

OFFICIAL TITLE:

Effectiveness of Narrative Therapy in Reducing Anxiety and Depression
among Middle School Students in Refugee Camps in Northern Palestine:
A Quasi-Experimental Study

NCT NUMBER: Not yet assigned

DOCUMENT DATE: June 16, 2024

DOCUMENT TYPE: Statistical Analysis Plan

IRB APPROVAL NUMBER: Nrs. May, 2024/1

PRINCIPAL INVESTIGATOR: Dr. Ibrahim Aqtam

CO-INVESTIGATOR: Dr. Mustafa Shouli

AFFILIATION:

Ibn Sina College for Health Professions,
Nablus University for Vocational and Technical Education

STUDY LOCATION:

UNRWA-operated middle schools in Jenin, Balata, and Askar Refugee
Camps,
Northern Palestine

SPSS Syntax

STATISTICAL ANALYSIS SYNTAX (SPSS VERSION 28.0)

1. DATA PREPARATION

spss

*

* DATA PREPARATION

*

* Define variable labels.

VARIABLE LABELS

ID 'Participant ID'

Group 'Group assignment (1=Intervention, 0=Control)'

Gender 'Gender (1=Male, 2=Female)'

Age 'Age in years'

Grade 'Grade level (6-9)'

SES 'Socioeconomic status (1=Low, 2=Medium, 3=High)'

Camp 'Camp of residence (1=A, 2=B, 3=C)'

RCADS_Pre 'RCADS total score - baseline'

RCADS_Post 'RCADS total score - post-test'

RCADS_FU 'RCADS total score - follow-up'

Trauma 'Trauma exposure score (WEQ)'

GAD_Pre 'GAD subscale - baseline'

GAD_FU 'GAD subscale - follow-up'

SAD_Pre 'SAD subscale - baseline'

SAD_FU 'SAD subscale - follow-up'

SP_Pre 'SP subscale - baseline'

SP_FU 'SP subscale - follow-up'

PD_Pre 'PD subscale - baseline'

PD_FU 'PD subscale - follow-up'

OCD_Pre 'OCD subscale - baseline'

OCD_FU 'OCD subscale - follow-up'

MDD_Pre 'MDD subscale - baseline'

MDD_FU 'MDD subscale - follow-up'

Clin_Imp 'Clinically significant improvement (1=Yes, 0=No)'

Retention 'Completed all assessments (1=Yes, 0=No)'

Fidelity 'Fidelity score (percentage)'.

* Define value labels.

VALUE LABELS Group 1 'Intervention' 0 'Control' /

Gender 1 'Male' 2 'Female' /

SES 1 'Low' 2 'Medium' 3 'High' /

Camp 1 'Camp A' 2 'Camp B' 3 'Camp C' /

Clin_Imp 1 'Yes' 0 'No' /

Retention 1 'Yes' 0 'No'.

* Missing data handling - LOCF for ITT analysis.

DO IF MISSING(RCADS_Post).

COMPUTE RCADS_Post = RCADS_Pre.

END IF.

DO IF MISSING(RCADS_FU).

COMPUTE RCADS_FU = RCADS_Post.

END IF.

* Calculate change scores.

COMPUTE Change_Post = RCADS_Post - RCADS_Pre.

COMPUTE Change_FU = RCADS_FU - RCADS_Pre.

EXECUTE.

2. DESCRIPTIVE STATISTICS AND DEMOGRAPHICS

spss

*

* DESCRIPTIVE STATISTICS

*

* Demographic characteristics by group.

FREQUENCIES VARIABLES=Gender Grade SES Camp

/BARCHART

/ORDER=ANALYSIS.

* Means and SDs for continuous variables by group.

MEANS TABLES=Age BY Group

/CELLS MEAN COUNT STDDEV

/STATISTICS ANOVA.

* Chi-square tests for categorical variables.

