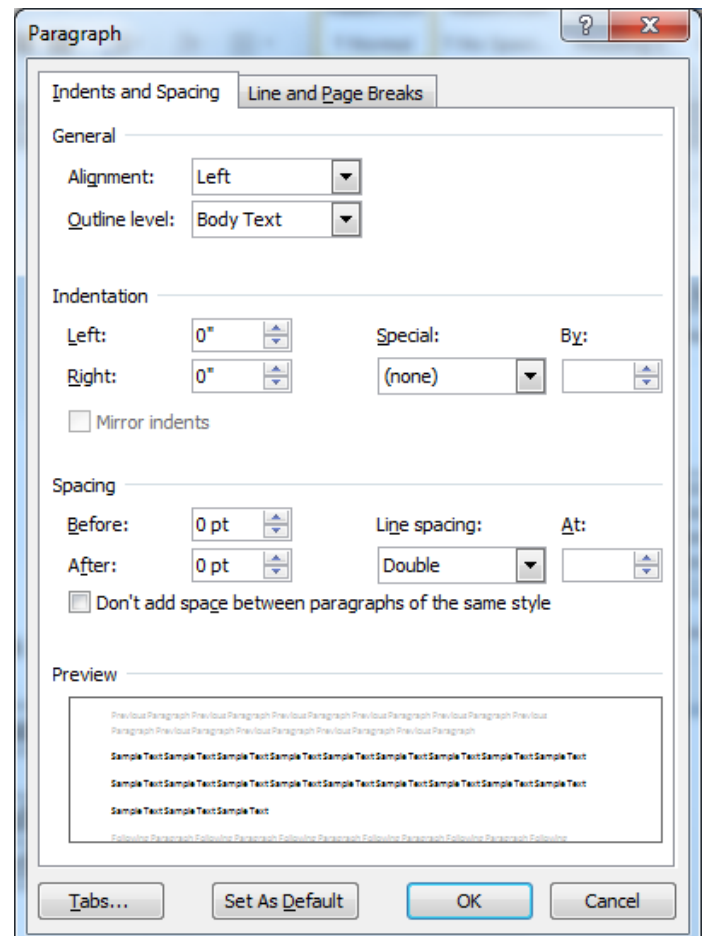
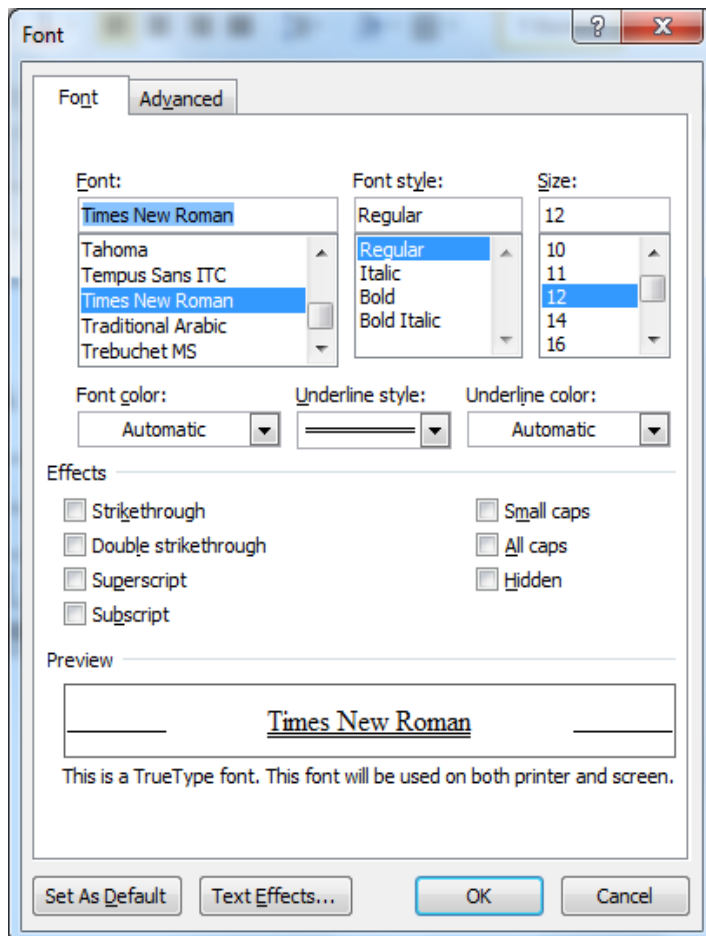
## Page Setup

Margins	
Left	1.5"
Top	1"
Right	1"
Bottom	1"
Page size	A4



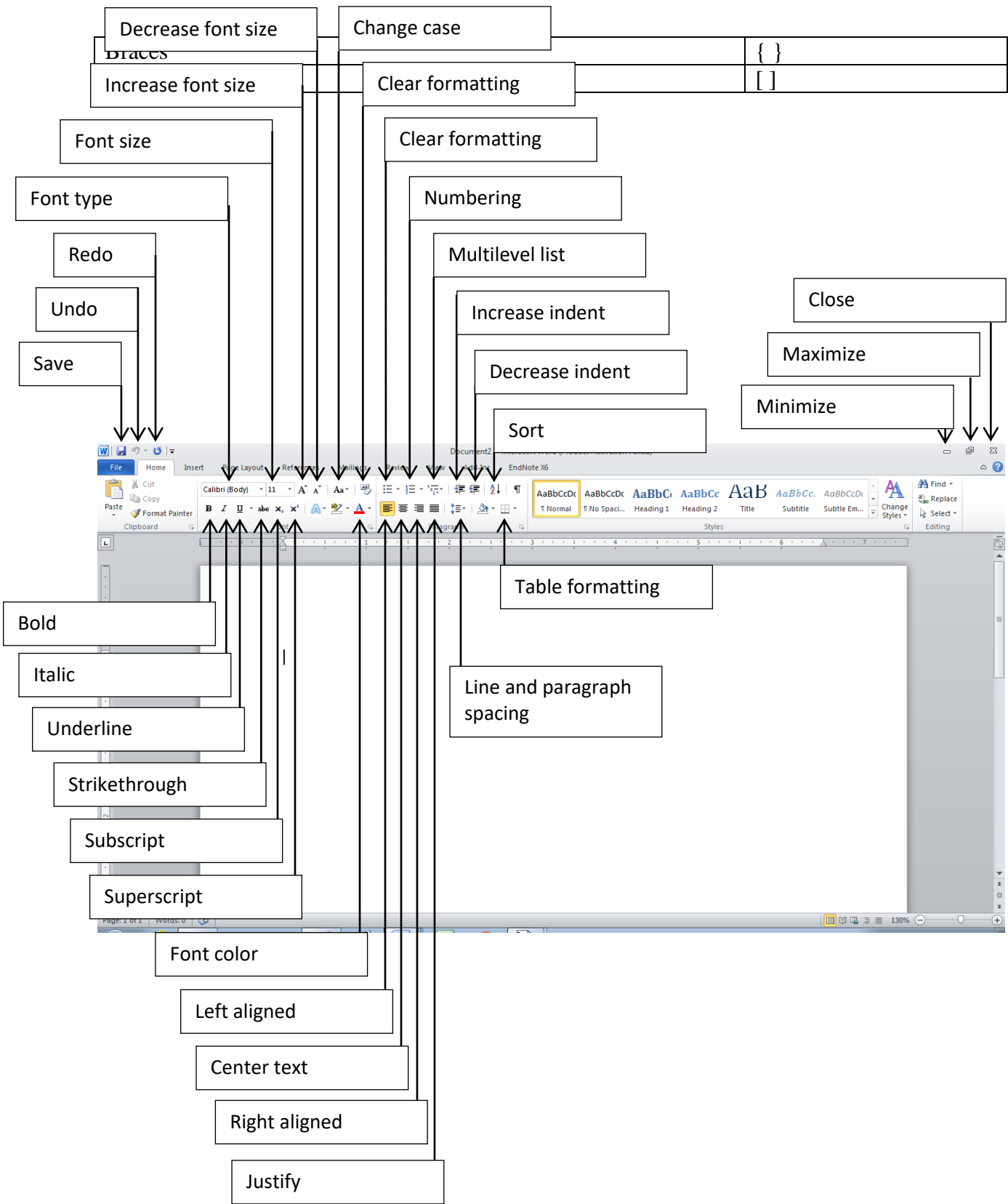
## General APA Guidelines for Preparing Documents

Font type	Times New Romans
Font size	12
Line spacing	Double
Paragraph spacing	0 before and 0 after the paragraph

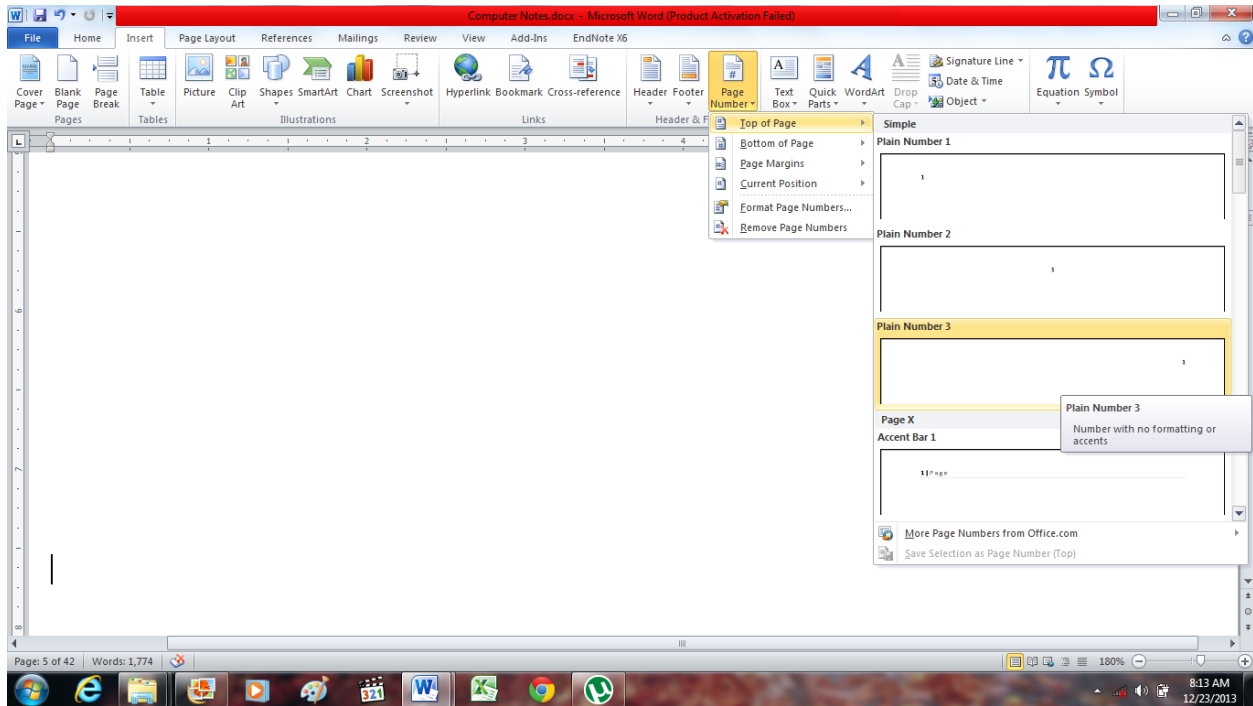


### MS Word [Short Keys and Related Functions]

<b>Functions</b>	<b>Commands</b>
Select all	Ctrl + A
Make the selected text bold	Ctrl + B
Copy document	Ctrl + C
Font type, style and size	Ctrl + D
Align text in the center	Ctrl + E
Find	Ctrl + F
Go to	Ctrl + G
Replace	Ctrl + H
Italicize the selected test	Ctrl + I
Justifying the text	Ctrl + J
Insert hyperlink	Ctrl + K
Align text to the left	Ctrl + L
Moving first line and left indent	Ctrl + M
Open new document	Ctrl + N
Open save file	Ctrl + O
Print	Ctrl + P
Increase row length	Ctrl + Q
Align text to the right	Ctrl + R
Save documents	Ctrl + S
Move left Indent	Ctrl + T
Underline the selected test	Ctrl + U
Past	Ctrl + V
Closing the document	Ctrl + W
Cut	Ctrl + X
Redo	Ctrl + Y
Undo	Ctrl + Z
Decrease font size	Ctrl + [
Increase font size	Ctrl + ]
Caps the letter or word	Shift + <i>f</i> <sub>3</sub>
Closing the document	Alt + <i>f</i> <sub>4</sub>
Refresh	<i>f</i> <sub>5</sub>
Help	<i>f</i> <sub>1</sub>
At the rate of @	Shift + 2
Subscript (Create small letters below the text baseline)	Ctrl + =
Superscript (Create small letters above the line of text )	Ctrl + Shift + +
Left bracket	Shift + (
Right bracket	Shift + )
Satiric	Shift + 8
Parentheses	( )



## Page Number



## Table

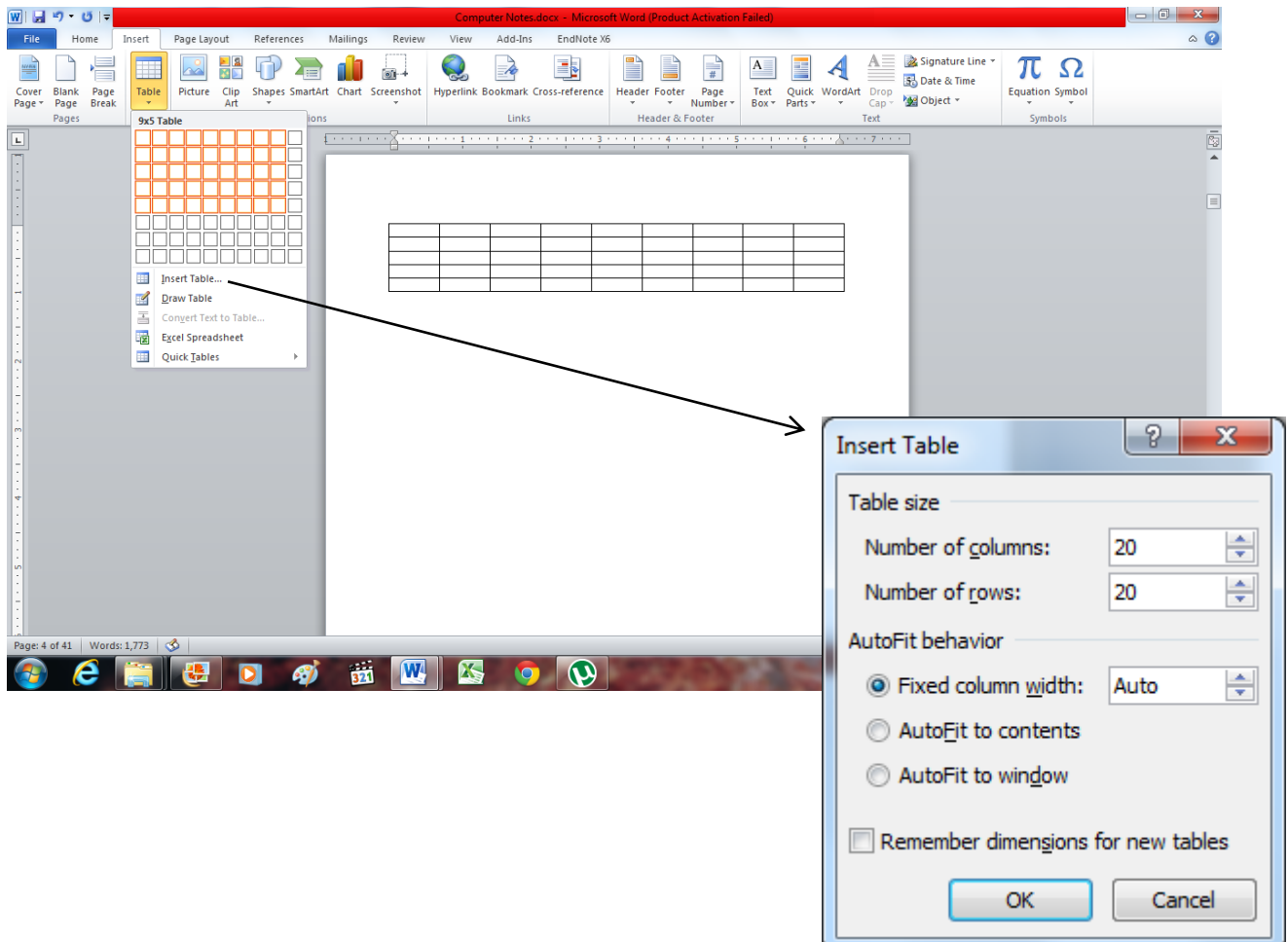


Table 1 ←

Flash Left + Regular

*Psychometric properties of study variables (N = 300)* ←

Flash Left + Italic

		Range							
	Variables	<i>n</i>	<i>M</i>	<i>SD</i>	$\alpha$	Potential	Actual	Skewness	Kurtosis
Left Align	Dep	300	9.80	7.53	.81	0-42	1-34	1.04	.39
	Anx	300	10.11	6.66	.86	0-42	0-30	.63	.12
	Str	300	18.76	8.49	.77	0-42	3-39	.29	-.61

Center Align  
+  
Regular

Note. Dep = Depression; Anx = Anxiety; Str = Stress

Table 1 shows psychometric properties of study variables. The reliability analysis indicate that the reliability coefficient of depression, anxiety and stress scale is .81, .86 and .77 respectively which indicates satisfactory internal consistency. The values of skewness and kurtosis for depression, anxiety and stress scale are less than 1 which indicates that univariate normality is not problematic.

