Data Analysis:
Creating an Index to measure Age Discrimination

- First identify the questions to be considered for the index (Questions 34 – 37)

- Next make sure all questions are in the same direction (Qs 34 and 36 are in a negative direction and Qs 35 and 37 are in the opposite, positive direction)

If one or more are in the opposite direction, these questions need to be reversed in order to conduct the reliability test. This is accomplished by:

Transform
    Recode
        Into different variable
        (then reverse answers for two of the Questions so all 4 are in same direction)

Once all variables are in same direction:

Analyze
    Scale
        Reliability analysis
        (select the 4 questions; within statistics select "scale if item deleted"; then, continue; okay)

Then examine the output to see if the four questions are highly correlated or if one or more of them is not.

In the latter case, remove the question that is not highly correlated with the others and rerun the reliability test.

Once you have a set of questions to be included in the index, add them together (assuming they have the same number of answer categories). This will create a new variable.

Transform
    Compute
        Give a name to the index variable
            Select the variables and add them together

Once completed, check data set to be sure new variable appears and that additions look correct.

Run a frequencies to see how respondents are categorized in the index:

Analyze
    Descriptive Statistics
        Frequencies

If necessary, collapse some of the categories. For example, if the respondents scored as follows:

(numbers in parentheses are the categories of the indexed variable)

(the next row of numbers are the actual number of respondents organized by their responses):

Low (4)	Somewhat Low (5)	neutral (6)	Somewhat High (7)	High (8)
3	10	20	5	1

In this case, we might want to combine 7 and 8.

This can be accomplished by again using the recode command:

Transform
    Recode
        Into different variable
        (then combine 4 and 5 when defining the categories)

**Data Analysis:
Creating a cross-tabulation**

A cross-tabulation allows the researcher to see the relationships between the values of two different variables

---

- To obtain a crosstab between age discrimination (AD) and **gender** click the following:

Analyze
    Descriptive Statistics
        Crosstabs
(select the index variable (AD) on the left side and put it in the **column** box on the right side by first highlighting AD and then clicking the arrow pointing to the column box;
select V47 (sex) in the same way and put it in the **row** box, click "Okay")

SPSS Output Looks Something Like This:

AD * V47 Crosstabulation

Count

		AD					
		4	5	6	7	8	Total
V47	Male	x	x	x	x	x	x
	Female	x	x	x	x	x	x
	Total	x	x	x	x	x	

The numbers in the table will be the actual number of males and females who have a score of 4. The actual number of each with a score of 5. Etc.

Creating a Table for a Research Paper From the SPSS Output

- Always give the table a **table number** and a **title**

- The table should be **on a page by itself** and placed at the end of the paper (unless otherwise specified).

- The dependent and independent variables should be **clearly labeled** as well as the values of each variable.

Example of Table Format for Research Paper

Table 1: The Effect of Sex on Age Discrimination

Age Discrimination
(actual number of respondents reported)

		Low	Somewhat Low	Somewhat High	High	Total
Gender	Male	×	×	×	×	×
	Female	×	×	×	×	×
	Total	×	×	×	×	×

- While the actual numbers are informative to see, it is typically more valuable to know the **percentages of the values** being examined--those that go down the column particularly (the dependent variable).

- **Example for Column Percentages**: What percentage of those who displayed/expressed age discrimination were male and what % were female? Did a higher % of males express AD than females?

- **Example for Row Percentages**: By looking at row percentages we can report the percentage of males who expressed AD verses the % of males who did not.

- **If you were using our example as part of your research paper, your research paper might discuss:**
  (1) whether those expressing AD were more likely to be male or female and
  (2) of the men, what % expressed AD and, likewise, of the women, what % expressed AD

To obtain percentages in the SPSS output:

1. Go to crosstabs as shown earlier
2. Click on the "cells" box
3. Under "percentages" on the left side click in the column and row boxes
4. Click "continue" and then "Okay"

SPSS Output Looks Something Like This:

AD * V47 Crosstabulation

			Low (AD)	High (AD)	Total
V47	Male	Count	36	19	55
		% within V6	52.2%	51.4%	51.9%
		% within V47	65.5%	34.5%	100.0%
	Female	Count	33	18	51
		% within V6	47.8%	48.6%	48.1%
		% within V47	64.7%	35.3%	100.0%
Total		Count	69	37	106
		% within V6	100.0%	100.0%	100.0%
		% within V47	65.1%	34.9%	100.0%

Example of Table Format for Research Paper

Table 1: The Effect of Sex on Attitudes Toward the Death Penalty

Column % Row%		Percent Expressing Age Discrimination*		
		Low	High	Total
Gender	Male	52 66 (36)	51 34 (19)	100 (55)
	Female	48 65 (33)	49 35 (18)	100 (51)
	Total	100 (69)	100 (37)	100 (106)

*Numbers in parentheses are actual numbers of respondents

- While you can certainly report and discuss the percentages, you should definitely report whether the difference found appears to be **a real difference or a difference due to sampling error.**

- For example, in our table 34% of males express AD while 35% of females did. Are females really more likely to discriminate against the elderly (by 1%) or is this difference likely to be due to sampling error?

