Journal of Family Psychology

Does Sociodemographic Disadvantage Moderate the Impact of MotherWise? Findings From a Randomized Controlled Trial

Yunying Le, Jenny Lee, Daphne Y. Liu, Nicholas S. Perry, and Galena K. Rhoades

Does Sociodemographic Disadvantage Moderate the Impact of MotherWise? Findings From a Randomized Controlled Trial

Yunying Le, Jenny Lee, Daphne Y. Liu, Nicholas S. Perry, and Galena K. Rhoades
Department of Psychology, University of Denver

Evidence supports the positive impact of MotherWise, an individual-oriented relationship education program delivered to perinatal women and birthing people from underresourced communities, on relationship skills, attitudes, and individual and relationship functioning. This study examined whether individuals' sociodemographic disadvantage was associated with (a) preprogram levels and (b) differential program effects. Participants (M_{age} = 28 years) were randomly assigned to MotherWise (n = 512) or a control group (n = 437). Most participants identified as Hispanic (66%), had accessed government benefits recently (73%), and were partnered (85%). Sociodemographic factors (i.e., age, education, public assistance use, employment status, having children from previous relationships, and history of incarceration) were examined individually and as a cumulative index. Relationship skills (i.e., romantic relationship and conflict management skills), attitudes (i.e., disapproval of relationship violence), negative communication, and depressive symptoms were assessed at enrollment and 1 year and 2.5 years postenrollment. Multilevel models were conducted. MotherWise demonstrated positive long-term effects on relationship skills and attitudes, with no effects on negative communication or depression at these time points. Overall, there was no evidence of differential program effects across individual or cumulative sociodemographic risks. However, greater cumulative risk and some risks measured individually—especially incarceration history— were associated with lower baseline scores for skills and attitudes and higher baseline scores for negative communication and depression, suggesting greater needs among these individuals. Although MotherWise led to better outcomes for participants with varying risk factors, additional modifications or adaptations may be necessary to achieve equitable outcomes, ensuring all participants reach similar postprogram levels.

Keywords: MotherWise, Within My Reach, perinatal, marginalized groups, individual-oriented relationship education

Supplemental materials: https://doi.org/10.1037/fam0001408.supp

Relationship distress is alarmingly common and negatively impacts the well-being of both partners, as well as the outcomes of their children (van Eldik et al., 2020; Whisman et al., 2008, 2021). Relationship distress is particularly concerning for those from sociodemographically disadvantaged backgrounds, as they are more vulnerable to poor relationship outcomes and their negative downstream consequences, while also facing greater barriers to accessing services that can help mitigate these challenges (Karney, 2021). To address this issue, the U.S. Administration for Children and Families supports a Healthy Marriage and Relationship Education initiative to

fund community organizations to provide relationship education to low-income couples and individuals. Randomized controlled trials (RCTs) have demonstrated small-sized effects for relationship education delivered to both partners in improving relationship skills, relationship quality, and mental health (Hawkins et al., 2022). Emerging evidence also shows that individuals benefit from relationship education, even when participating alone (i.e., individual-oriented relationship education), regardless of their relationship status (e.g., Carlson et al., 2017, 2021; Patnaik et al., 2023; Visvanathan et al., 2015). However, it remains unclear whether sociodemographically disadvantaged groups respond differently to these services. Further, studies often overlook participants' preprogram relationship skills and functioning, which may indicate differing needs. Guided by the principle of proportionate universalism (Marmot & Bell, 2012), which proposes to reduce health disparities by providing universal services at a scale and intensity proportional to need, it is also important to understand whether certain groups start off with fewer skills or poorer functioning. This will help identify if specific subgroups will need greater improvement to reach similar outcomes by the end of the program. To address these gaps, the present study used data from an individual-oriented relationship education, MotherWise, to examine whether sociodemographic disadvantages were associated with (a) differential program effects on relationship skills, attitudes, functioning, and mental health and (b) differential preprogram levels in these domains.

Research consistently shows that various sociodemographic factors (e.g., low income, young age, fewer years of education, having children from previous relationships) are associated with poorer relationship quality and higher rates of relationship dissolution among married and unmarried couples (e.g., Amato, 2007; McLanahan & Beck, 2010). According to the family stress model (Conger et al., 2010), families facing these risk factors are likely to experience increased daily stress, leading to more frequent dysfunctional couple interactions that erode their relationships over time. Relationship education adopts a preventative approach by equipping people with relationship skills and knowledge designed to mitigate the impact of daily stressors and foster better relationships. This is especially true for individual-oriented programs, which support participants regardless of their current relationship status. A better understanding of how existing programs work for families across various sociodemographic factors will help us identify which subgroups may be at higher risk of poor outcomes and whether programs need to be adapted to better meet their needs.

Although limited work has investigated sociodemographic factors as moderators of relationship education delivered to individuals, these factors have been examined in programs delivered to couples. Notably, several studies have addressed this question using a cumulative risk index, which captures the total number of sociodemographic risks couples endorse (i.e., Amato, 2014; Knopp et al., 2022; Ritchie et al., 2023; Williamson et al., 2016). Amato (2014) first constructed a cumulative risk index to examine differential program effects of relationship education for low-income, unmarried perinatal couples (Wood et al., 2012). The cumulative risk index consisted of both partners' age (i.e., whether under 20), education (i.e., whether they had a high school degree), having children from a previous relationship, emergency support, father's employment status and income, and mother receiving public assistance in the last year. Subsequent studies adopted a similar approach, modeling their cumulative risk index after Amato (2014) with minor adjustments. Across studies, there has been evidence of differential program

effects as a function of this index on conflict and communication (Knopp et al., 2022; Ritchie et al., 2023; Williamson et al., 2016) and overall relationship quality (Amato, 2014); however, no differential program effects have been found for relationship stability (Amato, 2014; Ritchie et al., 2023), relationship happiness, and psychological abuse (Knopp et al., 2022) based on the couple's risk. Furthermore, findings are inconsistent regarding whether effects for communication-related outcomes were strengthened or attenuated among those having more risks. Williamson et al. (2016) and Ritchie et al. (2023) observed effects only in the high-risk group, suggesting that more disadvantaged groups' communication may benefit more. In contrast, when it comes to communication skills, Knopp et al. (2022) found effects only in the low- and moderate-risk groups, indicating the opposite pattern. Thus, questions remain about whether more disadvantaged groups are consistently benefiting more or less from these programs and for which aspects of the relationship.

Additionally, although cumulative risk exposure is an important contextual factor, one limitation of this index is that it may have different substantive meanings based on specific factors involved. For example, a family with two young parents and a family with an unemployed father and no access to emergency support would both receive an index score of 2, yet their family experiences are likely qualitatively different. This may in part explain the inconsistent findings in the literature. Quantifying cumulative risk exposure in a real-world setting is also less practical than obtaining information on individual risks. It is also possible that differential program effects associated with certain risks are outcome specific. For example, risks such as young age or fewer years of education may be associated with differential program effects on skill and knowledge acquisition. In contrast, risks such as low income or having children from previous relationships may be associated with differential program effects on relational outcomes (e.g., communication) due to the varying ability to apply skills in practice, influenced by daily stress. Amato (2014) conducted sensitivity analyses by systematically removing different risk factors from the index one at a time; however, the predictive effect of each risk factor remains unclear with this approach. Identifying individual risks associated with poorer intervention outcomes will help guide future research focusing on individuals who endorse these risks. This, in turn, will enable a better understanding of unmet needs within existing interventions and support efforts to further improve them. Thus, the present study also examined each sociodemographic risk factor individually as a moderator.