CROSSTABS

/TABLES=Gender BY Group

/FORMAT=AVALUE TABLES

/STATISTICS=CHISQ

/CELLS=COUNT ROW

/COUNT ROUND CELL.

CROSSTABS

/TABLES=Grade BY Group

/FORMAT=AVALUE TABLES

/STATISTICS=CHISQ

/CELLS=COUNT ROW

/COUNT ROUND CELL.

CROSSTABS

/TABLES=SES BY Group

/FORMAT=AVALUE TABLES

/STATISTICS=CHISQ

/CELLS=COUNT ROW

/COUNT ROUND CELL.

CROSSTABS

/TABLES=Camp BY Group

/FORMAT=AVALUE TABLES

/STATISTICS=CHISQ

/CELLS=COUNT ROW

/COUNT ROUND CELL.

* Summary table - RCADS scores by group and time.

MEANS TABLES=RCADS_Pre RCADS_Post RCADS_FU BY Group

/CELLS MEAN STDDEV COUNT

/STATISTICS NONE.

3. STATISTICAL ASSUMPTION TESTING

spss

* =====

* STATISTICAL ASSUMPTION TESTING

* =====

* Normality of residuals.

REGRESSION

/DEPENDENT RCADS_Post

/METHOD=ENTER Group Age Gender SES Camp RCADS_Pre

/SAVE RESID.

EXAMINE VARIABLES=RES_1

/PLOT BOXPLOT HISTOGRAM NPLOT

/COMPARE GROUP

/STATISTICS DESCRIPTIVES

/INTERVAL 95

/MISSING LISTWISE

/NOTOTAL.

* Shapiro-Wilk test for residuals.

* SPSS does not directly compute Shapiro-Wilk for residuals.

* Alternative: Use Explore command on residuals.

* Homogeneity of variances - Levene's test.

ONEWAY RCADS_Post BY Group

/STATISTICS DESCRIPTIVES HOMOGENEITY

/MISSING ANALYSIS.

* Homogeneity of regression slopes.

UNIANOVA RCADS_Post BY Group WITH RCADS_Pre

/DESIGN RCADS_Pre Group RCADS_Pre*Group

/PRINT PARAMETER

/CRITERIA ALPHA(0.05)

/DESIGN RCADS_Pre Group RCADS_Pre*Group.

4. MIXED-EFFECTS REPEATED-MEASURES ANCOVA

spss

* =====

* MIXED-EFFECTS REPEATED-MEASURES ANCOVA

* =====

* Restructure data from wide to long format.

VARSTOCASES

/MAKE RCADS FROM RCADS_Pre RCADS_Post RCADS_FU

/INDEX Time (3)

/KEEP ID Group Age Gender SES Camp.

VALUE LABELS Time 1 'Baseline' 2 'Post-Test' 3 'Follow-Up'.

* Mixed-effects model with unstructured covariance.

MIXED RCADS BY Group Time WITH Age Gender SES Camp

/FIXED=Group Time Group*Time Age Gender SES Camp | SSTYPE(3)

/METHOD=REML

/PRINT=SOLUTION TESTCOV

/RANDOM=INTERCEPT | SUBJECT(ID) COVTYPE(UN)

/REPEATED=Time | SUBJECT(ID) COVTYPE(UN).

* Test Group*Time interaction.

MIXED RCADS BY Group Time WITH Age Gender SES Camp

/FIXED=Group Time Group*Time Age Gender SES Camp | SSTYPE(3)

/METHOD=REML

/TEST= 'Group*Time Interaction' Group*Time 1 -1 1 -1

/PRINT=SOLUTION TESTCOV

/RANDOM=INTERCEPT | SUBJECT(ID) COVTYPE(UN)

/REPEATED=Time | SUBJECT(ID) COVTYPE(UN).

5. PAIRED T-TESTS

spss

* =====

* PAIRED T-TESTS - WITHIN-GROUP CHANGES

* =====

* Intervention group: Pre vs. Post.

