Received: 19 April 2022 | Revised: 18 October 2022 | Accepted: 15 November 2022

DOI: 10.1111/fare.12818

Family Relations
Interdisciplinary Journal of Applied Family Science

RESEARCH

Impacts of healthy marriage and relationship education for expectant and new mothers

Ankita Patnaik[1] | Robert G. Wood[2] | Kathryn Gonzalez[3]

[1]Mathematica, Washington, DC

[2]Mathematica, Princeton, NJ

[3]Mathematica, Oakland, CA

Correspondence Ankita Patnaik, Mathematica, 1100 First Street, NE, 12th Floor, Washington, DC, 20002-4221, USA.
Email: apatnaik@mathematica-mpr.com

Funding information
This study was supported by contract HHSP233201500095G from the U.S. Department of Health and Human Services, Administration for Children and Families. The views expressed herein are those of the authors and do not necessarily reflect the views of the U.S. Department of Health and Human Services.

Abstract

Objective: To build the evidence base on healthy marriage and relationship education (HMRE) programs serving individual adults, this study examined the 1-year impacts of the MotherWise program, which serves women with low incomes who are pregnant or have just had a baby.

Background: Despite the increasing prevalence of HMRE programs serving individual adults, few studies have rigorously examined their effectiveness.

Method: Women were randomly assigned to either (a) an intervention group offered MotherWise ($n = 512$), or (b) a control group not offered MotherWise ($n = 437$). Women's relationship skills, attitudes, and outcomes were measured by a 1-year follow-up survey.

Results: MotherWise improved women's relationship skills and attitudes, and reduced the likelihood of unintended pregnancy. MotherWise did not affect levels of intimate partner violence, coparenting quality, and emotional well-being. Among women in a relationship with their baby's father, MotherWise improved the quality of that relationship.

Conclusion: MotherWise met its immediate goal of helping women develop the skills and attitudes to make informed, healthy decisions about relationships. The program's impact on unintended pregnancy suggests the program encouraged women to make more deliberate decisions about family planning.

Implications: Programs like MotherWise can improve certain outcomes of new and expectant mothers with low incomes by offering them HMRE services and other supports.

KEYWORDS

healthy relationships, marriage education, randomized controlled trial, relationship skills and attitudes, Within My Reach

© 2022 National Council on Family Relations.

17413729, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/fare.12818 by University Of Denver, Wiley Online Library on [12/01/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Decades of research have revealed that stable, low-conflict families support the well-being of parents and children (Waldfogel et al., 2010). Healthy family environments can be a buffer against the negative effects of poverty and other stressful life events (Amato, 2005). However, maintaining healthy relationships can be a challenge for parents. This is particularly true for parents with low incomes, who may experience economic and other stressors that make it difficult to achieve stable, low-conflict relationships (Conger et al., 2010).

Healthy relationships are particularly important for new and expectant mothers. Many women experience psychological distress during pregnancy and after the birth of their child (Gavin et al., 2005). Access to social and relationship supports (O'hara & Swain, 1996) and positive relationship behaviors (Khaled et al., 2020) during the perinatal period have been linked to improved maternal well-being. In contrast, exposure to destructive conflict behaviors during and shortly after pregnancy, such as intimate partner violence, is linked to worsened maternal mental and physical health (Malta et al., 2012; Sharps et al., 2007). More broadly, research reveals that healthy relationships between mothers and fathers can reduce maternal stress and support maternal well-being (Bloch et al., 2010), which can in turn influence children's developmental trajectories (Crnic et al., 2005).

Healthy marriage and relationship education (HMRE) programs, including those serving new and expectant parents, have emerged as an approach to help people build the skills needed to develop and sustain healthy relationships (Stanley et al., 2020). The federal government funds many HMRE programs through grants that are administered by the U.S. Department of Health and Human Services, Administration for Children and Families, Office of Family Assistance (OFA, n.d.). Many HMRE programs serve individual adults (rather than couples) and aim to help participants form and maintain romantic relationships and avoid unhealthy relationships, regardless of their relationship status (Stanley et al., 2020; Stanley & Rhoades, 2009). These programs cover topics such as how to choose a partner wisely, how to improve communication skills, how relationship choices can affect many aspects of life, and how to recognize unhealthy relationships and leave them safely (Rhoades & Stanley, 2011; Visvanathan et al., 2015).

There are an increasing number of HMRE programs for individual adults, as indicated by the current list of HMRE grants awarded by OFA (OFA, n.d.), yet there is limited rigorous evidence on their effectiveness (Stanley et al., 2020; Visvanathan et al., 2015). A handful of mainly quasi-experimental studies have examined the impacts of HMRE programs for individual adults (Adler-Baeder et al., 2018; Bradford et al., 2016; Nowlan et al., 2017; Owen et al., 2017; Van Epp et al., 2008). Only one study used a random assignment design: Nowlan et al. (2017) evaluated an online HMRE curriculum adapted for use with individual adults and found that it had positive impacts on individuals' self-reported quality of life, work functioning, and perceived health at program exit. Moreover, only one of these studies (Adler-Baeder et al., 2018) examined an HMRE program that exclusively served women. Adler-Baeder et al. (2018) examined the *Together We Can* HMRE curriculum to mothers of children enrolled in a Head Start program and compared the outcomes of program participants to those of mothers from the same Head Start program who chose not to enroll. Program participants reported greater improvements in coparenting quality 1 year after program enrollment compared with mothers who chose not to participate in the program; the two groups had similar levels of punitive parenting behaviors, however. To the best of our knowledge, no studies to date have used a random assignment design to evaluate the impact of HMRE programs that exclusively serve women or mothers—or more broadly, the impact of HMRE programs for individual adults on outcomes beyond program exit.

Current study

This study presents findings from a random assignment impact study of MotherWise, an HMRE program for new and expectant mothers. MotherWise integrates the *Within My Reach*

17413729, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/fare.12818 by University Of Denver, Wiley Online Library on [12/01/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

ncfr Family Relations Interdisciplinary Journal of Applied Family Science

curriculum into a comprehensive set of HMRE services and supplementary supports. The program's primary goal is to empower women to make informed decisions about healthy relationships. MotherWise was designed by the developer of the *Within My Reach* curriculum and delivered by staff at the University of Denver.

This study addresses the following primary research question: What are the 1-year impacts of MotherWise on women's relationship skills, attitudes, and related outcomes? To answer that question, we randomly assigned 949 women to one of two groups—a group that was offered MotherWise and a control group that was not—and analyzed data from a follow-up survey of women in both groups that we administered after 1 year. We examined impacts on study participants' outcomes in six domains, including (a) relationship skills, (b) relationship attitudes, (c) unintended pregnancy, (d) exposure to intimate partner violence, (e) coparenting, and (f) emotional well-being. Our analysis of impacts on these outcomes represents the main test of whether MotherWise achieved its intended effects.