It is also worth noting that even if programs show similar changes across populations, adaptations to content or delivery may still be necessary for specific subpopulations who start with less preprogram knowledge, fewer skills, or poorer functioning to ensure equitable outcomes, allowing all participants to achieve similar postprogram levels. Proportionate universalism (Marmot & Bell, 2012) proposes to reduce health disparities by providing universal services at a scale and intensity proportional to need. Consistent with this idea, for those starting off with fewer skills or poorer functioning, a lack of differential program effects—in terms of the amount of change that occurred (i.e., improvements) or that was prevented from occurring (i.e., declines)—is not sufficient to reduce health disparities. Rather, for those starting off with fewer skills or poorer functioning, additional program modifications (e.g., higher program dosage, additional coaching, or case management) may be

necessary to achieve greater improvements and enable them to reach similar postprogram levels. Thus, it is crucial not only to understand how sociodemographic disadvantages predict program gains but also to examine their link to preprogram levels to identify who may need greater gains to reach similar postprogram levels. To date, very few moderation studies have also examined how sociodemographic disadvantages relate to participants' preprogram differences in skills and functioning. Among them, evidence suggests that those with greater disadvantages reported poorer preprogram relationship functioning (Adler-Baeder et al., 2010; Knopp et al., 2022) and communication skills (Knopp et al., 2022). These findings suggest that these individuals will need greater program gains to achieve equitable outcomes postprogram. In other words, if programs lead to comparable changes across populations (i.e., a lack of moderation), additional adaptations to or modifications of the program are needed for those with greater disadvantages to achieve similar postprogram levels in these outcomes.

MotherWise (Rhoades et al., 2022) is an individual-oriented relationship education program serving pregnant and postpartum women as well as birthing people from marginalized groups during the perinatal period. Research shows that MotherWise improves relationship and conflict management skills, attitudes toward relationship violence, and romantic relationship quality with the baby's father at 1- and 2.5-year follow-ups (Patnaik et al., 2022, 2023). Although no long-term effects on depressive symptoms were observed, MotherWise reduced positive postpartum depression screens within 12 weeks of birth among those who enrolled during pregnancy (Allen et al., 2024). Given the program's positive effects and focus on a sociodemographically disadvantaged population, data from the MotherWise RCT are well-suited for addressing the proposed scientific questions. Additionally, these data are positioned to uniquely contribute to the field for the following reasons. First, this data set includes data on individual outcomes that are less often assessed in studies of relationship education programs. These programs often target relationship skills and attitudes, which can impact a range of relationships now and in the future, not just current romantic relationships. A current romantic relationship may not improve after the program if participants are not able to apply what they learned in their daily lives or if the knowledge gained helps them recognize that their current relationship is not healthy or safe. Thus, understanding whether participants improved in these domains beyond current relationship functioning can be insightful. This data set also includes data on depression, a particularly relevant mental health outcome given the population that MotherWise serves. Second, follow-up data were collected at 1 year and 2.5 years postenrollment, much longer than the typical follow-up period for studies of relationship education delivered to individuals, which usually do not extend beyond 6 months. These extended follow-ups will allow us to examine whether and how effects of individual-oriented relationship education wane over time or show a delayed response for subgroups endorsing varying sociodemographic risk factors.

Thus, the present study sought to contribute to the existing literature using MotherWise's RCT data by examining (a) whether cumulative and individual sociodemographic risks at baseline predicted differential program effects on relationship skills, attitudes, functioning, and mental health and (b) whether these risks were associated with preprogram levels in these domains. The present study focuses on relationship skills (i.e., romantic relationship and conflict management skills) and attitudes (i.e., disapproval of relationship violence) that are most aligned with the focus of the *Within My Reach* curriculum used in the MotherWise program (see curriculum description below). Although MotherWise does not require participants to be partnered, the majority were at the beginning of the study. Thus, we also examined negative communication among those who have been in the same relationship from baseline to at least one follow-up to capture MotherWise's impact on relationship functioning. We focus on negative communication because (a) communication is a key focus in relationship education (Stanley et al., 2020), (b) communication problems are one of the top reasons couples seek relationship help (Roddy et al., 2019), and (c) a recent meta-analysis shows that negative communication, in particular, is predictive of not only subsequent relationship quality but also dissolution (Kanter et al., 2022). Finally, relationship education has been theorized and empirically shown to also improve individual functioning (e.g., Hawkins et al., 2022). Given that MotherWise is designed for the perinatal population who is vulnerable to perinatal depression (Howard & Khalifeh, 2020), depressive symptoms were also examined to capture MotherWise's impact in this domain.

Method

All study procedures were approved by institutional review boards at the University of Denver and the Colorado Multiple Institutional Review Board. This study was not preregistered. We report how we determined our sample size, all data exclusions (if any), all manipulations, and all measures in the study. Study data, materials, and analysis code are available upon request.

Participants

Data were drawn from an RCT of MotherWise ($n_{\text{MotherWise}} = 512$; $n_{\text{control}} = 437$; Patnaik et al., 2023). At baseline, participants averaged 28 years old ($SD = 6.0$). Participants identified as Hispanic (66%), White (41%), Black (16%), Native American (5.0%), and Asian/other (2.9%). Thirty-seven percent was born outside of the United States; 58% primarily spoke English at home, 41% spoke Spanish, and 1.2% spoke another language. For education, 24% had no diploma, 38% had a General Educational Development or high school diploma, 4.5% held a vocational/technical certification, 19% attended some college but had no degree, and 14.2% had an associate, bachelor's, or graduate degree. Most (73%) received government assistance in the past 30 days (e.g., the Special Supplemental Nutrition Program for Women, Infants, and Children; the Supplemental Nutrition Assistance Program; or Temporary Assistance for Needy Families). Most were in a romantic relationship (85%): 53% were married/engaged, 25% in a steady relationship, and 7.9% in an on-again, off-again relationship. One third (31%) were first-time parents.

Procedure

Participants were recruited from the Denver metro area via a local hospital or community referrals between 2016 and 2018. To be eligible, participants needed to be at least 18 years old and either pregnant or within 3 months postpartum. Participants were randomly assigned to receive MotherWise or the control group (see Patnaik et al., 2023, for details on random assignment). MotherWise

was specifically designed for pregnant and postpartum women and birthing people. Thus, partners were not invited to participate in the main program. However, a supplemental couples' workshop was available (The Prevention and Relationship Education Program 8.0, Stanley et al., 2017, was used for English-speaking participants, and the Within Our Reach curriculum, Stanley et al., 2006, was used for Spanish-speaking participants). Only 12% of the intervention participants attended the couples' workshop with their partners. Of these, 60% attended one of the two sessions, and 40% attended both sessions. There may be several reasons for the low participation rate in the couples' workshop: (a) The workshops were only offered to those who had completed the first three sessions of the MotherWise program to ensure they had the skills and knowledge to recognize unsafe relationships; (b) the workshops were infrequent, being available only every 3 months; (c) some partners were not interested in attending; and (d) some participants did not want to invite their partners to join (see Baumgartner & Paulsell, 2019, for more details).

In the MotherWise group, participants were offered all core components of the program, including six weekly 4-hr sessions, up to four individual case management meetings (with additional meetings available upon request), and supplemental information on infant care and parenting. The weekly sessions featured a core group workshop using the Within My Reach curriculum (Pearson et al., 2005), and each session provided a meal, transportation by rideshare, and onsite childcare. Different from traditional relationship education programs for couples, which typically focus on helping couples communicate better and plan for their future together, Within My Reach is designed to help individuals make informed, healthy decisions about their personal and romantic relationships, regardless of their relationship status. The program focuses on improving relationship skills and attitudes by addressing topics such as healthy and safe relationship characteristics, communication skills, and resolving common relationship challenges. The individual case management meetings focused on reinforcing workshop skills and connecting participants to community resources. Services were available in English and Spanish. Within 4 months of enrollment, 65% of the MotherWise participants completed at least five of the six workshop sessions and attended an average of 4.11 case management meetings (ranging from 0 to 26, $SD = 3.63$). Control participants did not receive MotherWise but were informed that they could continue to use other available community services.

