Student Affairs Planning,
Assessment & Research
DIVISION OF STUDENT AFFAIRS

Instructions for Interpreting Output

Response Frequencies

Response frequencies will tell you how many respondents selected each answer choice (e.g., "Strongly Agree") in response to your survey question. Frequencies will also tell you how many respondents were treated as missing data and excluded because they either did not provide a response/had no data (referred to as system missing) or selected a response that was flagged to be removed (e.g., "I don't know" or "Not Applicable"). If a response option does not show up in the response frequencies output, that means no one selected that response. You will find four columns in a frequencies output table: Frequency, Percent, Valid Percent, and Cumulative Percent. We will look at what each column represents, one at a time.

The "Frequency" column is simply the number of times each response/category appears.

- In the example below, only 1 respondent strongly agreed with the statement "I like statistics," there were 20 responses in total, and there were 5 respondents who did not answer the question (Missing System).

Q2 I like statistics

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	5 Strongly Agree	1	4.0	5.0	5.0
	4 Agree	3	12.0	15.0	20.0
	3 Neither Agree nor Disagree	6	24.0	30.0	50.0
	2 Disagree	7	28.0	35.0	85.0
	1 Strongly Disagree	3	12.0	15.0	100.0
	Total	20	80.0	100.0	
Missing	System	5	20.0		
Total		25	100.0		

The "Percent" column is the number of times each response/category appears divided by the total number of respondents/cases *including* respondents/cases that are missing data, expressed as a percentage.

- In the example below, there were 25 respondents/cases, but 5 are missing data on Q2 (Missing System); "Percent" numbers are calculated using 25 as the denominator, so the lone Strongly Agree response is 4% (1 out of 25) of the total.

Q2 I like statistics

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	5 Strongly Agree	1	4.0	5.0	5.0
	4 Agree	3	12.0	15.0	20.0
	3 Neither Agree nor Disagree	6	24.0	30.0	50.0
	2 Disagree	7	28.0	35.0	85.0
	1 Strongly Disagree	3	12.0	15.0	100.0
	Total	20	80.0	100.0	
Missing	System	5	20.0		
Total		25	100.0		

The "Valid Percent" column is the same as the "Percent" column except it *excludes* respondents/cases that are missing data from the denominator. This is probably what will be of most interest to you because it will tell you what percentage of respondents who replied to your question picked a given response.

- In the example below, there are 20 valid responses, so the lone Strongly Agree response is 5% (1 out of 20) of the respondents who answered the question.

Q2 I like statistics

|		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	5 Strongly Agree	1	4.0	5.0	5.0
	4 Agree	3	12.0	15.0	20.0
	3 Neither Agree nor Disagree	6	24.0	30.0	50.0
	2 Disagree	7	28.0	35.0	85.0
	1 Strongly Disagree	3	12.0	15.0	100.0
	Total	20	80.0	100.0	
Missing	System	5	20.0		
Total		25	100.0		

Finally, the "Cumulative Percent" column provides you with the running total of the adjacent "Valid Percent" column. This can be useful for telling you what percentage of valid responses were above or below a certain threshold.

- In the example below, 20% of respondents either agreed or strongly agreed with the statement, "I like statistics."

Q2 I like statistics

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	5 Strongly Agree	1	4.0	5.0	5.0
	4 Agree	3	12.0	15.0	20.0
	3 Neither Agree nor Disagree	6	24.0	30.0	50.0
	2 Disagree	7	28.0	35.0	85.0
	1 Strongly Disagree	3	12.0	15.0	100.0
	Total	20	80.0	100.0	
Missing	System	5	20.0		
Total		25	100.0		

Response frequencies will often be displayed in bar graph form so that it is easy to see where the majority of responses fell and how spread out they were.

