

*Intro to SPSS:  
A Software for  
Advanced Statistical  
Analysis*

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**In collaboration with the SPSS Training Club**






# Keywords

- Quantitative Research
- Variables
- Cases
- Codebook
- Independent variable (IV)
- Dependent variable (DV)
- Categorical
- Continuous (scale)

# Keywords

- **Quantitative Research-** use of interpretive/ theoretical frameworks that inform the study of research problems addressing the meaning individuals or groups ascribe to a social/human problem (Creswell, 2013)
  - Variables that can be quantified (counted)
- Independent variables (IV)- manipulated (quasi-experiments)
- Dependent variables (DV)- outcome measure

# Preparing Data

- 
- Convert all information to numbers in Excel.
  - Have codebook prepared.
  - Know what your data is
    - Nominal, Ordinal, or Scale?
    - What does each question ask?
    - What are your value labels?

# Classifying Measures

## ❑ Classify Measures

### ❑ **Categorical**

❑ **Nominal**- Variables that have no value, categorizes items

❑ Gender, Ethnicity

❑ **Ordinal**- Variables are put in a order or rank

❑ Ex: socio economic status (“low income”, “middle income”, “high income”), education level (“high school”, “BS”, “MS”, “PhD”), income level (“less than 50K”, “50K-100K”, “over 100K”)

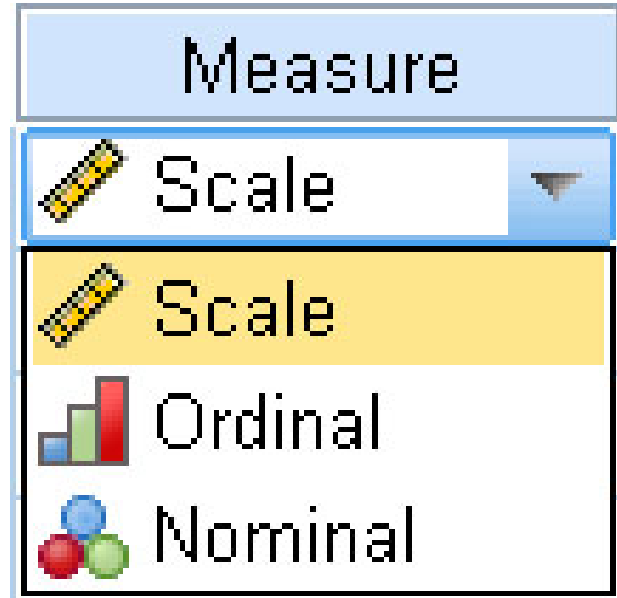
### ❑ **Continuous**

❑ **Scale-only** numerical value, have numeric responses

❑ Ex: Weight, Height

# Examples of Measures

- Age
- Exam Grade (A,B,C,D,F)
- Hair Color
- Type of Pet
- Military Rank





# What is a Codebook?

It is a document where you as a researcher keep detailed information on all of your variables. Consider a codebook like a dictionary to your data set.

*Keep in mind that the better organized you are, the easier your research will be!*



# Where to begin?

1. Identify & understand your independent and dependent variables.  
Know what type of data you will be collecting/measuring: scale, nominal, ordinal.
2. Review & understand your survey items.
3. Identify the variable names, variable labels, and value labels.



# Codebook example - IV & DV

<u>Variable name</u>		<u>Variable label</u>	<u>Value labels</u>
IV 1	Bio Sex:	What was your biological sex at birth?	1= female, 2 = male
IV 2	Anxiety:	Survey questions/ activity/ test scores	1= low, 2= moderate, 3= severe
DV	Happiness:	Survey questions/activity/test scores	Continuous

# Codebook example - Survey items

Sample Question:

1. How would you describe your Gender?
  - Female
  - Male
  - Nonbinary
  - Prefer not to Answer
  - Other

- How many groups/categories are shown?
- Identify the value labels.