For outcomes relevant to everyone regardless of relationship status (i.e., romantic relationship skills, conflict management skills, disapproval of relationship violence, and depressive symptoms), all participants' data were used. There were no baseline differences in these constructs across groups ($ps > .33$). For negative communication, data were limited to participants partnered at baseline who reported negative communication with the same partner at least once during follow-up ($n_{MotherWise} = 360$; $n_{control} = 291$). The included versus excluded subsamples differed significantly in several social demographic factors (i.e., age, race, ethnicity, country of origin, language used at home, and education), cumulative risk index, and endorsement of individual risk factors (i.e., being under 20, receiving public assistance in the past year, the mother's partner having child(ren) from previous relationships, and the mother's incarceration history), as well as baseline functioning measures (i.e., romantic relationship skills, disapproval of relationship violence, and depressive symptoms; see Table 1). Within the included

subsample, no differences were observed in baseline negative communication, $t(648) = -0.56$, $p = .58$, across groups.

Measures

Sociodemographic Risks

Seven baseline items were selected based on Amato (2014), with modifications made due to data availability and the focus in the present study on individuals (vs. dyads in Amato, 2014). The *individual risk factors* included the participant (a) being under 20 years old, (b) not having a high school degree, (c) being unemployed, (d) receiving public assistance (Temporary Assistance for Needy Families; Supplemental Security Income; Social Security Disability Insurance; Supplemental Nutrition Assistance Program/ Food Stamps; Women, Infants, and Children; unemployment insurance; housing choice voucher/Section 8; cash assistance; or child support) in the past year, (e) having ever been incarcerated, (f) having one or more children from a previous relationship, and (g) having a romantic partner with one or more children from a previous relationship (coded as 0 if not partnered). Each risk factor was scored as 1 (*present*) or 0 (*absent*) and summed to create the *cumulative risk index*. On average, participants endorsed 2.43 risk factors ($SD = 1.33$, $Mdn = 2$, ranging from 0 to 6).

Romantic Relationship Skills

Five items adapted from the Relationship Deciding Scale (Vennum & Fincham, 2011) were administered at baseline, 1 year, and 2.5 years postenrollment ($\alpha s = .80$ to $.84$). Items, rated on a 4-point scale (1 = *strongly agree*, 4 = *strongly disagree*), were reverse-scored and averaged. Higher scores indicate better relationship skills (e.g., "I feel good about my ability to make a romantic relationship last").

Conflict Management Skills

Five items adapted from the Conflict Management Subscale of the Interpersonal Competence Scale (Buhrmester et al., 1988) were administered at baseline, 1 year, and 2.5 years postenrollment ($\alpha s = .73$ to $.79$) to assess one's conflict management skills in general interpersonal contexts (e.g., "Listening to another person's opinion during a disagreement"). Items, rated on a 4-point scale (1 = *strongly agree*, 4 = *strongly disagree*), were reverse-scored and averaged. Higher scores indicate better conflict management skills.

Disapproval of Relationship Violence

Five items from the Acceptance of Couple Violence Scale (Dahlberg et al., 2005) were administered at baseline, 1 year, and 2.5 years postenrollment ($\alpha s = .74$ to $.81$). Items were rated on a 4-point scale (1 = *strongly agree*, 4 = *strongly disagree*) and averaged. Higher scores indicate more disapproval of violence (e.g., "Violence between partners can improve a couple's relationship").

Negative Communication

Six items developed for the Administration for Children and Families Supporting Healthy Marriage initiative were administered at baseline, 1 year, and 2.5 years postenrollment ($\alpha s = .86$ to $.87$; e.g., "My partner seems to view my words or actions more

Table 1

Baseline Sociodemographic Characteristics, Relationship Skills, Attitudes, and Functioning of Participants Included Versus Excluded in the Subsample Analysis for Negative Communication

Variable	Included in the subsample ($n = 651$)	Not included in the subsample ($n = 298$)	Difference
Age	28.46 (5.80)	26.93 (6.16)	$t(947) = -3.71, p < .001$
Race/ethnicity			
White	46.1%	35.2%	$\chi^2(1) = 9.53, p = .002$
Black	12.3%	24.7%	$\chi^2(1) = 22.09, p < .001$
Asian	1.1%	0.7%	Fisher's exact test $p = .73$
Pacific	1.0%	0.7%	Fisher's exact test $p = 1.00$
Native	5.2%	5.2%	$\chi^2(1) = 0.00, p = .98$
Other	2.1%	3.5%	$\chi^2(1) = 1.49, p = .22$
Hispanic/Latino(a)	70.0%	59.5%	$\chi^2(1) = 10.08, p = .002$
Foreign (born outside the United States)	41.5%	27.9%	$\chi^2(1) = 16.24, p < .001$
Language spoken at home			
English	52.4%	70.5%	Fisher–Freeman–Halton test $= 31.26, p < .001$
Spanish	46.1%	28.9%	
Other language	1.5%	0.3%	
Education level			$\chi^2(5) = 18.32, p = .003$
No degree or diploma earned	23.2%	26.8%	
High school general education development or GED	10.7%	15.5%	
High school diploma	26.0%	25.1%	
Vocational/technical school diploma/ certification	3.7%	6.2%	
Some college but no degree completion	19.4%	18.2%	
Associate's, bachelor's, or graduate degree	17.0%	8.2%	
Cumulative risk index	2.34 (1.35)	2.61 (1.27)	$t(947) = 2.89, p = .004$
Individual risks			
Under 20 years old	4.50%	11.1%	$\chi^2(1) = 14.67, p < .001$
No high school degree	24.0%	27.9%	$\chi^2(1) = 1.64, p = .20$
Unemployed	60.2%	60.7%	$\chi^2(1) = 0.02, p = .88$
Received public assistance	69.9%	84.9%	$\chi^2(1) = 24.30, p < .001$
Had child(ren) from previous relationships	26.9%	22.1%	$\chi^2(1) = 2.42, p = .12$
Partner had child(ren) from previous relationships	31.3%	24.5%	$\chi^2(1) = 4.63, p = .03$
Had incarceration history	17.5%	29.9%	$\chi^2(1) = 18.56, p < .001$
Baseline relationship skills, attitudes, and functioning			
Romantic relationship skills	3.26 (0.46)	3.07 (0.53)	$t(946) = -5.63, p < .001$
Conflict management skills	2.49 (0.60)	2.46 (0.60)	$t(947) = -0.75, p = .45$
Disapproval of relationship violence	3.65 (0.39)	3.56 (0.44)	$t(514)^a = -3.05, p = .002$
Depressive symptoms	5.80 (4.94)	6.86 (5.42)	$t(531)^a = 2.86, p = .004$

Note. Means (standard deviations) were reported for continuous variables, whereas percentages were reported for categorical variables. GED = General Educational Development.
[a] *df* was adjusted with equal variances not assumed.

negatively than I mean them to be"). Items were rated on a 4-point scale ($1 = never$, $4 = often$) and summed. Higher scores indicate higher levels of negative communication.

Depressive Symptoms

The eight-item Patient Health Questionnaire Depression Scale (Kroenke et al., 2009) was administered at baseline, 1 year, and 2.5 years postenrollment ($\alpha s = .86$ to $.89$). Items were rated on a 4-point scale ($0 = not\ at\ all$, $3 = nearly\ every\ day$) and summed. Higher scores indicate higher levels of depressive symptoms (e.g., "Feeling down, depressed or hopeless"). At baseline, 23.4% of the sample scored ≥ 10, a cutoff that maximizes sensitivity and specificity for detecting clinically significant depressive symptoms (Wu et al., 2020).