The first two domains, relationship skills and attitudes, were directly addressed by the program's core group workshop that was designed to equip women with the skills and attitudes necessary to make informed decisions about relationships. An important goal of MotherWise was guiding participants to recognize unhealthy relationships to help them protect themselves against intimate partner violence. For this reason, we examine its effects on participants' exposure to intimate partner violence. MotherWise also emphasized the importance of making careful and deliberate decisions about relationships—including when to have a child and with whom—which we hypothesized could reduce the likelihood of unintended pregnancy. Further, we anticipated that the relationship skills taught by the program could improve participants' coparenting relationships. Finally, we hypothesized the program could improve participants' emotional well-being through its messages of personal empowerment, by helping new mothers avoid feelings of isolation, and through impacts on other outcomes.

In additional analyses, we examined a second research question: Among the three quarters of women who were in a steady romantic relationship with the baby's father when they enrolled in the study, what are the 1-year impacts of MotherWise on the status and quality of that relationship? This question is of substantive and policy significance, given that improved relationship quality could reduce conflict in the home environment, improve parenting, and ultimately, improve children's well-being (Carlson & McClanahan, 2006; Hughes et al., 2020). We categorized this research question as secondary because these outcomes were not as central to the program's goals and are only relevant for a subset of women served by MotherWise.

METHOD

Study design

The study team conducted a randomized trial involving new and expectant mothers with low incomes in the Denver, Colorado, area. We randomly assigned women to one of two research groups: (a) an intervention group that was offered MotherWise, and (b) a control group that was not offered MotherWise but was free to seek other services available in the community. We obtained institutional review board (IRB) approval from the Denver Health IRB and the University of Denver IRB and preregistered the study on clinicaltrials.org (identifier: NCT02792309).

The study team ultimately enrolled 949 women over a 26-month period from September 2016 through December 2018. This total is consistent with the original plan for the evaluation: enrolling 900 women into the study, which, with an 80% survey response rate, would enable detection of an effect size of 0.18 assuming alpha = .05 and power of .80 (Wood et al., 2018). Prior research has found impacts of this magnitude for HMRE programs serving parents with

17413729, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/fare.12818 by University Of Denver, Wiley Online Library on [12/01/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

low incomes (Devaney & Dion, 2010), suggesting this sample size was adequate to detect the impacts of the MotherWise program if they were of similar size or larger.

Participants

To be eligible to participate in MotherWise, women had to be at least 18 years old and either be pregnant or have delivered a baby in the previous 3 months. To identify potential study participants, the University of Denver partnered with Denver Health, a large public hospital that is the primary health care provider for families with Medicaid-funded births in the Denver, Colorado, area. MotherWise staff primarily recruited study participants in places where women received their perinatal care, including the main Denver Health hospital campus and two community health centers operated by Denver Health. MotherWise staff also sought referrals from other medical and social service agencies that served new and expectant mothers with low incomes in the Denver area. MotherWise staff first identified eligible women and then approached eligible women about participating in the study while they were at doctor's appointments to describe the program and study. If women were interested in participating in the program and in the study, MotherWise staff scheduled an intake appointment to verify the potential participant's eligibility, complete the consent process, administer the baseline survey, and conduct random assignment.

Random assignment

We used a stratified random assignment design to assign study participants to either the MotherWise group or the control group. MotherWise was offered in both Spanish and English. Random assignment took place within each language group to ensure the proportion of Spanish-speaking women was the same for both research groups.

At the beginning of the study enrollment period in September 2016, participants had an equal chance of being placed in either research group. Beginning in November 2016, assignment ratios were temporarily adjusted upward (with two thirds of participants assigned to the MotherWise group) to maintain adequate enrollment. (Appendix Table A.1 in the supplemental materials has the assignment probabilities by language group.) We used a permuted block design to conduct random assignment by generating a random string of characters (C for control and T for treatment) for each stratum of study participants (Matts & Lachin, 1998). The string was created in a manner that ensured the number of participants in the study groups aligned with the random assignment ratios described above at any point in the study enrollment process. Overall, we randomly assigned 512 young adults to the MotherWise group and 437 to the control group.

Intervention and control conditions

MotherWise was developed by researchers at the University of Denver. It included a core group workshop, individual case management, and an optional couples' workshop. The core group workshop consisted of six weekly 4-hour sessions and included 18 hours of content and an hour each session for a meal and socializing. Fifteen hours of content were drawn from the *Within My Reach* curriculum, an HMRE curriculum developed for individual adults that focuses on improving relationship skills and attitudes and is designed to help participants make informed and healthy decisions about their personal and romantic relationships regardless of their relationship status (Pearson et al., 2015). The *Within My Reach* curriculum was supplemented by

17413729, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/fare.12818 by University Of Denver, Wiley Online Library on [12/01/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

17413729, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/fare.12818 by University Of Denver, Wiley Online Library on [12/01/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

TABLE 1 Overview of the six MotherWise *Within My Reach* workshop sessions

Session	HMRE content covered
Session 1	• The state of relationships today • Healthy relationships: What they are and what they aren't • Sliding versus deciding
Session 2	• Sliding versus deciding (continued) • Smart love • Knowing yourself first
Session 3	• Knowing yourself first (continued) • Making your own decisions • Danger patterns in relationships
Session 4	• Where conflict begins • Smart communication • The speaker-listener technique
Session 5	• The speaker-listener technique (continued) • Infidelity, distrust, and forgiveness • Two types of commitment: Why it matters to adults and children
Session 6	• Two types of commitment: Why it matters to adults and children (continued) • Stepfamilies and the significance of fathers • Making the tough decisions • Reaching into your future

Note. HMRE = healthy marriage and relationship education. Information is from internal MotherWise Program documents.

3 hours of content on infant care and parenting. This additional content not only provided relevant information; it was a cover for women in an unsafe relationship who did not want their partners to know they were in a program that included topics such as recognizing and leaving unhealthy relationships safely (Baumgartner & Paulsell, 2019). Table 1 is an overview of the HMRE content covered in each of the six workshop sessions.

MotherWise included case management to reinforce the skills women learned in the workshops and to refer them to community resources. Participants were expected to attend at least four meetings with a case manager during the 6-week program. MotherWise also featured an optional couples' workshop that mothers could attend with their romantic partners once they had completed at least the first three *Within My Reach* workshop sessions.

MotherWise was offered in both English and Spanish. There were no major differences in the English- and Spanish-language *Within My Reach* core program workshops and case management. The *Within My Reach* curriculum that underlies MotherWise is available from PREP, Inc. in both English and Spanish. However, the English- and Spanish-language optional couples' workshops used different curricula. The English-language optional couples' workshops used *PREP 8.0*, the eighth version of PREP, Inc.'s master curriculum for couples in committed relationships. The Spanish-language optional couples' workshop used *Within Our Reach*, which is also distributed by PREP, Inc., because *PREP 8.0* was not available in Spanish. *Within Our Reach*, is derived from the *PREP 8.0* content and is tailored for couples with low incomes (Baumgartner & Paulsell, 2019).

