Prompt: In order to calculate sample size, you need to predict the means, variances, and correlations that you will observed in your study. Fill in the gray boxes based on the information provided.

Correlation Between Outcomes at Different Times

Gedney, Logan, and Baron (2003) identified predictors of the amount of experienced pain recalled over time. The investigators measured pain recall at 1 week and 18 months. One of the findings was that memory of pain intensity at 1 week and 18 months had a correlation of 0.4. Correlation between measures of memory of pain changes slowly over time. Thus, we can assume that the correlation between measures 18 months apart will be similar to the correlation between measures 12 months apart. Likewise, the correlation between measures 6 months apart will be only slightly greater than the correlation between measures 18 months apart.

Correlation between memory of pain measures 6 months apart: (A) 0.5

Correlation between memory of pain measures 12 months apart: (B) 0.4

Standard Deviation of the Outcome

Logan, Baron, and Kohout (1995) examined whether sensory focus therapy during a root canal procedure could reduce a patient's experienced pain. The investigators assessed experienced pain on a 5 point scale both immediately and at one week following the procedure. The standard deviation of the measurements was 0.98.

Variance of memory of pain measures: (C) 0.98

Net Difference in Mean Memory of Pain Between Intervention Groups Over Time

Suppose you ran a pilot study with a small number of participants at a local dental clinic. Participants were randomized to Sensory Focus (SF) or Standard of Care (SOC). You measured their memory of pain at three timepoints (baseline, 6 months, 12 months) after a root canal procedure. Table 1 shows the participants' average memory of pain, stratified by intervention group. Calculate the difference in average memory of pain between intervention groups at each timepoint (D, E, and F). Then calculate the overall difference in average memory of pain between intervention groups from baseline to 12 months (G).

Table 1. Average memory of pain (5 point scale) for participants with a high desire / low felt coping style.

Intervention	Baseline	6 Months	12 Months
Sensory Focus (SF)	3.6	2.8	0.9
Standard of Care (SOC)	4.5	4.3	3.0
Intervention Difference (SF - SOC)	(D) -0.9	(E) -1.5	(F) -2.1
Net Difference Over Time (12 Months - Baseline)			(G) -1.2