Data Management and Analysis

Measurement invariance of each outcome was first tested in Mplus 8.2 across intervention and control groups at each respective time point, as well as longitudinally across all time points. As discussed in Dyer (2015), evidence of measurement equivalence provides critical information to contextualize between-group differences and changes over time. Without measurement equivalence, these estimates can be biased. Guided by Dyer (2015) and Little (2013), we determined measurement equivalence by considering the significance of $\Delta\chi^2$ alongside whether the absolute value of Δcomparative fit index is $<.01$, as $\Delta\chi^2$ is sensitive to sample size. If $\Delta\chi^2$ is significant but the absolute value of Δcomparative fit index is $<.01$, we would conclude that there is evidence of measurement equivalence.

To examine differential program effects, multilevel models accounting for nesting from repeated measures (i.e., follow-up time

points nested within individuals) were conducted using SAS OnDemand for Academics. This analytic approach, sometimes referred to as longitudinal analysis of covariance (Twisk et al., 2018), was selected given the focus on between-group differences at the follow-up time points in the present study. A parallel set of analyses was conducted for each construct, modeling follow-up data (1 year and 2.5 years) as the outcome in the same model, with intervention status, the baseline risk variable (cumulative risk index or individual risk factors), and their interaction as predictors, controlling for baseline outcome level (see the Supplement Materials for the equation). Intervention status (MotherWise = 1, control = −1) and individual risks (present = 1, absent = −1) were effect-coded, and the cumulative risk index was grand-mean-centered. Preliminary analyses were conducted examining whether (a) intervention effects on constructs of interest and (b) the moderating effect of cumulative and individual risk factors differed depending on when the follow-up data were collected (i.e., 1 year vs. 2.5 years postenrollment). There was no evidence indicating that the main effect of MotherWise (ps > .33) or the moderating effect of any risk factors (ps > .10) differed significantly between the 1-year and 2.5-year follow-ups. The pattern of findings was the same with or without including covariates (described below). Thus, for parsimony, the time indicator was not retained in the final models to differentiate follow-up data collected at 1 year versus 2.5 years.

To address missing data, exploratory analyses were conducted using bivariate analyses to identify baseline demographic variables (e.g., age, race/ethnicity, education, relationship status) associated with missingness by intervention status at 1 year (16%) and 2.5 years postenrollment (24%; see online Supplement Tables S1 and S2). Relationship status, history of incarceration, and age were significantly associated with missingness. Specifically, those who were married or engaged were more likely to provide data at follow-ups, whereas those who were not in a relationship were less likely to provide follow-up data. Additionally, those who did not have a history of incarceration and those who were older at baseline were more likely to provide data at follow-ups. These variables (i.e., relationship status, history of incarceration, and age) were included in all analyses as covariates. However, when history of incarceration was tested as a moderator, it was not included as a covariate, as it was already accounted for in the model. When examining the moderating role of age as a binary indicator, age was retained in the model as a continuous covariate. The pattern of findings remained consistent regardless of the inclusion of covariates, and the results from models incorporating covariates were reported.

Cohen's d was calculated by dividing unstandardized coefficients for intervention status by the baseline standard deviation pulled across groups. To examine associations of baseline cumulative and individual risks with baseline levels, we conducted bivariate correlations for the cumulative risk index and t tests for individual risk factors in SPSS. When examining associations between baseline risks and both baseline functioning and differential program effects, the cumulative risk index and individual risks were analyzed separately in different models rather than simultaneously within the same model. This approach was adopted because the goal was to identify individuals who may require greater gains to achieve comparable postprogram outcomes, as well as those at risk for poorer intervention outcomes, rather than to isolate the unique effect of each risk factor while controlling for others. A Bonferroni correction (p < .001 required to achieve statistical significance) was applied to account for familywise error from 40 moderation analyses and 40 bivariate tests (five outcomes and eight moderators).

Results

Descriptive statistics for all outcome variables are reported in Table 2. Table 3 presents results from the moderation analyses. Model fit information used to determine measurement invariance is available in Supplemental Tables S3–S7. The underlying measurement properties of all outcomes did not differ between the intervention and control groups at each of the three respective time points, with evidence indicating strong measurement invariance. Additionally, evidence suggests strong measurement invariance over time across all three assessments for all outcomes, except for depressive symptoms. For depressive symptoms, there is evidence of weak invariance; however, the standards for strong invariance were not met, as the intercepts for items on sleep and energy assessed at baseline versus the two follow-ups differed significantly.

MotherWise Program Effects and Moderation by Baseline Sociodemographic Risks

On average, MotherWise participants reported significantly higher levels of romantic relationship skills (Cohen's d [d] = .22, $B = 0.11$, $SE = 0.03$, p < .001), conflict management skills ($d = .21$, $B = 0.12$, $SE = 0.03$, p < .001), and greater disapproval of relationship violence ($d = .25$, $B = 0.10$, $SE = 0.02$, p < .001) at follow-up assessments compared to control participants. There were no significant between-group differences in depressive symptoms ($B = −0.11$, $SE = 0.26$, $p = .68$) or negative communication ($B = −0.10$, $SE = 0.26$, $p = .71$).

No significant interactions between intervention status and baseline cumulative risks were observed for any of the five outcomes (p ranges from .06 to .97). Additionally, among the 35 interactions tested involving individual risks, only three emerged as significant. These findings indicated an overall lack of differential program effects. Among the three significant interactions that emerged, one indicated that MotherWise's effects on conflict management skills differed based on mothers' incarceration history ($d = .32$, $p = .02$). Post hoc probing indicated that MotherWise's effects were more evident among mothers with a history of incarceration (with incarceration history: $d = .46$, $B = 0.28$, $SE = 0.08$, p < .001; without incarceration history: $d = .14$, $B = 0.08$, $SE = 0.04$, $p = .02$). Additionally, there was a significant interaction indicating that MotherWise's effects on depressive symptoms differ based on mothers' incarceration history ($d = .31$, $p = .03$). However, post hoc probing did not find evidence of significant intervention effects among mothers with an incarceration history ($d = .22$, $B = 1.15$, $SE = 0.67$, $p = .09$) or those without an incarceration history ($d = −0.08$, $B = −0.42$, $SE = 0.27$, $p = .12$). Finally, there was a significant interaction indicating that MotherWise's effects on negative communication differ based on whether mothers were in a relationship with someone who had child(ren) from previous relationships ($d = .28$, $p = .03$). However, post hoc probing did not find evidence of significant intervention effects regardless of whether the mother's partner had child(ren) from previous relationships ($d = .17$, $B = 0.77$, $SE = 0.51$, $p = .14$) or did not have child(ren) from previous relationships ($d = −.11$, $B = −0.51$, $SE = 0.30$, $p = .09$). Furthermore, after applying the Bonferroni correction, none of the three interactions remained significant.

