



MENGGUNAKAN SPSS

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When SPSS, Inc., an IBM Company, was conceived in 1968, it stood for *Statistical Package for Social Sciences*. Since the company's purchase by IBM in 2009,

IBM has decided to simply use the name SPSS to describe its core product of predictive analytics. IBM describes predictive analytics as tools that *help connect data to effective action by drawing reliable conclusions about current conditions and future events*.

SPSS is an integrated system of computer programs designed for the analysis of social sciences data. It is one of the most popular of the many statistical packages currently available for statistical analysis. Its popularity stems from the fact that the program:

- Allows for a great deal of flexibility in the format of data
- Provides the user with a comprehensive set of procedures for data transformation and file manipulation
- Offers the researcher a large number of statistical analyses commonly used in social sciences

CASE

Suppose a survey has been conducted to investigate the extent to which Thais agree with increases in government spending in the three areas of defense, social security, and childcare services.

SURVEY

Survey Questionnaire

a. Gender 1. ____ Male 2. ____ Female

b. Age ____ (in years)

c. The following three statements relate to increases in government spending in the areas of defense, social security, and childcare services. Please consider these three statements carefully and then decide your level of agreement with the government's decision to increase spending. Please indicate your level of agreement by circling the number on each six-point scale.

i. Increased spending on defense

1 ____	2 ____	3 ____	4 ____	5 ____	6 ____
Strongly	Moderately	Barely	Barely	Moderately	Strongly
Disagree	Disagree	Disagree	Agree	Agree	Agree

ii. Increased spending on social security

1 ____	2 ____	3 ____	4 ____	5 ____	6 ____
Strongly	Moderately	Barely	Barely	Moderately	Strongly
Disagree	Disagree	Disagree	Agree	Agree	Agree

iii. Increased spending on childcare services

1 ____	2 ____	3 ____	4 ____	5 ____	6 ____
Strongly	Moderately	Barely	Barely	Moderately	Strongly
Disagree	Disagree	Disagree	Agree	Agree	Agree

Prior to data entry, it will be useful to prepare a codebook that contains the names of the variables in the questionnaire, their corresponding SPSS variable names, and their coding instructions.

An important purpose of such a codebook is to allow the researcher to keep track of all the variables in the survey questionnaire and the way they are defined in the SPSS data file

CODEBOOK

Codebook

Variable	SPSS Variable Name	Code
Gender	Gender	1 = male 2 = female
Age	Age	Age in years
Defense	Defense	1 = Strongly Disagree 2 = Moderately Disagree 3 = Barely Disagree 4 = Barely Agree 5 = Moderately Agree 6 = Strongly Agree
Social Security	Social	1 = Strongly Disagree 2 = Moderately Disagree 3 = Barely Disagree 4 = Barely Agree 5 = Moderately Agree 6 = Strongly Agree
Childcare Services	Child	1 = Strongly Disagree 2 = Moderately Disagree 3 = Barely Disagree 4 = Barely Agree 5 = Moderately Agree 6 = Strongly Agree