Women assigned to the control group were not offered MotherWise. They were free to seek other services available in the community. However, the likelihood that control group members received other HMRE services is low. MotherWise staff did not refer control group members to other HMRE services in the community. In addition, a previous implementation study of MotherWise found that few organizations in the community offered HMRE services and no other area program offered HMRE services tailored specifically for expectant and new mothers (Baumgartner & Paulsell, 2019). Consistent with this finding, when asked on follow-up surveys

whether they had participated in any group activities to help with their romantic relationships since random assignment, only 6% of control group members reported that they had.

Data collection

This analysis draws on data from two surveys of study participants: a baseline survey and a 1-year follow-up survey. The baseline survey was administered via telephone to all participants during the program intake appointment and before they were informed of their research status. This survey collected information on participants' demographic characteristics, family backgrounds, relationship attitudes and experiences, and other outcomes. The follow-up survey was administered about 12 months after study enrollment via telephone or online. Baseline and follow-up surveys were available in English and Spanish. Study participants received a $30 gift card for enrolling in the study and completing the baseline survey, and a $25 gift card for completing the follow-up survey. A total of 799 women responded to the 1-year follow up survey (a response rate of 84%). Response rates were similar for the intervention group (83%) and control group (85%).

Outcomes

We examine the impacts of MotherWise on nine primary outcomes across six domains, and five secondary outcomes. The theory of change that underlies the design and delivery of MotherWise also guided our selection of outcomes. This theory of change posits that the program's implementation system (supported by trained facilitators, case managers, and recruiters) will encourage participants to use the key services and supports offered by MotherWise (including the *Within My Reach* workshops, case management, and optional couples' workshops). In the short term, participants' use of these services is theorized to lead to changes in participants' knowledge and attitudes; improved relationship, communication, and conflict management skills; reduced exposure to intimate partner violence; improved satisfaction with relationships; and reduced depressive symptoms. These short-term improvements, in turn, are theorized to lead to longer-term outcomes including improved relationship and family stability, improved personal well-being, and improved child well-being (Baumgartner & Paulsell, 2019).

Our primary outcomes are aligned with the anticipated short-term outcomes in the MotherWise theory of change. In contrast, we consider the secondary outcomes to be exploratory, because they are not central to the program's goals and not reflected in the program's theory of change. Importantly, we only collected data from women, meaning our outcome measures capture their perceptions, which might differ from those of their romantic partners or coparents.

Relationship skills

Perceived romantic relationship skills

We measured participants' perceptions of their romantic relationship skills using six items from the Relationship Deciding Scale (Vennum & Fincham, 2011). For each question, participants reported how much they agreed with a given statement; for example, "I believe I will be able to effectively deal with conflicts that arise in my relationship." Response options for each item ranged from 1 (*strongly disagree*) to 4 (*strongly agree*). We calculated a scale score by taking the average of responses to the six questions. Scale values ranged from 1 to 4, with higher values indicating a perception of greater relationship skills. This scale demonstrated adequate internal consistency in our study sample ($\alpha = .88$ among the control group and $\alpha = .84$ among the MotherWise group).

17413729, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/fare.12818 by University Of Denver, Wiley Online Library on [12/01/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Family Relations
Interdisciplinary Journal of Applied Family Science

Perceived conflict management skills

We measured participants' perceptions of their conflict management skills using five survey questions adapted from the Conflict Management subscale of the Interpersonal Competence Questionnaire (Buhrmester et al., 1988). For each question, women reported their perceived ability to perform certain conflict management skills, such as listening to another person's opinion during a disagreement. Response options for each question ranged from 1 (*I am bad at this*) to 4 (*I am extremely good at this*). We calculated a scale score by taking the average value of responses across the five items. Scale values ranged from 1 to 4, with higher values indicating greater perceived skills. This scale demonstrated adequate internal consistency in our study sample (α = .79 among the control group and α = .78 among the MotherWise group).

Relationship attitudes

Support for going slow in romantic relationships

Participants' support for going slow in romantic relationships was measured by the strength of their agreement with the statement, "People are more likely to succeed in their relationships if they take things slowly." Values ranged from 1 (*strongly disagree*) to 4 (*strongly agree*). This measure was recommended by the *Within My Reach* curriculum developers as an appropriate example of the kind of relationship attitude the curriculum is designed to influence.

Disapproval of couple violence

We measured participants' disapproval of couple violence using a subscale of the Acceptance of Couple Violence Scale (Dahlberg et al., 2005). There were five statements on the subscale. Women reported how strongly they agreed or disagreed with the statements, which included, for example, "Violence between dating partners can improve the relationship." Response options for each question ranged from 1 (*strongly agree*) to 4 (*strongly disagree*). We calculated a scale score by taking the average value of responses across the five questions. Scale values ranged from 1 to 4, with higher values indicating greater disapproval of couple violence. This scale demonstrated adequate internal consistency in our study sample (α = .83 among the control group and α = .79 among the MotherWise group).

Unintended pregnancy since program enrollment

We used questions drawn from the National Survey of Family Growth 2015 – 2017 (National Center for Health Statistics, n.d.) to determine whether participants had had an unintended pregnancy. These survey questions asked women if they had become pregnant since random assignment. For women who had, there was a question asking if they had wanted to have a baby immediately before the pregnancy. The survey also asked if the pregnancy came sooner than the mother wanted, at about the right time, or later than the mother wanted. We constructed a binary measure of unintended pregnancy that was equal to 1 if the mother had become pregnant since random assignment and reported that they had not wanted a baby right before they became pregnant or that the pregnancy came sooner than they wanted.

Exposure to intimate partner violence

Any psychological abuse

We measured participants' exposure to any psychological abuse using a binary indicator adapted from a measure used in the Supporting Healthy Marriage evaluation

17413729, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/fare.12818 by University Of Denver, Wiley Online Library on [12/01/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

(Hsueh et al., 2012). We asked participants whether they had experienced any of four types of psychological abuse by their romantic partner in the past year, including whether the participant's romantic partner had tried to keep them from seeing or talking with friends, made them feel stupid, kept money from them or took their money without asking, or made her feel afraid the partner might hurt her. We created a binary indicator for whether the participant reported experiencing any of the four types of psychological abuse. If the participant did not respond to one or more of the four questions, and did not say they had experienced any of the four types of psychological abuse, we set this indicator to missing.

Any physical abuse
We measured participants' exposure to any physical abuse using two items from the Physical Assault Scale of the Conflict Tactics Scale—Short Form (Straus & Douglas, 2004). In the survey, participants reported whether they had experienced either of two types of physical abuse by any romantic partner in the past year, including whether any romantic partner had (a) pushed, shoved, or slapped them, or (b) punched, kicked, or beaten them up. We followed the approach recommended by the scale developers and created a binary indicator for whether the participant reported having experienced either of the two types of physical abuse. If the participant did not respond to one or both of the two questions, and did not say they had experienced any of the two types of physical abuse, we set this indicator to missing.

Coparenting

We measured the quality of participants' coparenting relationships using a subset of 10 items from the Parenting Alliance Inventory (Abidin & Brunner, 1995). Women reported their level of agreement with positive statements about coparenting with the father of the baby—for example, "I feel good about [father]'s judgment about what is right for our children/child." Response options for each question ranged from 1 (*strongly disagree*) to 4 (*strongly agree*). We calculated a scale score by taking the average value of responses across the 10 questions. Scale values ranged from 1 to 4, with higher values indicating higher quality coparenting. This scale demonstrated adequate internal consistency in our study sample ($\alpha = .97$ among the control group and $\alpha = .98$ among the MotherWise group).