Table 2
Descriptive Statistics Across Waves for Outcome Variables

Variable	M (SD) Baseline	1 year	2.5 years
Full sample			
1. Romantic relationship skills	3.20 (0.49)	3.34 (0.50)	3.32 (0.49)
2. Conflict management skills	2.48 (0.60)	2.65 (0.61)	2.68 (0.60)
3. Disapproval of relationship violence	3.63 (0.41)	3.61 (0.45)	3.62 (0.46)
4. Depressive symptoms	6.13 (5.12)	4.38 (5.00)	4.55 (5.04)
5. Negative communication	13.17 (4.51)	13.06 (4.52)	13.30 (4.47)
Control			
1. Romantic relationship skills	3.21 (0.49)	3.28 (0.53)	3.27 (0.48)
2. Conflict management skills	2.50 (0.61)	2.59 (0.61)	2.63 (0.58)
3. Disapproval of relationship violence	3.61 (0.43)	3.53 (0.49)	3.57 (0.47)
4. Depressive symptoms	5.96 (5.03)	4.35 (5.01)	4.54 (5.02)
5. Negative communication	13.06 (4.57)	13.26 (4.54)	13.11 (4.56)
MotherWise			
1. Romantic relationship skills	3.19 (0.50)	3.39 (0.47)	3.37 (0.50)
2. Conflict management skills	2.47 (0.59)	2.71 (0.60)	2.72 (0.61)
3. Disapproval of relationship violence	3.63 (0.39)	3.66 (0.41)	3.66 (0.45)
4. Depressive symptoms	6.28 (5.19)	4.40 (4.98)	4.55 (5.06)
5. Negative communication	13.26 (4.46)	12.90 (4.51)	13.45 (4.40)

Note. Only those who were in a relationship with the same partner through at least one follow-up assessment provided data on negative communication.

Baseline Associations Between Sociodemographic Risks and Preprogram Levels

At baseline, individuals endorsing greater cumulative risks reported significantly poorer romantic relationship skills ($r = -.10$, $p = .003$) and conflict management skills ($r = -.08$, $p = .01$), less disapproval of relationship violence ($r = -.09$, $p = .006$), and higher levels of depressive symptoms ($r = .11$, $p < .001$). Cumulative risks at baseline were not associated with baseline negative communication ($r = .02$, $p = .69$). After applying the Bonferroni correction, only the association between the cumulative risk index and depressive symptoms remained significant.

Table 4 presents mean differences in all constructs of interest between individuals who did and did not endorse each risk factor, with 14 out of the 35 tests emerging as significant. After applying the Bonferroni correction, results revealed that individuals who had been incarcerated reported significantly poorer romantic relationship skills, higher levels of depressive symptoms, and more negative communication at baseline. Those partnered with someone who has children from previous relationships reported significantly higher levels of depressive symptoms. Additionally, those without a high school degree reported less disapproval of relationship violence at baseline but also less negative communication, while those unemployed reported significantly less negative communication.

Discussion

This study examined whether the effects of MotherWise, an individual-oriented relationship education program delivered to underresourced perinatal women and birthing parents, varied based on the total number of and specific sociodemographic risk factors these parents faced. Additionally, the study explored whether these risks were associated with participants' preprogram levels. Overall, there was not strong evidence supporting differential program effects. Regardless of the baseline risks, on average, MotherWise participants reported better romantic relationship skills, conflict management skills, and more disapproval of relationship violence compared to control participants at the 1- and 2.5-year follow-ups. However, there were no significant program effects on negative communication or depressive symptoms. These findings align with previous work on these data (Patnaik et al., 2022, 2023). Further, across participants with varying risks, program effects did not differ at 1- versus 2.5-year follow-ups, indicating that program effects did not wane over time, and no delayed effects emerged at 2.5 years that were not present at 1 year. Although program effects largely did not vary across baseline risks, individuals facing greater cumulative risk or certain individual risks reported poorer preprogram relationship skills and attitudes, more negative communication, and higher depressive symptoms, supporting the rationale for proportionate universalism (Marmot & Bell, 2012). Thus, these findings suggest that modifications to the program (e.g., higher program dosage, additional coaching, or case management) may be necessary for those endorsing more or certain demographic risks to achieve equitable outcomes by the end of the program.

Existing research on how sociodemographic disadvantage moderates the benefits of relationship education has primarily focused on programs delivered to couples, with relationship functioning as the primary outcome (Amato, 2014; Knopp et al., 2022; Ritchie et al., 2023; Williamson et al., 2016). This study extends previous work by examining programs for individuals and exploring outcomes related to relationship skills and attitudes beyond individual and relational functioning. Most relationship education programs focus on improving both relationship knowledge and skills, with the expectation that these improvements will enhance individual and relational outcomes. Thus, understanding how individuals vary in acquiring these skills and knowledge is key to understanding differential program effects—or the lack thereof—to further improve program outcomes. Notably, although baseline

Table 3

Effects of MotherWise on Relationship Skills, Attitudes, Depression, and Communication as a Function of Cumulative and Individual Sociodemographic Risks

Predictor	Romantic relationship skill	Conflict management skill	Disapproval of relationship violence	Depressive symptom	Negative communication
Cumulative risk index					
Intercept	3.31 (.02)***	2.69 (.03)***	3.60 (.02)***	4.96 (.23)***	13.95 (.19)***
Baseline levels	0.37 (.03)***	0.36 (.03)***	0.42 (.04)***	0.45 (.03)***	0.55 (.03)***
Baseline risk	−0.01 (.01)	−0.04 (.01)**	−0.04 (.01)***	−0.16 (.11)	−0.01 (.11)
MW status	0.05 (.01)***	0.06 (.02)***	0.05 (.01)***	−0.05 (.13)	−0.05 (.13)
MW Status × Baseline Risk	−0.01 (.01)	0.00 (.01)	0.00 (.01)	0.19 (.10)	0.09 (.10)
Age under 20					
Intercept	3.32 (.02)***	2.70 (.03)***	3.60 (.02)***	4.93 (.24)***	13.99 (.18)***
Baseline levels	0.37 (.03)***	0.36 (.03)***	0.42 (.04)***	0.45 (.03)***	0.55 (.03)***
Baseline risk	−0.08 (.07)	−0.20 (.08)*	−0.12 (.06)*	0.48 (.62)	−1.01 (.64)
MW status	0.05 (.01)***	0.07 (.02)***	0.05 (.01)***	−0.08 (.13)	−0.07 (.13)
MW Status × Baseline Risk	−0.03 (.06)	−0.11 (.07)	−0.04 (.06)	0.59 (.56)	0.30 (.64)
Without a high school degree					
Intercept	3.31 (.03)***	2.71 (.03)***	3.63 (.02)***	5.00 (.24)***	13.98 (.19)***
Baseline levels	0.37 (.03)***	0.36 (.03)***	0.41 (.04)***	0.45 (.03)***	0.54 (.03)***
Baseline risk	−0.01 (.03)	−0.10 (.04)*	−0.14 (.03)***	−0.24 (.31)	−0.19 (.32)
MW status	0.05 (.02)**	0.06 (.02)**	0.04 (.01)**	−0.11 (.14)	−0.03 (.15)
MW Status × Baseline Risk	0.01 (.03)	0.02 (.04)	0.05 (.03)	0.22 (.31)	−0.11 (.30)
Unemployed					
Intercept	3.32 (.03)***	2.73 (.03)***	3.64 (.03)***	5.19 (.27)***	13.80 (.23)***
Baseline levels	0.37 (.03)***	0.36 (.03)***	0.43 (.03)***	0.45 (.03)***	0.55 (.03)***
Baseline risk	−0.02 (.03)	−0.07 (.03)*	−0.08 (.02)**	−0.42 (.27)	0.24 (.28)
MW status	0.08 (.02)***	0.08 (.02)***	0.05 (.02)*	−0.10 (.20)	0.06 (.22)
MW Status × Baseline Risk	−0.04 (.03)	−0.04 (.03)	0.01 (.02)	0.06 (.26)	−0.16 (.27)
Received public assistance in the past year					
Intercept	3.30 (.03)***	2.72 (.04)***	3.65 (.03)***	4.78 (.35)***	14.08 (.28)***
Baseline levels	0.37 (.03)***	0.36 (.03)***	0.42 (.04)***	0.45 (.03)***	0.55 (.03)***
Baseline risk	0.01 (.03)	−0.03 (.04)	−0.07 (.03)*	0.19 (.29)	−0.17 (.29)
MW status	0.07 (.03)*	0.05 (.03)	0.04 (.02)	−0.08 (.24)	−0.20 (.24)
MW Status × Baseline Risk	−0.02 (.03)	0.02 (.04)	0.01 (.03)	0.04 (.28)	0.20 (.29)
Partner with children from previous relationships					
Intercept	3.31 (.03)***	2.70 (.03)***	3.59 (.02)***	5.02 (.24)***	13.76 (.21)***
Baseline levels	0.37 (.03)***	0.36 (.03)***	0.43 (.04)***	0.45 (.03)***	0.55 (.03)***
Baseline risk	−0.01 (.03)	−0.06 (.04)	0.02 (.03)	−0.48 (.30)	0.38 (.31)
MW status	0.05 (.02)***	0.08 (.02)***	0.06 (.01)***	−0.16 (.15)	−0.26 (.15)
MW Status × Baseline Risk	−0.01 (.03)	−0.07 (.04)	−0.04 (.03)	0.38 (.29)	0.64 (.30)*
Participant with children from previous relationships					
Intercept	3.31 (.02)***	2.68 (.03)***	3.60 (.02)***	4.97 (.24)***	14.02 (.22)***
Baseline levels	0.37 (.03)***	0.36 (.03)***	0.43 (.04)***	0.45 (.03)***	0.55 (.03)***
Baseline risk	0.01 (.03)	0.04 (.04)	0.00 (.03)	−0.24 (.33)	−0.24 (.31)
MW status	0.06 (.02)***	0.06 (.02)**	0.05 (.01)***	−0.10 (.14)	−0.09 (.15)
MW Status × Baseline Risk	−0.02 (.03)	0.01 (.04)	−0.01 (.03)	0.17 (.33)	0.19 (.29)
Participant's incarceration history					
Intercept	3.31 (.02)***	2.67 (.03)***	3.59 (.02)***	4.15 (.21)***	13.25 (.17)***
Baseline levels	0.37 (.03)***	0.36 (.03)***	0.43 (.04)***	0.45 (.03)***	0.55 (.03)***
Baseline risk	0.01 (.04)	0.02 (.04)	0.01 (.03)	1.50 (.37)***	1.40 (.40)***
MW status	0.05 (.01)***	0.04 (.02)*	0.06 (.01)***	−0.21 (.14)	−0.02 (.14)
MW Status × Baseline Risk	0.01 (.04)	0.10 (.04)*	−0.04 (.03)	0.79 (.36)*	−0.16 (.37)