DATA

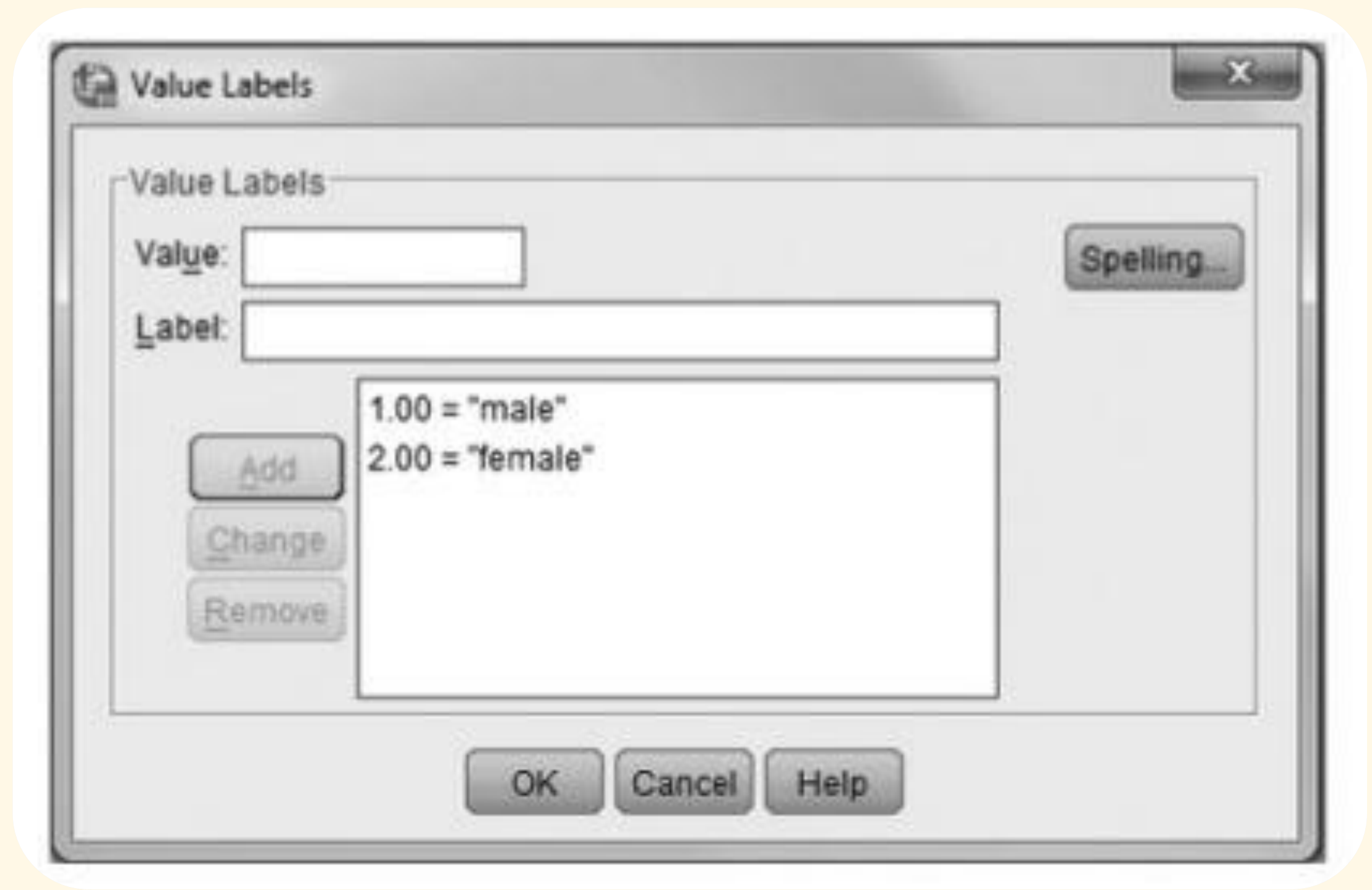
Raw Data

Gender	Age	Defense	Social	Child
1	24	4	2	1
1	18	5	1	4
2	33	2	5	6
1	29	5	3	4
2	26	3	5	5
2	19	2	5	2
1	36	4	4	3
2	34	3	6	6
1	20	3	5	1
2	21	2	5	3