T-TEST PAIRS=RCADS_Pre RCADS_Post

/CRITERIA=CI(.9500)

/MISSING=ANALYSIS.

* Intervention group: Post vs. Follow-Up.

T-TEST PAIRS=RCADS_Post RCADS_FU

/CRITERIA=CI(.9500)

/MISSING=ANALYSIS.

* Control group: Pre vs. Post.

T-TEST PAIRS=RCADS_Pre RCADS_Post

/CRITERIA=CI(.9500)

/MISSING=ANALYSIS.

* Control group: Post vs. Follow-Up.

T-TEST PAIRS=RCADS_Post RCADS_FU

/CRITERIA=CI(.9500)

/MISSING=ANALYSIS.

* Split file by group.

SORT CASES BY Group.

SPLIT FILE SEPARATE BY Group.

* Run all paired t-tests by group.

T-TEST PAIRS=RCADS_Pre RCADS_Post

/CRITERIA=CI(.9500)

/MISSING=ANALYSIS.

T-TEST PAIRS=RCADS_Post RCADS_FU

/CRITERIA=CI(.9500)

/MISSING=ANALYSIS.

SPLIT FILE OFF.

6. ANCOVA FOR BETWEEN-GROUP COMPARISONS

spss

* =====

* ANCOVA - BETWEEN-GROUP COMPARISONS

* =====

* Post-test ANCOVA.

UNIANOVA RCADS_Post BY Group WITH RCADS_Pre Age Gender SES Camp

/METHOD=SSTYPE(3)

/INTERCEPT=INCLUDE

/PRINT=DESCRIPTIVE PARAMETER

/CRITERIA=ALPHA(0.05)

/DESIGN=RCADS_Pre Age Gender SES Camp Group.

* Follow-up ANCOVA.

UNIANOVA RCADS_FU BY Group WITH RCADS_Pre Age Gender SES Camp

/METHOD=SSTYPE(3)

/INTERCEPT=INCLUDE

/PRINT=DESCRIPTIVE PARAMETER

/CRITERIA=ALPHA(0.05)

/DESIGN=RCADS_Pre Age Gender SES Camp Group.

* Effect size calculation - partial eta squared.

* Partial eta squared = $SS_{\text{effect}} / (SS_{\text{effect}} + SS_{\text{error}})$.

* Reported in output tables.

* Adjusted means with 95% CI.

UNIANOVA RCADS_Post BY Group WITH RCADS_Pre Age Gender SES Camp

/EMMEANS=TABLES(Group) WITH(RCADS_Pre=MEAN Age=MEAN Gender=MEAN SES=MEAN
Camp=MEAN)

/PRINT=DESCRIPTIVE PARAMETER

/DESIGN=RCADS_Pre Age Gender SES Camp Group.

7. CLINICAL SIGNIFICANCE ANALYSIS

spss

* =====

* CLINICAL SIGNIFICANCE

* =====

* Create clinical improvement variable.

* RCADS T-score < 65 considered below clinical threshold.

* T-score calculation requires age- and gender-specific norms.

* For this analysis, we use the established cutoff.

COMPUTE Clinical_Threshold = 65.

EXECUTE.

* Identify participants who moved from above to below threshold.

COMPUTE Pre_Clinical = 0.

COMPUTE FU_Clinical = 0.

IF (RCADS_Pre >= 65) Pre_Clinical = 1.

IF (RCADS_FU < 65) FU_Clinical = 1.

IF (Pre_Clinical = 1 AND FU_Clinical = 1) Clin_Imp = 1.

IF (Pre_Clinical = 1 AND FU_Clinical = 0) Clin_Imp = 0.

EXECUTE.

* Chi-square test for clinical improvement.