# Codebook Example - Answer

<u>Variable name</u>	<u>Variable label</u>	<u>Value label</u>
Gender	What is your gender?	1 = Female  2 = Male  3 = Nonbinary  4 = Prefer not to Answer  5 = Other

# SPSS Variable View

- ❑ Rows are your Variables
- Each individual question
- ❑ Columns are the features of your variables
- What type of data?
- What name?

Different features of the variables

The screenshot shows the IBM SPSS Variable View window for a file named 'Employee data.sav'. The window displays a table with the following columns: Name, Type, Width, Decimals, Label, Values, Missing, Columns, and Alignment. The 'gender' variable is highlighted in yellow. A red box highlights the toolbar, and a red arrow points to the 'Customize' menu.

	Name	Type	Width	Decimals	Label	Values	Missing	Columns	Al
1	id	Numeric	4	0	Employee Code	None	None	8	Right
2	gender	String	1	0	Gender	{f, Female}...	None	6	Left
3	bdate	Date	10	0	Date of Birth	None	None	13	Right
4	educ	Numeric	2	0	Educational Lev...	{0, 0 (Missi...	0	8	Right
5	jobcat	Numeric	1	0	Employment C...	{0, 0 (Missi...	0	8	Right
6	salary	Dollar	8	0	Current Salary	{\$0, missing...	\$0	8	Right
7	salbegin	Dollar	8	0	Beginning Salary	{\$0, missing...	\$0	8	Right
8	jobtime	Numeric	2	0	Months since H...	{0, missing}...	0	8	Right
9	prevexp	Numeric	6	0	Previous Experi...	{0, missing}...	None	8	Right
10	minority	Numeric	1	0	Minority Classif...	{0, No}...	9	8	Right
11									
12									
13									
14									
15									
16									

IBM SPSS Statistics Processor is ready | Cases: 100 | Unicode:ON

# Name and Label

To identify each variable, there are two things required;

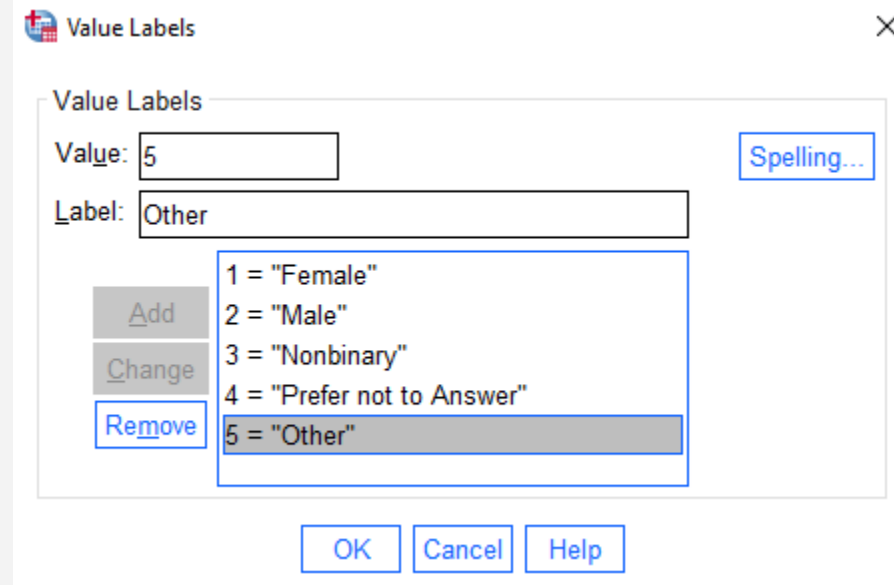
- **Name:** a short title of the variable (can be acronyms/one word/etc)
- **Label:** Describes the variable in depth (i.e full question from survey or what exactly the variable is measuring)

	Name	Type	Width	Decimals	Label
1	id	Numeric	4	0	Employee Code
2	gender	String	1	0	Gender
3	bdate	Date	10	0	Date of Birth
4	educ	Numeric	2	0	Educational Lev...
5	jobcat	Numeric	1	0	Employment C...
6	salary	Dollar	8	0	Current Salary
7	salbegin	Dollar	8	0	Beginning Salary
8	jobtime	Numeric	2	0	Months since H...
9	prevexp	Numeric	6	0	Previous Experi...
10	minority	Numeric	1	0	Minority Classif...