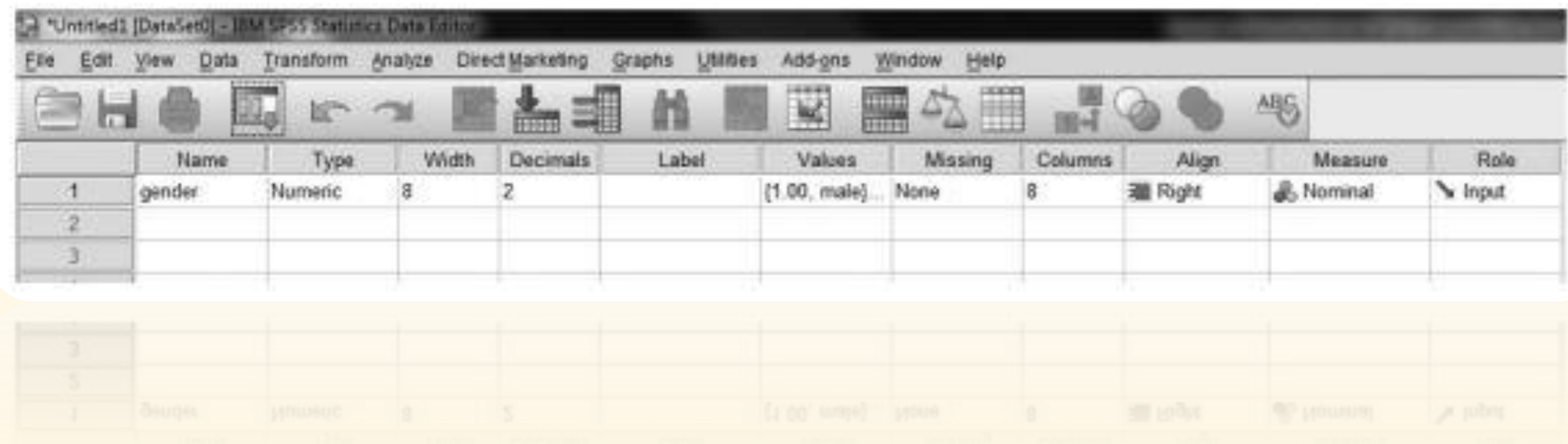
ENTRY

For example, the first variable is named GENDER and is coded 1 = male and 2 = female.

Thus, in the first cell under **Name** in the **Data Editor** screen, type in the name GENDER. To assign the coded values (1 = male, 2 = female) to this variable, click the corresponding cell under **Values** in the **Data Editor** screen. Click the shaded area to open the following **Value Labels** window.



Next, click to complete the coding for the GENDER variable and to return to the **Untitled1 [DataSet0]—IBM SPSS Statistics Data Editor** screen below.



The screenshot shows the IBM SPSS Statistics Data Editor window. The title bar reads "Untitled1 [DataSet0] - IBM SPSS Statistics Data Editor". The menu bar includes File, Edit, View, Data, Transform, Analyze, Direct Marketing, Graphs, Utilities, Add-ons, Window, and Help. The toolbar contains various icons for file operations, data manipulation, and analysis. Below the toolbar is a table with columns: Name, Type, Width, Decimals, Label, Values, Missing, Columns, Align, Measure, and Role. The first row of the table is for the variable "gender", which is of type "Numeric" with a width of 8 and 2 decimal places. The "Values" column shows "[1.00, male]...", "Missing" is "None", "Columns" is 8, "Align" is "Right", "Measure" is "Nominal", and "Role" is "Input".

	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure	Role
1	gender	Numeric	8	2		[1.00, male]...	None	8	Right	Nominal	Input
2											
3											

Repeat the above coding procedure for the rest of variables in the codebook. **Please note that the AGE variable is a *continuous* variable and therefore has no coded values**

