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Official Title: Does a Spouse-Inclusive Social Support Intervention Reduce Prenatal Anxiety During Public Health Emergencies? A Randomized Controlled Trial
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Statistical Analysis Plan (SAP)

1. Overview & Objectives

This document outlines the statistical methods and analysis plan for the randomized controlled trial evaluating the spouse-inclusive social support intervention during public health emergencies.

2. Sample Size Determination

Sample size calculations were performed using G*Power 3.1.9.7 for repeated-measures ANOVA. Assuming a modest effect size (f = 0.25), an alpha of 0.05, statistical power of 0.80, two groups, three measurement points, and an expected correlation coefficient of 0.5, a minimum of 46 participants per group was required. To account for a 20% potential attrition rate, 55 couples were enrolled in each group, totaling 110 participants.

3. Handling of Missing Data & Attrition

Due to proactive retention strategies (SMS reminders, follow-up calls, and spousal involvement), a 100% retention rate was achieved across all follow-up time points. In the event of missing data, standard intention-to-treat and complete-case analytical considerations were pre-specified.

4. Statistical Methods & Analyses

- **Baseline Comparability:** Assessed using independent-samples t-tests for continuous variables and Fisher's exact tests / Chi-square tests for categorical demographic and obstetric characteristics.
- **Verification of Assumptions:** Data distribution normality was verified using the Shapiro-Wilk test, homogeneity of variance via Levene's test, and independence/absence of autocorrelation.

- **Primary & Secondary Outcome Analysis:** Repeated-measures ANOVA was employed to evaluate group-by-time interaction effects across three measurement points (baseline, post-intervention, and one-month follow-up) for COVID-19 anxiety (CDAS) and perceived social support (MOS-SSS subscales and overall score).
- **Effect Sizes:** Eta squared (η^2) was calculated and reported for repeated-measures ANOVA models.
- **Software:** All statistical analyses were conducted using IBM SPSS Statistics version 20, with a significance threshold set at $p < 0.05$.