	Name	Type	Width	Decimals	Label
1	CD1	Numeric	2	0	I am able to adapt to change
2	CD2	Numeric	2	0	I have close and secure relationships
3	CD3	Numeric	2	0	Sometimes, fate or God can help
4	CD4	Numeric	2	0	I can deal with whatever comes my way
5	CD5	Numeric	2	0	Past success gives confidence for new challenge
6	CD6	Numeric	2	0	I am able to see the humorous side of things

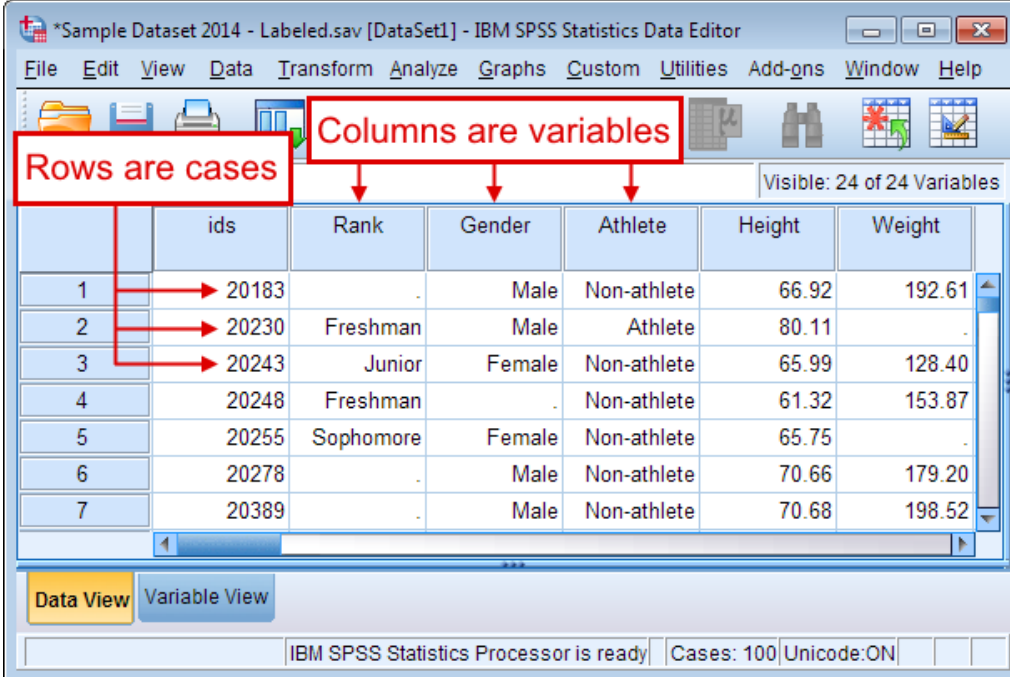
# Labeling Variables in SPSS

- You may get your survey data back as words rather than numbers.
- So you may have to convert your data into a numerical value (in Excel) prior to inputting to SPSS.
- Then, in SPSS label those numbers using the codebook.



# SPSS Data View

- *Variables* are attributes, characteristics, or measurements that describe cases. For example, your data might include information such as each college student's date of birth, gender, or class rank.
- Each column has information about a variable that describes each case (ex: college student).