Untitled1 (Data View) - IBM SPSS Statistics Data Editor

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

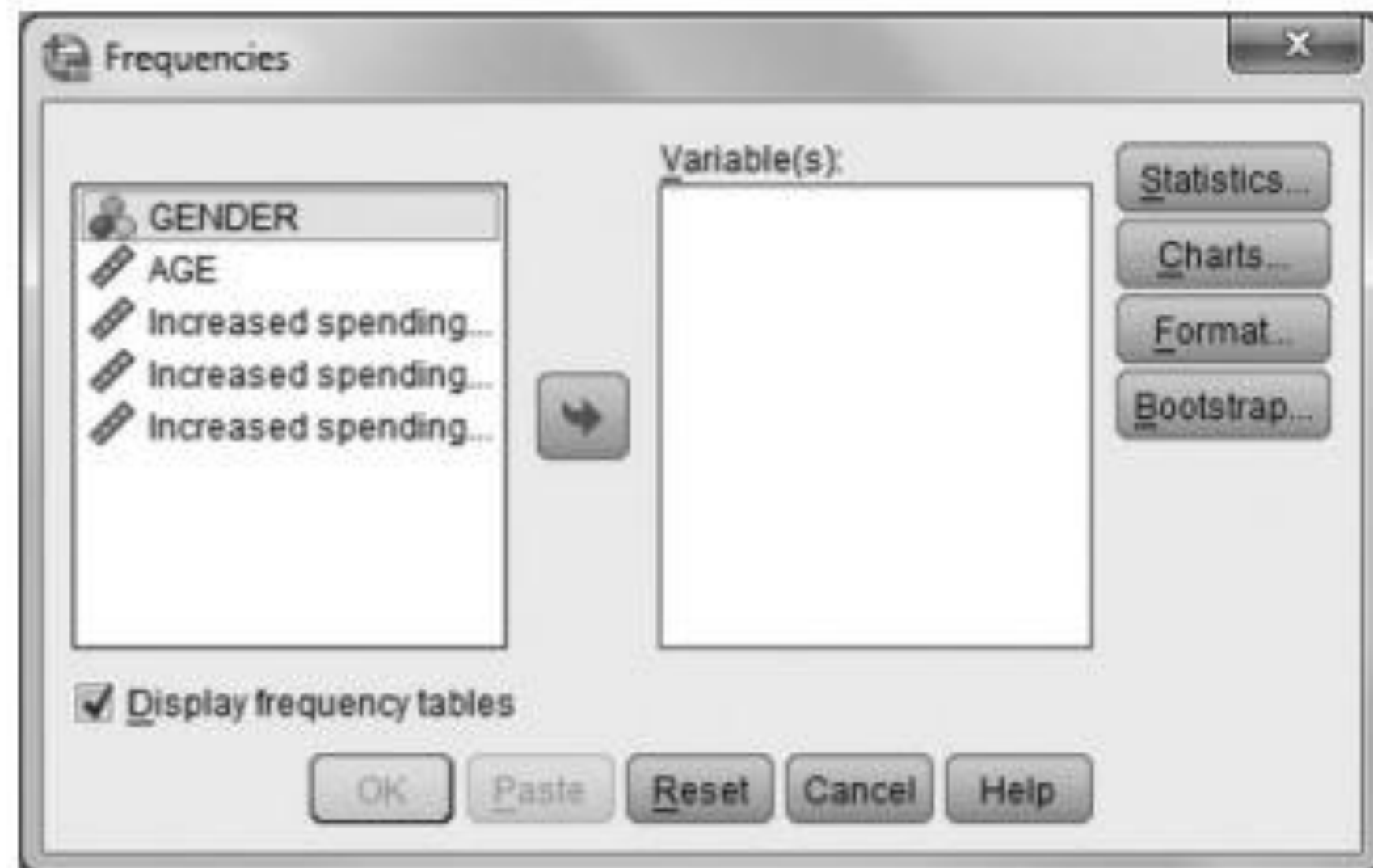



	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Align	Measure	Role
1	GENDER	Numeric	8	2		{1.00, male}...	None	8	Right	Nominal	Input
2	AGE	Numeric	8	2		None	None	8	Right	Scale	Input
3	DEFENCE	Numeric	8	2	Increased spending on defence	{1.00, stron...	None	8	Right	Scale	Input
4	SOCIAL	Numeric	8	2	Increased spending on social security	{1.00, stron...	None	8	Right	Scale	Input
5	CHILD	Numeric	8	2	Increased spending on child-care services	{1.00, stron...	None	8	Right	Scale	Input
6											
7											
8	CHILD	Numeric	8	2	Increased spending on child-care services	{1.00, stron...	None	8	Right	Scale	Input
9	SOCIAL	Numeric	8	2	Increased spending on social security	{1.00, stron...	None	8	Right	Scale	Input