Emotional well-being

To examine the impacts of MotherWise on participants' emotional well-being, we examined a measure of participants' depressive symptoms. We measured depressive symptoms using a subscale from the Patient Health Questionnaire (Kroenke et al., 2001). The subscale included eight questions, and for each question, respondents reported how often they experienced a depressive symptom in the past 2 weeks. Response options for each question ranged from 1 (*not at all*) to 4 (*nearly every day*). We calculated a scale by taking the average value of responses across the eight questions. Scale values ranged from 1 to 4, with higher values reflecting more frequent depressive symptoms. This scale demonstrated adequate internal consistency in our study sample ($\alpha = .89$ among the control group and $\alpha = .89$ among the MotherWise group).

Secondary outcomes

In addition to the nine key outcomes in the six primary outcome domains described above, we examined the impact of MotherWise on seven secondary outcome measures related to a

17413729, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/fare.12818 by University Of Denver, Wiley Online Library on [12/01/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

woman's relationship with the baby's father. These outcomes are exploratory, and not part of the main test of program effectiveness, because they were less central to the program's goals and not relevant for all mothers served by MotherWise.

First, we examined two measures of relationship status, including whether women were romantically involved with or married to their baby's father at follow-up. These outcomes were only defined for women who were in a steady relationship with the father at baseline. Second, we examined five measures of relationship quality, including support and affection, relationship commitment, relationship happiness, use of constructive conflict behaviors, and avoidance of destructive behaviors. These outcomes were only defined for women who were in a steady relationship with the father at baseline and follow-up.

Analytic methods

Because the study leveraged a rigorous random assignment design and overall and differential attrition at the 12-month follow-up was low, we can attribute simple differences in outcomes between the treatment and control groups to the impact of the MotherWise program with a high degree of confidence (What Works Clearinghouse, 2020). Nevertheless, we estimated multivariate weighted least squares regression models to estimate the impact of MotherWise. This approach accounted for features of the study's random assignment design, including stratification based on language group and varying assignment probabilities, and also allowed us to adjust for the small number of baseline differences that were detected between the MotherWise group and the control group. The regression models included multiple variables to control for characteristics measured at baseline. These covariates included the respondent's primary language, because that was a stratification factor for random assignment, and baseline versions of all primary outcomes (when available). We also included two covariates to account for imbalance between the intervention and control groups in women's relationship status at baseline: a categorical variable representing the woman's relationship status at baseline and an indicator for whether they were in a steady romantic relationship with their child's father at baseline. To help interpret the magnitude of the impact estimates, we calculated and reported an effect size for each outcome. For continuous outcomes, we calculated the effect size by dividing the impact estimate from the regression model by the unadjusted pooled standard deviation of the outcome for women across both the MotherWise and control groups (Hedges, 1981). For dichotomous outcomes, we calculated the effect size by dividing the log odds ratio of the two study groups by 1.65 (Cox, 1970).

We included analysis weights to account for the stratified random assignment design and survey nonresponse. We first calculated base weights that accounted for the varying likelihood of assignment to the MotherWise group and control group across the four enrollment periods and two language groups. We then adjusted the base weights to account for survey nonresponse, using standard approaches to calculate the probability of participants' survey response as a function of baseline characteristics.

For the group of 799 participants that completed the follow-up survey and make up our analytic sample, there was a small amount of missing data for the covariates included in our regression models. For missing baseline data for covariates, we set missing values to a single constant value and included indicator variables for missing data as additional covariates in the regression model (Puma et al., 2009). Respondents with missing data for a particular outcome measure were excluded from the regression models for that outcome. As noted, we used analysis weights to account for nonresponse to the follow-up survey.

To confirm findings were not sensitive to specific analytic decisions, we replicated our analysis using different specifications for the regression model. First, we replicated our primary regression model with weights that adjusted for varying probabilities of treatment assignment due to the random assignment design, but did not adjust for survey nonresponse. Second, we estimated a

17413729, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/fare.12818 by University Of Denver, Wiley Online Library on [12/01/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

regression model that did not include covariate adjustment. Third, we replicated the analysis while accounting for multiple comparisons within an outcome domain. For domains that contained more than one outcome, we corrected for the risk of finding statistically significant results by chance using the Benjamini–Hochberg method (Benjamini & Hochberg 1995).

RESULTS

Baseline characteristics

Table 2 shows the characteristics of the analytic sample, which includes the 799 women who were randomly assigned to either the MotherWise group or to the control group and completed a 1-year follow-up survey. Most women in the analytic sample were economically disadvantaged expectant and new mothers. The average age of the women in the analytic sample was 28. About two thirds of the women identified as Hispanic. Most others identified as either non-Hispanic White or non-Hispanic Black. About four in 10 women were born outside of the United States, and a similar share reported they primarily spoke Spanish at home. About one quarter of the women had not completed high school, and about one in 10 had a college degree. At baseline, nearly three in four women reported they had accessed government benefits such as the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), the Supplemental Nutrition Assistance Program (SNAP), or Temporary Assistance for Needy Families (TANF) in the past 30 days, and about four in 10 women were working.

Although MotherWise served women regardless of their relationship status, most participants were in a romantic relationship when they entered the study. About three quarters were in a steady romantic relationship with their baby's father. Eight percent were in an on-again/off-again relationship with a romantic partner (usually the baby's father). Some women reported experiencing violence in their recent romantic relationships. In the past year, nearly 40% had experienced psychological abuse, and about 15% had experienced physical abuse by a romantic partner.

Women in the MotherWise and control groups had generally similar characteristics at random assignment. Across the 21 baseline measures, two statistically significant differences emerged between the two groups, revealing differences in women's relationship status at baseline. Compared with women in the control group, women in the MotherWise group were more likely to be married (and less likely to be single). They were also more likely to be married to or in a steady relationship with their baby's father. As noted, we controlled for these differences in the regressions we used to estimate program impacts. This is a salient difference because relationship status may be associated with some outcomes. However, as described above, the study used random assignment and was marked by low levels of overall and differential attrition, which supports the premise that simple differences in outcomes between the two study groups can be attributed to program impacts (What Works Clearinghouse, 2020). Moreover, as described above, we included two covariates to control for the imbalanced characteristics in multivariate regressions, and conducted sensitivity checks to confirm that the impact estimates are substantively unchanged when we estimate our regression models with and without baseline covariates. Taken together, these factors provide confidence that the differences in relationship status between the MotherWise and control groups pose limited risk of bias to the impact estimates.