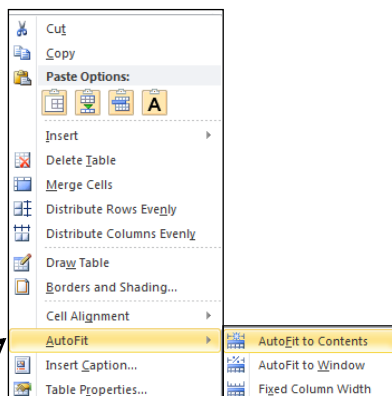
Tab

Regular + Font Size

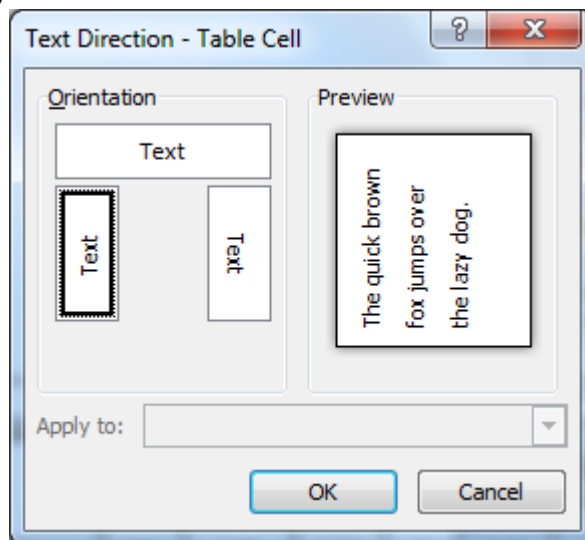
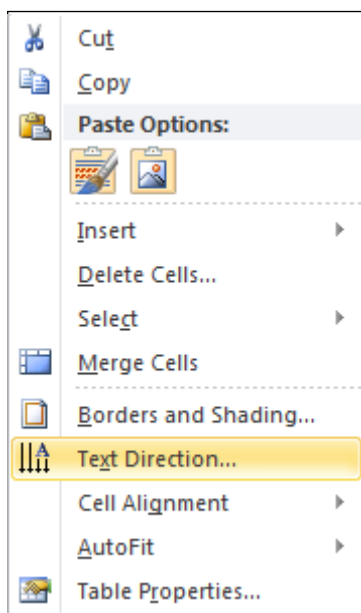
Italic + Font Size 10

					Range			
Variables	<i>n</i>	<i>M</i>	<i>SD</i>	$\alpha$	Potential	Actual	Skewness	Kurtosis
Dep	300	9.80	7.53	.81	0-42	1-34	1.04	.39
Anx	300	10.11	6.66	.86	0-42	0-30	.63	.12

Str	300	18.76	8.49	.77	0-42	3-39	.29	-.61
-----	-----	-------	------	-----	------	------	-----	------

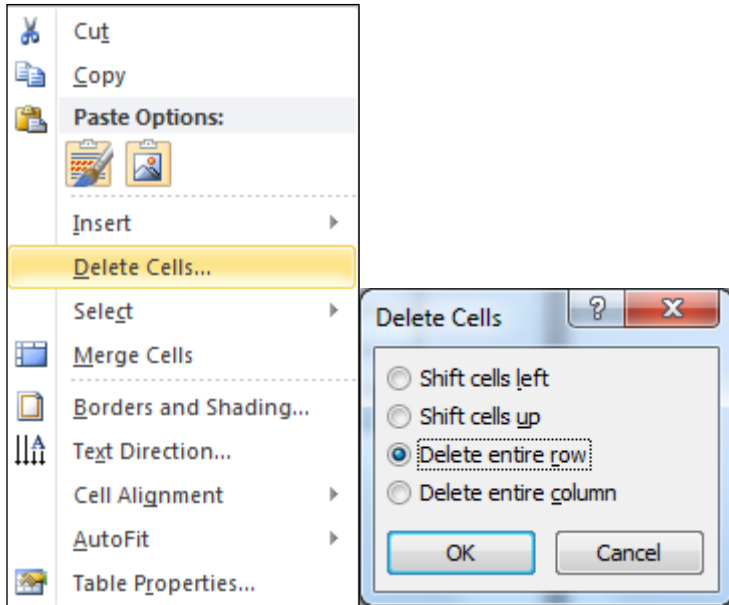


					Range			
Variables	<i>n</i>	<i>M</i>	<i>SD</i>	$\alpha$	Potential	Actual	Skewness	Kurtosis
Dep	300	9.80	7.53	.81	0-42	1-34	1.04	.39
Anx	300	10.11	6.66	.86	0-42	0-30	.63	.12
Str	300	18.76	8.49	.77	0-42	3-39	.29	-.61

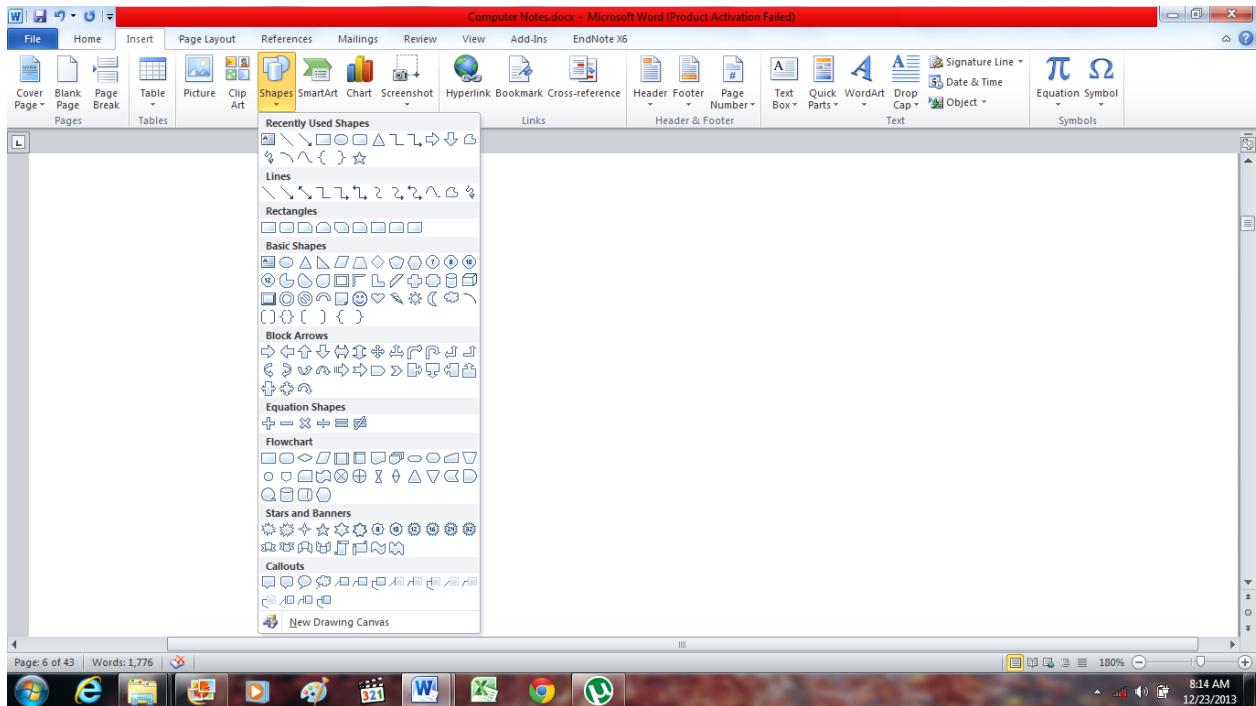




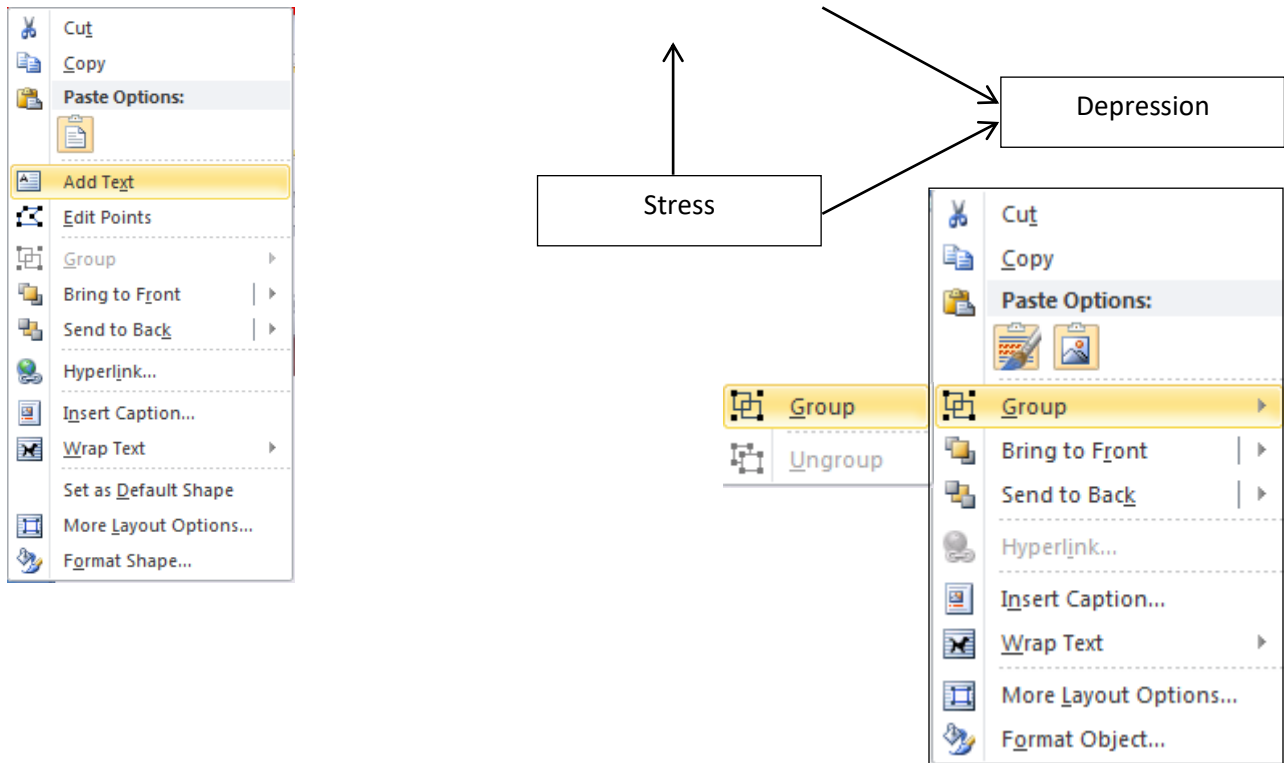




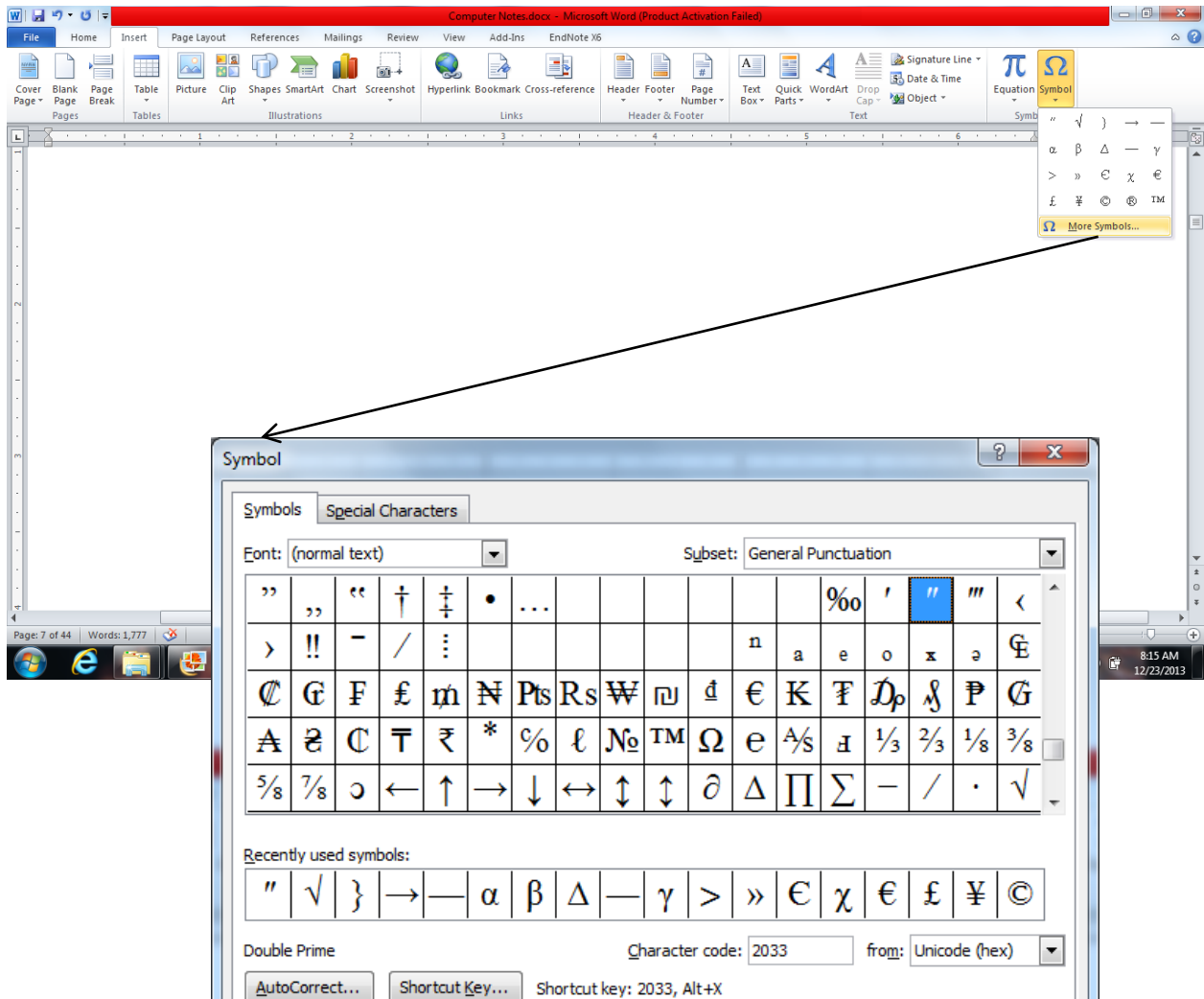
## Shapes



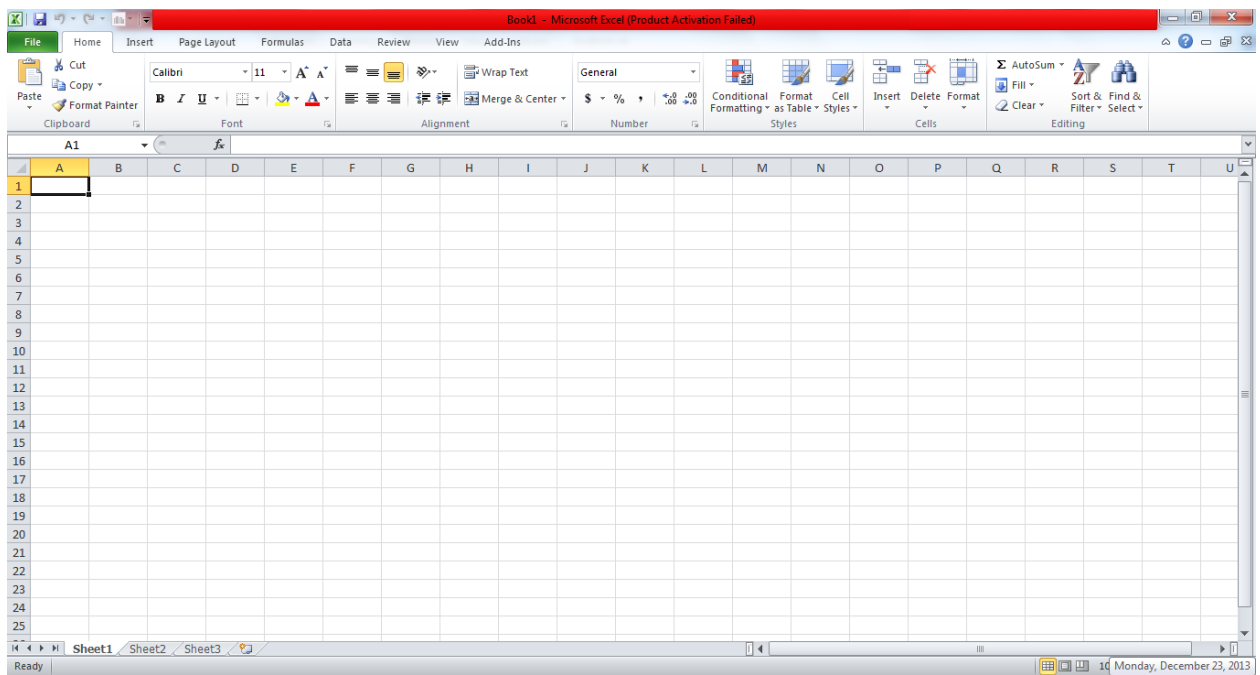
Anxiety



## Symbols



# MS Excel



The screenshot shows the Microsoft Excel interface with the following data entered in the worksheet:

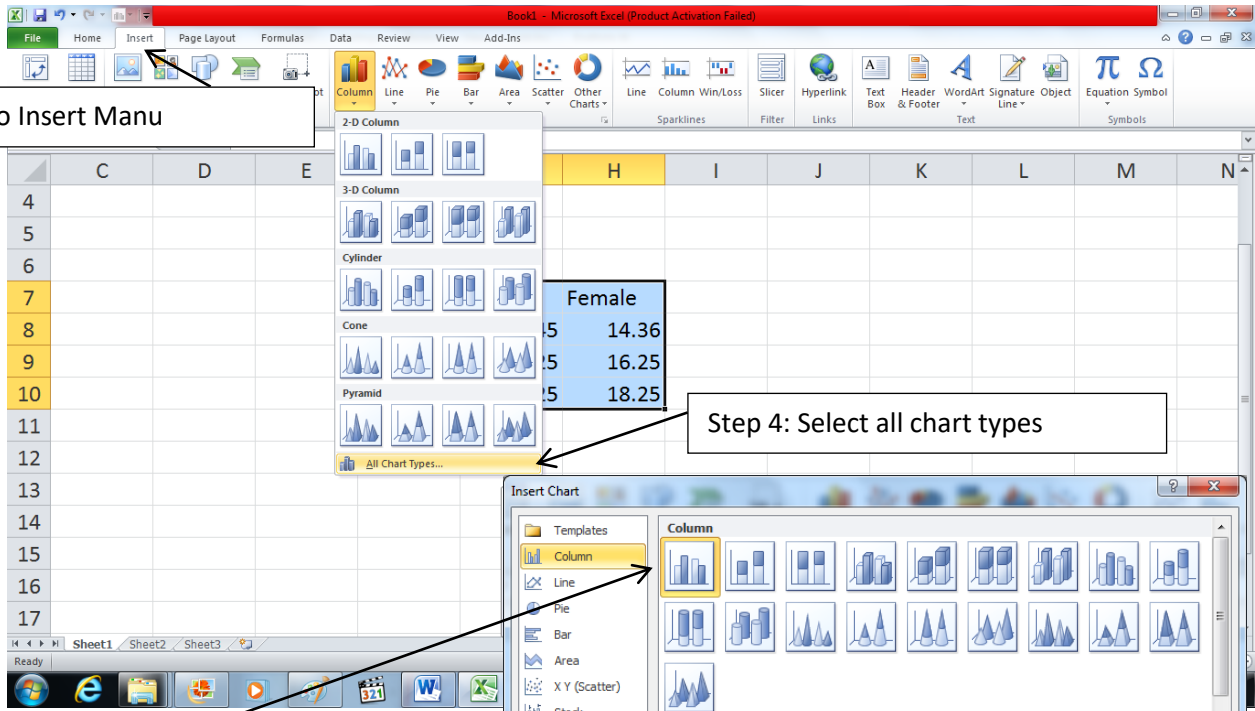
	C	D	E	F	G	H	I	J	K	L	M	N
4												
5												
6												
7					Male	Female						
8				Depressio	12.45	14.36						
9				Anxiety	14.25	16.25						
10				Stress	16.25	18.25						
11												
12												
13												
14												
15												
16												
17												

A callout box with the text "Step 1: Draw a table on excel sheet" points to the data range from cell F7 to H10.

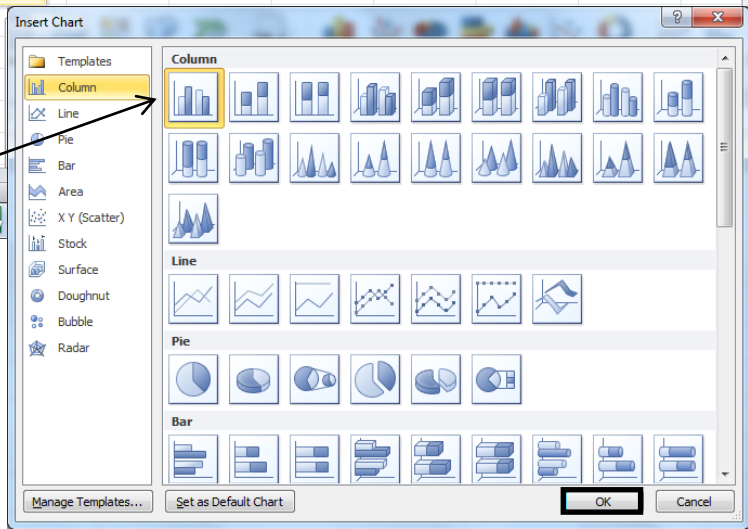
The screenshot shows the same Microsoft Excel interface, but now the data range from cell F7 to H10 is highlighted in blue, indicating it is selected. The data is as follows:

	C	D	E	F	G	H	I	J	K	L	M	N
4												
5												
6												
7					Male	Female						
8				Depressio	12.45	14.36						
9				Anxiety	14.25	16.25						
10				Stress	16.25	18.25						
11												
12												
13												
14												
15												
16												
17												

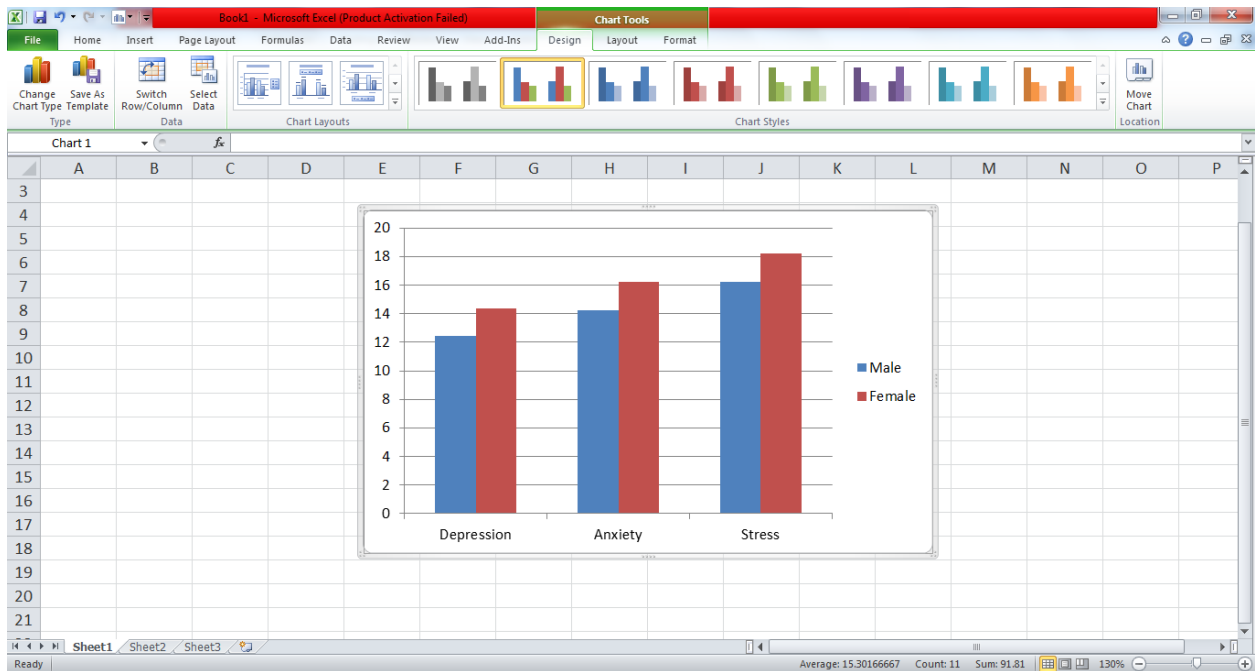
A callout box with the text "Step 2: Select the table" points to the selected data range from cell F7 to H10.

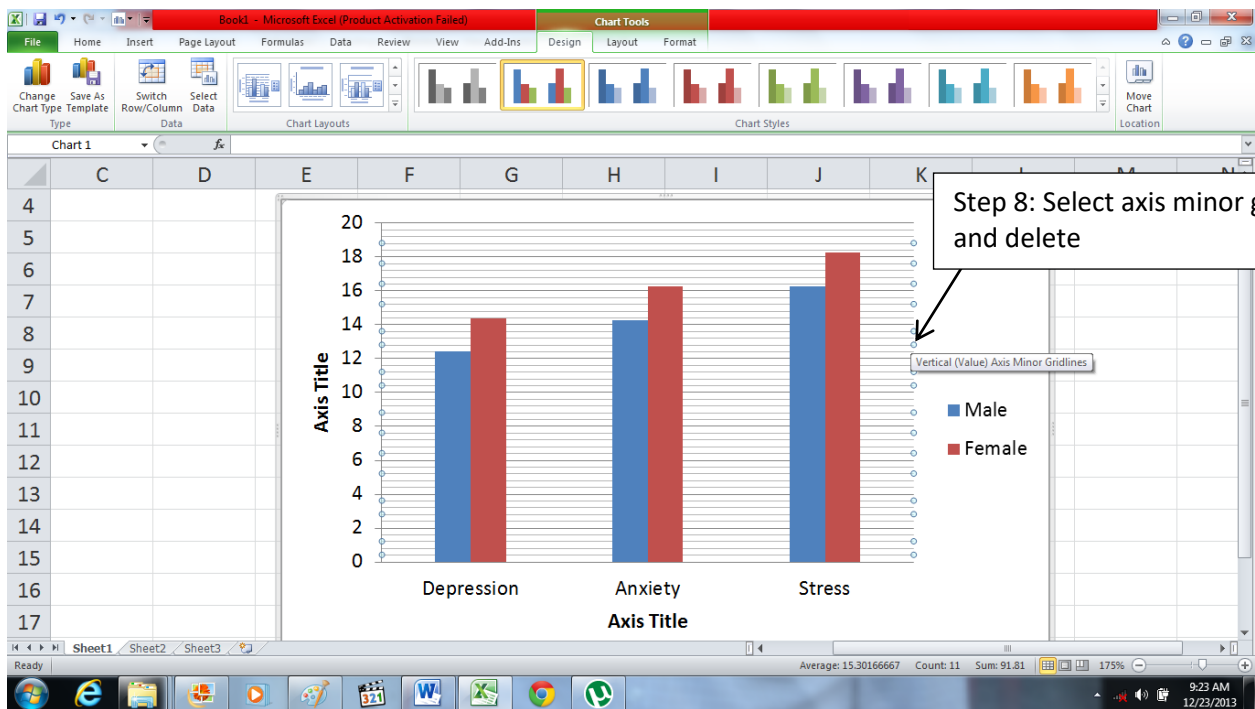
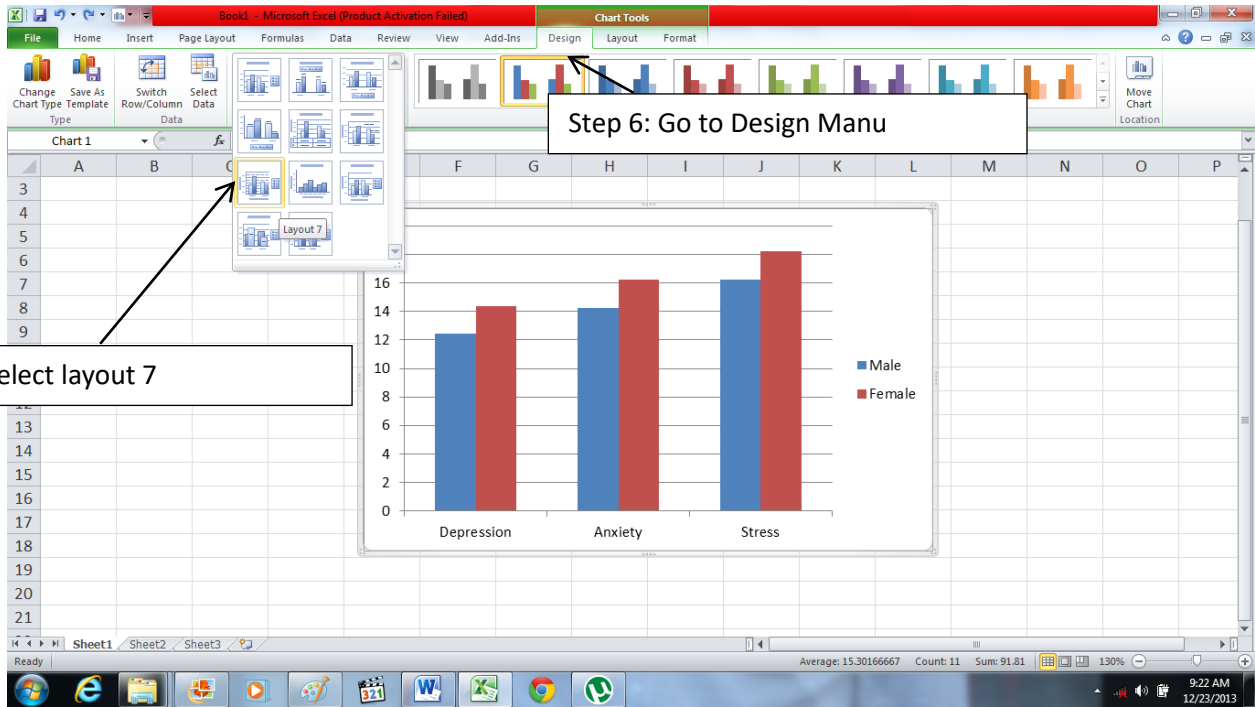


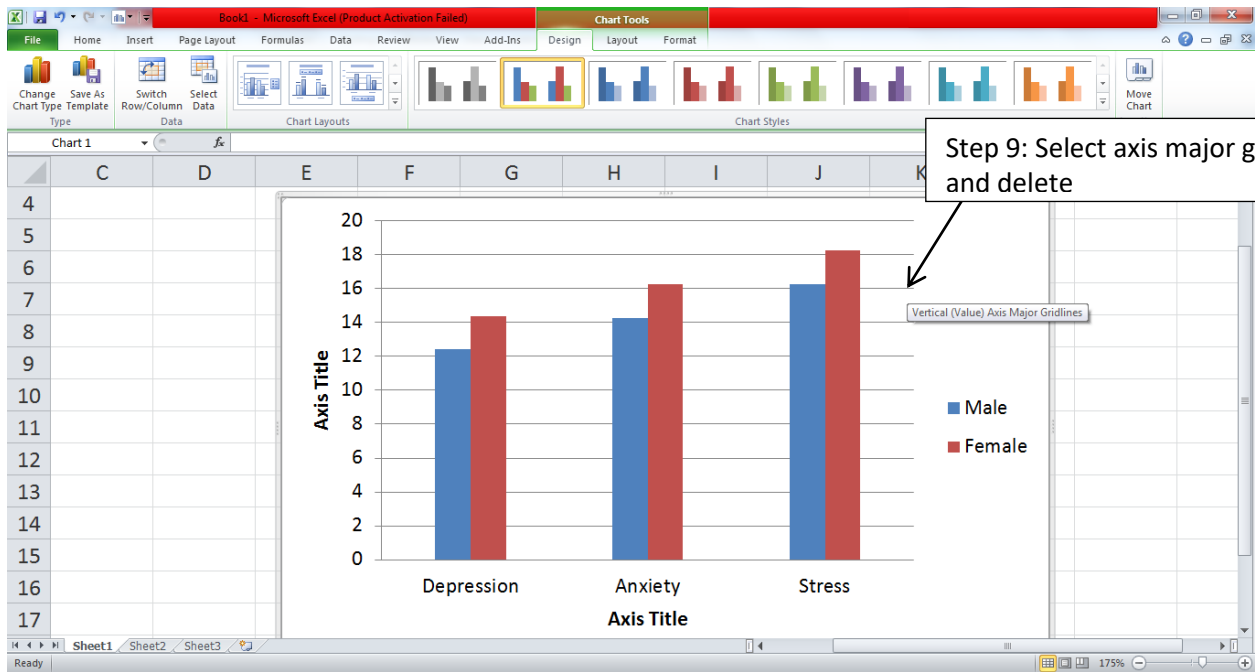
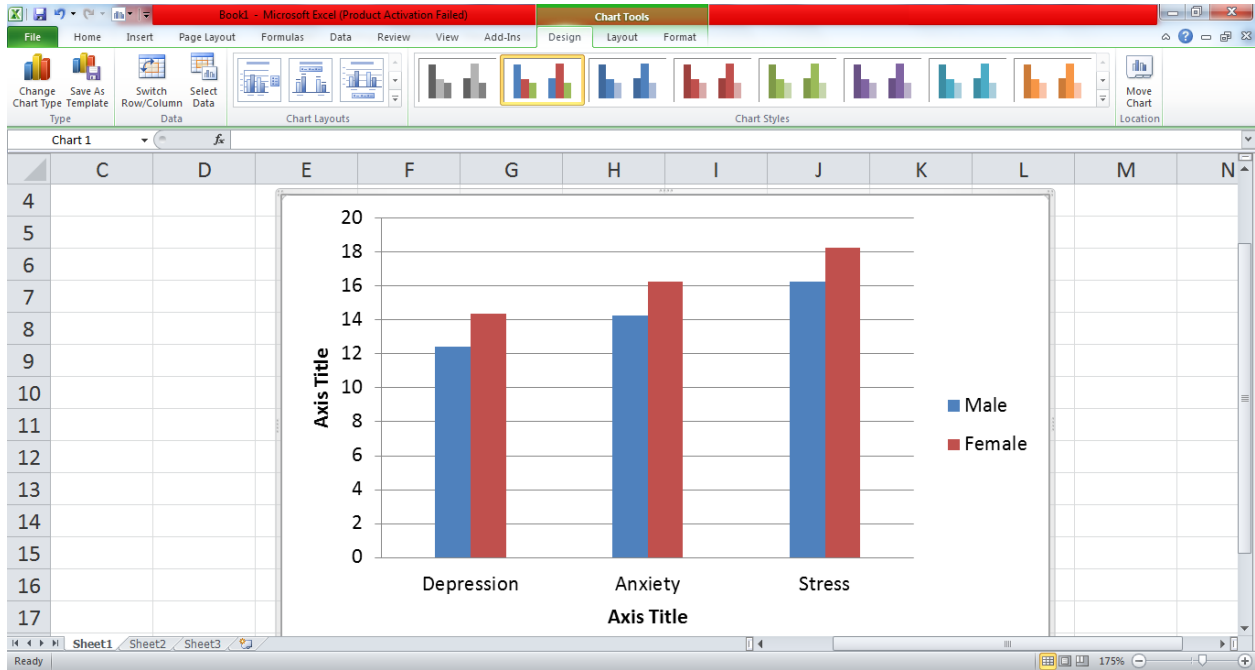
Step 5: Select column