Q2 I like statistics
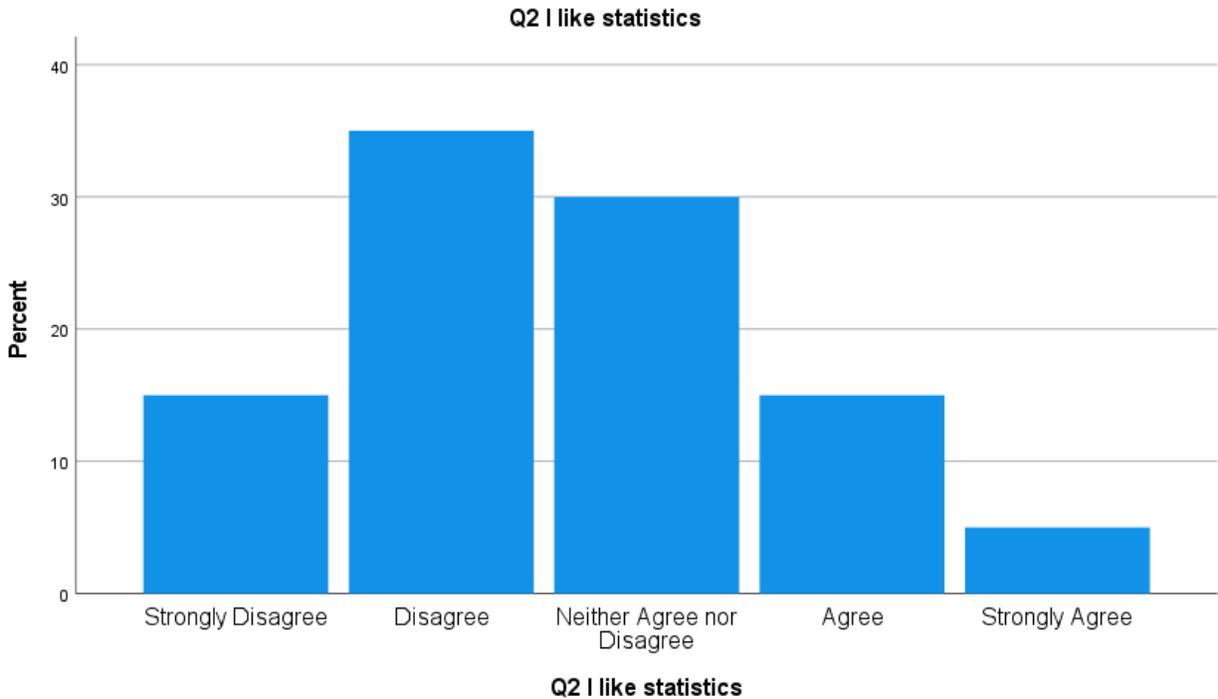
Frequencies for Multiple Response Items

Response frequencies can be calculated for items that utilize a multiple response or select all that apply format too. The interpretation of these results is a little more nuanced, however.

Information about the number of valid responses and missing responses can be found in the Case Summary table.

- In the example below, 20 of the 25 respondents (5 missing) responded to item Q5.

Case Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
$Q5ResponseSet[a]	20	80.0%	5	20.0%	25	100.0%

a. Dichotomy group tabulated at value 1.

In the Q5ResponseSet Frequencies box below, we can see the number ("N") of times each response was selected. We can also see this number expressed as a percentage of all selections ("Percent") and expressed as a percent of all cases/respondents ("Percent of Cases").

- In the example on the following page, we can see that the choice "Man" was selected 9 times; this represents 37.5% of all selections, and 45% of everyone who responded to this question (9 of 20) selected this choice. Note that the "Percent of Cases" values may add up to over 100% when one or more respondents select more than one choice.

$Q5ResponseSet Frequencies

		Responses		Percent of Cases
		N	Percent	
$Q5ResponseSet[a]	Q5_1 What is your gender identity? Select all that apply - Selected choice Man	9	37.5%	45.0%
	Q5_2 What is your gender identity? Select all that apply - Selected choice Woman	7	29.2%	35.0%
	Q5_3 What is your gender identity? Select all that apply - Selected choice Nonbinary	3	12.5%	15.0%
	Q5_4 What is your gender identity? Select all that apply - Selected choice Trans	2	8.3%	10.0%
	Q5_5 What is your gender identity? Select all that apply - Selected choice Other	3	12.5%	15.0%
Total		24	100.0%	120.0%

a. Dichotomy group tabulated at value 1.