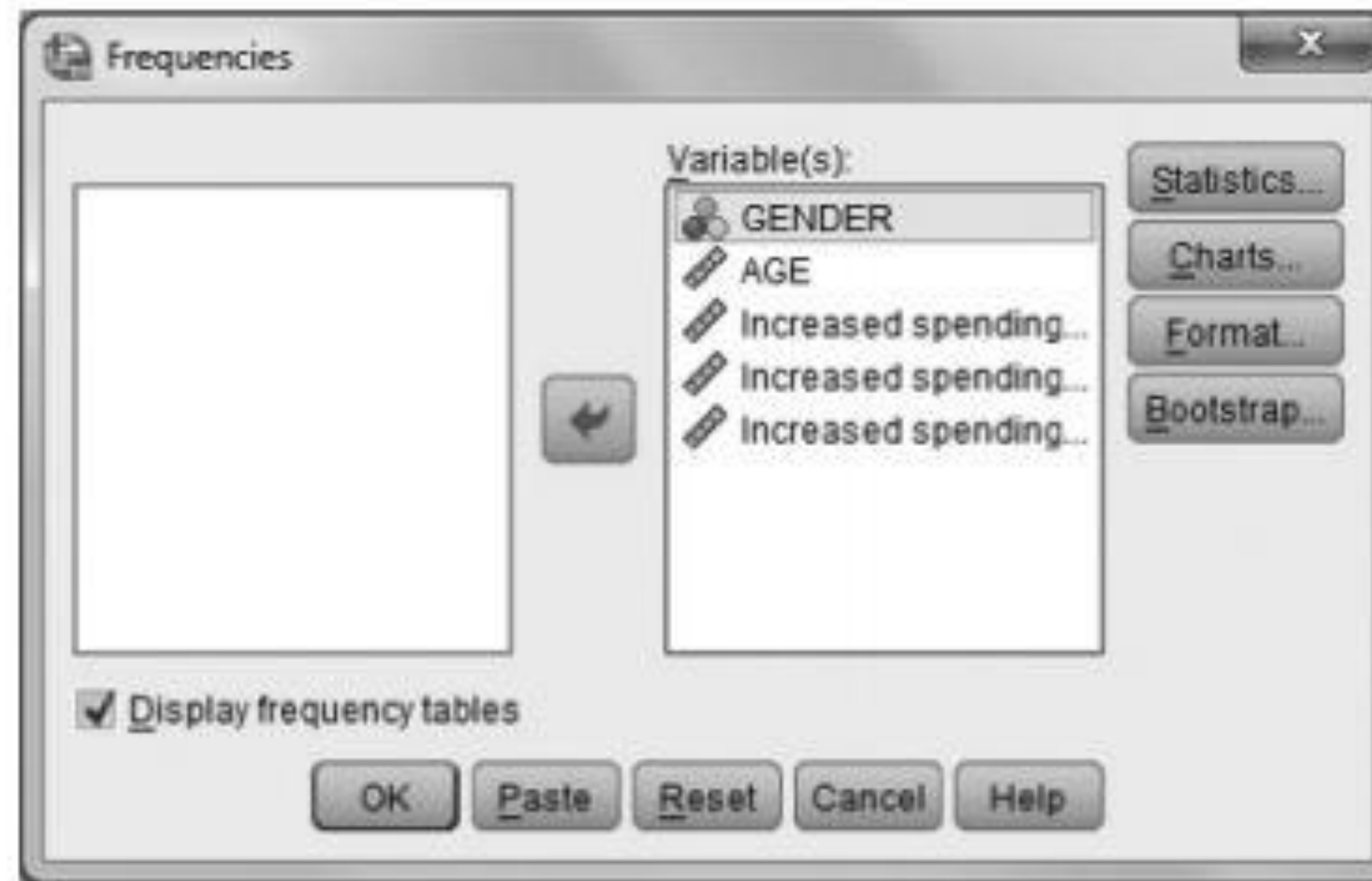
The data can only be entered via the **Data View** screen. Switch the present **Variable View** to **Data View** by clicking the **Data View** tab at the bottom left-hand corner of the screen.

In the **Data View** screen, the rows represent the respondents, and the columns represent the variables

1. From the menu bar, click **Analyze**, then **Descriptive Statistics**, and then **Frequencies**. The following **Frequencies** window will open.