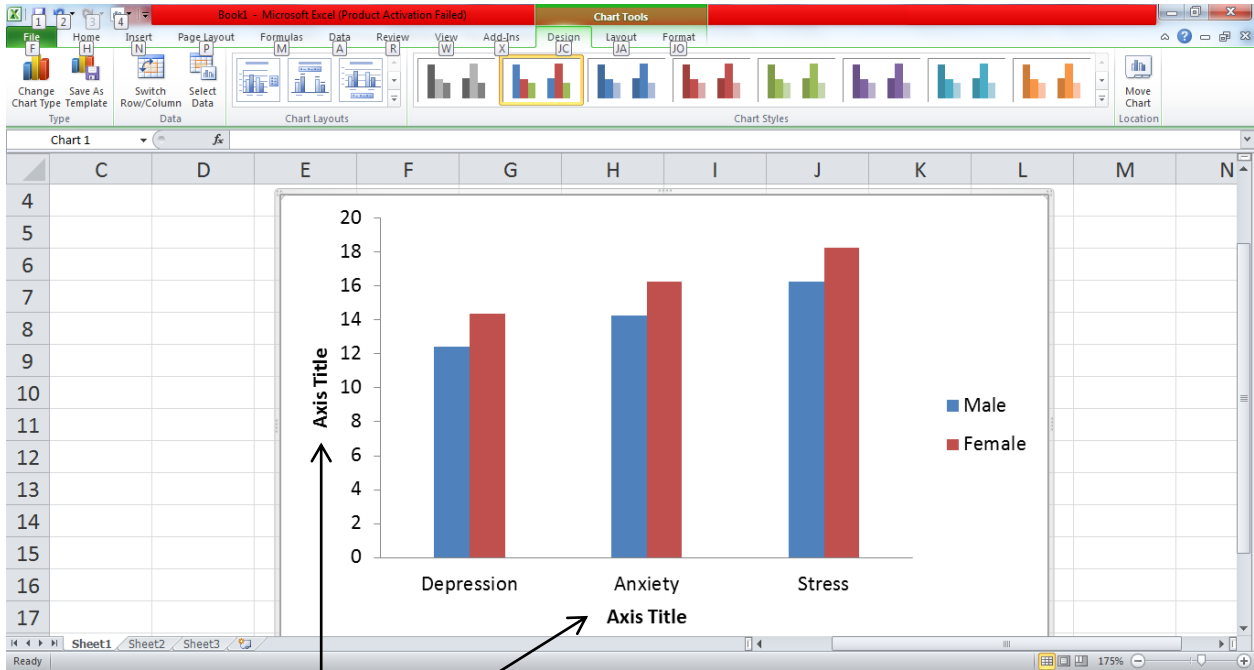
Step 4: Select all chart types



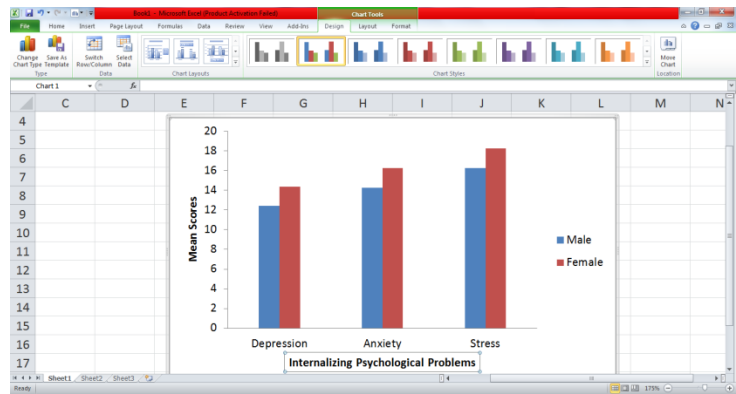


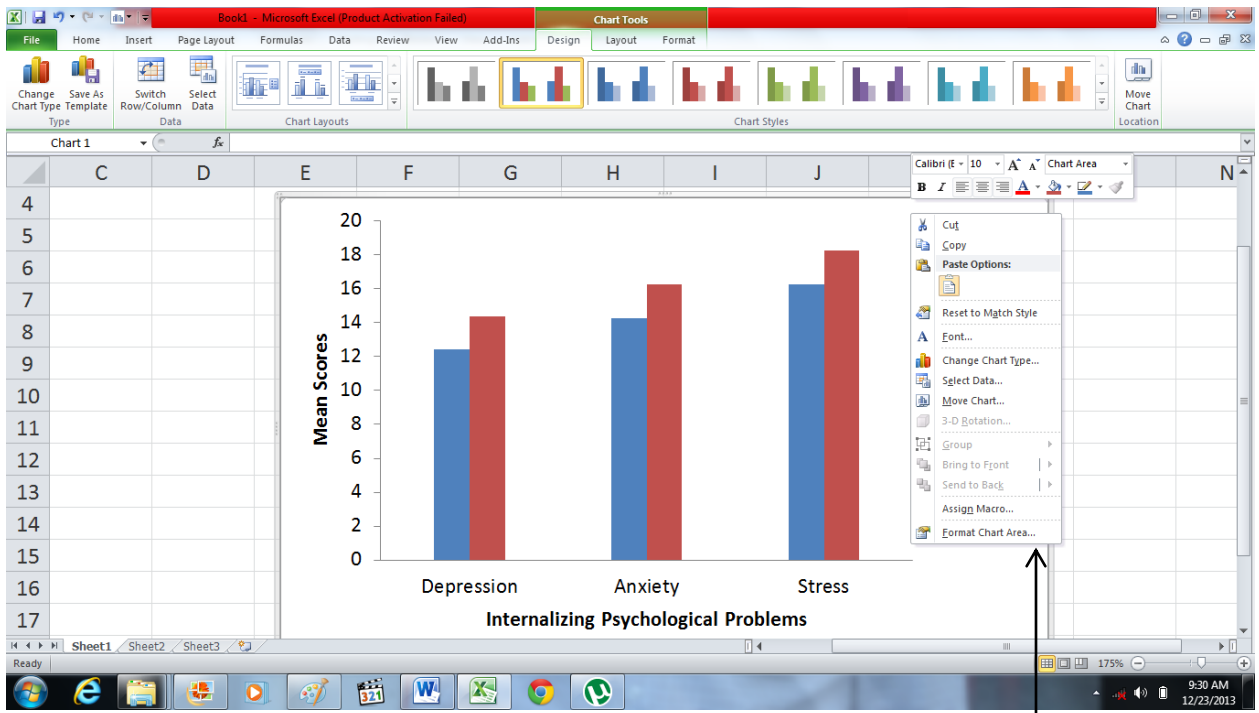






Step 10: Edit x-axis and y-axis and add axis titles





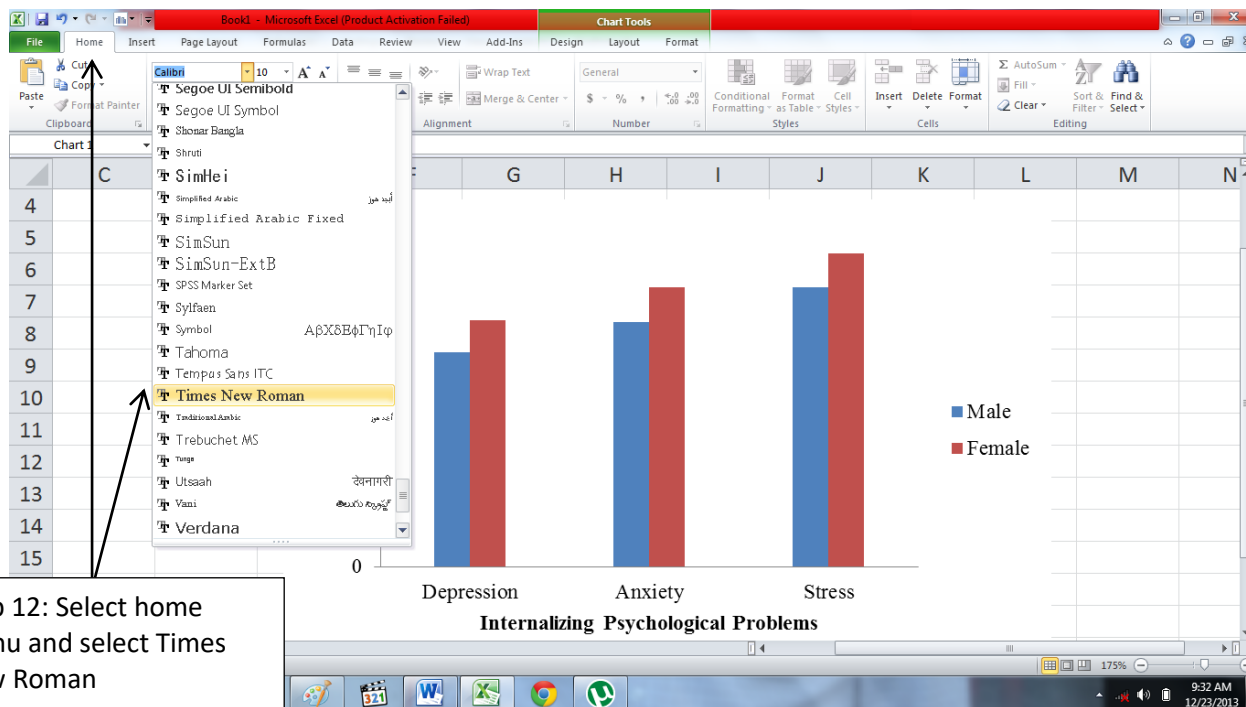
**Format Chart Area**

**Border Color**

- No line
- Solid line
- Gradient line
- Automatic

Other sections in the pane: Fill, Border Styles, Shadow, Glow and Soft Edges, 3-D Format, Size, Properties, Alt Text.

Step 11:  
a. Select format chart area  
b. Select border color  
c. Select no line radio button



Step 12: Select home Manu and select Times New Roman

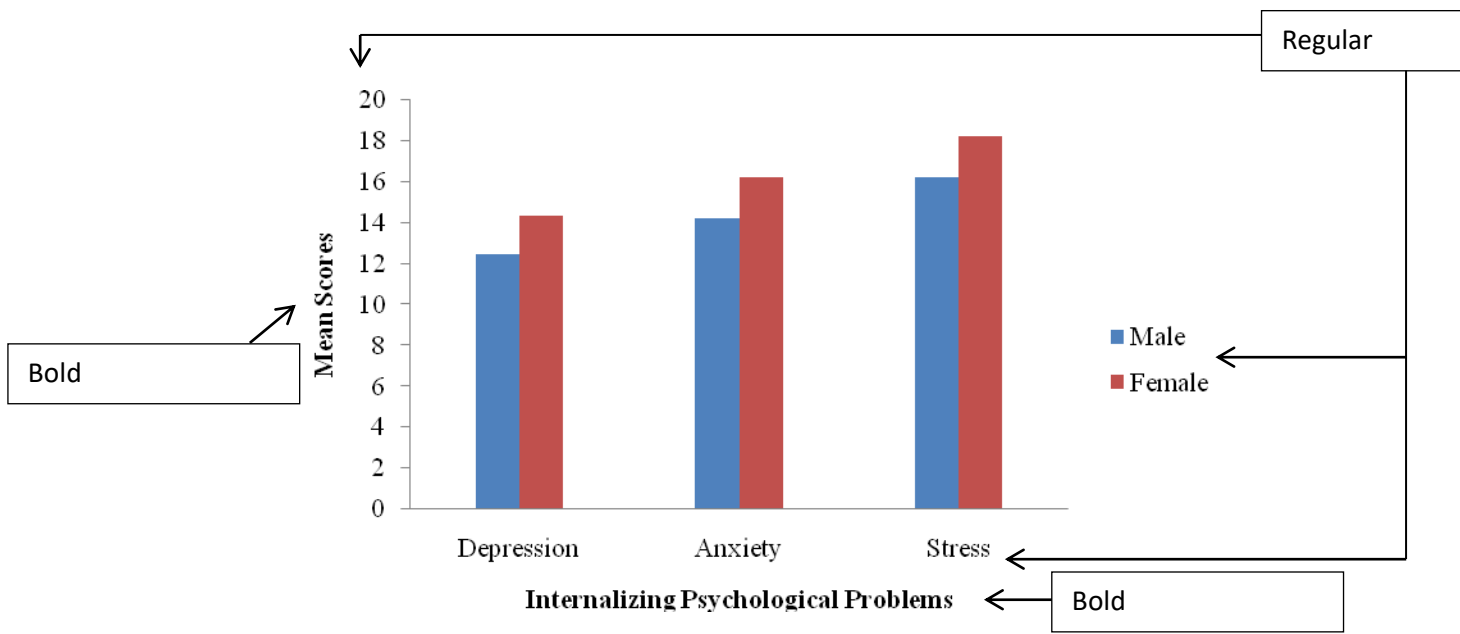
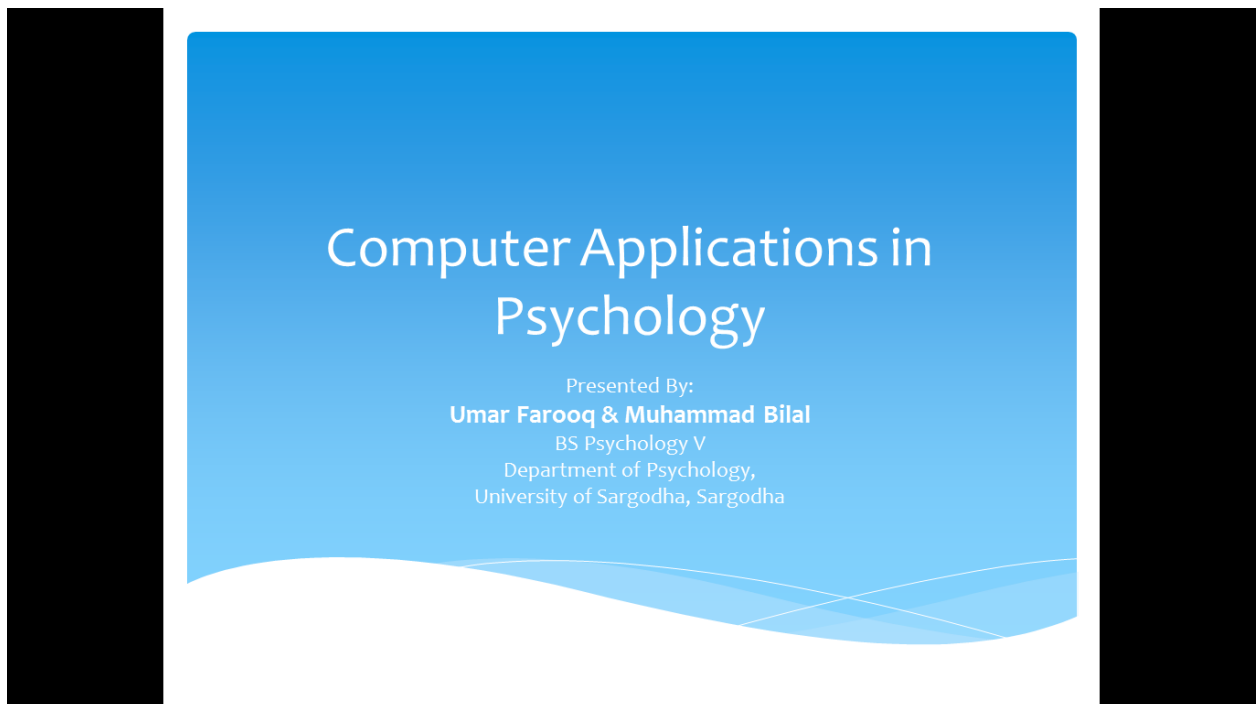
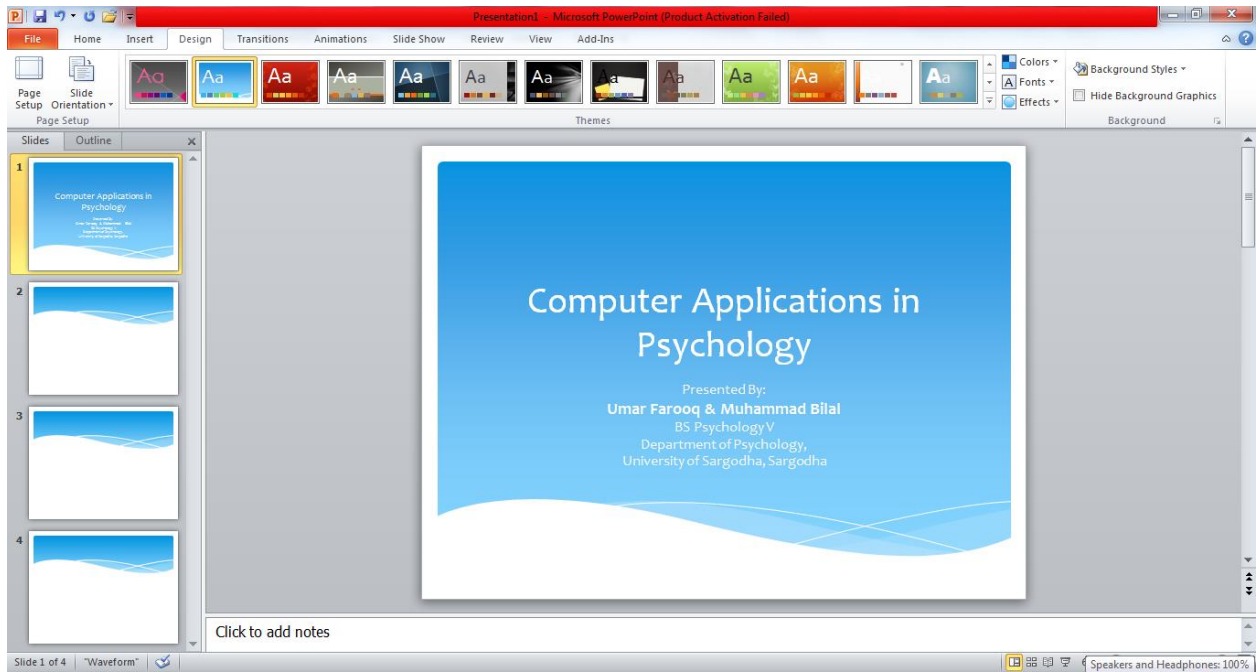


