Worksheet 3: Summarizing the Power Analysis

Prompt: You are writing a grant application for the proposed study. The grant application requires you to justify the number of participants you plan to enroll in the study. Please summarize the power calculation for the Memory of Pain Trial. The summary should include all of the important elements listed below. Your summary must fit within the blank box provided.

Type I error:	0.01	Mean:	-1.2
Desired power:	0.90	Standard Deviation:	0.98
Hypothesis:	Difference in memory of pain between intervention groups over time	Correlation 6 months:	0.5
Test statistic:	Hotelling-Lawley Trace	Correlation 12 months:	0.4
Analysis method:	Repeated measures ANOVA	Sample size:	44

We plan a repeated measures ANOVA using the Hotelling-Lawley Trace to test for a time by intervention interaction. Based on previous studies, we predict measures of pain recall will have a standard deviation of 0.98. The correlation in pain recall between baseline and 6 months will be 0.5. Based on clinical experience, we predict that the correlation will decrease slowly over time. Thus, we anticipate a correlation of 0.4 between pain recall measures at baseline and 12 months. For a desired power of 0.90 and a Type I error rate of 0.01, we need to enroll 44 participants to detect a mean difference of 1.2.