Note. Unstandardized coefficients were reported with standard errors reported in parentheses. MW status was effect-coded (MotherWise = 1, control = −1). Two relationship status indicators, being single (−1 = no, 1 = yes) or being married/engaged (−1 = no, 1 = yes), ethnicity (−1 = non-Hispanic, 1 = Hispanic), and the participant's incarceration history (−1 = no, 1 = yes) were effect-coded and included in all models as covariates. The coefficients are not reported in the table but are available upon request. Only those who were in a relationship with the same partner through at least one follow-up assessment provided data on negative communication. MW = MotherWise.
* $p < .05$. ** $p < .01$. *** $p < .001$.

risks did not moderate MotherWise's effects on skills and attitudes after Bonferroni correction, certain higher risk groups (i.e., those with greater cumulative risks, a history of incarceration, or children from partners' previous relationships) reported poorer relationship skills or less disapproval of relationship violence at baseline. This is consistent with the

rationale for proportionate universalism (Marmot & Bell, 2012), suggesting that additional modifications or a heavier dose may be needed for these individuals to reach postprogram skills and functioning that are comparable to their lower risk counterparts. This may be especially true for those who have been incarcerated, as such history

Table 4

Mean Differences in Baseline Relationship Skills, Attitudes, Depression, and Communication Across Individual Risk Status

Individual risk	Baseline romantic relationship skills					Baseline conflict management skills					Baseline disapproval of relationship violence				
	Rate (%)	t	df	p	ES	Rate (%)	t	df	p	ES	Rate (%)	t	df	p	ES
1. Age <20	6.5	0.45	946	.65		6.5	−1.15	947	.25		6.5	1.80	947	.07	−.24
2. No high school degree	25.2	−0.90	946	.37		25.2	−0.16	947	.87		25.2	3.59	364[a]	<.001	−.29
3. Unemployment	60.4	−0.67	946	.51		60.4	−1.01	947	.31		60.4	0.12	947	.91	
4. Public assistance	74.6	1.81	946	.07	−.14	74.6	1.76	462[a]	.08	−.12	74.6	2.02	947	.04	−.15
5. Partner MPF	29.2	2.18	946	.03	−.16	29.2	2.53	947	.01	−.18	29.2	0.93	947	.35	
6. Participant MPF	25.4	2.39	946	.02	−.18	25.4	2.79	947	.01	−.21	25.4	0.41	947	.68	
7. Participant incarceration history	21.4	4.37	946	<.001	−.35	21.4	2.75	947	.01	−.22	21.4	−0.02	947	.98	

Individual risk	Baseline depressive symptoms					Baseline negative communication				
	Rate (%)	t	df	p	ES	Rate (%)	t	df	p	ES
1. Age <20	6.5	1.01	947	.32		4.5	0.42	648	.68	
2. No high school degree	25.2	1.56	947	.12		25.0	4.30	648	<.001	−.40
3. Unemployment	60.4	0.23	947	.82		60.3	3.75	648	<.001	−.30
4. Public assistance	74.6	−1.57	947	.12		70.0	−1.19	414[a]	.23	
5. Partner MPF	29.2	−1.96	947	.05	.14	31.4	−2.26	648	.02	.19
6. Participant MPF	25.4	−4.44	362[a]	<.001	.36	26.8	−1.85	648	.07	.16
7. Participant incarceration history	21.4	−4.27	283[a]	<.001	.37	17.5	−5.01	648	<.001	.52

Note. ES is only reported when $p \leq .10$; *df*s for baseline relationship skills, conflict management skills, disapproval of violence, and depressive symptoms were based on all participants, whereas *df*s for baseline negative communication were based on a subsample of participants who reported being in a relationship with the baseline partner at the follow-up assessments. ES = Cohen's *d* effect size; MPF = multiple partner fertility.
[a] *df* was adjusted with equal variances not assumed.

was associated with lower levels of preprogram skills and functioning for four of the five outcomes (three after Bonferroni correction). These findings align, in part, with existing research on formerly incarcerated women, which shows higher rates of mental health issues compared to women without incarceration histories (Stanton et al., 2016). Research on women's romantic relationship experiences postrelease remains limited. One qualitative study (Leverentz, 2006) suggests that romantic relationships can be supportive and destructive at different points postrelease, underscoring the importance of equipping women with such histories with the relationship skills necessary to initiate and sustain healthy partnerships. Accordingly, more research is needed to identify strategies that can strengthen program effects for this population.

