**Define the level of measurement of data in SPSS**

In SPSS the level of measurement is very important. Now I’ve heard some people say in videos don’t worry about the level of measurement, just put it as whatever but I strongly disagree and I’ll tell you at the end of this video why after we’ve gone through the different types. So, these are the levels of measurement for using SPSS. You have three options: nominal, ordinal and scale, and we’re going to define those three. Now all of your variables, as long as you’ve done quantative or closed-ended type questions, generally speaking, can be categorised as either categorical or scale. Now scale is the word used by SPSS for quantative type data.

I’m going to look at categorical data first. If you’ve got data that is categories, so for example from a questionnaire if you’ve got data, someone has to tick a response, say their age group or their income group, that would be categorical. It’s either ordinal or nominal. Now ordinal means that the categories have meaningful rank or order to them. So for example, age groups: 18-24, 25-30, 31-35, those are increasing in age, so I would classify them as ordinal. Similarly, if you have Ligert scale type questions, so strongly disagree to strongly agree, those categories or groupings have a meaningful rank or order to them. There’s a level of agreement there so that would also be ordinal. I think one of the biggest mistakes I see students make is to say that Ligert scales are scale because it has the word “scale” in them, and that’s not always the case. I’ve seen recently in some text books that if the ordinal data can be shown to be normally distributed, then you can classify it as scale, but for a first go, all ordinal variables should be classified as ordinal, and then you can start to do normality texts and analysis and things like that.

Now the second categorical group is nominal. Now these are categories without a meaningful rank or order to them. So for example, marital status: Single, married, divorced, widowed, separated. Those categories cannot be put in any kind of rank or order. Gender: male, female. I can’t rank males and females in any meaningful order, so these would be nominal because the groups do not have meaningful order to them. Another common type of question from a questionnaire is a yes/no question. Anything that is yes/no, is typically nominal, there’s no meaningful rank or order to the yeses and nos.

Let’s move over to scale. Simply put, scale data is data that’s not grouped. It’s numerical data that’s not grouped. So for example, on a questionnaire if I ask, what is your age in years, and you write in your age, say I’m 21, 23, that’s scale. Or what is your height? Or what is your weight, or how long in minutes does it take you to commute to work in the morning? Or what is your gross annual income? All of those open response numerical questions are not grouped, so they’re categorised as scale. Now as I mentioned before in SPSS, there’s three options to choose from, your data is either nominal, ordinal or scale. Now I think it is essential to classify data correctly, and I’ll tell you the two reasons. One is, if I classify nominal data as scale, and I try to make a bar chart, SPSS will not let me do it. It will come out with some little skinny bars, it’s going to try and make a histogram because that’s what you do with scale data. It needs to be classified as nominal. Secondly, you should be choosing your statistical inferential test, and descriptive statistics based on the level of measurement, so for example if I want to look up the significant difference in income between males and females, income is scale so I know I could possibly do a t-test. Now I would obviously need to test the assumptions first such as normality and equal variance, but the t-test would be my first go to test. However, if my measurement is not scale, say its ordinal, I need to use a non-parametric test, so it does depend on the level of measurement of my data. So level of measurement, it is important because it should affect what SPSS will let you do sometimes. It will also affect what type of analysis you should be choosing.

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