Figure 1. Means scores of male and female students on internalizing psychological problems

Italic

Regular

## MS Power Point



## Variables View before Preparing Data File

SPSS Processor is ready

## Variables View after Preparing Data File

SPSS Processor is ready

Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure	
1	gender	Numeric	8	2		{1,00, male}...	None	8	Left	Scale
2	age	Numeric	8	0	age of the res	None	None	8	Left	Scale
3	edu	Numeric	8	0	education of t	{1, F.A}...	None	8	Left	Scale
4	famlysys	Numeric	8	0	family system	{1, nuclear}...	None	8	Left	Scale
5	prephy ill	Numeric	8	0	previous phys	{1, yes}...	None	8	Left	Scale
6	prement ill	Numeric	8	0	previous ment	{1, yes}...	None	8	Left	Scale
7	swi1	Numeric	8	0	spirtual welln	{1, strongly di	None	8	Left	Scale
8	swi2	Numeric	8	0	spirtual welln	{1, strongly di	None	8	Left	Scale
9	swi3	Numeric	8	0	spirtual welln	{1, strongly di	None	8	Left	Scale
10	swi4	Numeric	8	0	spirtual welln	{1, strongly di	None	8	Left	Scale
11	swi5	Numeric	8	0	spirtual welln	{1, strongly di	None	8	Left	Scale
12	swi6	Numeric	8	0	spirtual welln	{1, strongly di	None	8	Left	Scale
13	swi7	Numeric	8	0	spirtual welln	{1, strongly di	None	8	Left	Scale
14	swi8	Numeric	8	0	spirtual welln	{1, strongly di	None	8	Left	Scale
15	swi9	Numeric	8	0	spirtual welln	{1, strongly di	None	8	Left	Scale
16	swi10	Numeric	8	0	spirtual welln	{1, strongly di	None	8	Left	Scale
17	swi11	Numeric	8	0	spirtual welln	{1, strongly di	None	8	Left	Scale
18	swi12	Numeric	8	0	spirtual welln	{1, strongly di	None	8	Left	Scale
19	swi13	Numeric	8	0	spirtual welln	{1, strongly di	None	8	Left	Scale
20	swi14	Numeric	8	0	spirtual welln	{1, strongly di	None	8	Left	Scale
21	swi15	Numeric	8	0	spirtual welln	{1, strongly di	None	8	Left	Scale
22	swi16	Numeric	8	0	spirtual welln	{1, strongly di	None	8	Left	Scale
23	swi17	Numeric	8	0	spirtual welln	{1, strongly di	None	8	Left	Scale
24	swi18	Numeric	8	0	spirtual welln	{1, strongly di	None	8	Left	Scale
25	swi19	Numeric	8	0	spirtual welln	{1, strongly di	None	8	Left	Scale
26	swi20	Numeric	8	0	spirtual welln	{1, strongly di	None	8	Left	Scale
27	swi21	Numeric	8	0	spirtual welln	{1, strongly di	None	8	Left	Scale
28	swi22	Numeric	8	0	spirtual welln	{1, strongly di	None	8	Left	Scale
29	swi23	Numeric	8	0	spirtual welln	{1, strongly di	None	8	Left	Scale
30	swi24	Numeric	8	0	spirtual welln	{1, strongly di	None	8	Left	Scale
31	swi25	Numeric	8	0	spirtual welln	{1, strongly di	None	8	Left	Scale

**Value Labels**

Value:

Label:

Add

Change

Remove

1 = "strongly disagree"  
2 = "disagree"  
3 = "agree"  
4 = "strongly agree"

**Missing Values**

No missing values

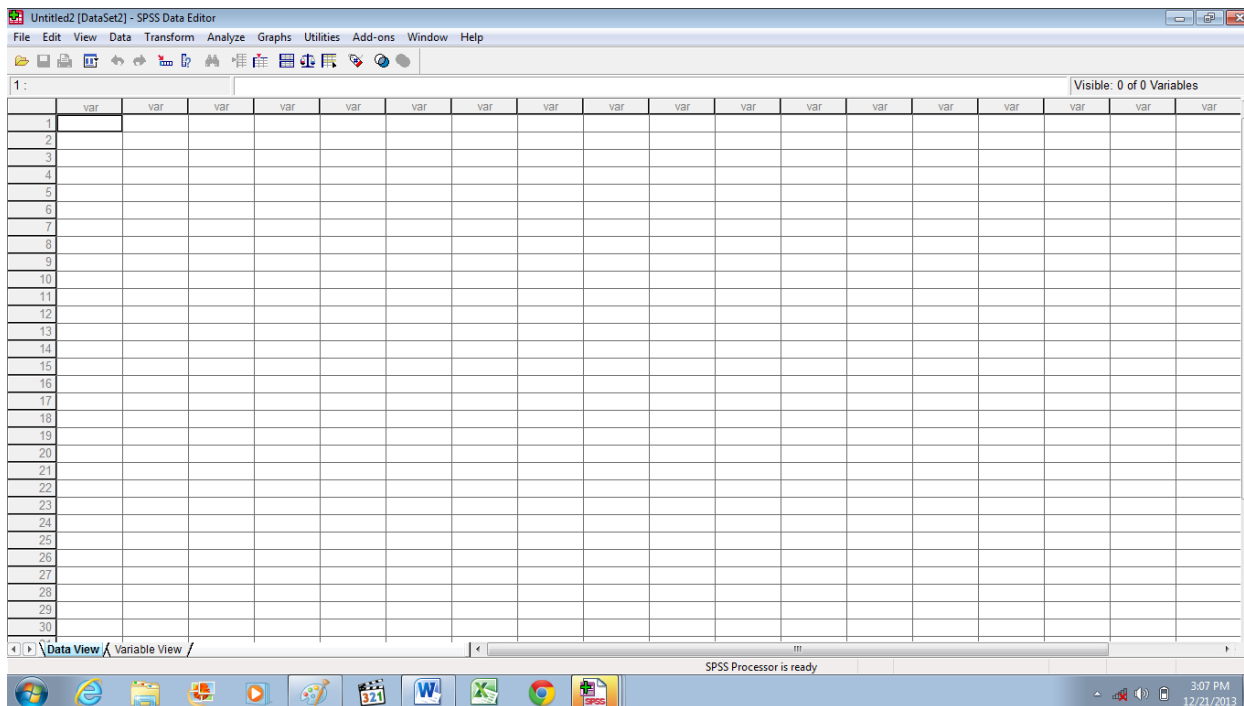
Discrete missing values

Range plus one optional discrete missing value

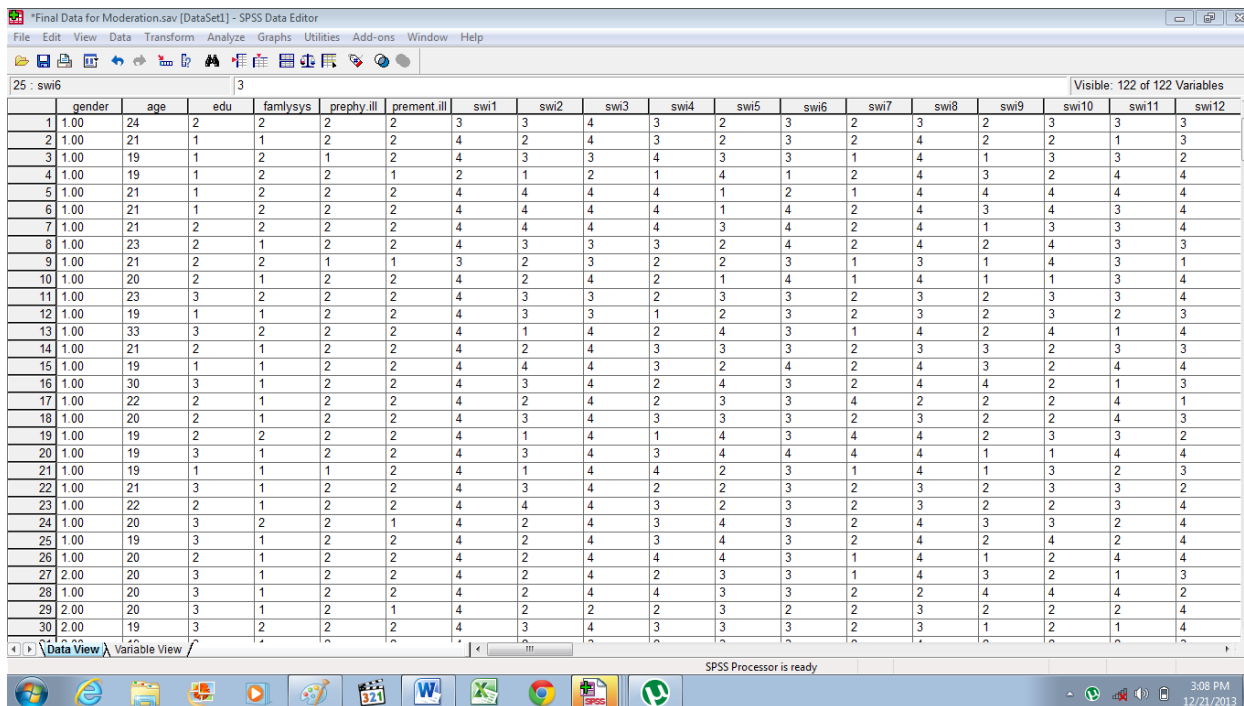
Low:  High:

Discrete value:

## Data View before Data Entry

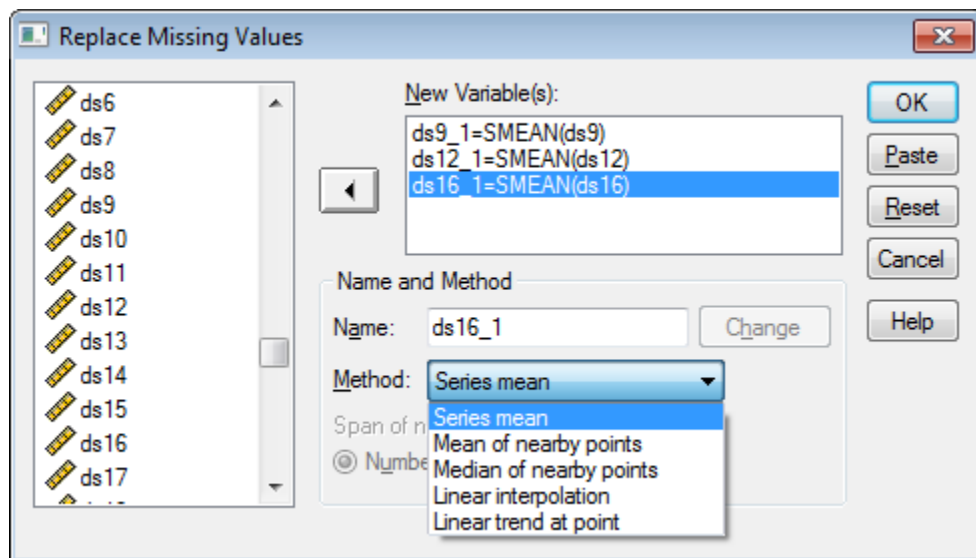
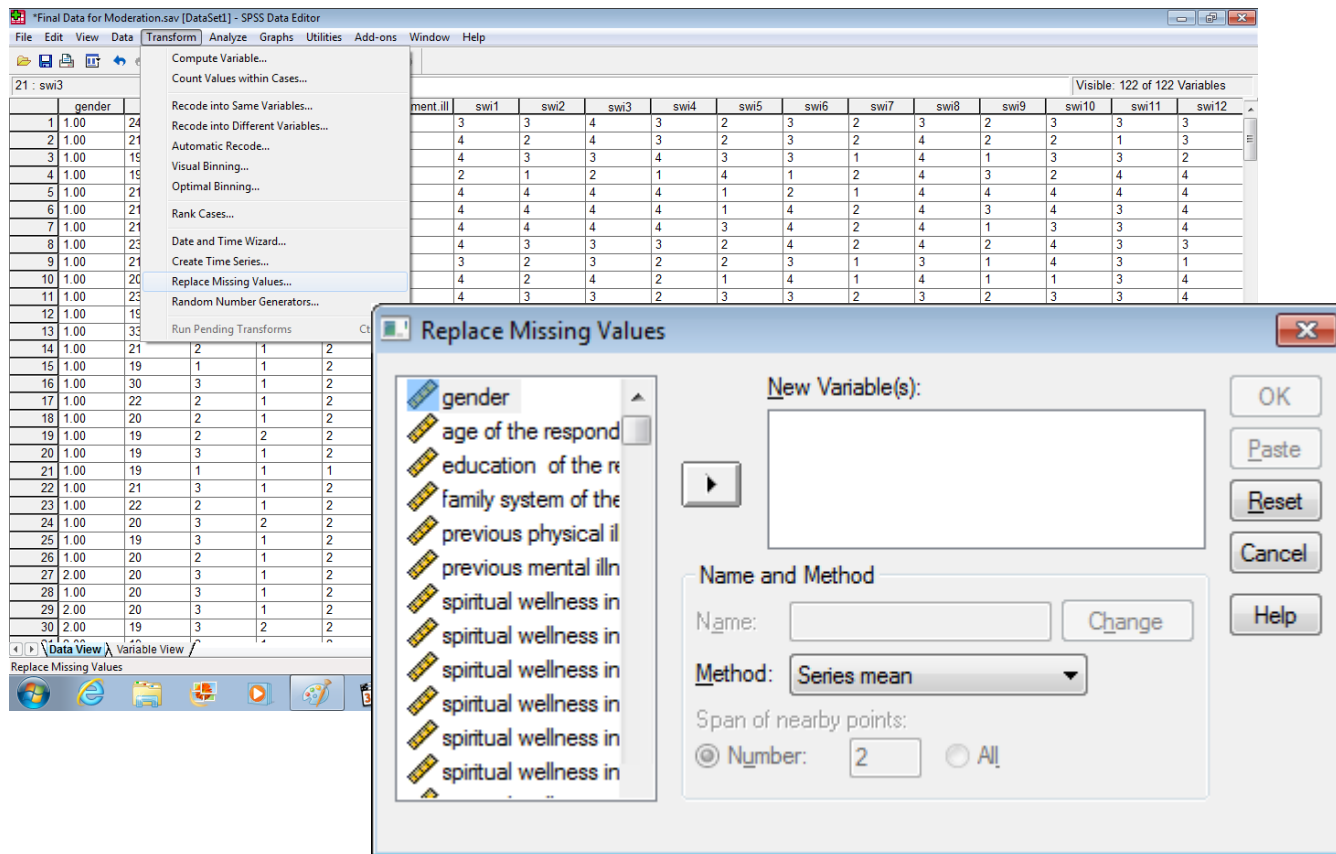


## Data View after Data Entry



## Replace Missing Values

Transform → **Replace missing values** → New variables → Series mean / Mean of nearby points → Continue → OK



## Recode into Same Variables

Transform → **Recode into same variable** → Variables → Old and new values → Range → Continue → OK

The screenshot shows the SPSS Data Editor with the 'Recode into Same Variables' dialog box open. The dialog is titled 'Recode into Same Variables' and has a 'Variables:' list containing 'gender'. The 'Old and New Values...' button is highlighted. Below it, the 'If...' button is visible. The background shows a data table with columns for gender and other variables.

gender	me
1	24
2	21
3	18
4	18
5	21
6	21
7	21
8	23
9	21
10	20
11	23
12	18
13	33
14	21
15	19
16	30
17	22
18	20
19	19
20	19
21	19
22	21
23	22
24	20
25	19
26	20
27	20
28	20
29	20
30	19

The screenshot shows the 'Recode into Same Variables' dialog box for numeric variables. The 'Numeric Variables:' list contains 'ds1', 'ds4', and 'ds9'. The 'Old and New Values...' button is highlighted.

The screenshot shows the 'Recode into Same Variables: Old and New Values' dialog box. The 'Old Value' section has 'Value' selected. The 'New Value' section has 'Value' selected. The 'Old -> New:' list shows mappings: 0 -> 3, 1 -> 2, 2 -> 1, 3 -> 0.



## Recode into Different Variables

Transform → **Recode into different variable** → Variables → Old and new values → Continue → OK

The screenshot shows the SPSS Data Editor with the 'Recode into Different Variables' dialog box open. The 'Old and New Values' sub-dialog is active, showing a range from 16 to 18 being mapped to a new value of 1. The 'Output Variable' is named 'agegroups'.

