**Clustered bar/line chart of means for repeated measures data (w/error bars)**

In this video I’m going to show you how to create a clustered bar or line chart of means with one repeated measure. My repeated measure is total competency of employees and it’s been measured at three different time points. Before they start their job, at six months and after one year on the job. For both of these graphs I’ve also included error bars and I’ve chosen 95% confidence intervals for the mean, and this will show me that I can be 95% confident that the true population mean, which I don’t know, is between these bounds, and it will always be centred on your sample mean.

So we have a look at the data, my three repeated measures are all scale variables, and that’s important because you cannot compute a mean, or a chart of means for ordinal or nominal data in SPSS, so they need to be defined as scale. I’m also going to split that by gender so I’m going to look at the average competency of males and females separately. So if we go to the graphs menu and choose ‘chart builder’. Now I’m going to do the bar chart first and I want a clustered bar chart so I’m going to choose the second option. Drag it in, or double click. Now my repeated measures are going to go along the bottom, so I need to select the first one. Hold down the control key so you can highlight the other two at the same time. Once all of your repeated measures have been highlighted, click and hold and drag to the y-axis. If you ever forgot where you should drag them, you try dragging it to the x and it will say no, you try dragging it to the cluster, it also says no. So the y-axis is the only place it could possibly go. Now this message is just telling me that my three variables are going to be my categories along the x-axis, which is exactly what I want, so click ‘okay’ and now I just need to add gender, so drag gender to your cluster and anytime I create a chart of means, it’s always a good idea to include error bars. So I’m going to tick this option here. You have three options, a confidence interval for the mean. You can do plus or minus standard errors, or plus or minus standard deviations and I recommend you have a look at your lecture notes or recommended textbooks or even journal articles in your subject to see which is most appropriate for you to use. Go ahead and click ‘apply’, and your error bar should show in the gallery, and remember this is just an image, it’s not what your graph really looks like, so don’t worry if it doesn’t look right. Click ‘okay’. Now the height of the bar is showing me the average competency for males and females separately, and again, these error bars are showing me a 95% confidence interval for the mean.

Now let’s go ahead and repeat this for a line chart means. Graphs and chart builder. Hit reset, and choose line. We want the second line chart. Drag it into the gallery. Again I need to highlight all three of my repeated measures, so hold down ‘control’, and click on the second and third, and let go off ‘control’. Click, hold and drag to the y-axis. Click ‘okay’. Now take gender and drag it to the set colour, and again because this is a chart of means, I want to include error bars, and I’m going to leave it as a 95% confidence interval for the mean. Click ‘apply’, and then go ahead and click ‘okay’. Each point on the line is showing me an average for males which is blue, and females which is green, for total competency. Now if you had two repeated measures, so I’ve got total competency and say I had another repeated measure, to my knowledge, there is no way to do this when you have two repeated measures, so the only way you can make that graph is to run a repeated measures Andover. A two way repeated measures Andover, and from the plots option choose to make the graph.

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