CROSSTABS

```
/TABLES=Group BY Clin_Imp
/FORMAT=AVALUE TABLES
/STATISTICS=CHISQ RISK
/CELLS=COUNT ROW
/COUNT ROUND CELL.
```

- * Number Needed to Treat (NNT).
- * $NNT = 1 / (\text{Control_event_rate} - \text{Intervention_event_rate})$.
- * Calculated from chi-square output.

8. SUBSCALE ANALYSIS

spss

```
* =====
* SUBSCALE ANALYSIS
* =====
```

```
* Calculate change scores for each subscale.
COMPUTE GAD_Change = GAD_FU - GAD_Pre.
COMPUTE SAD_Change = SAD_FU - SAD_Pre.
COMPUTE SP_Change = SP_FU - SP_Pre.
COMPUTE PD_Change = PD_FU - PD_Pre.
COMPUTE OCD_Change = OCD_FU - OCD_Pre.
COMPUTE MDD_Change = MDD_FU - MDD_Pre.
EXECUTE.
```

```
* ANCOVA for each subscale.
UNIANOVA GAD_Change BY Group WITH GAD_Pre Age Gender SES Camp
/METHOD=SSTYPE(3)
/PRINT=DESCRIPTIVE PARAMETER
/CRITERIA=ALPHA(0.05)
/DESIGN=GAD_Pre Age Gender SES Camp Group.
```

```
UNIANOVA SAD_Change BY Group WITH SAD_Pre Age Gender SES Camp
/METHOD=SSTYPE(3)
/PRINT=DESCRIPTIVE PARAMETER
/CRITERIA=ALPHA(0.05)
/DESIGN=SAD_Pre Age Gender SES Camp Group.
```

```
UNIANOVA SP_Change BY Group WITH SP_Pre Age Gender SES Camp
/METHOD=SSTYPE(3)
/PRINT=DESCRIPTIVE PARAMETER
/CRITERIA=ALPHA(0.05)
/DESIGN=SP_Pre Age Gender SES Camp Group.
```

```
UNIANOVA PD_Change BY Group WITH PD_Pre Age Gender SES Camp
/METHOD=SSTYPE(3)
/PRINT=DESCRIPTIVE PARAMETER
/CRITERIA=ALPHA(0.05)
/DESIGN=PD_Pre Age Gender SES Camp Group.
```

```
UNIANOVA OCD_Change BY Group WITH OCD_Pre Age Gender SES Camp
/METHOD=SSTYPE(3)
/PRINT=DESCRIPTIVE PARAMETER
/CRITERIA=ALPHA(0.05)
/DESIGN=OCD_Pre Age Gender SES Camp Group.
```

```
UNIANOVA MDD_Change BY Group WITH MDD_Pre Age Gender SES Camp
/METHOD=SSTYPE(3)
/PRINT=DESCRIPTIVE PARAMETER
/CRITERIA=ALPHA(0.05)
/DESIGN=MDD_Pre Age Gender SES Camp Group.
```

- * Effect size for each subscale.
- * Cohen's d = (M1 - M2) / Pooled SD.
- * Calculate using means and SDs from output.

9. MODERATOR ANALYSES

spss

```
* =====
* MODERATOR ANALYSES
* =====
```

- * Gender moderation.

```
UNIANOVA RCADS_Post BY Group Gender WITH RCADS_Pre Age SES Camp
/METHOD=SSTYPE(3)
/PRINT=DESCRIPTIVE PARAMETER
/CRITERIA=ALPHA(0.05)
/DESIGN=RCADS_Pre Age SES Camp Group Gender Group*Gender.
```

- * Baseline severity moderation.

