



IDENTIFYING CORE COMPONENTS IN FATHERHOOD PROGRAMS

A Meta-analytic Approach

OPRE REPORT 2024-09

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OVERVIEW

Introduction

The federal government invests about \$150 million per year in Healthy Marriage and Responsible Fatherhood programs, the latter of which aim to help fathers strengthen relationships with their children, romantic partners, or coparents; enhance their parenting skills; and improve their economic stability. Existing evidence documents mixed effects that vary widely across different studies and are modest on average. For that reason, there is interest in identifying which features of fatherhood programs—or *core components*—are most strongly associated with success. Doing so can help practitioners identify how best to strengthen fatherhood programs so that they yield larger positive benefits for fathers and their families.

Primary Research Questions

This study aimed to answer two research questions:

1. What are the overall impacts of fatherhood programs on fathers' parenting, healthy relationships with coparents, economic stability, and well-being?
2. What are the core components of fatherhood programs that are associated with larger impacts on fathers' parenting, healthy relationships with coparents, economic stability, and well-being?

Purpose

This report summarizes findings from a meta-analysis that was conducted to identify core components of fatherhood programs. Although the components identified in the meta-analysis are intended to be tested in later trials, the components identified in this report might also be useful as targets for program-improvement efforts.

Methods

The research team used a rapid search strategy to identify eligible studies for the meta-analysis and identified 57 studies that were eligible for further coding and analysis. Members of the team then coded the following information for each study: (1) study and program characteristics and (2) effect sizes. Study and program characteristics included a range of theorized core components (for example, program content and program format) as well as contextual information about the study, such as the study design and the demographic composition of the sample. The team then used descriptive statistics to summarize characteristics about the studies and metaregressions to identify the features of the programs that were most strongly associated with positive impacts.

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The Authors

The federal government invests about \$150 million per year in Healthy Marriage and Responsible Fatherhood programs, the latter of which aim to help fathers strengthen relationships with their children, romantic partners, and coparents; enhance their parenting skills; and improve their economic stability.¹ Existing evidence suggests that the impacts of fatherhood programs are modest on average but also vary widely across different studies of different programs.² For that reason, there is interest in identifying which features of fatherhood programs are most strongly associated with success. Doing so can help practitioners identify how best to strengthen fatherhood programs so that they yield larger positive benefits for fathers and their families.³

One strategy to achieve this goal is to identify fatherhood program **core components** and work to directly strengthen those specific parts of a program. Core components are broadly defined as the *parts, features, attributes, or characteristics of a program most strongly associated with its success*.⁴ If researchers can determine which program features make up its core components, they can work with practitioners to invest in those features and ensure they are implemented well. By focusing attention on those core components, programs may then be able to produce larger impacts for the fathers they serve.

This report summarizes findings from a meta-analysis done to identify core components of fatherhood programs. See Box 1 for additional information about the broader project this work is contributing to. The meta-analysis draws on 57 studies identified through a rapid search of the existing fatherhood literature conducted in the fall of 2022.

BOX 1

Overview of the Fatherhood TIES Project

In the fall of 2022, MDRC and its partners Abt Associates and MEF Associates launched the Testing Identified Elements for Success in Fatherhood Programs project (Fatherhood TIES) with funding from the U.S. Department of Health and Human Services, Administration for Children and Families, Office of Family Assistance, under a competitive award from the Office of Planning, Research, and Evaluation. This project aims both to identify core components in fatherhood programs and to examine their impacts.

The overarching goal of the identification phase is to combine information across four activities—a meta-analysis of published quantitative literature; a secondary analysis of performance measures data from current responsible fatherhood program grant recipients; a review of qualitative studies on fatherhood programs; and an effort to solicit the perspectives of fathers, program staff members, and academic experts—to determine which fatherhood program core components warrant rigorous testing.

