Study Protocol - Study Group

Study Group Document

Protocol ID: FBU-YILDIZ-001

Date: September 12, 2025

Study Group

To determine the number of participants to be included in the study, a power analysis was conducted.

The test power was calculated using the G*Power 3.1 program.

In a similar study conducted by Huang et al. (2020), the effect size regarding changes in knowledge level

was calculated as 0.928. In order to achieve a statistical power above 95%; at a 5% significance level and

an effect size of 0.928, a total of 24 participants per group are required (df=23; t=2.069).

Considering possible attrition and to ensure high statistical power, the study aimed to recruit 29 participants.

Statistical Analysis of Data

The data obtained in the study will be analyzed using SPSS (Statistical Package for Social Sciences) for Windows 22.0.

The Kolmogorov-Smirnov test will be used to determine whether the data are normally distributed.

According to the Kolmogorov-Smirnov test, if $p > 0.05$, the distribution is considered normal.

If $p < 0.05$, the distribution is considered non-normal, and skewness and kurtosis values will be examined.

If the skewness and kurtosis values are between +2 and -2, the variable is considered to have a normal distribution (George & Mallery, 2010).

Changes related to repeated measurements will be analyzed using repeated measures ANOVA if the data are normally distributed,

or the Friedman test if the data are not normally distributed.

Appendix – Output Screenshot

t tests - Means: Difference between two dependent means (matched pairs)

Analysis: A priori: Compute required sample size

Input: Tails = Two

Effect size dz = 0.9284596

α err prob = 0.05

Power (1-β err prob) = 0.99

Output: Noncentrality parameter δ = 4.5485045

Critical t = 2.0686576

Df = 23

Total sample size = 24

Actual power = 0.9916119

References

George, D., & Mallery, M. (2010). SPSS for Windows Step by Step: A Simple Guide and Reference, 17.0 update (10th ed.). Boston: Pearson.

Huang, X.L., Tsao, Y., Chung, C.-H., & Creedy, D.K. (2020). Effects of a mobile phone application for graduate nurses to improve central venous catheter care: A randomized controlled trial. Journal of Advanced Nursing. doi:10.1111/jan.14735