**Calculating z-scores**

In this video I’m going to show you how to calculate a z-score in two different ways. One using the descriptive statistics option and one calculating by hand to the transform menu, and the variable we’re going to use these total competency score, or T0 which means before employees start their job, and this is a score out of 100 and it is scale. You should only be calculating z-scores if you’re data is defined as scale. I’m going to go to ‘analyse’, ‘descriptive statistics’ and ‘descriptives’. Find your variable from the left. So mine is the first competency score, and use the arrow or drag it over into your box, and then, we want to choose ‘save standardised values as variables’. Standardized values just means a z-scores. Go ahead and click ‘okay’. So this just shows the min, max, mean and standard deviation for our total competency variable, and if we go back to our data file, we can see there’s a new variable created here at the end and the name is just ‘z’, with the original variable name, and this just shows us the number of standard deviations our value is from the mean. So we take our first one for example, 27. This suggests we’re about 1.13 standard deviations less than, because it is negative, less than the mean. If we have a look at our mean, we can see our mean is 42, so it makes sense if this is negative because 27 is less than 42. Now if we wanted to calculate this by hand using the transform menu, we’d just need to make a note of our mean and standard deviation. So let’s go back to our output file one more time, and you can see here my mean and standard deviation was computed. However if I use these rounded values, the value that I calculate will be quite difference from what SPSS has just shown me. So if we double click and then double click again on the number, you can see I can get up to six decimal places of accuracy, so I’m just going to go ahead and jot this mean value down, and then do the same for my standard deviation, and jot this long number down. So we want to use as many decimal places as we can. We’re going to go to ‘transform’, ‘compute variable’. We need to give our variable a name, so I’m going to call it, because we’re doing the first competency score. When we calculate a z-score, because it’s a difference than the mean, we always need to subtract the mean from our score. So I’m going to take my first competency score and click it in. It’s always the best idea to double click on these variables or move them in with the arrow, rather than trying to type the name yourself because there’s a chance you might type it incorrectly. So we have our variable, or our score minus, the mean, and we’ve recorded our mean as 42.471429, close our brackets, and this difference is divided by the standard deviation, which was 13.634697, and then go ahead and click ‘okay.’ You can see I have my new variable z-score T0. It’s only showing to two decimal places so to show this is accurate, let’s go to our variable view and increase the decimal places to five. Then we can see that they match up quite closely to four decimal places. The six decimal places is sometimes different, but that’s okay. The four decimal places is accurate enough. So that’s how we can compute z-score using the descriptive statistics tool or using the compute variable tool.

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