Chapter 10

**Repeated measures two-way ANOVA**

Students’ levels of anxiety were measured based on two sources, examinations and social interaction. Both factors were measured pre- and post-activity. Each measurement used a scale of 1 to 10, 1 being the lowest and 10 being the highest. One of the factors is the source of anxiety; the other is time before and after the activity.

Perform a repeated measures two-way ANOVA in JASP to analyze the individual and interaction effects of activity and time on the students’ anxiety levels (on the Repeated-measures two-way ANOVA csv file).

|  |  |  |  |
| --- | --- | --- | --- |
| PreExam\_Anxiety | PostExam\_Anxiety | PreSocial\_Anxiety | PostSocial\_Anxiety |
| 6 | 5 | 9 | 7 |
| 9 | 6 | 6 | 4 |
| 5 | 3 | 8 | 5 |
| 6 | 2 | 5 | 5 |
| 6 | 5 | 9 | 6 |
| 3 | 3 | 7 | 5 |
| 9 | 6 | 7 | 5 |
| 4 | 2 | 4 | 3 |
| 8 | 5 | 6 | 5 |
| 7 | 2 | 8 | 4 |

**Between-Subjects ANOVA**

Four different types of therapy are being tested, each with different groups of patients, who complete scales designed to measure wellbeing. The therapist was also noted. The results are as follows (in the Between Subjects ANOVA csv file):

|  |  |  |
| --- | --- | --- |
| Wellbeing | Therapy | Therapist |
| 109 | 1 | 1 |
| 110 | 1 | 1 |
| 110 | 1 | 2 |
| 112 | 1 | 2 |
| 116 | 1 | 3 |
| 114 | 1 | 3 |
| 110 | 2 | 1 |
| 115 | 2 | 1 |
| 110 | 2 | 2 |
| 111 | 2 | 2 |
| 112 | 2 | 3 |
| 115 | 2 | 3 |
| 108 | 3 | 1 |
| 109 | 3 | 1 |
| 111 | 3 | 2 |
| 109 | 3 | 2 |
| 114 | 3 | 3 |
| 119 | 3 | 3 |
| 110 | 4 | 1 |
| 108 | 4 | 1 |
| 114 | 4 | 2 |
| 112 | 4 | 2 |
| 120 | 4 | 3 |
| 117 | 4 | 3 |

Test to see if there is a difference in the wellbeing scores according to the factors considered.

**Mixed ANOVA**

In this (completely imaginary) study, dementia patients in their 80s are given half hour talking sessions, later followed by a memory test. All participants have discussions both with an artificial intelligence 'friend' and, at another time, with a member of staff. While the content matter is the same, the context differs for each group of patients: time context 1 is set within the individuals' youth; time context 2 is set in middle age; the setting for context 3 is when the individuals were in their 70s.

|  |  |  |  |
| --- | --- | --- | --- |
| Patient  | Time context | RoboFriend | Human |
| 1 | 3 | 23 | 24 |
| 2 | 3 | 24 | 23 |
| 3 | 3 | 25 | 28 |
| 4 | 2 | 30 | 38 |
| 5 | 2 | 28 | 36 |
| 6 | 2 | 26 | 35 |
| 7 | 1 | 31 | 34 |
| 8 | 1 | 32 | 36 |
| 9 | 1 | 29 | 39 |

Conduct a mixed ANOVA with JASP and identify which factors are associated with clinical outcomes.