Empowering Families Project: An RCT of the Effects of Relationship Education With and Without Ancillary Economic Services on Family Outcomes

NCT05359185

April 27, 2022

Statistical Analysis Plan

Due to the nested nature of the data, analyses will be conducted in a multilevel modeling framework. The primary IV will be randomized group membership and the primary DVs will be amounts/rates of change in the outcome measures. Multilevel modeling is robust to missing data; all couples with at least one data point can be included in the analyses and missing data points are handled statistically using Full Information Maximum Likelihood (FIML) estimation.

The following three-level model will form the basis of all analyses:

Level 1 (repeated measures):	$Y_{tij} = \pi_{0ij} + \pi_{1ij} Time_{tij} + e_{tij}$
Level 2 (individuals):	$\pi_{0ij} = \beta_{00j} + r_{0ij}$ $\pi_{1ij} = \beta_{10j} + r_{1ij}$
Level 3 (couples):	$\beta_{00j} = \gamma_{000} + \gamma_{001} Treat_j + u_{00j}$ $\beta_{10j} = \gamma_{100} + \gamma_{101} Treat_j + u_{10j}$

Where:

Y_{tij}	is the outcome (e.g., relationship satisfaction, financial strain, etc.) at time *t* for individual *i* in couple *j*
$Time_{tij}$	represents the timing (in weeks) of the assessments. This variable will take on values of 0, 8, 24, and 52
π_{0ij}	is the initial status of individual *ij* (i.e., the expected value for that individual at the start of intervention)
π_{1ij}	is the growth rate for individual *ij* during every week of the assessment period
$Treat_j$	represents the type of intervention couple *j* receives
β_{00j}	is the mean initial status within couple *j*; γ_{000} is the overall mean initial status of couples not receiving treatment and γ_{001} is the overall initial difference between the two treatment groups
β_{10j}	is the mean weekly growth rate within couple *j*; γ_{101} is the overall growth rate difference between the two treatment groups
$e_{tij}, r_{0ij}, r_{1ij}, u_{00j}, u_{10j}$	represent the random effects or variability of the observed outcomes at repeated measures, individual, and couple levels respectively; the model assumes that all the variance components are homoscedastic and multivariate normal, and independent across levels