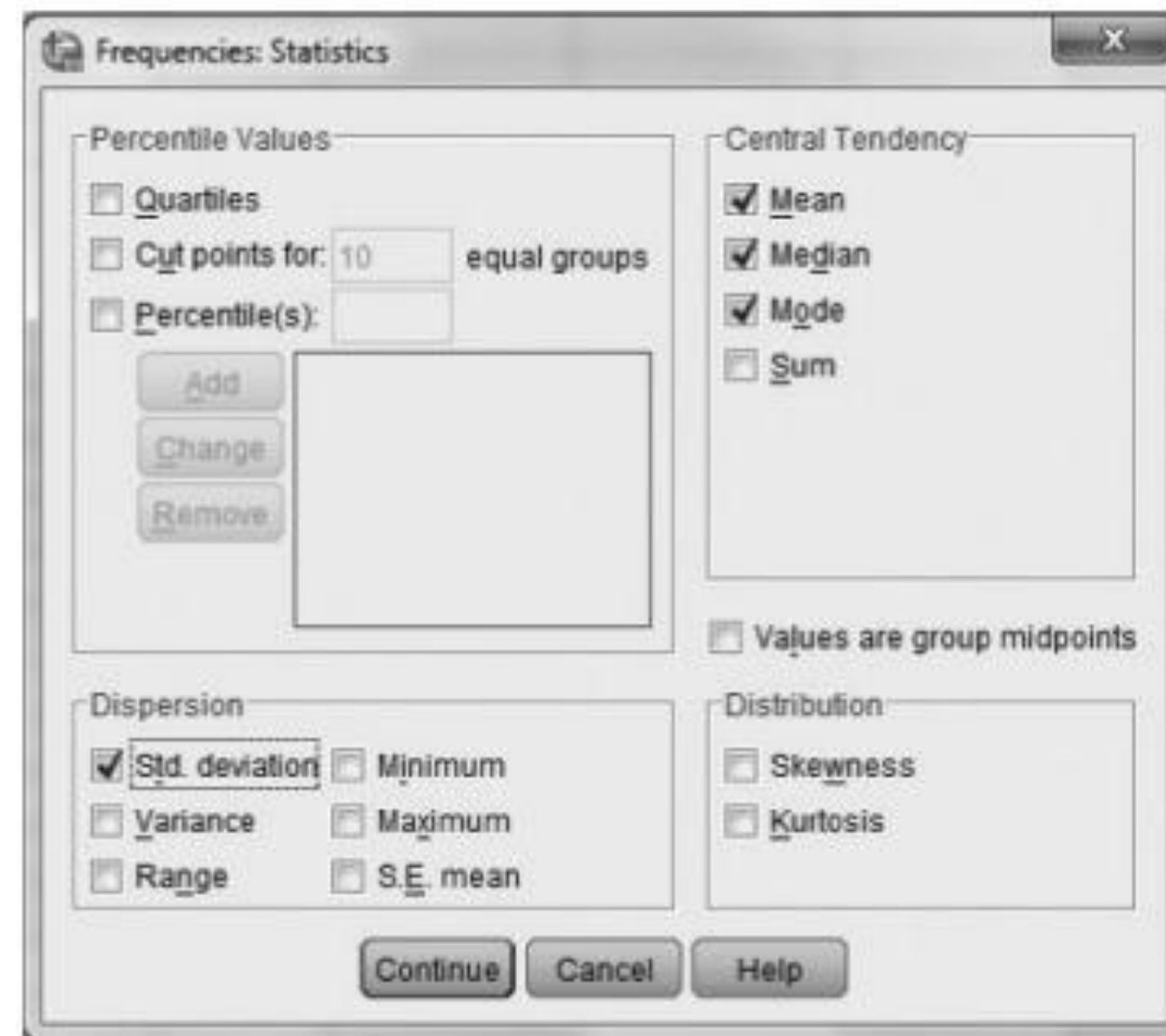


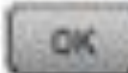
2. In the left-hand field containing the study's five variables, click (highlight) these variables, and then click  to transfer the selected variables to the **Variable(s):** field.