\*Sample Dataset 2014 - Labeled.sav [DataSet1] - IBM SPSS Statistics Data Editor

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

Visible: 24 of 24 Variables

	ids	Rank	Gender	Athlete	Height	Weight
1	20183	.	Male	Non-athlete	66.92	192.61
2	20230	Freshman	Male	Athlete	80.11	.
3	20243	Junior	Female	Non-athlete	65.99	128.40
4	20248	Freshman	.	Non-athlete	61.32	153.87
5	20255	Sophomore	Female	Non-athlete	65.75	.
6	20278	.	Male	Non-athlete	70.66	179.20
7	20389	.	Male	Non-athlete	70.68	198.52

Data View Variable View

IBM SPSS Statistics Processor is ready | Cases: 100 | Unicode:ON

# Data View



- **Cases** represent independent observations, experimental units, or subjects. For example, if the data are based on a survey of college students, then each row in the data would represent a specific college student who participated in the study.

	ids	Rank	Gender	Athlete	Height	Weight
1	20183	.	Male	Non-athlete	66.92	192.61
2	20230	Freshman	Male	Athlete	80.11	.
3	20243	Junior	Female	Non-athlete	65.99	128.40
4	20248	Freshman	.	Non-athlete	61.32	153.87
5	20255	Sophomore	Female	Non-athlete	65.75	.
6	20278	.	Male	Non-athlete	70.66	179.20
7	20389	.	Male	Non-athlete	70.68	198.52



# Data View

- When the Data View icon on the bottom is yellow, you are now in Data View.
- This spreadsheet is your raw data.
- In data view, you input the data for each participant.
- Visible information in the Data view:
  - Total # of participants (cases)
  - Information for each participant
  - Scores, Age, Gender, etc...

	id	gender	bdate	educ	jobcat	salary	salbegin	jobtime	p
1	1	Male	02/03/1952	15	Manager	\$57,000	\$27,000	98	
2	2	Male	05/23/1958	16	Clerical	\$40,200	\$18,750	98	
3	3	Female	07/26/1929	12	Clerical	\$21,450	\$12,000	98	
4	4	Female	04/15/1947	8	Clerical	\$21,900	\$13,200	98	
5	5	Male	02/09/1955	15	Clerical	\$45,000	\$21,000	98	
6	6	Male	08/22/1958	15	Clerical	\$32,100	\$13,500	98	
7	7	Male	04/26/1956	15	Clerical	\$36,000	\$18,750	98	
8	8	Female	05/06/1966	12	Clerical	\$21,900	\$9,750	98	
9	9	Female	01/23/1946	15	Clerical	\$27,900	\$12,750	98	
10	10	Female	02/13/1946	12	Clerical	\$24,000	\$13,500	98	
11	11	Female	02/07/1950	16	Clerical	\$30,300	\$16,500	98	
12	12	Male	01/11/1966	8	Clerical	\$28,350	\$12,000	98	
13	13	Male	07/17/1960	15	Clerical	\$27,750	\$14,250	98	
14	14	Female	02/26/1949	15	Clerical	\$35,100	\$16,800	98	

# Sample Frequency Table

**Support groups Offered**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	41	43.6	45.6	45.6
	Yes	49	52.1	54.4	100.0
	Total	90	95.7	100.0	
Missing	System	4	4.3		
Total		94	100.0		

**What is your age? (Ex: 26)**

	N	%
18	4	4.3%
19	5	5.3%
20	9	9.6%
21	6	6.4%
22	6	6.4%
23	5	5.3%
24	4	4.3%
25	11	11.7%
26	4	4.3%
27	5	5.3%
28	3	3.2%
29	1	1.1%
30	3	3.2%
31	4	4.3%
32	6	6.4%
33	2	2.1%
34	3	3.2%
35	4	4.3%
37	1	1.1%
39	1	1.1%
40	7	7.4%

The background is a solid orange color. In the top-left corner, there are three vertical bars of varying heights, each composed of several overlapping semi-transparent orange circles. In the bottom-right corner, there are four vertical bars of increasing height from left to right, each also composed of several overlapping semi-transparent orange circles.

# **SPSS Student Leader & Community Experiences**

# SPSS Training Club Contact Information

We offer workshops, tutoring appointments, & in class presentations.

Email: [spsstrainingclub@gmail.com](mailto:spsstrainingclub@gmail.com)

Torolink: SPSS Training Club

Instagram: spss\_club

Topics we can help with:

- Data analysis
- Data importing & exporting
- Data entry & cleaning
- Scoring test
- Codebooks
- APA research papers

