

Chapter 10: Comparing two means

Labcoat Leni's Real Research

You don't have to be mad here, but it helps

Problem



Board, B. J., & Fritzon, K. (2005). *Psychology, Crime & Law*, 11(1), 17–32.

In the UK you often see the 'humorous' slogan 'You don't have to be mad to work here, but it helps' stuck up in work places. Well, Board and Fritzon (2005) took this a step further by measuring whether 39 senior business managers and chief executives from leading UK companies were mad (well, had personality disorders, PDs). They gave them the Minnesota Multiphasic Personality Inventory Scales for DSM III Personality Disorders (MMPI-PD), which is a well-validated measure of 11 personality disorders: histrionic, narcissistic, antisocial, borderline, dependent, compulsive, passive-aggressive, paranoid, schizotypal, schizoid and avoidant. They needed a comparison group, and what better one to choose than 317 legally classified psychopaths at Broadmoor Hospital (a famous high-security psychiatric hospital in the UK).

The authors report the means and SDs for these two groups in Table 2 of their paper. Using these values and the syntax file **Independent t from means.sps**, we can run *t*-tests on these means. Use the file **Board and Fritzon 2005.sav** and the syntax file to run *t*-tests to see whether managers score higher on personality disorder questionnaires than legally classified psychopaths. Report these results. What do you conclude?

Solution

The data look like this:

BoardFritzon2005.sav [DataSet8] - IBM SPSS Statistics Data Editor

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

Visible: 7 of 7 Variables

| | Outcome | x1 | x2 | sd1 | sd2 | n1 | n2 | var | var | var | var | var |
|----|---------------|-------|-------|------|------|----|-----|-----|-----|-----|-----|-----|
| 1 | Histrionic | 13.33 | 8.88 | 3.48 | 3.67 | 39 | 317 | | | | | |
| 2 | Narcissistic | 15.58 | 14.54 | 3.72 | 4.42 | 39 | 317 | | | | | |
| 3 | Compulsive | 7.35 | 6.92 | 2.43 | 3.38 | 39 | 317 | | | | | |
| 4 | Antisocial | 8.64 | 12.43 | 3.75 | 4.33 | 39 | 317 | | | | | |
| 5 | Borderline | 9.23 | 15.77 | 4.09 | 3.82 | 39 | 317 | | | | | |
| 6 | Dependent | 5.92 | 12.06 | 2.98 | 3.77 | 39 | 317 | | | | | |
| 7 | Passive-ag... | 5.56 | 7.87 | 2.78 | 3.64 | 39 | 317 | | | | | |
| 8 | Paranoid | 5.82 | 13.79 | 2.86 | 5.61 | 39 | 317 | | | | | |
| 9 | Schizotypal | 9.17 | 22.85 | 5.09 | 7.73 | 39 | 317 | | | | | |
| 10 | Schizoid | 6.61 | 12.82 | 3.48 | 4.58 | 39 | 317 | | | | | |
| 11 | Avoidant | 12.79 | 21.93 | 7.06 | 8.70 | 39 | 317 | | | | | |
| 12 | | | | | | | | | | | | |
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Data View Variable View

IBM SPSS Statistics Processor is ready

The columns represent the following:

Outcome: A string variable that tells us which personality disorder the numbers in each row relate to.

X1: Mean of the managers group.

X2: Mean of the psychopaths group.

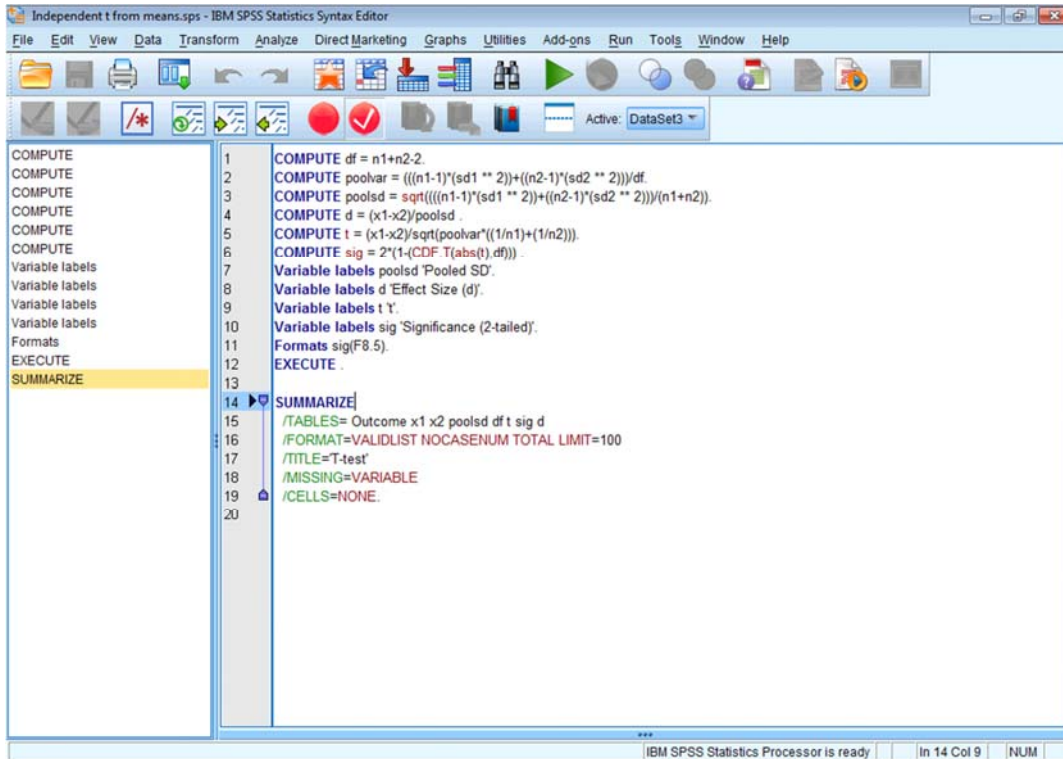
sd1: Standard deviation of the managers group.