Program participation

An implementation study of MotherWise found that it was generally well implemented (Baumgartner & Paulsell, 2019). Most participants engaged in the core program components,

17413729, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/fare.12818 by University Of Denver, Wiley Online Library on [12/01/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

TABLE 2 Baseline characteristics for women in the analytic sample

Baseline characteristics	MotherWise group	Control group	Difference
Demographics			
Average age (years)	28	28	1
Race and ethnicity			
Hispanic	69	64	5
Black, non-Hispanic	11	13	–2
White, non-Hispanic	15	17	–2
Other, non-Hispanic	5	7	–1
Foreign born	35	37	–1
Language spoken at home			
English	58	58	–1
Spanish	42	40	2
Family and relationships			
Expecting a baby at time of study enrollment	85	82	2
Married to or in a steady relationship with the baby's father	80	72	8**
Relationship status (with any romantic partner)			◊◊
Married or engaged	56	49	7
In a steady relationship	25	24	1
In an on-again/off-again relationship	8	8	−0
Not in a relationship	10	19	−8
Socioeconomic status			
Highest educational level			
No degree or diploma earned	22	29	−6
High school diploma or GED	40	34	6
Some college or vocational technical school	27	29	−2
College degree	11	9	2
Worked for pay in past month	41	38	3
Receipt of SNAP, TANF, or WIC in past 30 days	71	76	−5
Baseline measures of primary outcomes			
Perceived romantic relationship skills (range = 1 to 4)	3.19	3.21	−0.02
Perceived conflict management skills (range = 1 to 4)	2.46	2.50	−0.03
Support for going slow in romantic relationships (range = 1 to 4)	3.30	3.27	0.04
Disapproval of couple violence (range = 1 to 4)	3.64	3.61	0.03
Any psychological abuse in the past year	39	38	0
Any physical abuse in the past year	14	17	−3
Depressive symptoms (range = 0 to 24)	6.32	5.94	0.38
Sample size	426	373	

Note. This table shows the baseline characteristics of women who were randomly assigned and responded to the 1-year follow-up survey (percentage, unless otherwise specified). Data were weighted to account for differences in random assignment probabilities and survey nonresponse. SNAP = Supplemental Nutrition Assistance Program; TANF = Temporary Assistance for Needy Families; WIC = Special Supplemental Nutrition Program for Women, Infants, and Children. Data come from baseline and 1-year follow-up surveys conducted by Mathematica.

**$p < .01$, two-tailed test.◊◊$p < .05$, chi-square test.

17413729, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/fare.12818 by University Of Denver, Wiley Online Library on [12/01/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

17413729, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/fare.12818 by University Of Denver, Wiley Online Library on [12/01/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

including attending at least one workshop session (82%) or participating in case management (83%). About four in 10 participants completed at least four case management meetings (41%). An additional 15% attended three case management meetings, 12% attended two case management meetings, and 15% attended one case management meeting (Dolfin et al., 2022). Participation in the optional couples' workshops was substantially lower: 16% of participants attended at least one couples' workshop with their partner. On average, women received 12 of the 18 hours of core workshop content that were offered. About two thirds of participants completed the program, defined by the program as completing at least five of six possible workshop sessions within 4 months of enrollment.

Impacts on primary outcomes

Compared with women in the control group, women in the MotherWise group reported better romantic relationship skills and conflict management skills after 1 year. For perceived romantic relationship skills (measured on a scale of 1 to 4, with higher values indicating more skills), women in the MotherWise group had an average value of 3.36, compared with an average value of 3.25 for women in the control group (Table 3). For perceived conflict management skills (measured on a similar 1-to-4 scale), women in the MotherWise group had an average value of 2.71, compared with an average value of 2.58 in the control group. Both of these impacts were statistically significant at the .01 level, with effect sizes of 0.23 and 0.21, respectively.

MotherWise also improved women's attitudes about relationships. Women in the MotherWise group expressed more support for going slow in romantic relationships (measured on a scale of 1 to 4, with higher values indicating higher levels of support) than women in the control group did (3.40 versus 3.31; Table 3). This impact was statistically significant at the .05 level and corresponded to an effect size of 0.15. Women in the MotherWise group also expressed more intense disapproval of couple violence (measured on a scale of 1 to 4, with higher values indicating higher levels of disapproval) than women in the control group did (3.65 versus 3.53). This impact was statistically significant at the .01 level, and corresponded to an effect size of 0.26.

MotherWise reduced the likelihood of an unintended pregnancy during the 1-year follow-up period. In the control group, 11% of women reported they had an unwanted or mistimed pregnancy, compared with 7% of women in the MotherWise group (Table 3). This difference was marginally statistically significant (at the .10 level) and corresponded to an effect size of −0.29.

MotherWise did not have an impact on participants' exposure to intimate partner violence. At the 1-year follow-up, 28% of women in the MotherWise group and 33% of women in the control group reported experiencing psychological abuse from a romantic partner, a difference that was not statistically significant (Table 3). The percentage of women who reported experiencing physical abuse from a romantic partner in the past year was also similar for women in the MotherWise and control groups (9% and 11%, respectively).

Women in the MotherWise and control groups also reported similar levels of coparenting quality and emotional well-being. On a scale of coparenting quality that ranged from 1 to 4, the average score for both groups was about 3.1 (Table 3). On a measure of depressive symptoms that ranged from 0 to 24, with higher scores indicating more depressive symptoms, both groups reported an average score of about 4.4.

We checked the sensitivity of results to our analytic decisions by repeating the analysis of primary outcomes with three modifications: (a) using weights that only adjusted for varying probabilities of treatment assignment, (b) omitting covariate adjustment, and (c) accounting for multiple comparisons within an outcome domain. None of our robustness checks led to results that differed based on statistical significance or substantive importance (refer to Appendix Table A.2 in the supplemental materials).

ncfr Family Relations Interdisciplinary Journal of Applied Family Science

TABLE 3 Impacts of MotherWise on primary outcomes

Outcome	MotherWise group	Control group	Impact	Effect size
Relationship skills				
Perceived romantic relationship skills (range = 1 to 4)	3.36	3.25	0.11**	0.23
Perceived conflict management skills (range = 1 to 4)	2.71	2.58	0.12**	0.21
Relationship attitudes				
Support for going slow in romantic relationships (range = 1 to 4)	3.40	3.31	0.09*	0.15
Disapproval of couple violence (range = 1 to 4)	3.65	3.53	0.12**	0.26
Unintended pregnancy				
Had an unintended pregnancy since study enrollment	7	11	−4[†]	−0.29
Intimate partner violence				
Any psychological abuse	28	33	−5	−0.13
Any physical abuse	9	11	−1	−0.10
Coparenting				
Quality of coparenting relationship (range = 1 to 4)	3.13	3.14	−0.01	−0.01
Emotional well-being				
Depressive symptoms (range = 0 to 24)	4.35	4.39	−0.04	−0.01
Sample size	426	373		

Note. The numbers in the MotherWise group and control group columns are regression-adjusted predicted values of outcomes for each group. Data come from baseline and 1-year follow-up surveys conducted by Mathematica.
[†]$p < .10$.
*$p < .05$.**$p < .01$, two-tailed test.

Impacts on secondary outcomes

About three quarters of the women were in a steady romantic relationship with their baby's father at the time they enrolled in the study. For this subset of women, we examined the status and quality of their relationship with their baby's father 1 year later.

