Q.

We ran an online experiment to test which intervention will increase medication adherence rates. There was a control group and four treatment groups. The data can be found here: https://drive.google.com/file/d/14QpNmjCP9Znid_-PDP0iSsvhovbd9EW_/view?usp=sharing
Then please run appropriate statistical tests to determine which of the treatment interventions (if any) significantly increased the adherence rates. You can make any assumptions you need to run the calculation, but make these clear in your response. Then provide the statistical tables in a shareable google drive folder and provide a link to the relevant document.

# Understanding research design

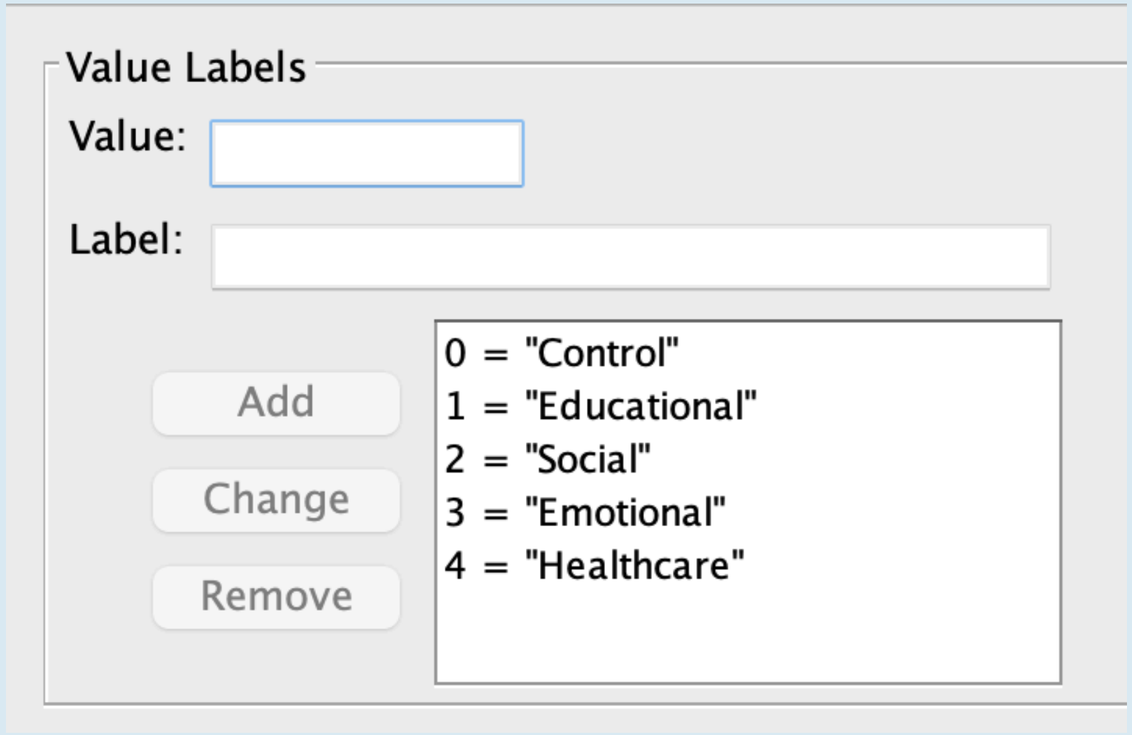
Between group design having more 5 groups of subjects each being tested by a different testing factor simultaneously.

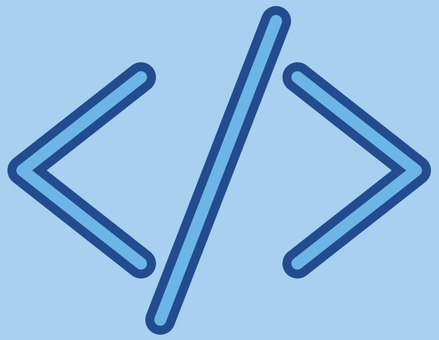
There are 5 groups. One control, and 4 treatment groups. So ANOVA is used to see the mean difference between more than 2 groups.

