Week 7 Worksheet

This week we have been making the link between our observed score and some behaviour of interest that we are treating our scale as a proxy for.

We link the test score to the behaviour of interest using validity evidence that we find in the literature. In todays workshop we will be using fake data to determine whether a score is related to criterion and using this information to make statements about people with the test takers profile.

# The Dataset

First a little about the dataset.

The dataset is entirely fake – I have simulated the data so that I can show different types of relation. Please do not use this for any part of the assignment.

## Variables

### Personality

We have 5 personality variables. So there is no doubt, I have named this scale ‘Dr Oliver’s Personality Inventory Scale Is for Demonstration Only’ (DOPISIDO). It has five factors:

* Dormaus
  + Attribute of being low energy and sedate
* Openness to Criticism
  + Willingness to engage with feedback
* Perfectionism
  + Quality of having a strong attention to detail
* Inner-thinking
  + Attribute of preferring ones own counsel
* Sagacity
  + Attribute of showing good judgement

### Behaviour

The managers of the participants who completed the DOPISDO survey have been asked to rate how likely each person is to do the following:

* Sleeping on the job
  + Has been found of hiding at work to take naps
* Lateness
  + Is late both to work and meetings
* Team work
  + Is a team player and contributing to group activities
* Innovativeness
  + Is able to find novel solutions to problems
* Messiness
  + Area inhabited is in a constant disarray

# Example

You have been handed a person’s DOPISDO profile and have been asked about likely behaviours for someone with a similar profile:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Dormaus | Open to Crit | Perfectionist | Inner-thinking | Sagacity |
| Raw | 6 | 5 | 3 | 4 | 5 |
| T score | 59.3 | 48.3 | 30.7 | 40 | 49.7 |

Using the Following Reliability Scores let’s find the persons range for the Dormaus dimension

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Dormaus | Open to Crit | Perfectionist | Inner-thinking | Sagacity |
| Mean | 5.1 | 5.16 | 4.87 | 5.05 | 5.03 |
| SD | 0.97 | 0.94 | 0.97 | 1.04 | 1.05 |
| Alpha | 0.86 | 0.77 | 0.83 | 0.9 | 0.75 |
| SEM | 0.36 | 0.45 | 0.40 | 1.0 | 0.53 |
| T SEM | 3.74 | 4.8 | 4.12 | 9.5 | 5 |

Their T score was 59.3, so their range is 59.3 – 3.74 and 59.5+3.74.

Chart, line chart

Description automatically generated

We can be fairly confident that their score would fall between 55.3 and 63 upon repeated testing in similar conditions. They are in the high range for Dormaus. But the company is not interested in Dormaus per se, they are more interested in the types of behaviour that Dormaus predicts. We can check our dataset to see if Dormaus predicts any behaviours that might be of interest to the company.

* Open The dataset in Jamovi
* Go to ‘Regression’ -> Correlation
* Select the Dormaus variable and the five behaviour variables
* Check the table – does it correlate strongly with any of the behavioural outcomes

# Task

Try the above for some of the other variables. The T scores and SEM’s have been provided because this weeks focus is on validity – but you are free to practice the calculations if you like. The workshop tutors will help with any issues.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Dormaus | Open to Crit | Perfectionist | Inner-thinking | Sagacity |
| Raw | 6 | 5 | 3 | 4 | 5 |
| T score | 59.3 | 48.3 | 30.7 | 40 | 49.7 |

Using the Following Reliability Scores let’s find the persons range for the Dormaus dimension

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Dormaus | Open to Crit | Perfectionist | Inner-thinking | Sagacity |
| Mean | 5.1 | 5.16 | 4.87 | 5.05 | 5.03 |
| SD | 0.97 | 0.94 | 0.97 | 1.04 | 1.05 |
| Alpha | 0.86 | 0.77 | 0.83 | 0.9 | 0.75 |
| SEM | 0.36 | 0.45 | 0.40 | 1.0 | 0.53 |
| T SEM | 3.74 | 4.8 | 4.12 | 9.5 | 5 |

## Steps:

1. Choose a factor
2. Find the persons range for that factor (T score plus or minus the T score SEM) and plot on the normal distribution using a line or rectangle shape from the Insert->Shapes menu. What range are they is compared with the norm group?
3. In Jamovi correlate the variable with the five behavioural outcomes. Are there any strong correlations?
4. Make a statement about the likelihood that someone with this profile will or will not be display this behaviour.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Construct | | | | | |
| T Score |  | Upper Estimate |  | Lower Estimate |  |
| Chart, line chart  Description automatically generated | | | | | |
| Correlated Behaviours | |  |  |  |  |
| Lateness | |  |  |  |  |
| Sleep | |  |  |  |  |
| Teamwork | |  |  |  |  |
| Innovativeness | |  |  |  |  |
| Messiness | |  |  |  |  |
| Statement | | | | | |
|  | | | | | |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Construct | | | | | |
| T Score |  | Upper Estimate |  | Lower Estimate |  |
| Chart, line chart  Description automatically generated | | | | | |
| Correlated Behaviours | |  |  |  |  |
| Lateness | |  |  |  |  |
| Sleep | |  |  |  |  |
| Teamwork | |  |  |  |  |
| Innovativeness | |  |  |  |  |
| Messiness | |  |  |  |  |
| Statement | | | | | |
|  | | | | | |