- The **Chi Square statistic** provides an indication of whether the statistics in the table are real differences or due to sampling.

To obtain the **Chi Square statistic** in the SPSS output:

1. Get into the **crosstabs box** where you selected the variables and the percentages as shown earlier

2. Click on the "**statistics**" box

3. On the top, left, click the **box next to "Chi Square"**

4. Click "continue"

5. Click "Okay"

---

6. In the output file that is provided (after clicking "Okay") look for a box that is titled "**Chi-Square Tests**"

7. Within this box look down the first column for "**Pearson Chi-Square**"

8. On the Pearson Chi-Square row look for the number reported under "**Asymp Sig. (2-sided)**

9. **Divide the number in half** (assuming you know that one variable—the independent variable—is expected to affect the other—the dependent variable—and not vice versa)

---

10. If the resulting number is **equal to or less than .05** then you can report that "the differences found in the table are significant differences at the .05 level."

Or, more precisely, you could say "there is **95% confidence that the differences found in the sample are real differences in the population** and not due to sampling error."

If the result is between .051 and .094 you might say that "it appears that the independent variable had an effect but we cannot be confident at the .05 level that the difference found in the sample is a real difference in the population."

If the result is greater than .094, then you should probably say "it does not appear that the independent variable affected the dependent variable."

---

11. If the number is **less than .01** then, similarly, you can report that there is **99% confidence that the differences are real differences** and not due to sampling error.

12. The Chi Square statistic should be reported at the **bottom of the table and in parentheses put (one-sided) to clarify you divided by 2.**

Example of how to report Chi Square in table for Research Paper

Table 1: The Effect of Sex on Age Discrimination

		Percent Expressing Age Discrimination*	
		Low	High
Gender	Male	52 (36)	51 (19)
	Female	48 (33)	49 (18)
	Total	100 (69)	100 (37)

*Numbers in parentheses are actual numbers of respondents
Pearson Chi-Square = .468 (1-sided)

13. In our example, the statistics in the table are not significant. This suggests that the small difference that we find is probably not a real difference **when we generalize our findings to the larger population of males and females**.

14. However, you might choose to also perform **a crosstab between sex and V34 (Elderly set in their ways)**. You might find that while sex shows no difference in general (index variable) there is a difference between the sexes when considering this more specific type of age discrimination.

Reporting Data Findings in a Research Paper

- In your research paper you should **compare these findings to similar research** done by researchers in the past—that is, past research that you should have already reviewed in your literature review.

- Often times, past research that has found similar results **provides a variety of explanations** for the findings which you can then use as explanations for your findings.

- If the results are different than those of the past, you will need to **discuss possible reasons** why the findings are different.

- **For example**—we have not found a significant difference between males and females regarding age discrimination. Discuss whether this supports previous research or refutes it.

- You should also **provide an explanation** or possible reason(s) for why the findings are similar or not similar to past research.

- In our example, our findings don't support previous research perhaps because those in our sample have more education than those in other studies and more education may be associated with low age discrimination.

- A **second** possible reason for the difference between the current findings and past research is that the **attitudes of males and females towards AD may be changing over time** so that there now is no longer a difference in attitudes between the sexes.

- **You would explain** that a difference may have existed in earlier studies but now such a difference between the sexes has disappeared. Of course, you'd then want to speculate on why this might be (but be rational not emotional in such an explanation).

- Generally, when reporting the findings you will present multiple possible reasons for the results you have found.

- When you report the findings in your research paper, the **findings section** of your paper should typically have **sub-headings** just like the literature review with each sub-heading being a different independent variable.

In sum, within the sub-heading section located in the results section of the paper, you should:

1. Briefly **review what past research has found** with regard to the relationship between the independent variable and the dependent variable (that is, a brief summary to **remind the reader** of what was reviewed earlier in the literature review).

2. Review what the current data shows and, more specifically, **refer to the table** and the percentages and Chi-Square in the table and discuss what is there.

3. Provide multiple possible explanations for the findings in the table.