Descriptive Statistics

Descriptive statistics refer to the mean, standard deviation, minimum, and maximum of an item.

The mean is simply the arithmetic mean (or average) of the responses. Means can be useful for quickly identifying differences in, for example, the average level of agreement on the same survey item from year to year or between groups of respondents (e.g., females and males). For a more fine-grained analysis (e.g., how many respondents strongly agreed this year vs last year?), consider looking at response frequencies instead.

The standard deviation represents the average amount of variation in the data. Simply put, the larger the standard deviation, the more varied the responses were. Items with high standard deviations may be worth taking a closer look at (e.g., look at response frequencies and/or disaggregating the data) because a high standard deviation suggests a lack of consensus among respondents; a closer look might reveal why your respondents do not agree.

The minimum and maximum are self-explanatory—they are the lowest and highest values present in the set of data, respectively.

Statistics

		Q2 I like statistics	Q3 I like assessment	Q4 I like chocolate
N	Valid	20	20	20
	Missing	5	5	5
Mean		2.60	3.85	4.40
Std. Deviation		1.095	.933	1.231
Minimum		1	2	1
Maximum		5	5	5

Crosstabs and Mean Comparisons

Response frequencies and descriptive statistics can be obtained for subsets/groups of your data set (e.g., females and males) and compared to one another.

When response frequencies are calculated for subsets of the data separately, you will only see the "Frequency" and "Valid Percent" results for each subset of your data (e.g., females and males); missing data are automatically excluded from these calculations. *Pay close attention to how percentages are calculated for these analyses.* In the vast majority of cases, percentages are calculated for all valid responses within the subset/group.

- In the example below, percentages are calculated within Sex; this tells us that 0% of male respondents for which we have data strongly agreed with the statement "I Like statistics" compared to 10% of female respondents; in total, only 5% of respondents for which we have data strongly agreed with this statement.

Sex * Q2 I like statistics Crosstabulation

| | | | Q2 I like statistics | | | | | Total |
			1 Strongly Disagree	2 Disagree	3 Neither Agree nor Disagree	4 Agree	5 Strongly Agree	
Sex	1 Male	Count	2	3	3	2	0	10
		% within Sex	20.0%	30.0%	30.0%	20.0%	0.0%	100.0%
	2 Female	Count	1	4	3	1	1	10
		% within Sex	10.0%	40.0%	30.0%	10.0%	10.0%	100.0%
Total		Count	3	7	6	3	1	20
		% within Sex	15.0%	35.0%	30.0%	15.0%	5.0%	100.0%

When descriptive statistics are calculated for subsets/groups, you will see the normal descriptive statistics (mean, standard deviation, minimum, and maximum) for each subset or group separately, along with the size (N) of each subset or group. The interpretation of these statistics does not change.

Report

Sex		Q2 I like statistics	Q3 I like assessment	Q4 I like chocolate
1 Male	Mean	2.50	3.80	4.60
	N	10	10	10
	Std. Deviation	1.080	.919	.966
	Minimum	1 Strongly Disagree	2 Disagree	2 Disagree
	Maximum	4 Agree	5 Strongly Agree	5 Strongly Agree
2 Female	Mean	2.70	3.90	4.20
	N	10	10	10
	Std. Deviation	1.160	.994	1.476
	Minimum	1 Strongly Disagree	2 Disagree	1 Strongly Disagree
	Maximum	5 Strongly Agree	5 Strongly Agree	5 Strongly Agree
Total	Mean	2.60	3.85	4.40
	N	20	20	20
	Std. Deviation	1.095	.933	1.231
	Minimum	1 Strongly Disagree	2 Disagree	1 Strongly Disagree
	Maximum	5 Strongly Agree	5 Strongly Agree	5 Strongly Agree