- * Create severity groups.

```
COMPUTE Severity = 0.
```

```
IF (RCADS_Pre >= 17) Severity = 1. * High severity (T-score >= 70).
```

```
IF (RCADS_Pre < 17 AND RCADS_Pre >= 14) Severity = 0. * Moderate severity (T-score 65-69).
```

```
VALUE LABELS Severity 0 'Moderate' 1 'High'.
```

```
EXECUTE.
```

```
UNIANOVA RCADS_Post BY Group Severity WITH RCADS_Pre Age Gender SES Camp
/METHOD=SSTYPE(3)
/PRINT=DESCRIPTIVE PARAMETER
/CRITERIA=ALPHA(0.05)
/DESIGN=RCADS_Pre Age Gender SES Camp Group Severity Group*Severity.
```

- * Separate ANCOVAs by severity group.

```
SORT CASES BY Severity.
```

```
SPLIT FILE SEPARATE BY Severity.
```

```
UNIANOVA RCADS_Post BY Group WITH RCADS_Pre Age Gender SES Camp
/METHOD=SSTYPE(3)
/PRINT=DESCRIPTIVE PARAMETER
/CRITERIA=ALPHA(0.05)
/DESIGN=RCADS_Pre Age Gender SES Camp Group.
```

```
SPLIT FILE OFF.
```

10. SENSITIVITY ANALYSIS

spss

```
* =====
* SENSITIVITY ANALYSIS - SCHOOL-LEVEL AGGREGATION
* =====
```

* Aggregate change scores to school level.

```
AGGREGATE
/OUTFILE=*
/BREAK=School Group
/RCADS_Pre_Mean=MEAN(RCADS_Pre)
/RCADS_Post_Mean=MEAN(RCADS_Post)
/RCADS_FU_Mean=MEAN(RCADS_FU)
/N_Break=N.
```

* Calculate school-level change scores.

```
COMPUTE School_Change = RCADS_FU_Mean - RCADS_Pre_Mean.
EXECUTE.
```

* Independent samples t-test at school level.

```
T-TEST GROUPS=Group(0 1)
/MISSING=ANALYSIS
/VARIABLES=School_Change
/CRITERIA=CI(.95).
```

11. FEASIBILITY OUTCOMES

spss

*

* FEASIBILITY OUTCOMES

*

* Recruitment rate.

```
FREQUENCIES VARIABLES=Enrolled
/BARCHART
/STATISTICS=MEAN.
```

* Retention rate.

```
FREQUENCIES VARIABLES=Retention
/BARCHART
/STATISTICS=MEAN.
```

* Fidelity scores.

```
FREQUENCIES VARIABLES=Fidelity
/HISTOGRAM
/STATISTICS=MEAN MEDIAN MIN MAX STDDEV.
```

* Acceptability (coded from qualitative feedback).

```
FREQUENCIES VARIABLES=Acceptability
/BARCHART
/STATISTICS=MEAN.
```

12. EFFECT SIZE CALCULATION (MANUAL)

spss

*

* EFFECT SIZE CALCULATION - COHEN'S D

*

* Compute Cohen's d for post-test.

* $d = (M1 - M2) / \text{pooled SD}$.

* $\text{Pooled SD} = \sqrt{((n1-1)*s1^2 + (n2-1)*s2^2) / (n1+n2-2)}$.

- * Obtain means and SDs from output.
- * Calculate using compute command.

* Example for post-test.

* Assuming: $M_1=12.8$, $M_2=14.5$, $SD_1=3.9$, $SD_2=4.0$, $n_1=57$, $n_2=57$.

```
COMPUTE Pooled_SD = SQRT(((57-1)*3.9*3.9 + (57-1)*4.0*4.0) / (57+57-2)).
COMPUTE Cohen_d = (14.5 - 12.8) / Pooled_SD.
EXECUTE.
```

- * Similar calculation for follow-up.

13. DATA EXPORT

spss

```
* =====
* DATA EXPORT FOR SUPPLEMENTARY FILES
* =====
```

- * Export anonymized dataset.

```
SAVE TRANSLATE OUTFILE='Anonymized_Dataset.sav'
/TYPE=SAV
/VERSION=28
/MAP
/REPLACE.
```

- * Export SPSS syntax for supplementary file.
- * Copy-paste this entire syntax file for submission.