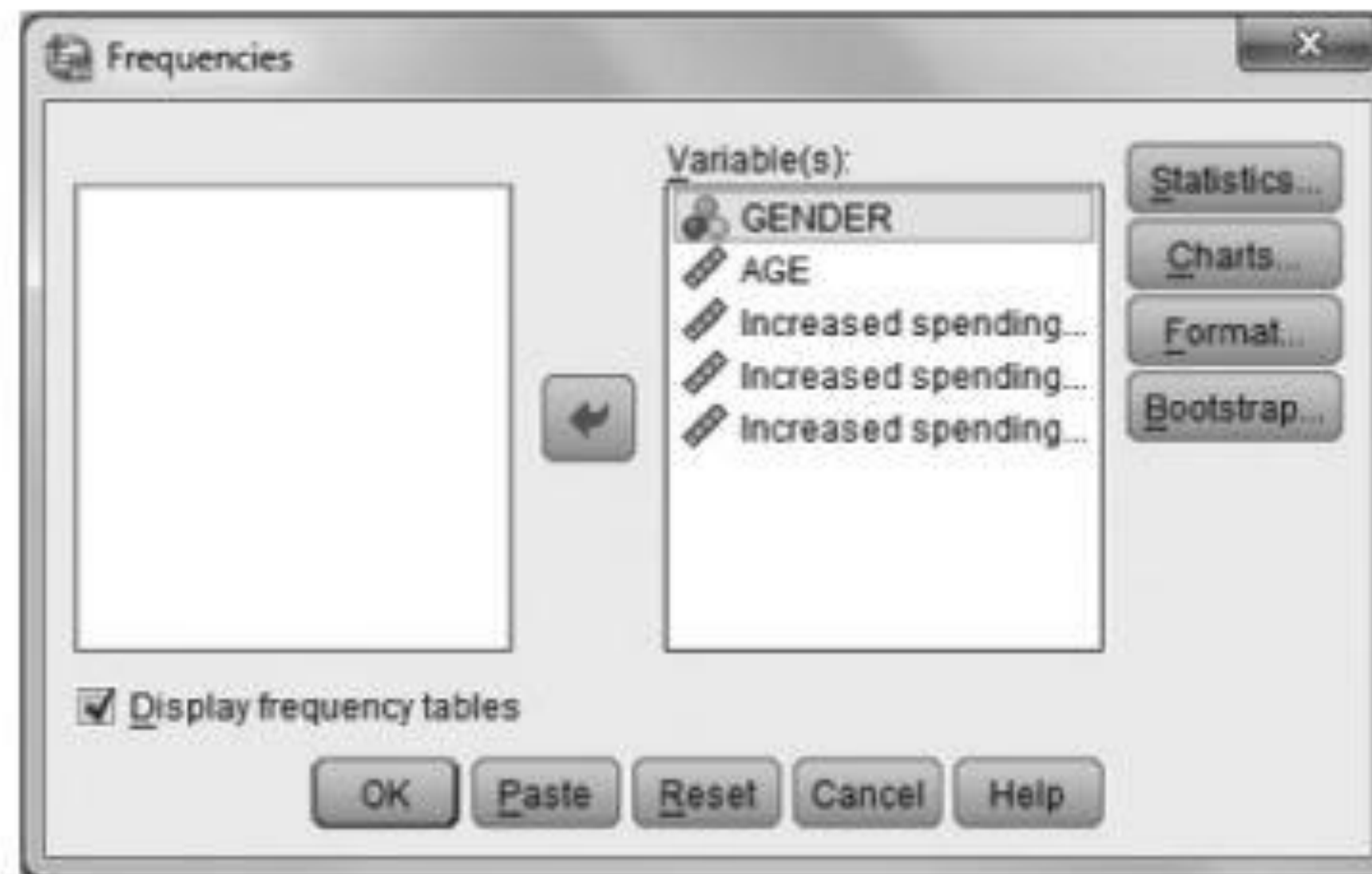


3. Click **Statistics...** to open the **Frequencies: Statistics** window below. Suppose the researcher is only interested in obtaining statistics for the **Mean, Median, Mode, and Standard Deviation** for the five variables. In the **Frequencies: Statistics** window, check the fields related to these statistics.

Next click **Continue**.



4. When the **Frequencies** window opens, run the analysis by clicking . See Table 2.4 for the results.



Frequencies Output

		Frequencies				
		Statistics				
		Gender	Age	Increased Spending on Defence	Increased Spending on Social Security	Increased Spending on Childcare Services
N	Valid	10	10	10	10	10
	Missing	0	0	0	0	0
Mean		1.5000	26.0000	3.3000	4.1000	3.5000
Median		1.5000	25.0000	3.0000	5.0000	3.5000
Mode		1.00 ^a	18.00 ^a	2.00 ^a	5.00	1.00 ^a
Std. Deviation		.52705	6.66667	1.15950	1.59513	1.84089

^a Multiple modes exist. The smallest value is shown.

^a Multiple modes exist. The smallest value is shown.

