STATISTIKA PENELITIAN

Bidang statistik deskriptif dan mengenal software SPSS

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Null Hypothesis (H_0)—It is the presumption that is accepted as correct unless there is strong evidence against it.

Alternative Hypothesis (H_1)—It is accepted when H_0 is rejected.

SPSS

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***

BASIC CONCEPT

Measures of central tendency provide information about a representative value of the data set. Arithmetic mean (simply called the mean), median, and mode are the most common measures of central tendency.

1. **Mean** or average is the sum of the values of a variable divided by the number of observations.
2. **Median** is a point in the data set above and below which half of the cases fall.
3. **Mode** is the most frequently occurring value in a data set.

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 Disagree	Moderately Disagree	Barely Disagree	Barely Agree	Moderately Agree	Strongly Agree

ii. Increased spending on social security

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

iii. Increased spending on childcare services

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

USING SPSS

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

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

Once the data have been entered, the researcher can begin the data analysis. Suppose the researcher is interested in obtaining general descriptive statistics for all of the variables entered in the data set

1. From the menu bar, click **Analyze**, then **Descriptive Statistics**, and then **Frequencies.** The following **Frequencies** window will open.
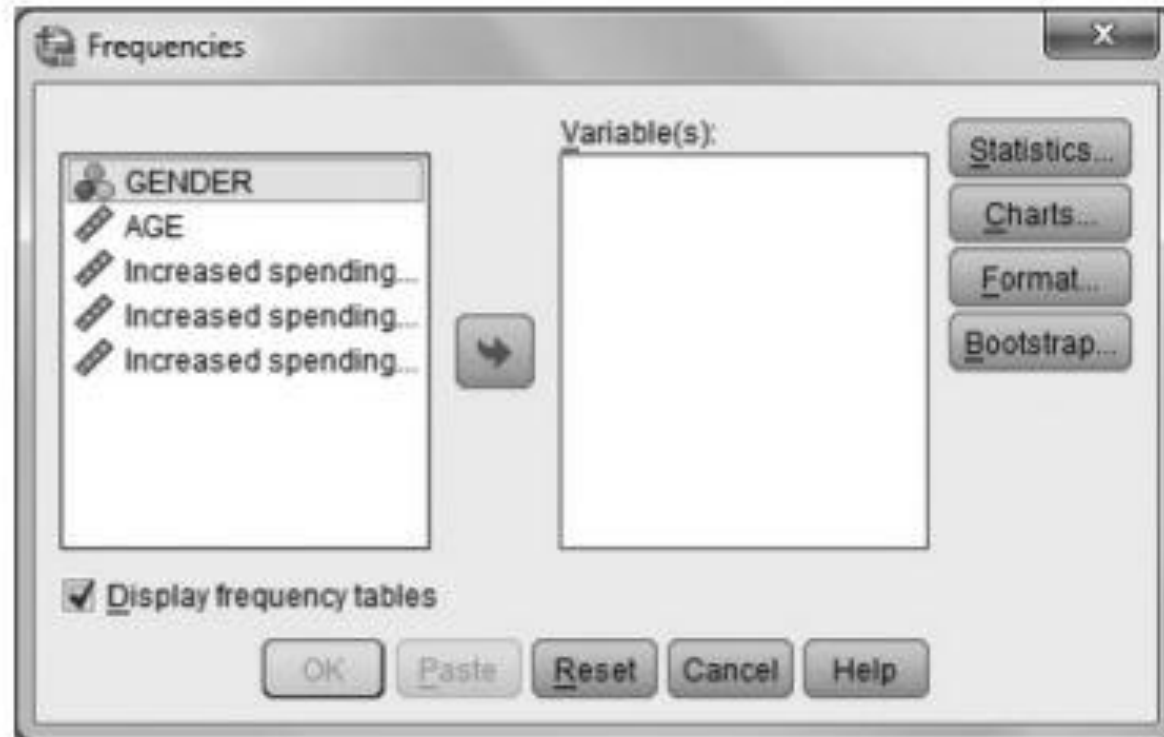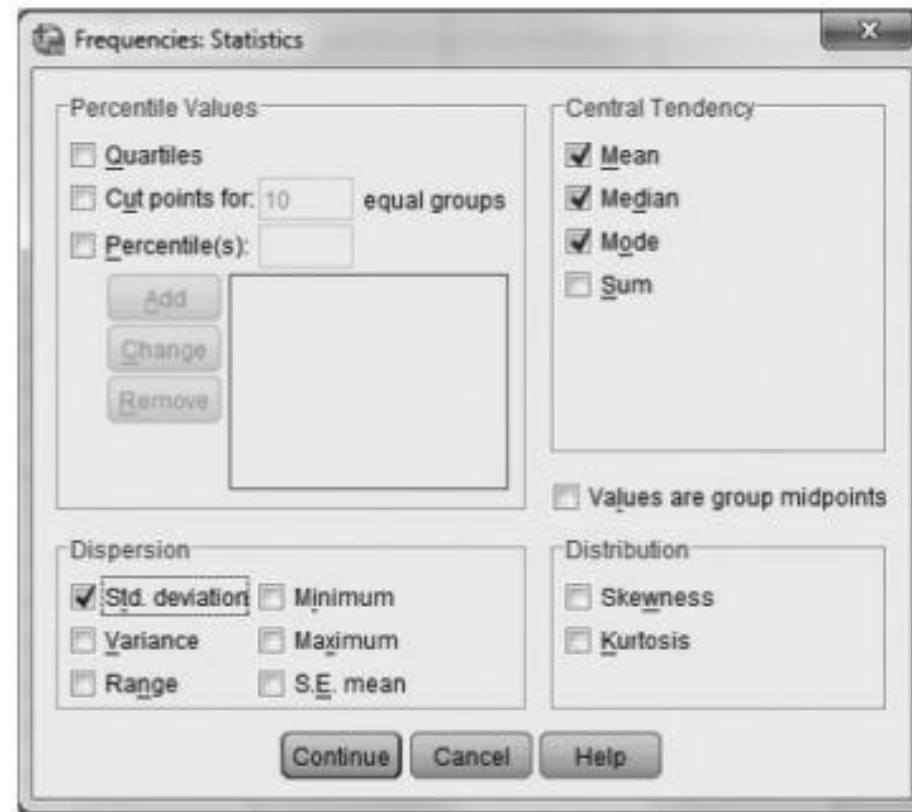
2. In the left-hand field containing the study's five variables, click (highlight) these variables, and then click ➡ to transfer the selected variables to the **Variable(s):** field.
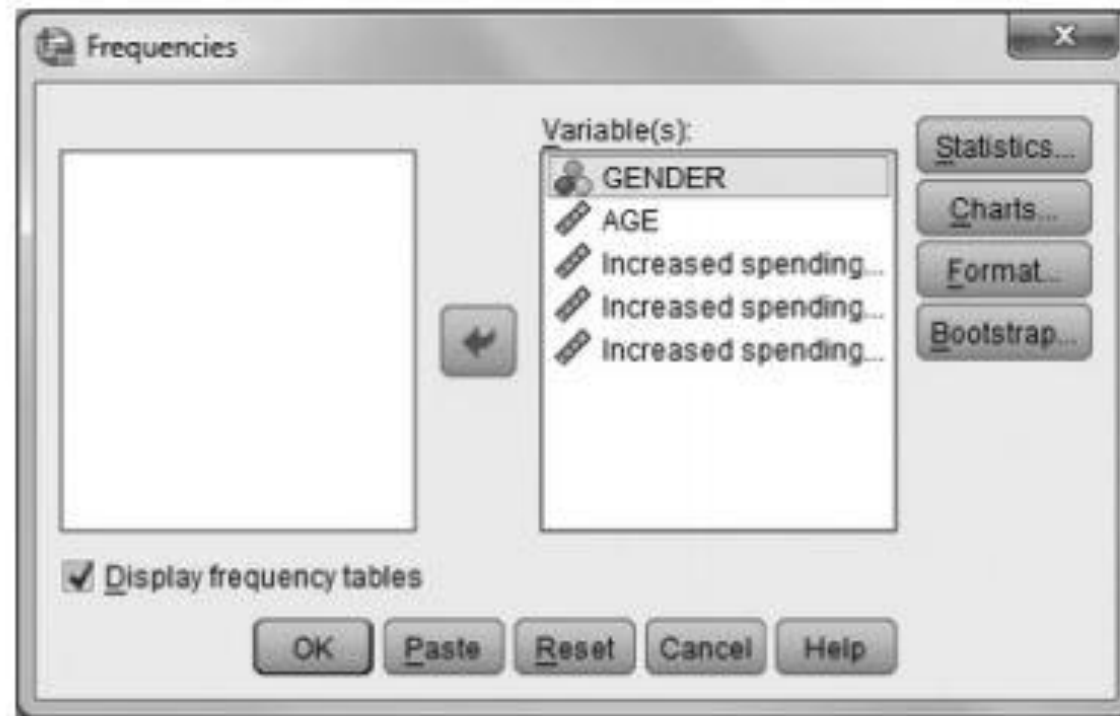
3. Click [Statistics] to open the **Frequencies: Statistics** window below. Suppose the researcher is only interested in obtaining statistics for the **Mean, Median, Mode**, and **Standard Deviation** for the five variables. In the **Frequencies: Statistics** window, check the fields related to these statistics.