Although MotherWise participants reported better conflict management skills compared to the control participants, in the subsample of romantically involved participants, there were no between-group differences in communication, regardless of baseline risk (see Patnaik et al., 2023, for effects on communication in another subsample). This discrepancy may suggest a need for additional support to help participants apply these skills long term, particularly in relationship education delivered to individuals where skills were not learned with a partner present. These findings also add to the mixed evidence on the effects of relationship education on communication for sociodemographically disadvantaged groups. Some studies found positive effects only among high-risk groups (Ritchie et al., 2023; Williamson et al., 2016), whereas others found effects only among lower risk groups (Knopp et al., 2022), providing mixed evidence on whether program effects are stronger or weaker for those with greater risks. This inconsistency may be due to the so-called "truncation-by-death" problem (McConnell et al., 2008), where outcomes like communication are not defined for those no longer together. Although baseline communication did not

differ across groups, whether participants stay with the same partner may be differentially influenced by their group. Given the shared goal of relationship education to promote healthy relationships, it may result in separation for those in unhealthy relationships. As a result, follow-up data from those who would have stayed in the same relationship without the intervention would be disproportionately available in the control group, whereas data from those who stayed due to the intervention would be disproportionately available in the intervention group. These differential follow-up data could bias estimates of between-group differences in relationship functioning and their variation by baseline risks. As discussed in McConnell et al. (2008), to address the truncation-by-death problem, future studies could include outcomes defined for all sample members to help mitigate this issue. The stable low-conflict index proposed by Stanley et al. (2023) is one such example. It categorizes dyads based on whether they remain in a stable low-conflict relationship. This index applies to dyads regardless of whether they remain romantically involved, as those no longer romantically involved would fall into the group not characterized by a stable, low-conflict relationship.

Before interpreting findings on postpartum depression, we would like to note that strong measurement invariance, recommended in Dyer (2015) as the minimum requirement when assessing changes over time, was not demonstrated for the measure of depressive symptoms over time. Keeping this caveat in mind, we believe these findings are still informative given that the eight-item Patient Health Questionnaire Depression Scale (Kroenke et al., 2009) is a widely used measure of depression and that the focus of the study is primarily on between-group differences rather than changes over time. Despite the short-term effects of MotherWise on positive screens of postpartum depression demonstrated in Allen et al. (2024), no long-term effects were observed at 1 year and 2.5 years postenrollment on depressive symptoms (Patnaik et al., 2022, 2023).

Complementing these findings, this study supported the lack of long-term effects on depressive symptoms across participants with varying baseline risks. At baseline, nearly a quarter of the sample screened positive for endorsing clinical levels of depressive symptoms, with higher levels reported by those with greater cumulative risks, a history of incarceration, or a partner with children from previous relationships. Thus, identifying effective strategies in future studies to reduce perinatal depressive symptoms over longer periods is critical.

Despite the unique contributions of this study, several important limitations must be acknowledged. First, the generalizability of this study is limited. Most participants (66%) identified as Hispanic, with 37% born outside the United States; thus, these findings may not generalize to other sociodemographically disadvantaged groups. Moreover, MotherWise was delivered during the perinatal period, when participants may have been especially motivated to change for their newborns. Further research is needed to determine whether these findings extend to relationship education delivered outside this period and to those without a newborn. Second, the Bonferroni correction was used to account for multiple testing, which reduced our statistical power to detect the moderating effects of socio-demographic risks. As a result, the null findings may reflect a Type II error. However, the pattern of findings without the Bonferroni correction did not suggest that any one risk factor is reliably associated with differential program effects across outcomes. Third, the effect sizes of the three detected moderating effects when Bonferroni correction was not applied ranged from .28 to .32, indicating that the present study is not powered to detect moderating effects with effect sizes smaller than .28. A larger sample may be needed in future research to be powered to detect moderation effects of smaller sizes. Last, risks often co-occur. In this study, participants endorsed an average of 2.43 risk factors. Although the use of a cumulative risk index partially addressed this issue by examining whether the number of risks influenced outcomes, it is also possible that it is the intersectionality of specific risk factors that shapes participants' experiences and responses to the program. For instance, individuals who are both young and have a history of incarceration may benefit differently than those who are young, have children from previous relationships, and did not complete high school. To better capture these complex interactions, future research could consider using machine learning algorithms, which are well-suited for analyzing high-dimensional data with unknown and complex relationships (Murphy, 2012).

In summary, findings suggest that the long-term effects of MotherWise generally did not vary across baseline sociodemographic risk levels. However, some risks were associated with poorer pre-program levels, suggesting that those facing these risks may have a greater need for such programs. Guided by the principle of proportionate universalism (Marmot & Bell, 2012), additional modifications may be necessary to achieve comparable postprogram levels in these outcomes, reducing health disparities in those facing these risks. Thus, these findings underscore the importance of interpreting differential program effects (or the lack thereof) in the context of participants' preprogram levels. Furthermore, ensuring equitable access to such programs is essential, particularly for those most in need. Taken together, these findings contribute to not only the existing knowledge of the MotherWise program but also the individual-oriented relationship education more broadly.

References

Adler-Baeder, F., Bradford, A., Skuban, E., Lucier-Greer, M., Ketring, S., & Smith, T. (2010). Demographic predictors of relationship and marriage education participants' pre- and post-program relational and individual functioning. *Journal of Couple & Relationship Therapy*, 9(2), 113–132. https://doi.org/10.1080/15332691003694885

Allen, M. O. T., Rhoades, G. K., & Mazzoni, S. E. (2024). Individual-oriented relationship education and postpartum depression: The impact of the MotherWise program. *Couple & Family Psychology*, 13(4), 263–275. https://doi.org/10.1037/cfp0000241

Amato, P. R. (2007). *Alone together: How marriage in America is changing*. Harvard University Press. https://doi.org/10.4159/9780674020184

Amato, P. R. (2014). Does social and economic disadvantage moderate the effects of relationship education on unwed couples? An analysis of data from the 15-month Building Strong Families evaluation. *Family Relations*, 63(3), 343–355. https://doi.org/10.1111/fare.12069

Baumgartner, S., & Paulsell, D. (2019). *MotherWise: Implementation of a healthy marriage and relationship education program for pregnant and new mothers* (OPRE report # 2019-42). Office of Planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services.

Buhrmester, D., Furman, W., Wittenberg, M. T., & Reis, H. T. (1988). Five domains of interpersonal competence in peer relationships. *Journal of Personality and Social Psychology*, 55(6), 991–1008. https://doi.org/10.1037/0022-3514.55.6.991

Carlson, R. G., Rappleyea, D. L., Daire, A. P., Harris, S. M., & Liu, X. (2017). The effectiveness of couple and individual relationship education: Distress as a moderator. *Family Process*, 56(1), 91–104. https://doi.org/10.1111/famp.12172

Carlson, R. G., Taylor, D. D., Barden, S. M., Olejarczyk, J., & Glascoe, G. (2021). Effects of individual-oriented relationship education for parents: A randomized controlled trial. *Journal of Family Psychology*, 35(8), 1097–1106. https://doi.org/10.1037/fam0000852

Conger, R. D., Conger, K. J., & Martin, M. J. (2010). Socioeconomic status, family processes, and individual development. *Journal of Marriage and Family*, 72(3), 685–704. https://doi.org/10.1111/j.1741-3737.2010.00725.x

Dahlberg, L. L., Toal, S. B., Swahn, M. H., & Behrens, C. B. (2005). *Measuring violence-related attitudes, behaviors, and influences among youths: A compendium of assessment tools*. Centers for Disease Control and Prevention.