**Recode into Different Variables: Old and New Values**

**Old Value**

- Value: [ ]
- System-missing
- System- or user-missing
- Range:
  - 16 through 18
- Range, LOWEST through value: [ ]
- Range, value through HIGHEST: [ ]
- All other values

**New Value**

- Value: 1
- System-missing
- Copy old value(s)

**Old -> New:**

19 thru 30	--> 2
16 thru 18	--> 1

Output variables are strings Width: 8

Convert numeric strings to numbers ('5'->5)

Buttons: Add, Change, Remove, Continue, Cancel, Help

The screenshot shows the 'Recode into Different Variables' dialog box. The 'Numeric Variable -> Output Variable' section shows 'age -> agegroups'.

**Recode into Different Variables**

**Numeric Variable -> Output Variable:**

age -> agegroups

**Output Variable**

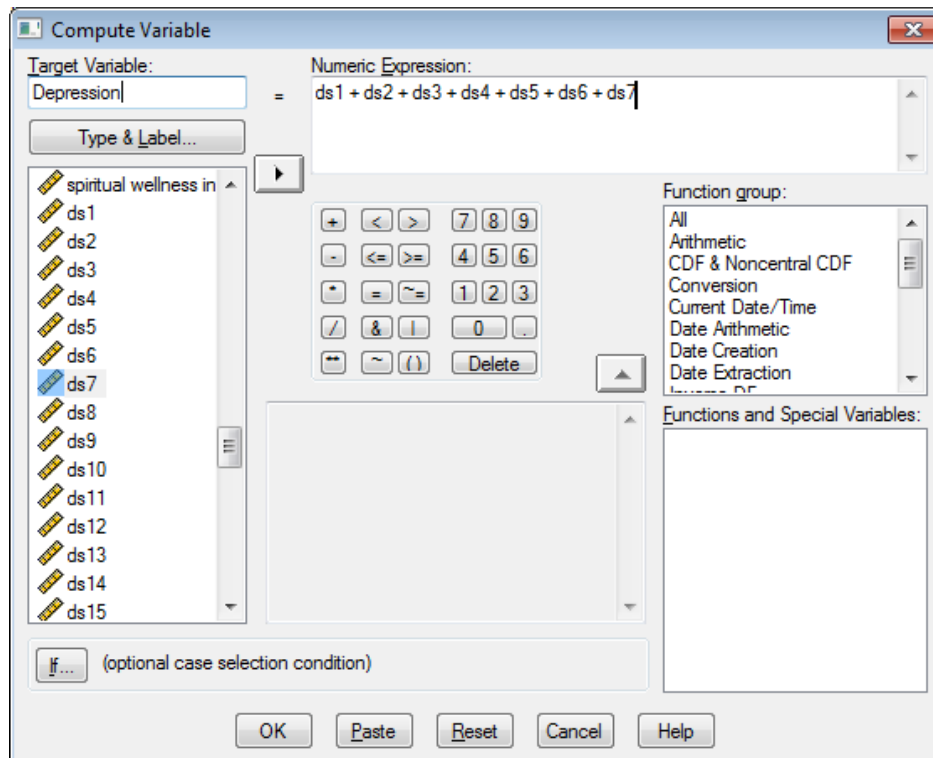
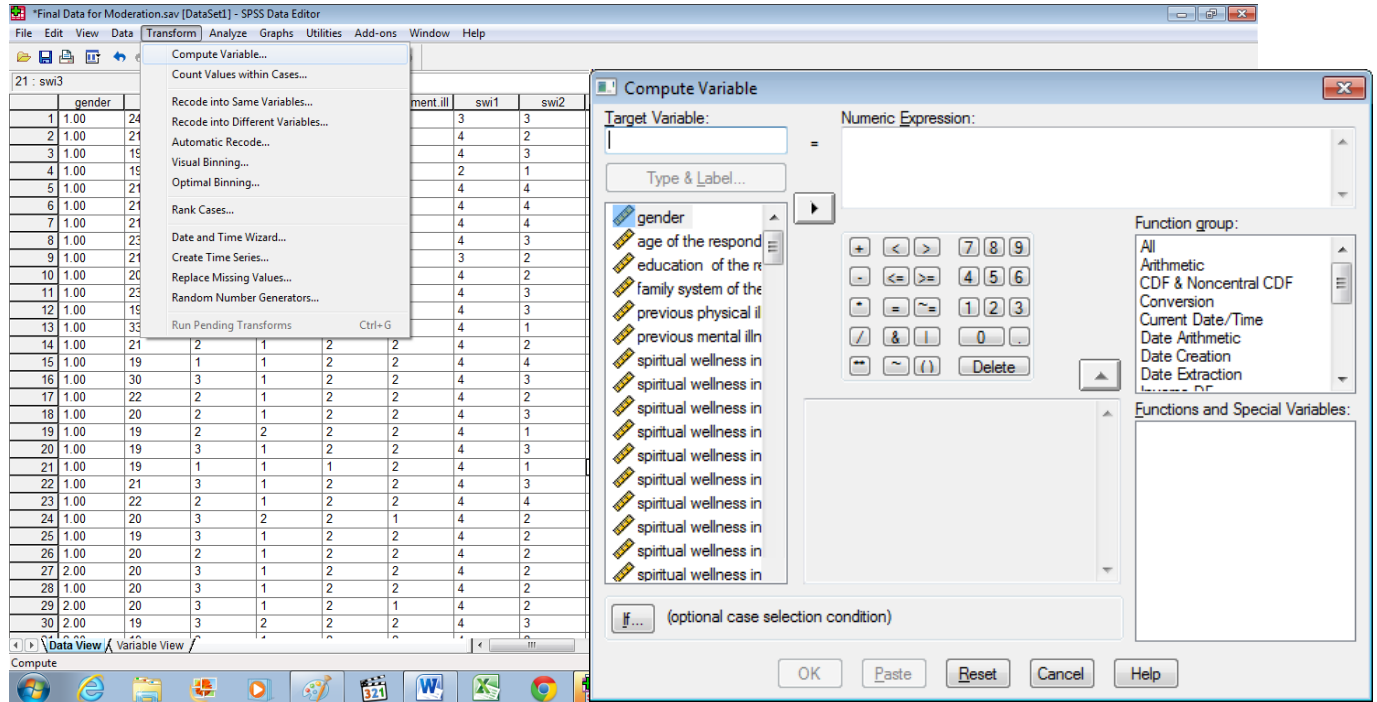
Name: agegroups

Label: [ ]

Buttons: Change, OK, Paste, Reset, Cancel, Help

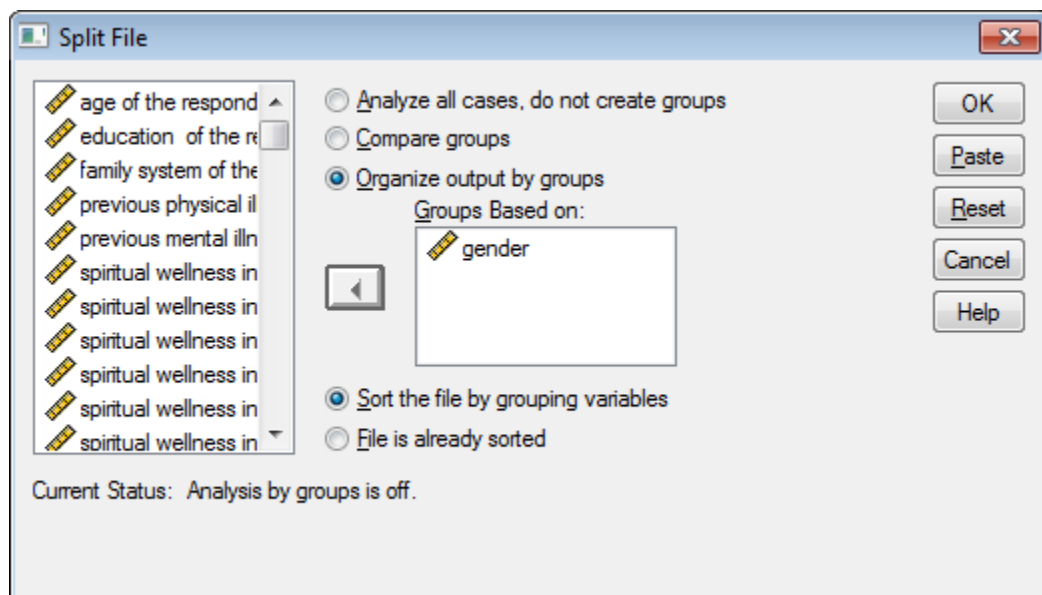
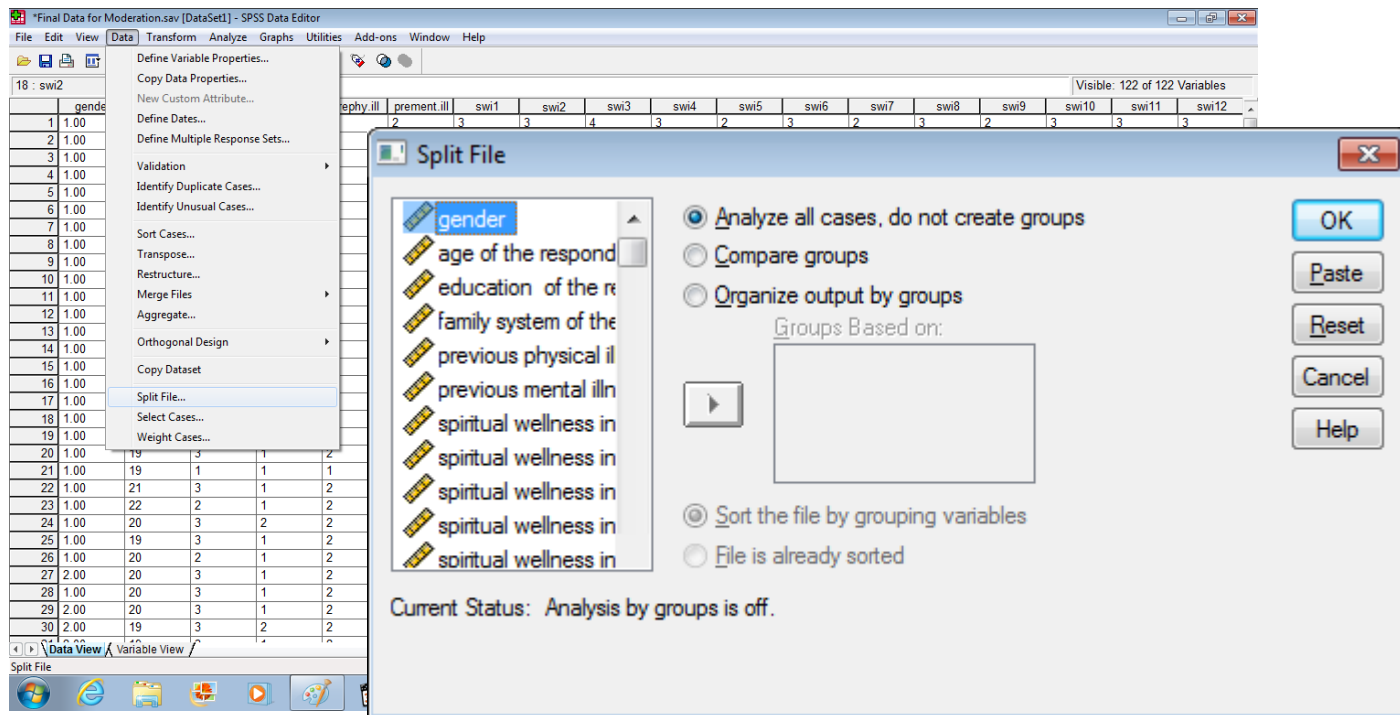
## Compute Variables

Transform → **Compute variable** → Target variable = Numeric expression → OK



## Split File

Data → **Split files** → Organize output by groups → OK



## Merge File

Data → Merge files → Add cases / add variables → Browse → Open → Continue → OK

The screenshot shows the SPSS Data Editor interface with the 'Merge Files' menu open. The 'Add Cases...' option is selected, which has opened the 'Add Cases to Final Data for Moderation.sav [DataSet1]' dialog box. This dialog box has the 'An external SPSS data file' radio button selected. Below it, there is a text input field and a 'Browse...' button. A note states: 'Non-SPSS data files must be opened in SPSS before they can be used as part of a merge.' Buttons for 'Continue', 'Cancel', and 'Help' are at the bottom.

Below the first dialog box, the 'Add Variables to Final Data for Moderation.sav [DataSet1]' dialog box is also visible. It has the same layout as the first dialog box, with 'An external SPSS data file' selected and a 'Browse...' button.

In the foreground, the 'Add Variables: Read File' dialog box is open. The 'Look in:' field is set to 'Computer'. The main area displays a list of drives with their free space: Local Disk (C:) (12.5 GB free of 291 GB), RECOVERY (D:) (1.57 GB free of 13.7 GB), New Volume (F:) (26.6 GB free of 97.6 GB), New Volume (G:) (51.5 GB free of 192 GB), DVD RW Drive (E:), and NAVEED (H:) (823 MB free of 1.86 GB). At the bottom, the 'File name:' field is empty, and the 'Files of type:' dropdown is set to 'SPSS (\*.sav)'. 'Open' and 'Cancel' buttons are at the bottom right.

## Frequency and Percentage

Analyze → Descriptive statistics → **Frequencies** → Variable(s) → OK

The screenshot shows the SPSS Data Editor window with the 'Frequencies' dialog box open. The dialog box has a list of variables on the left and a 'Variable(s):' list on the right. The 'gender' variable is selected in the 'Variable(s):' list. The 'Display frequency tables' checkbox is checked. The background shows a data table with columns for gender, age, and various spiritual wellness items (swi2-sw12).

	gender	age	swi2	swi3	swi4	swi5	swi6	swi7	swi8	swi9	swi10	swi11	swi12
1	1.00	24	2										
2	1.00	21	1										
3	1.00	19	1										
4	1.00	19	1										
5	1.00	21	1										
6	1.00	21	1										
7	1.00	21	2										
8	1.00	23	2										
9	1.00	21	2										
10	1.00	20	2										
11	1.00	23	3										
12	1.00	19	1										
13	1.00	33	3										
14	1.00	21	2										
15	1.00	19	1										
16	1.00	30	3										
17	1.00	22	2										
18	1.00	20	2										
19	1.00	19	2										
20	1.00	19	3										
21	1.00	19	1										
22	1.00	21	3	1	2	2							
23	1.00	22	2	1	2	2							
24	1.00	20	3	2	2	1							
25	1.00	19	3	1	2	2							
26	1.00	20	2	1	2	2							
27	2.00	20	3	1	2	2							
28	1.00	20	3	1	2	2							
29	2.00	20	3	1	2	1							
30	2.00	19	3	2	2	2							

The screenshot shows the 'Frequencies' dialog box in SPSS. The 'gender' and 'family system of the res' variables are selected in the 'Variable(s):' list. The 'Display frequency tables' checkbox is checked.

## Frequencies

### Statistics

		gender	family system of the respondent
N	Valid	300	300
	Missing	0	0

## Frequency Table

### gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	male	172	57.3	57.3	57.3
	female	128	42.7	42.7	100.0
	Total	300	100.0	100.0	

### family system of the respondent

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	nuclear	176	58.7	58.7	58.7
	joint	124	41.3	41.3	100.0
	Total	300	100.0	100.0	

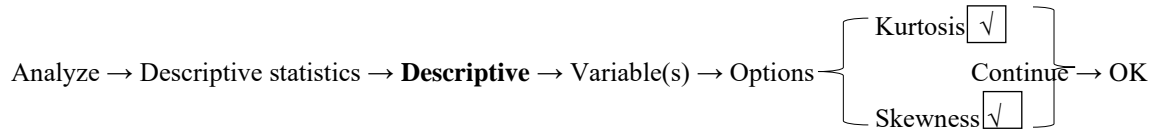
Table 1

*Frequency and percentage of participants (N = 300)*

Demographic variables	<i>f</i>	%
Gender		
Male	172	57.3
Female	128	42.7
Family System		
Nuclear	176	58.7
Joint	124	41.3

Table 1 shows frequency and percentage of students with respect to gender and family system. Male students ( $f=172$ , 57.3%) were greater in number as compared to female students ( $f = 128$ , 42.7%). Students belonging to nuclear family system ( $f = 176$ , 58.7%) are greater in number as compared to joint family system ( $f = 124$ , 41.3%).