Next click [Continue].

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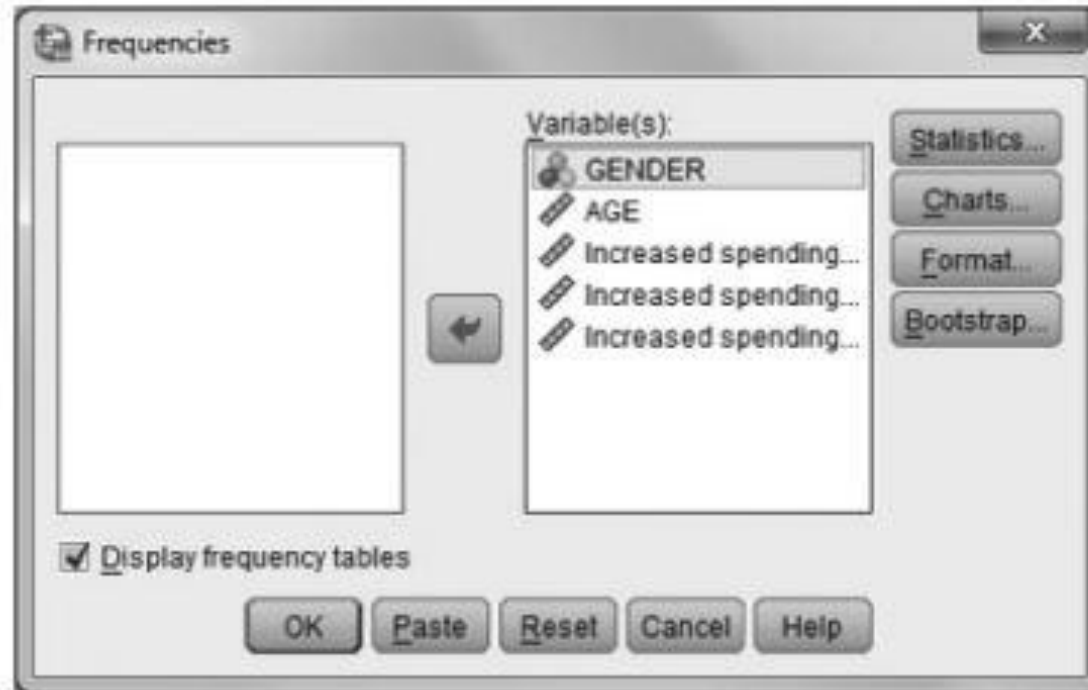
Frequencies Output

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.

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)

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	

Results and Interpretation

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 fve 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.

REFLEKSI

1. Informasi penting hari ini

2. Manfaat penting dari informasi penting hari ini

3. Tindak lanjut yang dapat saudara lakukan

Thank you!
Any questions?