MotherWise did not affect the likelihood that a woman who was in a steady romantic relationship with their baby's father at study enrollment would remain in that relationship 1 year later. In both groups, about 90% of women who were in a relationship with the baby's father at baseline remained romantically involved with the baby's father after 1 year (Table 4).

However, among women who were in a steady romantic relationship with the father at both baseline and follow-up, women in MotherWise reported higher levels of relationship quality compared with women in the control group. MotherWise had positive impacts on three of the five outcome measures for relationship quality. Women in the MotherWise group reported higher levels of relationship commitment and happiness (9.53 and 8.39, respectively, on scales ranging from 1 to 10) compared with the control group (9.13 and 7.96, respectively). The impact on relationship commitment was statistically significant at the .01 level and corresponds to an effect size of 0.25. The impact on relationship happiness was statistically significant at the .05 level and corresponds to an effect size of 0.21. MotherWise also had a positive impact on women's use of constructive conflict behaviors. On a scale ranging from 1 to 4, with higher scores indicating more frequent use of constructive behaviors, women in the MotherWise group had an average value of 3.37 compared with an average value of 3.27 for women in the control group. This impact was statistically significant at the .05 level and corresponds to an effect size of 0.17. We did not find significant impacts on our other two measures of relationship quality, including support and affection and avoidance of destructive conflict behaviors.

17413729, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/fare.12818 by University Of Denver, Wiley Online Library on [12/01/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

TABLE 4 Impacts of MotherWise on secondary outcomes

Outcome	MotherWise group	Control group	Impact	Effect size
Relationship status[a]				
Romantically involved (percentage)	91	90	1	0.04
Married (percentage)	47	52	−4	−0.10
Relationship quality[b]				
Support and affection (range = 1 to 4)	3.38	3.33	0.05	0.10
Relationship commitment (range = 1 to 10)	9.53	9.13	0.40**	0.25
Relationship happiness (range = 1 to 10)	8.39	7.96	0.42*	0.21
Use of constructive conflict behaviors (range = 1 to 4)	3.37	3.27	0.10*	0.17
Avoidance of destructive conflict behaviors (range = 1 to 4)	2.87	2.77	0.10	0.14
Sample size for relationship status outcomes	345	269		
Sample size for relationship quality outcomes	315	243		

Note. The numbers in the MotherWise group and control group columns are regression-adjusted predicted values of outcomes. Data come from baseline and 1-year follow-up surveys conducted by Mathematica.
[a]These outcomes were only defined for women who were in a steady relationship with their baby's father at baseline.
[b]These outcomes were only defined for women who were in a steady relationship with their baby's father at baseline and follow-up.
*$p < .05$.**$p < .01$, two-tailed test.

DISCUSSION

This study examined MotherWise's success in improving women's relationship skills, attitudes, and related outcomes. After 1 year, we found that MotherWise succeeded in improving all four of the measures of relationship skills and attitudes we examined. This suggests the program succeeded in its most immediate goal of equipping women with the skills and attitudes to make informed and healthy decisions about their personal and romantic relationships.

We also found that MotherWise reduced the likelihood of an unintended pregnancy in the year after women entered the program. MotherWise emphasized the importance of making careful and deliberate decisions about relationships, including when to have a child and with whom. This finding suggests MotherWise may have succeeded in encouraging women to make more deliberate decisions about family planning. In addition, exploratory subgroup analysis suggests the impact on unintended pregnancy was particularly strong among women who entered the program in a romantic relationship with their baby's father (Appendix Table A.3 in the supplemental materials). This pattern suggests MotherWise may have helped these women navigate conversations about when and whether to have another child with their partners. Unintended pregnancy is associated with several negative outcomes for women and children, including delayed prenatal care, low birth weight, and maternal depression (Abajobir et al., 2016; Dibaba et al., 2013; Shah et al., 2011). Unintended pregnancies also come with substantial public costs (Sonfield et al., 2011); even a modest reduction in unintended pregnancies could have considerable benefits for individual participants and society as a whole.

MotherWise did not reduce experiences of intimate partner violence or depressive symptoms, or improve the quality of participants' coparenting relationships. Low levels of depressive symptoms in the control group may explain the lack of impacts on this outcome—there was limited room for improvement. In addition, MotherWise did not include romantic partners in the core workshop, and participation in the optional couples' workshop was low. This may have limited the program's ability to affect intimate partner violence and coparenting. Although we found no impacts on intimate partner violence and coparenting at the 1-year follow-up, we did find impacts on related outcomes, such as conflict management skills and disapproval of

17413729, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/fare.12818 by University Of Denver, Wiley Online Library on [12/01/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Family Relations
Interdisciplinary Journal of Applied Family Science

couple violence. Because impacts on outcomes in the realm of relationships can take time to unfold, impacts on coparenting and intimate partner violence could emerge later.

Why did MotherWise succeed in improving relationship skills and attitudes and reducing unintended pregnancies? The program may owe some of its success to strong implementation and participant engagement. More than eight in 10 women attended at least one workshop session, and nearly two thirds of participants completed the workshop series. Moreover, the program leaders (who included developers of the *Within My Reach* curriculum) were closely involved with program implementation, which helped ensure the program was implemented with fidelity (Baumgartner & Paulsell, 2019). Another factor may have been the program's well-defined population, which included new and expectant women with low incomes. Having a well-defined service population allowed the program staff to tailor services more closely to the participants' specific needs, which may have contributed to the program's effectiveness. The transition to parenthood is a time when interventions to support families may have the greatest potential for impact (Feinberg, 2002). The birth of a child may be a time when women are particularly open to taking stock of their romantic relationships, potentially making them more receptive to the program's healthy relationship content.

In additional analyses, we examined the impacts of MotherWise on the romantic relationships of the three quarters of women who were in a romantic relationship with their baby's father when they entered the study. Although we found no impact of MotherWise on the status of the mother's relationship with the baby's father after 1 year, we did find sizable effects on the quality of these relationships. Among women who were still in a romantic relationship with their baby's father 1 year after program enrollment, MotherWise had a positive impact on three of the five dimensions of relationship quality we examined, including relationship commitment, relationship happiness, and the use of constructive conflict behaviors.

Although these analyses are only based on a subset of women, and only reflect mothers' perspectives, the findings on relationship quality are notable because of their consistency and because of the size of the impacts. The average effect size across the five relationship quality measures we examined was considerably larger than effect sizes observed in previous evaluations of HMRE programs serving couples with low incomes (Hsueh et al., 2012; Moore et al., 2018; Wood et al., 2012). The sizable impacts of MotherWise on relationship quality support the promise of providing HMRE services to new and expectant mothers with low incomes. Better parental relationship quality has been linked to better parenting (Carlson & McLanahan, 2006) and fewer behavior problems in children (Hughes et al., 2020). These potential longer-term benefits make these impacts on relationship quality particularly noteworthy.

Limitations

Although MotherWise shows promise in improving some participant outcomes, we do not yet know whether the program model can be successfully replicated. MotherWise program leaders included developers of the *Within My Reach* curriculum, which helped ensure the program was implemented with fidelity. Future research should examine whether similar HMRE interventions delivered without the direct involvement of curriculum developers can improve participants' outcomes.