sd2: Standard deviation of the psychopaths group.

n1: The number of managers tested.

n2: The number of psychopaths tested.

The syntax file looks like this:



We can run the syntax by selecting **Run All**. The output looks like this:

T-test^a

| | Outcome Measure | Mean of Managers | Mean of Psychopaths | Pooled SD | df | t | Significance (2-tailed) | Effect Size (d) |
|----|--------------------|------------------|---------------------|-----------|--------|--------|-------------------------|-----------------|
| 1 | Histrionic | 13.33 | 8.88 | 3.64 | 354.00 | 7.18 | .00000 | 1.22 |
| 2 | Narcissistic | 15.58 | 14.54 | 4.34 | 354.00 | 1.41 | .15977 | .24 |
| 3 | Compulsive | 7.35 | 6.92 | 3.28 | 354.00 | .77 | .44185 | .13 |
| 4 | Antisocial | 8.64 | 12.43 | 4.26 | 354.00 | -5.23 | .00000 | -.89 |
| 5 | Borderline | 9.23 | 15.77 | 3.84 | 354.00 | -10.01 | .00000 | -1.70 |
| 6 | Dependent | 5.92 | 12.06 | 3.68 | 354.00 | -9.80 | .00000 | -1.67 |
| 7 | Passive-aggressive | 5.56 | 7.87 | 3.55 | 354.00 | -3.83 | .00015 | -.65 |
| 8 | Paranoid | 5.82 | 13.79 | 5.37 | 354.00 | -8.73 | .00000 | -1.48 |
| 9 | Schizotypal | 9.17 | 22.85 | 7.47 | 354.00 | -10.76 | .00000 | -1.83 |
| 10 | Schizoid | 6.61 | 12.82 | 4.46 | 354.00 | -8.18 | .00000 | -1.39 |
| 11 | Avoidant | 12.79 | 21.93 | 8.52 | 354.00 | -6.31 | .00000 | -1.07 |

a. Limited to first 100 cases.

We can report that managers scored significantly higher than psychopaths on histrionic personality disorder, $t(354) = 7.18, p < .001, d = 1.22$. There were no significant differences between groups on narcissistic personality disorder, $t(354) = 1.41, p > .05, d = 0.24$, or compulsive personality disorder, $t(354) = 0.77, p > .05, d = 0.13$. On all other measures, psychopaths scored significantly higher than managers: antisocial personality disorder, $t(354)$

= -5.23, $p < .001$, $d = -0.89$; borderline personality disorder, $t(354) = -10.01$, $p < .001$, $d = -1.70$; dependent personality disorder, $t(354) = -9.80$, $p < .001$, $d = -1.67$; passive-aggressive personality disorder, $t(354) = -3.83$, $p < .001$, $d = -0.65$; paranoid personality disorder, $t(354) = -8.73$, $p < .001$, $d = -1.48$; schizotypal personality disorder, $t(354) = -10.76$, $p < .001$, $d = -1.83$; schizoid personality disorder, $t(354) = -8.18$, $p < .001$, $d = -1.39$; avoidant personality disorder, $t(354) = -6.31$, $p < .001$, $d = -1.07$.

The results show the presence of elements of PD in the senior business manager sample, especially those most associated with psychopathic PD. The senior business manager group showed significantly higher levels of traits associated with histrionic PD than psychopaths. They also did not significantly differ from psychopaths in narcissistic and compulsive PD traits. These findings could be an issue of power (effects were not detected but are present). The effect sizes d can help us out here, and these are quite small (0.24 and 0.13), which can give us confidence that there really isn't a difference between psychopaths and managers on these traits. Broad and Fritzon (2005) conclude that: 'At a descriptive level this translates to: superficial charm, insincerity, egocentricity, manipulativeness (histrionic), grandiosity, lack of empathy, exploitativeness, independence (narcissistic), perfectionism, excessive devotion to work, rigidity, stubbornness, and dictatorial tendencies (compulsive). Conversely, the senior business manager group is less likely to demonstrate physical aggression, consistent irresponsibility with work and finances, lack of remorse (antisocial), impulsivity, suicidal gestures, affective instability (borderline), mistrust (paranoid), and hostile defiance alternated with contrition (passive/aggressive.)' And these people are in charge of large companies. Hmm, suddenly a lot things make sense.