Statistical Analysis

To evaluate model-data fit in the common fate mediational model, several commonly used fit statistics are used. Statistics include the comparative fit index (CFI), Tucker-Lewis fit index (TLI), root mean square error of approximation (RMSEA), and the chi- square test. The CFI and TLI statistics are acceptable at .90 and above and .95 demonstrates good fit. RMSEA values below .08 demonstrate acceptable fit and .05 demonstrates good fit. The chi-square statistic that is non-significant demonstrates strong model-data fit (Hu & Bentler,1999). Recommendations provided by Hu and Bentler (1999) are overgeneralized as they only used a very specific set of conditions to examine fit indices and those some values may not represent adequate model-data fit. To evaluate fit, we will use the recommended cutoffs as well as examine the residual matrix (model implied covariance matrix subtracted from the expected covariance matrix), which provides information about the extent to which associations are over or underestimated among each pair of variables in the model.

Regarding the structural portion of the model, we will first fit a measurement model with three common fate latent constructs with each indicated by male and female reports. For local identification, the factor loadings for each dyad member are fixed to one. As in typical mediation analysis, we tested the dyad level common fate latent variable of dyadic coping as an intermediary of dyad level relationship mindfulness to dyad level relationship quality. We used maximum likelihood as the estimator. To estimate the indirect effects, we will employ bias correct bootstrapping procedures using 5,000 resamples. This procedure creates a sampling distribution of indirect effects and has the benefit of not requiring the indirect effects to be normally distributed as is assumed using other methods (e.g., Sobel test).

Results

Results of the measurement model for the CFMeM indicate that our model fit the data well: $\chi 2$ (3) = 3.847, p = .28, RMSEA = 0.036 (90% CI [.000, .124]), CFI =1, TLI = .99. Examination of the residual covariance matrix also indicate support for a well-fitting model with not outlying z-scores and residual correlations were small (< .06). Additionally, the factor loadings were satisfactory ranging from .69-.85 which is consistent with the recommendations of Ledermann and Kenny (2012). These loadings indicate that approximately 50% of the variance in each dyad member's reports was shared with their partners. Following the measurement model, the full structural model was employed and male and female depressive symptoms and adverse childhood experiences were added as covariates. The model-data fit for the structural model supported our hypothesized model: $\chi 2$ (16) = 20.05, p = .22, RMSEA = 0.034 (90% CI [.000, .075]), CFI =.99, TLI = .98. Examination of the residual covariance matrix also indicate support for a well-fitting model with not outlying z-scores and residual correlations were small (< .055).

Regarding the parameter estimates, we found that higher levels of dyad level relationship mindfulness was associated with higher levels of dyad level common dyadic coping (

$\beta = .36,\ p = .004$) and was not directly associated with dyad level relationship quality ($\beta = .02,\ p = .89$). Dyad level common dyadic coping was positively associated with dyad level relationship quality ($\beta = .81,\ p < .001$). The indirect effect from relationship mindfulness to relationship quality was significant ($\beta = .29,\ 95\%\ CI\ [.102, .575]$, indicating that the relationship between relationship mindfulness and relationship quality was fully accounted for by dyadic coping. We subsequently removed the direct path from relationship mindfulness to relationship quality and the chi-square difference test was non-significant $\chi 2$ (1) =.052, p = .82). Among the covariates for relationship quality, only male depressive symptoms were associated with lower levels of dyad level relationship quality such that men who reported higher levels of depressive symptoms resulted in a lower quality relationship ($\beta = -.18,\ p = .003$) while female depressive symptoms were not linked to relationship quality ($\beta = -.04,\ p = .45$); neither male ($\beta = -.10,\ p = .41$) nor female ($\beta = .01,\ p = .95$) ACEs were associated with dyad level relationship quality. Regarding the contributions of covariates on dyadic coping, no significant covariates were found such that male ($\beta = .19,\ p = .18$) and female ($\beta = .04,\ p = .78$) levels of ACEs and male ($\beta = .-\ 04,\ p = .56$) and female depressive symptoms ($\beta = .-.10,\ p = .09$) were not linked to the couples ability to cope with stress together

Sensitivity analysis

One sensitivity analyses was run. Robust maximum likelihood (MLR) was implemented which provide Yuan-Bentler (Yuan & Bentler, 2000) corrections to the chi-square statistic and adjusts the standard errors. There were had slightly wider confidence intervals using MLR. One of the benefits of bias-correct bootstrapping is that it has higher power in smaller sample sizes and our model has 220 couples, which is on the smaller side for SEM. Each of the approaches diverged in terms of standard errors but no substantive conclusions differed across methods of estimation.

References

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