# Assumptions

| | |
|---|---|
| T1 | Educational Support |
| T2 | Social Support |
| T3 | Emotional Support |
| T4 | Healthcare Support |
| C | Control, No intervention |

# Coding

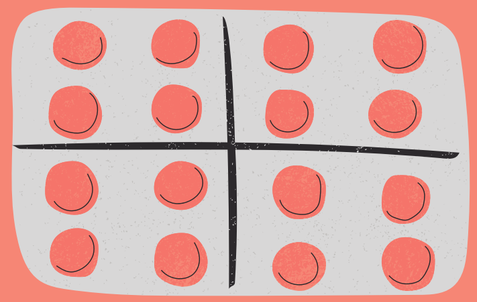

Value Labels
Value:
Label:
Add
Change
Remove
0 = "Control"
1 = "Educational"
2 = "Social"
3 = "Emotional"
4 = "Healthcare"



# SPSS output

The design employed was a One-way between-subjects ANOVA design. The between-subjects factor, interventions, had four treatments: T1, T2, T3 and T4. These were operationalised by showing some participants the educational support, some were given social support while giving medications, some emotional and some healthcare. One of the dependent variables is the percentage of Adherence rate which is the proportion of pills taken over all round.

Analyze > General Linear Model > Univariate



# Between-Subjects Factors

| | | Value Label | N |
|---|---|---|---|
| Condition | 0 | Control | 104 |
| | 1 | Educational | 106 |
| | 2 | Social | 97 |
| | 3 | Emotional | 102 |
| | 4 | Healthcare | 100 |

The factors I analysed, what the levels of that factor are, and the number of participants in each level.

# Descriptive Statistics

Dependent Variable: AdRate

| Condition | Mean | Std. Deviation | N |
|---|---|---|---|
| Control | 41.2179 | 25.62301 | 104 |
| Educational | 48.5535 | 27.44506 | 106 |
| Social | 62.5430 | 25.35750 | 97 |
| Emotional | 42.1569 | 24.73466 | 102 |
| Healthcare | 50.0000 | 27.10912 | 100 |
| Total | 48.7230 | 27.05843 | 509 |

The table gives the mean and the standard deviation (SD) for each level of the factor.