IMPLICATIONS

The findings of this study indicate that offering HMRE and other supports to new and expectant mothers with low incomes can improve outcomes related to relationship skills and attitudes, unintended pregnancy, and relationship quality (for some mothers). Although we cannot

17413729, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/fare.12818 by University Of Denver, Wiley Online Library on [12/01/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

isolate the factors that contribute to the programs' impacts, the findings do suggest paths for HMRE programming for individual adults. First, the findings underscore the importance of strong implementation and participant engagement for interventions aimed at supporting families (Brown et al., 2012; Ingoldsby, 2010). In the case of MotherWise, the high levels of participation and the fidelity with which the program was implemented likely helped support the program's impacts. Second, other HMRE programs may want to consider focusing on a well-defined service population, just as MotherWise did. A well-defined service population can help programs to more easily tailor their services to the groups they intend to serve, and serving participants with shared characteristics can help support group cohesion (Alamillo & Ouellette, 2021). HMRE programs may want to focus on adults in particular life circumstances, allowing programs to tailor services more closely to participant needs. Ideally, this also might prime participants to be more receptive to HMRE content.

Importantly, the findings of this study offer a preliminary view of this specific program's effects on the relationship outcomes of women 1 year after program enrollment. The MotherWise study also included a 30-month follow-up survey. Analysis of these data will yield evidence on MotherWise's longer-term effects on relationship outcomes and its effects on the overall well-being of participants and their children. Further, HMRE programs can vary in their service population, focus, services, and the outcomes they try to influence. Additional research is needed to develop a more complete picture of the effects HMRE programs for individuals can have on the full range of populations they serve.

ORCID

Ankita Patnaik https://orcid.org/0000-0001-7663-805X

REFERENCES

Abajobir, A. A., Maravilla, J. C., Alati, R., & Najman, J. M. (2016). A systematic review and meta-analysis of the association between unintended pregnancy and perinatal depression. *Journal of Affective Disorders*, *192*, 56–63. https://doi.org/10.1016/j.jad.2015.12.008

Abidin, R. R., & Brunner, J. F. (1995). Development of a parenting alliance inventory. *Journal of Clinical Child Psychology*, *24*(1), 31–40. https://doi.org/10.1207/s15374424jccp2401_4

Adler-Baeder, F., Garneau, C., Vaughn, B., McGill, J., Harcourt, K. T., Ketring, S., & Smith, T. (2018). The effects of mother participation in relationship education on coparenting, parenting, and child social competence: Modeling spillover effects for low-income minority preschool children. *Family Process*, *57*(1), 113–130. https://doi.org/10.1111/famp.12267

Alamillo, J., & Ouellette, L. (2021). *Healthy marriage and relationship education programming for youth and individual adults: Highlights from the Second FRAMING Research Healthy Marriage Technical Work Group* (OPRE Report No. 2021-166). U.S. Department of Health and Human Services, Administration for Children and Families, Office of Planning, Research, and Evaluation.

Amato, P. R. (2005). The impact of family formation change on the cognitive, social, and emotional well-being of the next generation. *The Future of Children*, *15*(2), 75–96. https://doi.org/10.1353/foc.2005.0012

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

Benjamini, Y., & Hochberg, I. (1995). Controlling the false discovery rate: A practical and powerful approach to multiple testing. *Journal of the Royal Statistical Society: Series B*, *57*(1), 289–300. https://doi.org/10.1111/j.2517-6161.1995.tb02031.x

Bloch, J. R., Webb, D. A., Mathews, L., Dennis, E. F., Bennett, I. M., & Culhane, J. F. (2010). Beyond marital status: The quality of the mother–father relationship and its influence on reproductive health behaviors and outcomes among unmarried low income pregnant women. *Maternal and Child Health Journal*, *14*(5), 726–734. https://doi.org/10.1007/s10995-009-0509-7

Bradford, K., Stewart, J. W., Pfister, R., & Higginbotham, B. J. (2016). Avoid falling for a jerk(ette): Effectiveness of the Premarital Interpersonal Choices and Knowledge program among emerging adults. *Journal of Marital and Family Therapy*, *42*(4), 630–644. https://doi.org/10.1111/jmft.12174

Brown, L. D., Goslin, M. C., & Feinberg, M. E. (2012). Relating engagement to outcomes in prevention: The case of a parenting program for couples. *American Journal of Community Psychology*, *50*(1), 17–25. https://doi.org/10.1007/s10464-011-9467-5

17413729, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/fare.12818 by University Of Denver, Wiley Online Library on [12/01/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Family Relations
Interdisciplinary Journal of Applied Family Science

17413729, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/fare.12818 by University Of Denver, Wiley Online Library on [12/01/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

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, M. J., & McLanahan, S. S. (2006). Strengthening unmarried families: Could enhancing couple relationships also improve parenting? *Social Service Review*, *80*(2), 297–321. https://doi.org/10.1086/503123

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

Cox, D. R. (1970). *Analysis of binary data*. Chapman and Hall/CRC.

Crnic, K. A., Gaze, C., & Hoffman, C. (2005). Cumulative parenting stress across the preschool period: Relations to maternal parenting and child behaviour at age 5. *Infant and Child Development*, *14*(2), 117–132. https://doi.org/10.1002/icd.384

Dahlberg, L. L., Toal, S. B., Swahn, M., & Behrens, C. B. (2005). *Measuring violence-related attitudes, behaviors, and influences among youths: A compendium of assessment tools* (2nd ed.). Centers for Disease Control and Prevention, National Center for Injury Prevention and Control.

Devaney, B., & Dion, R. (2010). *15-month impacts of Oklahoma's Family Expectations Program*. Mathematica Policy Research.

Dibaba, Y., Fantahun, M., & Hindin, M. J. (2013). The effects of pregnancy intention on the use of antenatal care services: Systematic review and meta-analysis. *Reproductive Health*, *10*, Article 50. https://doi.org/10.1186/1742-4755-10-50

Dolfin, S., Lee, J., Wood, R. G., & Monkovic, M. (2022). *Participation patterns in three healthy marriage and relationship education programs for adults with low incomes: Lessons for the field* (OPRE Report 2022-117). U.S. Department of Health and Human Services, Administration for Children and Families, Office of Planning, Research, and Evaluation.

Feinberg, M. E. (2002). Coparenting and the transition to parenthood: A framework for prevention. *Clinical Child and Family Psychology Review*, *5*(3), 173–195. https://doi.org/10.1023/A:1019695015110

Gavin, N. I., Gaynes, B. N., Lohr, K. N., Meltzer-Brody, S., Gartlehner, G., & Swinson, T. (2005). Perinatal depression: A systematic review of prevalence and incidence. *Obstetrics & Gynecology*, *106*(5, Part 1), 1071–1083. https://doi.org/10.1097/01.AOG.0000183597.31630.db

Hedges, L. (1981). Distribution theory for Glass's estimator of effect size and related estimators. *Journal of Educational Statistics*, *6*(2), 107–128. https://doi.org/10.3102/10769986006002107

Hsueh, J., Alderson, D. P., Lundquist, E., Michalopoulos, C., Gubits, D., Fein, D., & Knox, V. (2012). *The Supporting Healthy Marriage Evaluation: Early impacts on low-income families* (OPRE Report 2012-11). U.S. Department of Health and Human Services, Administration for Children and Families, Office of Planning, Research, and Evaluation.