Dyer, W. J. (2015). The vital role of measurement equivalence in family research. *Journal of Family Theory & Review*, 7(4), 415–431. https://doi.org/10.1111/jftr.12115

Hawkins, A. J., Hokanson, S., Loveridge, E., Milius, E., Duncan, M., Booth, M., & Pollard, B. (2022). How effective are ACF-funded couple relationship education programs? A meta-analytic study. *Family Process*, 61(3), 970–985. https://doi.org/10.1111/famp.12739

Howard, L. M., & Khalifeh, H. (2020). Perinatal mental health: A review of progress and challenges. *World Psychiatry*, 19(3), 313–327. https://doi.org/10.1002/wps.20769

Kanter, J. B., Lavner, J. A., Lannin, D. G., Hilgard, J., & Monk, J. K. (2022). Does couple communication predict later relationship quality and dissolution? A meta-analysis. *Journal of Marriage and Family*, 84(2), 533–551. https://doi.org/10.1111/jomf.12804

Karney, B. R. (2021). Socioeconomic status and intimate relationships. *Annual Review of Psychology*, 72(1), 391–414. https://doi.org/10.1146/annurev-psych-051920-013658

Knopp, K., Stanley, S. M., & Rhoades, G. K. (2022). Moderated mediation in relationship education: Communication, commitment, and sociodemographic disadvantage. *Journal of Family Psychology*, 36(7), 1084–1094. https://doi.org/10.1037/fam0000958

Kroenke, K., Strine, T. W., Spitzer, R. L., Williams, J. B. W., Berry, J. T., & Mokdad, A. H. (2009). The PHQ-8 as a measure of current depression in

the general population. *Journal of Affective Disorders*, *114*(1–3), 163–173. https://doi.org/10.1016/j.jad.2008.06.026

Leverentz, A. M. (2006). The love of a good man? Romantic relationships as a source of support or hindrance for female ex-offenders. *Journal of Research in Crime and Delinquency*, *43*(4), 459–488. https://doi.org/10.1177/0022427806293323

Little, T. D. (2013). *Longitudinal structural equation modeling*. Guilford Press.

Marmot, M., & Bell, R. (2012). Fair society, healthy lives. *Public Health*, *126*(Suppl. 1), S4–S10. https://doi.org/10.1016/j.puhe.2012.05.014

McConnell, S., Stuart, E. A., & Devaney, B. (2008). The truncation-by-death problem: What to do in an experimental evaluation when the outcome is not always defined. *Evaluation Review*, *32*(2), 157–186. https://doi.org/10.1177/0193841X07309115

McLanahan, S., & Beck, A. N. (2010). Parental relationships in fragile families. *The Future of Children/Center for the Future of Children, the David and Lucile Packard Foundation*, *20*(2), 17–37. https://doi.org/10.1353/foc.2010.0007

Murphy, K. P. (2012). *Machine learning: A probabilistic perspective*. MIT Press.

Patnaik, A., Gonzalez, K., & Wood, R. G. (2022). *Healthy marriage and relationship education for expectant and new mothers: The 30-month impacts of MotherWise* (OPRE report #2022-240). Office of Planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services.

Patnaik, A., Wood, R. G., & Gonzalez, K. (2023). Impacts of healthy marriage and relationship education for expectant and new mothers. *Family Relations*, *72*(4), 1456–1473. https://doi.org/10.1111/fare.12818

Pearson, M., Stanley, S. M., & Rhoades, G. K. (2005). *Within my reach leader manual*. PREP for Individuals.

Rhoades, G. K., Allen, M. O. T., Peña, R., Hyer, J., & Mazzoni, S. E. (2022). Relationship education for women during pregnancy: The impact of MotherWise on birth outcomes. *Family Process*, *61*(3), 1134–1143. https://doi.org/10.1111/famp.12756

Ritchie, L. L., Stanley, S. M., Allen, M. O. T., & Rhoades, G. K. (2023). Impact evaluation of the family expectations program and moderation by sociodemographic disadvantage. *Family Process*, *62*(1), 201–215. https://doi.org/10.1111/famp.12762

Roddy, M. K., Rothman, K., Cicila, L. N., & Doss, B. D. (2019). Why do couples seek relationship help online? Description and comparison to in-person interventions. *Journal of Marital and Family Therapy*, *45*(3), 369–379. https://doi.org/10.1111/jmft.12329

Stanley, S. M., Barton, A. W., Ritchie, L. L., Allen, M. O. T., & Rhoades, G. K. (2023). The Stable Low-Conflict Index: A policy-relevant outcome in government-funded relationship education efforts. *Family Relations*, *72*(5), 2647–2663. https://doi.org/10.1111/fare.12845

Stanley, S. M., Carlson, R. G., Rhoades, G. K., Markman, H. J., Ritchie, L. L., & Hawkins, A. J. (2020). Best practices in relationship education focused on intimate relationships. *Family Relations*, *69*(3), 497–519. https://doi.org/10.1111/fare.12419

Stanley, S. M., Markman, H. J., Jenkins, N. H., Erlacher, J., Egger, M., & Ramos, L. (2017). *PREP 8.0 leader manual*. PREP Educational Products.

Stanley, S. M., Markman, H. J., Jenkins, N. H., Rhoades, G. K., Noll, L., & Ramos, L. D. (2006). *Within our reach leader manual*. PREP Educational Products.

Stanton, A. E., Kako, P., & Sawin, K. J. (2016). Mental health issues of women after release from jail and prison: A systematic review. *Issues in Mental Health Nursing*, *37*(5), 299–331. https://doi.org/10.3109/01612840.2016.1154629

Twisk, J., Bosman, L., Hoekstra, T., Rijnhart, J., Welten, M., & Heymans, M. (2018). Different ways to estimate treatment effects in randomised controlled trials. *Contemporary Clinical Trials Communications*, *10*, 80–85. https://doi.org/10.1016/j.conctc.2018.03.008

van Eldik, W. M., de Haan, A. D., Parry, L. Q., Davies, P. T., Luijk, M. P. C. M., Arends, L. R., & Prinzie, P. (2020). The interparental relationship: Meta-analytic associations with children's maladjustment and responses to interparental conflict. *Psychological Bulletin*, *146*(7), 553–594. https://doi.org/10.1037/bul0000233

Vennum, A., & Fincham, F. D. (2011). Assessing decision making in young adult romantic relationships. *Psychological Assessment*, *23*(3), 739–751. https://doi.org/10.1037/a0023287

Visvanathan, P. D., Richmond, M., Winder, C., & Koenck, C. H. (2015). Individual-oriented relationship education: An evaluation study in community-based settings. *Family Process*, *54*(4), 686–702. https://doi.org/10.1111/famp.12116

Whisman, M. A., Beach, S. R., & Snyder, D. K. (2008). Is marital discord taxonic and can taxonic status be assessed reliably? Results from a national, representative sample of married couples. *Journal of Consulting and Clinical Psychology*, *76*(5), 745–755. https://doi.org/10.1037/0022-006X.76.5.745

Whisman, M. A., Sbarra, D. A., & Beach, S. R. H. (2021). Intimate relationships and depression: Searching for causation in the sea of association. *Annual Review of Clinical Psychology*, *17*(1), 233–258. https://doi.org/10.1146/annurev-clinpsy-081219-103323

Williamson, H. C., Altman, N., Hsueh, J., & Bradbury, T. N. (2016). Effects of relationship education on couple communication and satisfaction: A randomized controlled trial with low-income couples. *Journal of Consulting and Clinical Psychology*, *84*(2), 156–166. https://doi.org/10.1037/ccp0000056

Wood, R. G., McConnell, S., Moore, Q., Clarkwest, A., & Hsueh, J. (2012). The effects of Building Strong Families: A healthy marriage and relationship skills education program for unmarried parents. *Journal of Policy Analysis and Management*, *31*(2), 228–252. https://doi.org/10.1002/pam.21608

Wu, Y., Levis, B., Riehm, K. E., Saadat, N., Levis, A. W., Azar, M., Rice, D. B., Boruff, J., Cuijpers, P., Gilbody, S., Ioannidis, J. P. A., Kloda, L. A., McMillan, D., Patten, S. B., Shrier, I., Ziegelstein, R. C., Akena, D. H., Arroll, B., Ayalon, L., … Thombs, B. D. (2020). Equivalency of the diagnostic accuracy of the PHQ-8 and PHQ-9: A systematic review and individual participant data meta-analysis. *Psychological Medicine*, *50*(8), 1368–1380. https://doi.org/10.1017/S0033291719001314