## Descriptive Statistics



The image displays three SPSS dialog boxes related to descriptive statistics:

- Top Dialog (Descriptives):** Shows the 'Descriptive Statistics' menu path. The 'Descriptives' dialog box is open with 'gender' selected in the variable list. The 'Options...' button is highlighted.
- Middle Dialog (Descriptives):** Shows a different set of variables: 'ds40', 'ds41', 'ds42', 'DASS', 'SWI', 'Meaning', 'Hope', and 'SWIXM'. The 'Descriptives: Options' dialog is open, showing 'Mean', 'Std. deviation', 'Kurtosis', and 'Skewness' checked.
- Bottom Dialog (Descriptives: Options):** Shows the 'Descriptives: Options' dialog box with the following settings:
  - Mean
  - Sum
  - Std. deviation
  - Variance
  - Range
  - Dispersion
  - Kurtosis
  - S.E. mean
  - Minimum
  - Maximum
  - Skewness
  - Variable list
  - Alphabetic
  - Ascending means
  - Descending means



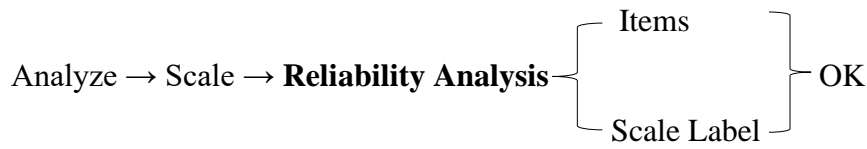
## Descriptives

Descriptive Statistics

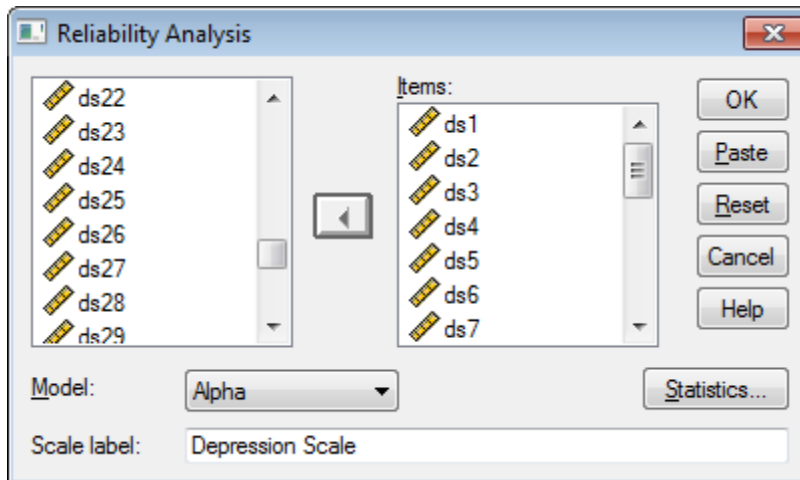
	N	Minimum	Maximum	Mean	Std.	Ske	ness	Kur	osis
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Depression	300	1.00	34.00	9.8400	7.52617	1.040	.141	.391	.281
Anxiety	300	.00	30.00	10.1067	6.66358	.633	.141	.116	.281
Stress	300	3.00	39.00	18.7600	8.49291	.294	.141	-.608	.281
Valid N (listwise)	300								

Depression Anxiety Stress Scale (DASS) is based on 42 items and three subscales including depression, anxiety and stress. Every subscale comprised of 14 items. The scale is based on 4-point rating scale. The response categories included strongly disagree = 0, disagree = 1, agree = 2, and strongly agree = 3. The potential range for every subscale is 0 as minimum scores and 42 as maximum scores.

## Reliability Analysis



The screenshot shows the SPSS Data Editor interface. The 'Analyze' menu is open, and the 'Scale' submenu is selected, with 'Reliability Analysis...' highlighted. The 'Reliability Analysis' dialog box is open in the foreground. In the 'Items:' list, 'gender' is selected. The 'Model:' dropdown is set to 'Alpha'. The 'Scale label:' field is empty. The background data table shows variables: gender, age, ment\_ill, swi1, swi2, swi3, swi4, swi5, swi6, swi7, swi8, swi9, swi10, swi11, and swi12.



## Reliability

### Scale: Depression Scale

#### Case Processing Summary

		N	%
Cases	Valid	300	100.0
	Excluded <sup>a</sup>	0	.0
	Total	300	100.0

a. Listwise deletion based on all variables in the procedure.

#### Reliability Statistics

Cronbach's Alpha	N of Items
.812	14

### Scale: Anxiety Scale

#### Case Processing Summary

		N	%
Cases	Valid	300	100.0
	Excluded <sup>a</sup>	0	.0
	Total	300	100.0

a. Listwise deletion based on all variables in the procedure.

#### Reliability Statistics

Cronbach's Alpha	N of Items
.857	14

### Scale: Stress Scale

**Case Processing Summary**

		N	%
Cases	Valid	300	100.0
	Excluded <sup>a</sup>	0	.0
	Total	300	100.0

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

Cronbach's Alpha	N of Items
.771	14

Table 2

*Psychometric properties of study variables (N = 300)*

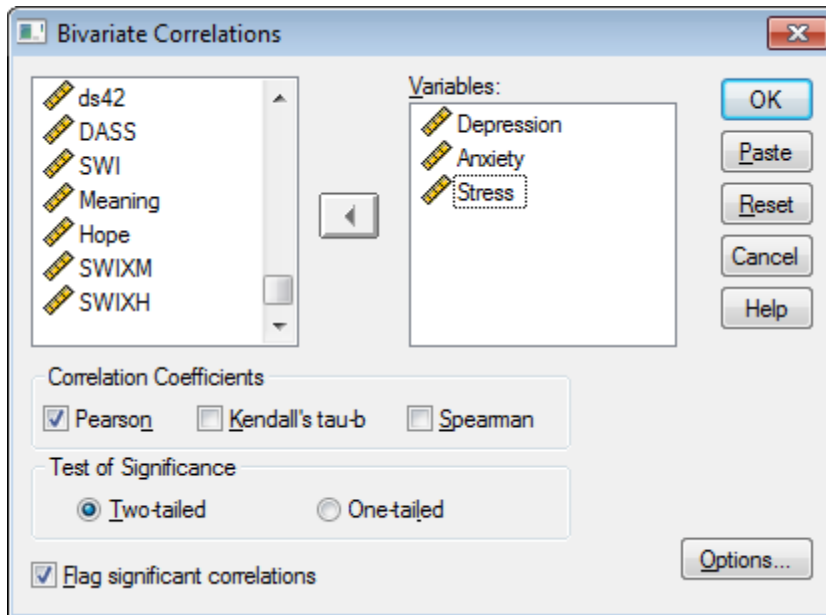
Variables	<i>n</i>	<i>M</i>	<i>SD</i>	$\alpha$	Range		Skewness	Kurtosis
					Potential	Actual		
Depression	300	9.80	7.53	.81	0-42	1-34	1.04	.39
Anxiety	300	10.11	6.66	.86	0-42	0-30	.63	.12
Stress	300	18.76	8.49	.77	0-42	3-39	.29	-.61

Table 1 shows psychometric properties of study variables. The reliability analysis indicate that the reliability coefficient of depression, anxiety and stress scale is .81, .86 and .77 respectively which indicates satisfactory internal consistency. The values of skewness and kurtosis for depression, anxiety and stress scale are less than 1 which indicates that univariate normality is not problematic.

## Pearson Correlation

Analyze → Correlate → Bivariate → Variables → OK

The screenshot shows the SPSS Data Editor interface with the 'Bivariate Correlations' dialog box open. The dialog box is titled 'Bivariate Correlations' and has a close button (X) in the top right corner. The 'Variables:' list contains 'gender' and 'age of the respondent'. The 'Correlation Coefficients' section has 'Pearson' checked, 'Kendall's tau-b' unchecked, and 'Spearman' unchecked. The 'Test of Significance' section has 'Two-tailed' selected and 'One-tailed' unselected. The 'Flag significant correlations' checkbox is checked. The 'Options...' button is visible in the bottom right corner of the dialog box. The background shows a data view window with columns for 'gender', 'age', and various 'swi' variables.



## Correlations

**Correlations**

		Depression	Anxiety	Stress
Depression	Pearson Correlation	1	.685**	.588**
	Sig. (2-tailed)		.000	.000
	N	300	300	300
Anxiety	Pearson Correlation	.685**	1	.770**
	Sig. (2-tailed)	.000		.000
	N	300	300	300
Stress	Pearson Correlation	.588**	.770**	1
	Sig. (2-tailed)	.000	.000	
	N	300	300	300

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

Table 3

Pearson correlation among study variables ( $N = 300$ )

Variables	1	2	3
1. Depression	-	.69*	.59*
2. Anxiety		-	.77*
3. Stress			-

\* $p < .001$

Table 2 shows Pearson correlation among study variables. The findings indicate that depression has significant positive correlation with anxiety ( $r = .69, p < .001$ ) and stress ( $r = .59, p < .001$ ). Anxiety has significant positive correlation with stress ( $r = .77, p < .001$ ).

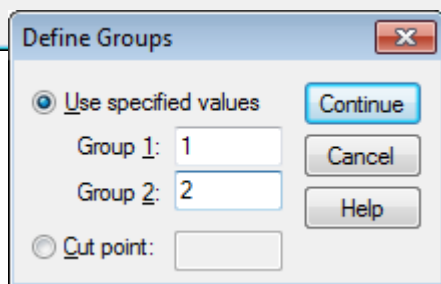
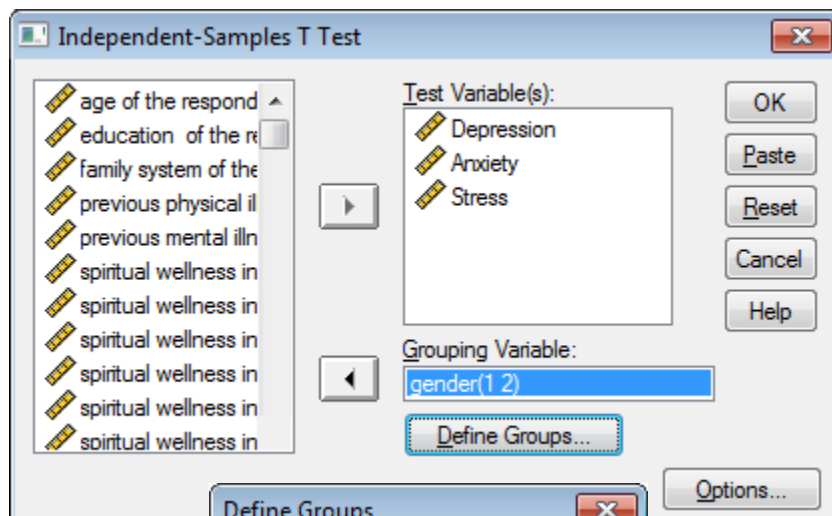
## Independent Sample $t$ Test

Test Variable(s)

Analyze → Compare Means → **Independent Sample  $t$  test**

Grouping Variable → Define Groups → Continue → OK

The screenshot displays the SPSS Data Editor interface. The 'Analyze' menu is open, and 'Independent-Samples T Test...' is selected. The 'Independent-Samples T Test' dialog box is in the foreground. In the 'Grouping Variable' field, 'gender' is selected. The 'Test Variable(s)' list contains: 'age of the respondent', 'education of the respondent', 'family system of the respondent', 'previous physical illness', 'previous mental illness', 'spiritual wellness in the past 12 months', 'spiritual wellness in the past 6 months', 'spiritual wellness in the past 3 months', and 'spiritual wellness in the past 1 month'. The 'Define Groups...' button is visible. The background data table shows columns for 'gender', 'age', and 'swi1' through 'swi12'.



**T-Test**

**Group Statistics**

	gender	N	Mean	Std. Deviation	Std. Error Mean
Depression	male	172	8.3953	7.52117	.57348
	female	128	11.7813	7.11097	.62853
Anxiety	male	172	9.4186	7.01621	.53498
	female	128	11.0313	6.06258	.53586
Stress	male	172	15.9535	8.31810	.63425
	female	128	22.5313	7.18697	.63524

**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
Depression	Equal variances assumed	1.702	.193	-3.947	298	.000	-3.38590	.85788	-5.07418	-1.69762
	Equal variances not assumed			-3.979	281.553	.000	-3.38590	.85084	-5.06072	-1.71108
Anxiety	Equal variances assumed	4.275	.040	-2.085	298	.038	-1.61265	.77354	-3.13494	-.09035
	Equal variances not assumed			-2.130	291.361	.034	-1.61265	.75720	-3.10292	-.12237
Stress	Equal variances assumed	1.317	.252	-7.173	298	.000	-6.57776	.91705	-8.38247	-4.77305
	Equal variances not assumed			-7.328	291.368	.000	-6.57776	.89767	-8.34450	-4.81103



## Cohen's *d*

Copy of Cohens\_d\_Effect\_Size\_Calculator\_for\_independent\_and\_paired\_samples.xlsx - Microsoft Excel (Product Activation Failed)

File Home Insert Page Layout Formulas Data Review View Add-Ins

Clipboard Font Alignment Number Conditional Formatting Styles Cells Editing

M16 Key

1 Cohen's *d* obtained using means, standard deviations, and sample sizes

2 *Note: These calculations are only appropriate for between-groups comparisons*

3

4 *Instructions: Enter the values in the grey cells below. Cohen's d will automatically appear here*

5

	Mean 1	SD 1	N 1	Mean 2	SD 2	N 2	d
7 Comparison 1							#DIV/0!
8 Comparison 2							#DIV/0!
9 Comparison 3							#DIV/0!
10 Comparison 4							#DIV/0!
11 Comparison 5							#DIV/0!
12 Comparison 6							#DIV/0!
13 Comparison 7							#DIV/0!
14 Comparison 8							#DIV/0!
15 Comparison 9							#DIV/0!
16 Comparison 10							#DIV/0!

17

18

19

Key	
0.2	Small
0.5	Medium
>0.8	Large

20 Cohen's *d* obtained using t-scores and degrees of freedom (df) from independent-samples *t*-tests

21

22 *Instructions: Enter the values in the grey cells below.*

23

Ready

Instructions Independent Samples Paired Samples

100%

## Cohen's d obtained using means, standard deviations, and sample sizes

Note: These calculations are only appropriate for between-groups comparisons

Instructions: Enter the values in the grey cells below.

Cohen's d will automatically appear here

	Mean 1	SD 1	N 1	Mean 2	SD 2	N 2	d
Comparison 1	9.42	7.02	172	11.03	6.06	128	-0.2437
Comparison 2	15.95	8.32	172	22.53	7.19	128	-0.8401
Comparison 3	8.4	7.52	172	11.78	7.11	128	-0.4615
Comparison 4							#DIV/0!
Comparison 5							#DIV/0!
Comparison 6							#DIV/0!

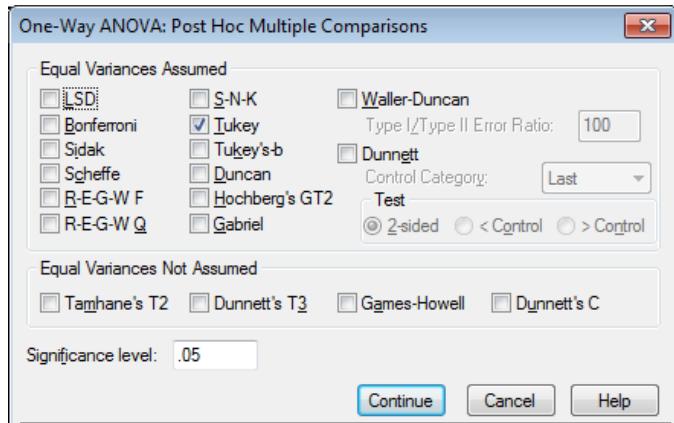
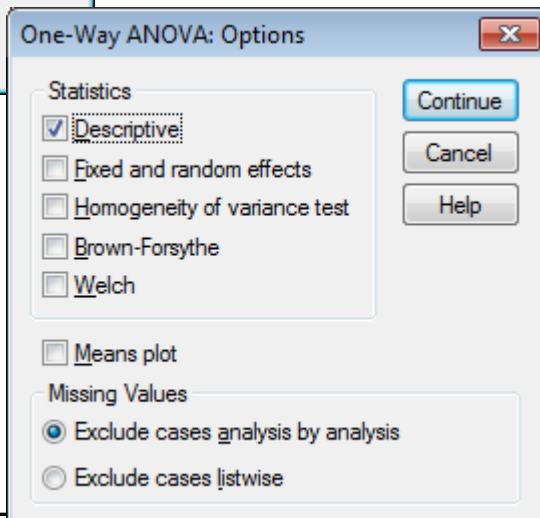
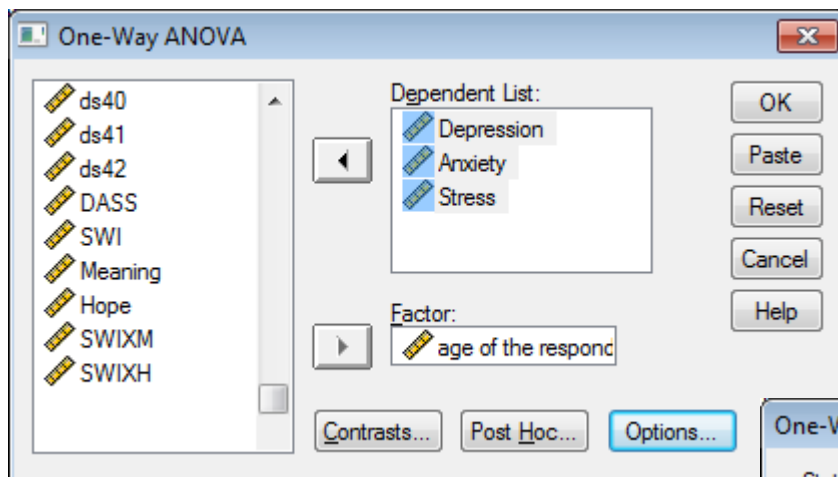
Table 4

Mean, standard deviation and *t*-values for female and male flood victims on depression, anxiety and stress ( $N = 300$ )

Variables	Female ( $n = 128$ )		Male ( $n = 172$ )		<i>t</i> (298)	<i>p</i>	95% CI		Cohen's <i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			<i>LL</i>	<i>UL</i>	
Depression	11.78	7.11	8.39	7.52	3.94	.000	5.07	1.69	.46
Anxiety	11.03	6.06	9.41	7.01	2.09	.038	3.13	.09	.25
Stress	22.53	7.19	15.95	8.31	7.17	.000	8.38	4.77	.85

Table 3 shows mean, standard deviation and *t*-values for male and female students on depression, anxiety and stress. Results indicate significant mean differences on depression with  $t(298) = 3.94$ ,  $p < .001$ . The findings show that female victims significantly scored high on depression ( $M = 11.78$ ,  $p < .001$ ) as compared to male victims ( $M = 8.39$ ,  $p < .001$ ). Results indicate significant mean differences on anxiety with  $t(298) = 2.09$ ,  $p < .05$ . The findings show that female students ( $M = 11.03$ ,  $p < .05$ ) significantly scored higher on anxiety as compared to