Hughes, C., Devine, R., Mesman, J., & Blair, C. (2020). Parental well-being, couple relationship quality, and children's behavioral problems in the first 2 years of life. *Development and Psychopathology*, *32*(3), 935–944. https://doi.org/10.1017/S0954579419000804

Ingoldsby, E. M. (2010). Review of interventions to improve family engagement and retention in parent and child mental health programs. *Journal of Child and Family Studies*, *19*(5), 629–645. https://doi.org/10.1007/s10826-009-9350-2

Khaled, M., Corner, G. W., Horton, K., Khoddam, H., Stoycos, S., & Saxbe, D. E. (2020). Prenatal relationship conflict behavior predicts childbirth experiences and birth outcomes. *Journal of Family Psychology*, *34*(6), 759–765. https://doi.org/10.1037/fam0000650

Kroenke, K., Spitzer, R. L., & Williams, J. B. (2001). The PHQ-9: Validity of a brief depression severity measure. *Journal of General Internal Medicine*, *16*(9), 606–613. https://doi.org/10.1046/j.1525-1497.2001.016009606.x

Malta, L. A., McDonald, S. W., Hegadoren, K. M., Weller, C. A., & Tough, S. C. (2012). Influence of interpersonal violence on maternal anxiety, depression, stress and parenting morale in the early postpartum: A community based pregnancy cohort study. *BMC Pregnancy Childbirth*, *12*, Article153. https://doi.org/10.1186/1471-2393-12-153

Matts, J. P., & Lachin, J. M. (1988). Properties of permuted-block randomization in clinical trials. *Controlled Clinical Trials*, *9*(4), 327–344. https://doi.org/10.1016/0197-2456(88)90047-5

Moore, Q., Avellar, S., Patnaik, A., Covington, R., & Wu, A. (2018). *Parents and Children Together: Effects of two healthy marriage programs for low-income couples* (OPRE Report No. 2018-58). U.S. Department of Health and Human Services, Administration for Children and Families, Office of Planning, Research, and Evaluation.

National Center for Health Statistics. (n.d.). Pregnancy variables: 3. Section E raw variables. In 2015–2017 *NSFG, Female pregnancy file codebook*. https://www.cdc.gov/nchs/nsfg/nsfg_2015_2017_puf.htm.

Nowlan, K. M., Roddy, M. K., & Doss, B. D. (2017). The online OurRelationship program for relationally distressed individuals: A pilot randomized controlled trial. *Couple and Family Psychology*, *6*(3), 189–204.

Office of Family Assistance. (n.d.). *Healthy Marriage and Responsible Fatherhood grantee locations*. U.S. Department of Health and Human Services, Administration for Children and Families, Office of Family Assistance. Retrieved December 10, 2022, from https://www.acf.hhs.gov/ofa/programs/healthy-marriage/map-of-hmrf-grantees

O'hara, M. W., & Swain, A. M. (1996). Rates and risk of postpartum depression—A meta-analysis. *International Review of Psychiatry*, *8*(1), 37–54. https://doi.org/10.3109/09540269609037816

Owen, J., Antle, B., & Quirk, K. (2017). Individual relationship education program as a prevention method for intimate partner violence. *Journal of Family Social Work*, *20*(5), 457–469. https://doi.org/10.1080/10522158.2017.1300112

Pearson, M., Stanley, S. M., & Rhoades, G. K. (2015). Within My Reach leader manual. *PREP for Individuals*.

Puma, M. J., Olsen, R. B., Bell, S. H., & Price, C. (2009). *What to do when data are missing in group randomized controlled trials* (NCEE 2009-0049). National Center for Education Evaluation and Regional Assistance.

Rhoades, G. K., & Stanley, S. M. (2011). Using individual-oriented relationship education to prevent family violence. *Journal of Couple and Relationship Therapy*, *10*(2), 185–200.

Shah, P. S., Balkhair, T., Ohlsson, A., Beyene, J., Scott, F., & Frick, C. (2011). Intention to become pregnant and low birth weight and preterm birth: A systematic review. *Maternal and Child Health Journal*, *15*(2), 205–216. https://doi.org/10.1007/s10995-009-0546-2

Sharps, P. W., Laughon, K., & Giangrande, S. K. (2007). Intimate partner violence and the childbearing year: Maternal and infant health consequences. *Trauma, Violence, & Abuse*, *8*(2), 105–116. https://doi.org/10.1177/1524838007302594

Sonfield, A., Kost, K., Gold, R. B., & Finer, L. B. (2011). The public costs of births resulting from unintended pregnancies: National and state-level estimates. *Perspectives on Sexual and Reproductive Health*, *43*(2), 94–102. https://doi.org/10.1363/4309411

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., & Rhoades, G. K. (2009). Marriages at risk: Relationship formation and opportunities for relationship education. In H. Benson & S. Callan (Eds.), *What works in relationship education: Lessons from academics and service deliverers in the United States and Europe* (pp. 21–44). Doha International Institute for Family Studies and Development.

Straus, M., & Douglas, E. (2004). A short form of the Revised Conflict Tactics Scales, and typologies for severity and mutuality. *Violence and Victims*, *19*(5), 507–520. https://doi.org/10.1891/vivi.19.5.507.63686

Van Epp, M. C., Futris, T. G., Van Epp, J. C., & Campbell, K. (2008). The impact of the PICK a Partner relationship education program on single army soldiers. *Family and Consumer Sciences Research Journal*, *36*(4), 328–349. https://doi.org/10.1177/1077727X08316347

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

Waldfogel, J., Craigie, T., & Brooks-Gunn, J. (2010). Fragile families and child wellbeing. *The Future of Children*, *20*(2), 87–112. https://doi.org/10.1353/foc.2010.0002

What Works Clearinghouse. (2020). *What Works Clearinghouse procedures handbook* (Version 4.1). U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance. https://ies.ed.gov/ncee/wwc/handbooks.

Wood, R. G., Goesling, B., & Paulsell, D. (2018). *Design for an impact study of five healthy marriage and relationship education programs and strategies* (OPRE Report No. 2018-32). U.S. Department of Health and Human Services, Administration for Children and Families, Office of Planning, Research, and Evaluation.

Wood, R. G., Moore, Q., Clarkwest, A., Killewald, A., & Monahan, S. (2012). *The long-term effects of Building Strong Families: A relationship skills education program for unmarried parents*. Mathematica Policy Research.

SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

How to cite this article: Patnaik, A., Wood, R. G., & Gonzalez, K. (2022). Impacts of healthy marriage and relationship education for expectant and new mothers. *Family Relations*, 1–18. https://doi.org/10.1111/fare.12818

17413729, 0, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/fare.12818 by University Of Denver, Wiley Online Library on [12/01/2023]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License