

Addressing sleep in a weight loss intervention: does it lead to more changes in diet, physical activity and weight loss in overweight Lebanese students?

Statistical analysis

All analyses will be conducted using IBM SPSS version 26.

1. Baseline (BL) characteristics of participants + difference in BL characteristics between the 2 groups:
 - a. Continuous variables: mean age, mean BL PSQI score, mean BMI, mean fat mass percentage, mean waist circumference, mean identities score will be reported as mean $\pm$ SD.
 - b. Categorical variables: sex, overweight/obesity classification will be reported as percentages.
 - c. Difference between groups in BL characteristics:
 - i. Continuous variables: independent t-tests or Mann–Whitney U tests
 - ii. Categorical variables: chi-square tests.

2. Primary and Secondary Outcomes

Between-group differences in adherence to diet, physical activity, and identity scores at 6 months will be analyzed using ANCOVA and/or regression models. Between-group differences in weight loss and body composition changes will be assessed similarly.

3. Mediation Analysis

To test whether an effect of the sleep spillover intervention on adherence to diet and physical activity (if any) is mediated by changes in exercise, eating, and health identity scores, mediation analyses will be conducted using PROCESS Macro version 4.2 model 4.

4. Repeated Measures Analyses

Changes in identity scores and sleep outcomes across baseline, 3 months, and 6 months, and Group effects therein, will be analyzed using repeated measures ANOVA.

5. Handling Missing Data

Analyses will be conducted using available data for each outcome (i.e., analysis by available case). Missing values will be reported for each outcome. No imputation will be performed for <5%

missing data; if missing data exceed this threshold, they can be replaced by the mean of the variable.