Std. Deviation	.52705	6.66667	1.15950	1.59513	1.84089
Mode	1.00 ^a	18.00 ^a	2.00 ^a	5.00	1.00 ^a

Frequency Table

		Gender			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	5	50.0	50.0	50.0
	Female	5	50.0	50.0	100.0
	Total	10	100.0	100.0	

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18.00	1	10.0	10.0	10.0
	19.00	1	10.0	10.0	20.0
	20.00	1	10.0	10.0	30.0
	21.00	1	10.0	10.0	40.0
	24.00	1	10.0	10.0	50.0
	26.00	1	10.0	10.0	60.0
	29.00	1	10.0	10.0	70.0
	33.00	1	10.0	10.0	80.0
	34.00	1	10.0	10.0	90.0
	36.00	1	10.0	10.0	100.0
	Total	10	100.0	100.0	

(Continued)

(Continued)

TABLE 2.4 (Continued)

Frequencies Output

		Increased Spending on Defense			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	moderately disagree	3	30.0	30.0	30.0
	barely disagree	3	30.0	30.0	60.0
	barely agree	2	20.0	20.0	80.0
	moderately agree	2	20.0	20.0	100.0
	Total	10	100.0	100.0	

		Increased Spending on Social Security			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly disagree	1	10.0	10.0	10.0
	moderately disagree	1	10.0	10.0	20.0
	barely disagree	1	10.0	10.0	30.0
	barely agree	1	10.0	10.0	40.0
	moderately agree	5	50.0	50.0	90.0
	strongly agree	1	10.0	10.0	100.0
	Total	10	100.0	100.0	

Increased Spending on Childcare Services

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly disagree	2	20.0	20.0	20.0
	moderately disagree	1	10.0	10.0	30.0
	barely disagree	2	20.0	20.0	50.0
	barely agree	2	20.0	20.0	70.0
	moderately agree	1	10.0	10.0	80.0
	strongly agree	2	20.0	20.0	100.0
	Total	10	100.0	100.0	

Total

10

100.0

100.0

strongly disagree

2

20.0

20.0

20.0

The **Statistics** table presents the requested mean, median, mode, and standard deviation (SD) statistics for the five variables. The **Gender** variable is a nominal (categorical) variable and as such, its mean, median, and standard deviation statistics are not meaningful.

The remaining four variables of **Age**, **Defense**, **Social**, and **Child** are measured at least at the ordinal level (i.e., they are continuous variables), and as such their mean, median, and standard deviation statistics can be interpreted

The results presented in the **Statistics** table show that the 10 respondents in the survey have a mean age of 26 years and a median age of 25 years. Since there is no one age that occurs more frequently than others, SPSS presents the lowest age value of 18 as the mode.

For the three variables of “support for increased spending” on defense, social security, and childcare services, the results show that support for increased spending for social security is the highest (mean = 4.10; median = 5.00), followed by childcare services (mean = 3.50; median = 3.50), and defense (mean = 3.30; median = 3.00). The results also show that the variables of Defense and Child have multiple modes, and as such, SPSS has presented their lowest values (defense: mode = 2.00; child: mode = 1.00). The Social variable has a single mode of 5.00.

For the Age variable, the standard deviation shows that its average deviation (dispersion) from the mean is 6.66 years. For the Defense, Social, and Child variables, the results show that support for increased spending on childcare services has the largest average variation ($SD = 1.84$) from its mean score.

The standard deviation scores for support for increased spending for defense ($SD = 1.59$) and social security ($SD = 1.59$) are similar.

The **frequency** table presents the breakdown of the frequency distributions for the five variables (Gender, Age, Defense, Social, Child).

For each variable, the frequency table presents (1) the **frequency** of occurrence for each value within that variable, (2) the frequency for each value expressed as a **percentage** of the total sample, (3) the **valid percentage** for each value, controlling for missing cases, and (4) the **cumulative percentage** for each succeeding value within that variable.

For example, the Frequency table for the Gender variable shows that there are five males and five females in the sample, and that these two groups represent 50% each of the total sample.

Since there are no missing cases, the valid percentage values are identical to the percentage values. *If there are missing cases, then the valid percentage values should be interpreted.*

The cumulative percentage presents the percentage of scores falling at or below each score. Thus, for the sample of 10 respondents, the five males in the sample represent 50% of the sample, and the additional five females represent a cumulative percentage of 100%.

The frequency tables for the Age, Defense, Social, and Child variables are interpreted in exactly the same way.

Thank You!

Any Questions?