Supplementary Materials

We implemented a linear mixed model approach in SPSS v28 to examine the pre-to-post training change on the primary outcome variable (Zarit Caregiver Burden Inventory; ZBI) in the total sample (n=216) with missing data imputed. We used maximum likelihood as the estimation method, and Satterthwaite approximation to estimate the degrees of freedom, with 100 as the maximum number of iterations.

Because the "adjusted" ICC only considers the random effects, and the "conditional" ICC also takes the fixed effects variances into account, we report both for each model.

For model 1 (random intercept model with no predictors/covariates), the total number of parameters estimated was four: the fixed effect of the intercept (*ϒ* 00), the random effect of intercept + individuals, and the variance of the residuals across individuals. The fixed effect for the intercept is the grand mean of the intercepts across individuals.

For model 2, there was a total of ten parameters in the model. We added covariates that were correlated with the four DVs at baseline and with pre- to post-training changes in the four DVs. The 6 covariates included fixed effects of male/female self-reported gender, caregiver physical & mental health (1 excellent to 5 poor), and their interaction, plus random effects of caregiver age and number of days per week that caregiver provided care.

In the context of a linear mixed model, it is common and may be useful to report both the conditional and adjusted ICCs. The conditional ICC describes the proportion of the total variance that is attributed to the cluster or grouping variable in the model when all other variables are held constant. The adjusted ICC, on the other hand, adjusts for the effects of other covariates in the model and provides an estimate of the proportion of the total variance that is attributable to the cluster variable after accounting for the effects of the other variables.

**Zarit caregiver burden (ZBI)**

For model 1, the fixed effect of intercept, estimate = 21.23, SE = .54, was significant, t(431)=39.49, p<.001, 95%CI[20.18, 22.29] suggesting a significant change in ZBI scores from pre- to post-training. With respect to covariance parameters, the estimated residual (ie, within-subject variance; 19.03, SE=1.83, was significant, Wald Z = 10.39, *p* < .001, 95%CI[15.76, 22.97]. The estimate of the between-subject variance, 52.94, SE=6.08, was also significant, Wald Z = 8.71, *p* < .001, 95%CI[42.27, 66.30]. The adjusted and conditional ICC was .74.

For model 2, as show in Table x and y below, the fixed effects of self-reported gender (female>male) and poorer caregiver emotional health were significantly related to greater caregiver burden. With respect to covariance parameters, the estimated residual (ie, within-subjects variance; 18.53, SE=1.81, was significant, Wald Z = 10.25, *p* < .001, 95%CI[15.30, 22.43]. The estimate of the between-subjects variance, 29.85, SE=3.94, was also significant, Wald Z = 7.57, *p* < .001, 95%CI[23.04, 38.67]. However, age and number of days per week that caregiver provided caregiving were not significantly related to caregiver burden. The adjusted and conditional ICC were .75 and .64, respectively.

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| **Table x: Estimates of Fixed Effectson Caregiver Burden** |
| Parameter | Estimate | Std. Error | df | t | Sig. | 95% Confidence Interval |
| Lower Bound | Upper Bound |
| Intercept | 2.910 | 3.950 | 415 | .737 | .462 | -4.855 | 10.676 |
| **Male1Female0** | **-4.028** | **1.284** | **415** | **-3.137** | **.002** | **-6.552** | **-1.504** |
| Baseline Caregiver PhysicalHealth | 1.641 | 1.587 | 415 | 1.034 | .302 | -1.479 | 4.761 |
| **Baseline Caregiver EmotionalHealth** | **4.189** | **1.288** | **415** | **3.253** | **.001** | **1.658** | **6.720** |
| Caregiver PhysicalHealth \* EmotionalHealth | -.392 | .459 | 415 | -.854 | .393 | -1.295 | .510 |
| Note. Dependent Variable = CaregiverBurden. BOLD = significant relationships, p < 0.01.  |

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| **Table y: Estimates of Covariance Parameters** |
| Parameter | Estimate | Std. Error | Wald Z | Sig. | 95% Confidence Interval |
| LowerBound | Upper Bound |
| **Residual** | **18.529** | **1.808** | **10.247** | **<.001** | **15.303** | **22.434** |
| Intercept | Variance | .000b | .000 | . | . | . | . |
| **Participants** | **Variance** | **29.851** | **3.942** | **7.572** | **<.001** | **23.043** | **38.670** |
| Age\_GrandMeanCentered | Variance | .017 | .026 | .655 | .513 | .001 | .345 |
| Days\_per\_week\_provide\_care | Variance | .729 | 1.096 | .665 | .506 | .038 | 13.872 |
| Note. Dependent Variable = CaregiverBurden. BOLD = significant relationships.  |
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To determine whether the two models were significantly different, we used the -2 Log Likelihoods indicator of goodness-of-fit for each of the two models based on the observed data. The test statistic is -2 times the difference in the log-likelihoods between the two models.

LRT = -2 \* (logLik(complex model) - logLik(simple model))

LRT = -2 \* 2,728.069 - 2,904.990 = 353.842

The degrees of freedom of the test statistic are equal to the difference in the number of parameters estimated in more complex model minus the number of parameters in simple model. Thus, df = 10 – 4 = 6. Calculate the p-value of the test statistic Using the chi-square distribution with df = 6, we found that the test statistic of 353.842 was equivalent to p < .001 which indicates that the more complex model fits the data significantly better than the simpler model.