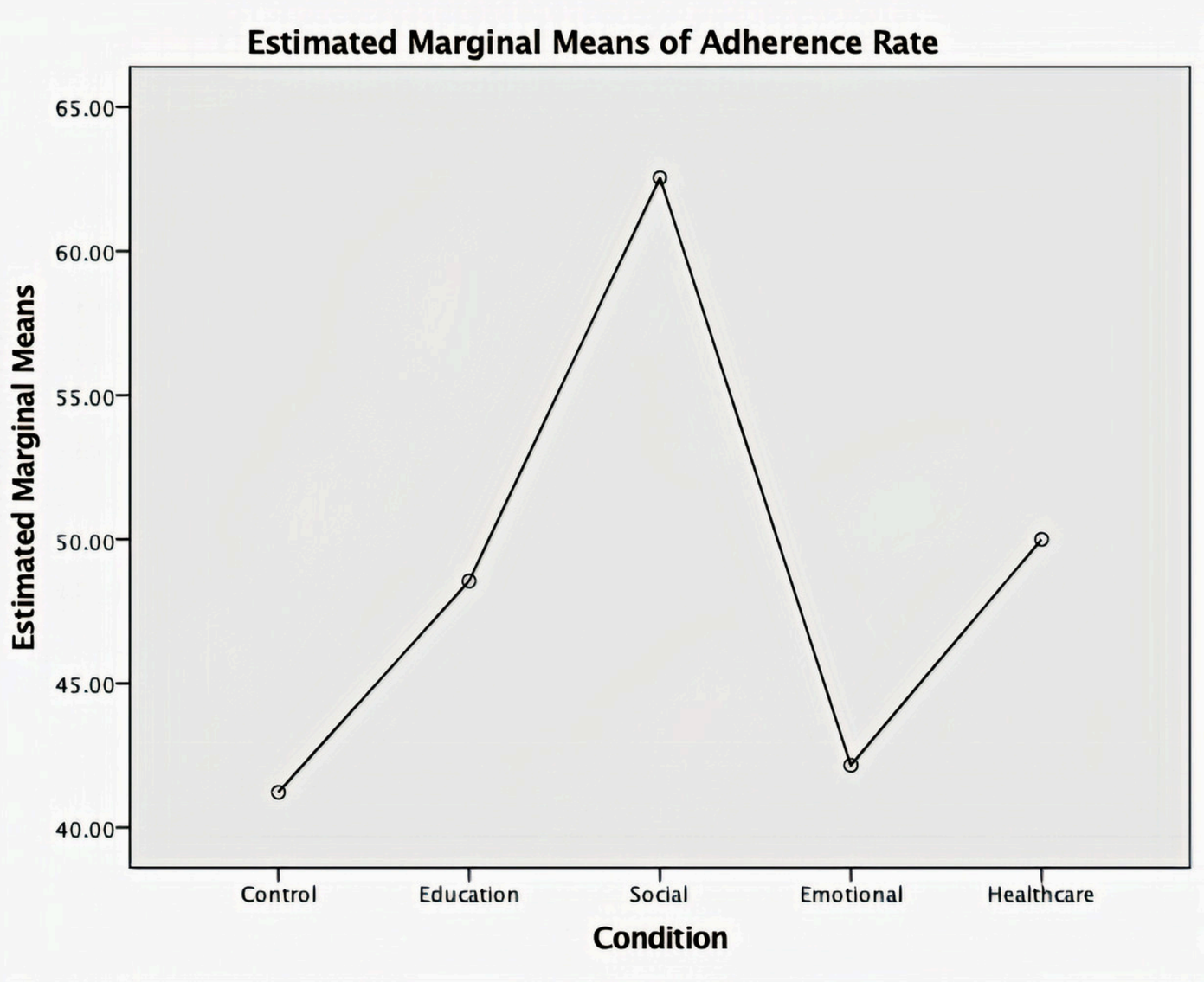
The bottom row gives the total mean and SD; that is, for all participants regardless of which condition they were in.

# SPSS output using One-way ANOVA command - Descriptives

AdRate

| | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum |
|---|---|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound | | |
| Control | 104 | 41.2179 | 25.62301 | 2.51254 | 36.2349 | 46.2010 | 6.67 | 93.33 |
| Educational | 106 | 48.5535 | 27.44506 | 2.66570 | 43.2679 | 53.8391 | 6.67 | 93.33 |
| Social | 97 | 62.5430 | 25.35750 | 2.57466 | 57.4323 | 67.6536 | 6.67 | 93.33 |
| Emotional | 102 | 42.1569 | 24.73466 | 2.44910 | 37.2985 | 47.0152 | 6.67 | 86.67 |
| Healthcare | 100 | 50.0000 | 27.10912 | 2.71091 | 44.6210 | 55.3790 | 6.67 | 93.33 |
| Total | 509 | 48.7230 | 27.05843 | 1.19934 | 46.3667 | 51.0793 | 6.67 | 93.33 |

# Graph


Estimated Marginal Means of Adherence Rate
Estimated Marginal Means
65.00
60.00
55.00
50.00
45.00
40.00
Control
Education
Social
Emotional
Healthcare
Condition

# Summary

The Adherence rate for treatment group 3 which was labelled as 'Social support' performed better than any other group. Statistical Test used was One-way between-subject ANOVA (Analysis of Variance) using SPSS.