		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Depression	F.A	32	7.0000	6.07480	1.07388	4.8098	9.1902	2.00	22.00
	B.A	52	8.3846	5.80113	.80447	6.7696	9.9997	1.00	20.00
	M.A	216	10.6111	7.94731	.54075	9.5453	11.6770	1.00	34.00
	Total	300	9.8400	7.52617	.43452	8.9849	10.6951	1.00	34.00
Anxiety	F.A	32	9.8750	4.29366	.75902	8.3270	11.4230	2.00	15.00
	B.A	52	8.8462	7.07213	.98073	6.8773	10.8150	.00	24.00
	M.A	216	10.4444	6.83538	.46509	9.5277	11.3612	.00	30.00
	Total	300	10.1067	6.66358	.38472	9.3496	10.8638	.00	30.00
Stress	F.A	32	18.6250	8.15871	1.44227	15.6835	21.5665	7.00	32.00
	B.A	52	14.9231	8.28380	1.14876	12.6169	17.2293	3.00	38.00
	M.A	216	19.7037	8.36522	.56918	18.5818	20.8256	3.00	39.00
	Total	300	18.7600	8.49291	.49034	17.7950	19.7250	3.00	39.00

## ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Depression	Between Groups	496.679	2	248.339	4.487	.012
	Within Groups	16439.641	297	55.352		
	Total	16936.320	299			
Anxiety	Between Groups	108.984	2	54.492	1.229	.294
	Within Groups	13167.603	297	44.335		
	Total	13276.587	299			
Stress	Between Groups	958.491	2	479.245	6.907	.001
	Within Groups	20608.229	297	69.388		
	Total	21566.720	299			

## Post Hoc Tests

## Multiple Comparisons

Tukey HSD

Dependent Variable	(I) education of the respondent	(J) education of the respondent	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Depression	F.A	B.A	-1.38462	1.66060	.838	-5.6751	2.9059
		M.A	-3.88235*	1.40530	.031	-7.5132	-.2515
		M.phil	1.00000	2.50186	.978	-5.4640	7.4640
	B.A	F.A	1.38462	1.66060	.838	-2.9059	5.6751
		M.A	-2.49774	1.14817	.133	-5.4642	.4688
		M.phil	2.38462	2.36701	.745	-3.7310	8.5002
	M.A	F.A	3.88235*	1.40530	.031	.2515	7.5132
		B.A	2.49774	1.14817	.133	-.4688	5.4642
		M.phil	4.88235	2.19545	.119	-.7900	10.5547
	M.phil	F.A	-1.00000	2.50186	.978	-7.4640	5.4640
		B.A	-2.38462	2.36701	.745	-8.5002	3.7310
		M.A	-4.88235	2.19545	.119	-10.5547	.7900
Anxiety	F.A	B.A	1.02885	1.47130	.897	-2.7725	4.8302
		M.A	-.92892	1.24510	.878	-4.1459	2.2880
		M.phil	5.54167	2.21666	.062	-.1855	11.2688
	B.A	F.A	-1.02885	1.47130	.897	-4.8302	2.7725
		M.A	-1.95777	1.01728	.220	-4.5861	.6706
		M.phil	4.51282	2.09718	.139	-.9056	9.9313
	M.A	F.A	.92892	1.24510	.878	-2.2880	4.1459

Stress	18.63	8.16	14.92	8.28	19.70	8.37	6.91	.001	1>2<3
--------	-------	------	-------	------	-------	------	------	------	-------

Table 4 shows mean, standard deviation and  $F$ -values for students belonging to four education levelson depression, anxiety and stress. The findings indicate significant mean differences on depression among students with  $F(2, 297) = 4.49, p < .05$ . The findings indicate that students belonging to MA ( $M = 10.61, p < .05$ ) significantly scored higher on depression as compared to students belonging to BA ( $M = 8.38, p < .05$ ) and FA ( $M = 7.00, p < .05$ ).The findings indicate significant mean differences on stress among students with  $F(2, 297) = 4.49, p < .01$ . The findings indicate that students belonging to MA ( $M = 19.70, p < .01$ ) significantly scored higher on stress as compared to students belonging to FA ( $M = 18.63, p < .01$ ) and BA ( $M = 14.92, p < .01$ ).Findings are non-significant on anxiety with  $F(2, 297) = 1.23, p > .05$ .

## Homogeneous Subsets

### Depression

Tukey HSD<sup>a,b</sup>

education of the respondent	N	Subset for alpha = .05
		1
M.phil	12	6.0000
F.A	32	7.0000
B.A	52	8.3846
M.A	204	10.8824
Sig.		.061

Means for groups in homogeneous subsets are displayed.

- Uses Harmonic Mean Sample Size = 28.836.
- The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

**Anxiety**Tukey HSD<sup>a,b</sup>

education of the respondent	N	Subset for alpha = .05	
		1	2
M.phil	12	4.3333	
B.A	52		8.8462
F.A	32		9.8750
M.A	204		10.8039
Sig.		1.000	.668

Means for groups in homogeneous subsets are displayed.

- Uses Harmonic Mean Sample Size = 28.836.
- The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

**Stress**Tukey HSD<sup>a,b</sup>

education of the respondent	N	Subset for alpha = .05	
		1	2
M.phil	12	10.6667	
B.A	52	14.9231	14.9231
F.A	32		18.6250
M.A	204		20.2353
Sig.		.195	.065

Means for groups in homogeneous subsets are displayed.

- Uses Harmonic Mean Sample Size = 28.836.
- The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.

**Univariate Analysis of Variance**

Analyze → General Linear Model → **Univariate** }  
 Dependent Variable }  
 Fixed Factor(s) }  
 Options → Descriptive statistics ✓ → Continue  OK

\*Final Data for Moderation.sav [DataSet1] - SPSS Data Editor

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

284 : famlsys

gender	age	ment_ill	sw1	sw2	sw3	sw4	sw5	sw6	sw7	sw8	sw9	sw10	sw11	sw12
208	2.00	19	3	4	1	4	2	4	1	4	2	3	3	3
209	2.00	19	3	3	2	4	4	2	1	4	2	2	3	4
210	1.00	25	3	4	2	4	2	4	2	4	1	4	3	4
211	1.00	20	3	1	3	4	2	2	2	3	2	2	2	3
212	2.00	19	3	1	4	4	1	1	4	1	1	1	1	4
213	2.00	20	3	4	2	4	2	4	2	4	2	4	2	4
214	2.00	18	3	4	2	4	2	4	2	4	2	4	2	4
215	2.00	19	3	4	2	4	2	4	2	4	2	4	2	4
216	2.00	20	3	4	2	4	2	4	2	4	2	4	2	4
217	1.00	20	3	4	2	4	2	4	2	4	2	4	2	4
218	1.00	22	3	4	2	4	2	4	2	4	2	4	2	4
219	1.00	22	3	4	2	4	2	4	2	4	2	4	2	4
220	1.00	21	3	4	2	4	2	4	2	4	2	4	2	4
221	1.00	22	3	4	2	4	2	4	2	4	2	4	2	4
222	1.00	26	3	4	2	4	2	4	2	4	2	4	2	4
223	1.00	27	3	4	2	4	2	4	2	4	2	4	2	4
224	1.00	21	3	4	2	4	2	4	2	4	2	4	2	4
225	1.00	32	2	4	2	4	2	4	2	4	2	4	2	4
226	1.00	24	2	4	2	4	2	4	2	4	2	4	2	4
227	1.00	21	1	4	2	4	2	4	2	4	2	4	2	4
228	1.00	19	1	4	2	4	2	4	2	4	2	4	2	4
229	1.00	19	1	2	2	1	2	1	2	1	2	1	2	1
230	1.00	21	1	2	2	2	2	4	4	4	4	4	4	4
231	1.00	21	1	2	2	2	2	4	4	4	4	4	4	4
232	1.00	21	2	2	2	2	2	4	4	4	4	4	4	4
233	1.00	23	2	1	2	2	2	4	3	3	3	3	3	3
234	1.00	21	2	2	1	1	1	3	2	2	2	2	2	2
235	1.00	20	2	1	2	2	2	4	2	2	2	2	2	2
236	1.00	23	3	2	2	2	2	4	3	3	3	3	3	3
237	1.00	19	1	1	2	2	2	4	3	3	3	3	3	3

General Factorial

Univariate

Dependent Variable: Anxiety

Fixed Factor(s): gender, family system of the

Random Factor(s):

Covariate(s):

WLS Weight:

OK Paste Reset Cancel Help

Univariate: Options

Estimated Marginal Means

Factor(s) and Factor Interactions: (OVERALL), gender, famlsys, gender\*famlsys

Display Means for:

Compare main effects

Confidence interval adjustment: LSD (none)

Display

Descriptive statistics  Homogeneity tests

Estimates of effect size  Spread vs. level plot

Observed power  Residual plot

Parameter estimates  Lack of fit

Contrast coefficient matrix  General estimable function

Significance level: .05 Confidence intervals are 95%

Continue Cancel Help



**Between-Subjects Factors**

		Value Label	N
gender	1.00	male	172
	2.00	female	128
family system of the respondent	1	nuclear	176
	2	joint	124

**Descriptive Statistics**

Dependent Variable: Anxiety

gender	family system of	Mean	Std. Deviation	N
male	nuclear	8.6957	6.53938	92
	joint	10.2500	7.48247	80
Total		9.4186	7.01621	172
female	nuclear	10.3810	5.45276	84
	joint	12.2727	6.98291	44
Total		11.0313	6.06258	128
Total	nuclear	9.5000	6.08699	176
	joint	10.9677	7.34508	124
Total		10.1067	6.66358	300

**Tests of Between-Subjects Effects**

Dependent Variable: Anxiety

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	397.572 <sup>a</sup>	3	132.524	3.046	.029
Intercept	29835.460	1	29835.460	685.712	.000
gender	237.053	1	237.053	5.448	.020
famlysys	204.749	1	204.749	4.706	.031
gender * famlysys	1.963	1	1.963	.045	.832
Error	12879.015	296	43.510		
Total	43920.000	300			
Corrected Total	13276.587	299			

a. R Squared = .030 (Adjusted R Squared = .020)

Table 6

*Effect of gender and family system on anxiety (N = 300)*

Source	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>
Corrected Model	397.57	3	132.52	3.05	.029
Intercept	29835.46	1	29835.46	685.71	.000
Gender	237.05	1	237.05	5.45	.020
Family system	204.75	1	204.75	4.71	.031
Gender x family system	1.96	1	1.96	.05	.832
Error	12879.02	296	43.51		
Total	43920.00	300			
Corrected Total	13276.59	299			

Table 5 shows effect of gender and family system on anxiety. The findings indicate that gender with  $F(1, 299) = 5.45, p < .05$  and family system with  $F(1, 299) = 54.71, p < .05$  has significant effect on anxiety. The findings are non-significant on gender x family system with  $F(1, 299) = 0.05, p > .05$ .

*Figure 1.* Mean differences among students on anxiety

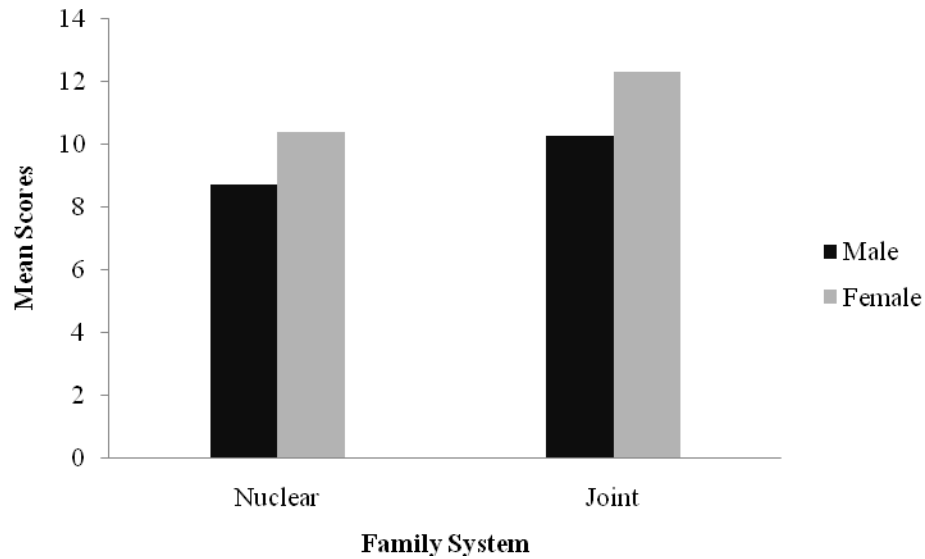
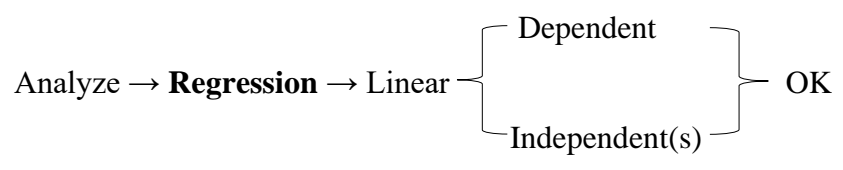


Figure 1 shows mean scores of male and female students belonging to nuclear and joint family system. Female students from nuclear family system ( $M = 10.38, p < 05$ ) significantly scored higher on anxiety as compared to male students from nuclear family system ( $M = 8.70, p < 05$ ). Female students from joint family system ( $M = 12.27, p < 05$ ) significantly scored higher on anxiety as compared to male students from joint family system ( $M = 10.25, p < 05$ ).

## Regression



The screenshot shows the SPSS Data Editor window with a data table and the Linear Regression dialog box open. The data table has columns for 'gender', 'age', and 12 'swi' variables. The dialog box shows 'gender' as the dependent variable and 'age of the respondent' as the independent variable.

gender	age	swi1	swi2	swi3	swi4	swi5	swi6	swi7	swi8	swi9	swi10	swi11	swi12	
208	2.00	19	3	4	1	4	2	4	1	4	2	3	3	3
209	2.00	19	3	4	1	4	3	4	2	4	2	2	3	4
210	1.00	25	3	4	3	4	4	2	4	2	4	1	4	3
211	1.00	20	3	4	4	4	1	3	4	2	3	2	2	3
212	2.00	19	3	4	4	1	4	1	4	1	1	1	1	4

This screenshot shows the Linear Regression dialog box with 'Hope' as the dependent variable and 'Depression', 'Anxiety', and 'Stress' as independent variables. The 'Method' is set to 'Enter'.

**Variables Entered/Removed<sup>d</sup>**

Model	Variables Entered	Variables Removed	Method
1	Stress, Depression, Anxiety	.	Enter

a. All requested variables entered.

b. Dependent Variable: Hope

**Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.515 <sup>a</sup>	.265	.258	1.79937

a. Predictors: (Constant), Stress, Depression, Anxiety

**ANOVA<sup>b</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	345.632	3	115.211	35.584	.000 <sup>a</sup>
	Residual	958.368	296	3.238		
	Total	1304.000	299			

a. Predictors: (Constant), Stress, Depression, Anxiety

b. Dependent Variable: Hope

**Coefficients<sup>a</sup>**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	17.151	.255		67.375	.000
	Depression	-.108	.019	-.388	-5.628	.000
	Anxiety	.015	.027	.048	.548	.584
	Stress	-.056	.019	-.226	-2.869	.004

a. Dependent Variable: Hope

Table 7

*Multiple Regression analysis showing the effect of depression, anxiety and stress on the prediction of hope among students (N = 300)*

Variables	$\Delta R^2$	$\beta$
Depression	.258	-.39**
Anxiety		.05
Stress		-.23*

\* $p < .01$ , \*\* $p < .001$

Multiple Regression analysis is computed with depression, anxiety and stress as predictor variables and hope as outcome variable. The  $\Delta R^2$  value of .258 indicates that 25.8% variance in the dependent variable can be accounted for, by the predictors with  $F(3, 296) = 35.38$ ,  $p < .001$ . The findings indicate that depression ( $\beta = -.39$ ,  $p < .001$ ) and stress has significant negative effect on hope among students ( $\beta = -.23$ ,  $p < .01$ ). Findings are non-significant on anxiety ( $\beta = .05$ ,  $p > .05$ ).

Analyze → Descriptive statistics → **Frequencies** → Variable(s) → OK

Analyze → Descriptive statistics → **Descriptive** → Variable(s) → Options { Kurtosis  Skewness  } Continue → OK

Analyze → Scale → **Reliability Analysis** { Items Scale Label } OK

Analyze → **Correlate** → Bivariate → Variables → OK

Test Variable(s)

Analyze → Compare Means → **Independent Sample t test** { Grouping Variable → Define Groups → Continue → OK }

Analyze → Compare Means → **One Way ANOVA** { Dependent list Factor } Options → Descriptive  → Continue → OK

Analyze → General Linear Model → **Univariate** { Dependent Variable Fixed Factor(s) } Options → Descriptive statistics  → Continue → OK

Analyze → **Regression** → Linear { Dependent Independent(s) } OK

Transform → **Compute variable** → Target variable = Numeric expression → OK

Transform → **Recode into same variable** → Variables → Old and new values → Range → Continue → OK

Transform → **Recode into different variable** → Variables → Old and new values → Continue → OK

Transform → **Replace missing values** → New variables → Series mean / Mean of nearby points → Continue → OK

Data → **Merge files** → Add cases / add variables → Browse → Open → Continue → OK

Data → **Split files** → Organize output by groups → OK