1. Rhoades, Doss, and Carlson (2022).
2. Holmes et al. (2020).
3. Avellar et al. (2018); Brennan, Barden, Elkin, and Bickerton (2021); Manno, Harknett, Sarfo, and Bickerton (2021).
4. Ferber, Sileo, and Wiggins (2019).

The following findings emerged:

- Overall, and without yet taking core components into account, fatherhood programs had **small and statistically significant positive impacts** on outcomes related to parenting, healthy relationships with coparents, father well-being, and economic stability. These results partly aligned with earlier, published meta-analytic work finding overall impacts on parenting and healthy relationships with coparents.⁵ However, the current study—which differed slightly from that earlier work in that it included only studies published after 1996—also found evidence for impacts on fathers’ economic stability and overall well-being, which the earlier meta-analytic work did not detect.
- Analyses that then specifically focused on identifying core components revealed that programs where content was primarily delivered in **individual formats**—working with individual families, individual couples, or individual fathers—tended to have larger impacts on economic stability and the other combined outcomes (those related to parenting, healthy relationships with coparents, father well-being, and economic stability) than programs that only delivered services to groups of families, couples, or fathers.⁶ When interpreting this result it is important to note that group-based services did have positive impacts on target outcomes. However, programs that delivered content primarily in individual formats had larger impacts on all target outcome domains.
- Programs that included content **focused on parenting knowledge and skills or the role of fathers and fathers’ responsibilities** (for example, supporting fathers to think of themselves as critical members of the coparenting team rather than solely as economic providers) tended to have larger impacts on parenting, healthy relationships with coparents, and father well-being outcomes than studies without this program content.
- Studies of programs that provided fathers with **on-the-job training** and **job-related education or career guidance** (for example, help creating a résumé or honing interview skills, regardless of program delivery format) had larger impacts on fathers’ economic stability than studies of programs without this content.

There were some contextual factors also associated with variation in program impacts, including the racial/ethnic diversity of the study sample and the study design (randomized

5. Holmes et al. (2020).

6. Trained research staff members coded the primary delivery format for the intervention. The codes for “individual father and staff member (one-on-one),” “single couple with staff member (father and coparent),” or “family with staff member (father, coparent, child/ren)” were considered collectively in the analysis as “individual formats.”

The team combined the impacts for outcomes related to parenting knowledge and skills, father well-being, and healthy relationships with coparents when conducting the metaregression analysis. The findings indicated significant effects of individual formats for the combined set of outcomes and for two of the three domains separately (for parenting knowledge and skills and for healthy relationships with coparents, but not for father well-being).

controlled trial versus quasi-experimental design). Impacts on economic stability outcomes were also smaller when there were challenges or problems with implementation.

The current report provides further detail on the process for conducting this core components meta-analysis of fatherhood programs, describing the rationale for the effort, the methodology for extracting program and study characteristics from eligible studies, descriptive information on the programs included and their components, a summary of results, and implications for applying these findings to the broader Fatherhood TIES project. Together, this meta-analytic work aims to strengthen the evidence base on core components of fatherhood programs and directly inform further research to test the impacts of those features on fathers' parenting, healthy relationships with coparents, and economic stability.

THE IMPORTANCE OF IDENTIFYING CORE COMPONENTS IN FATHERHOOD PROGRAMS

Fatherhood programs were developed to provide a range of services—including group-based workshops to deliver curricula, job training, and case management—to fathers with low incomes who are seeking assistance to strengthen their parenting practices; relationships with their children, coparents, and family members; and overall economic stability.⁷ The programs are located all over the country and are run by a range of different organizations, including hospital systems, nonprofit organizations, and local government agencies. They serve diverse populations of fathers who have faced a variety of experiences and challenges, including chronic underemployment, living apart from their children, having children with multiple partners, and having past or current involvement in the criminal legal system.

Over the last 25 years, researchers have studied a range of different fatherhood programs, which vary in their program content, implementation models, and populations served.⁸ On average, programs yield small overall impacts on target outcomes for fathers. The impacts across studies also vary widely, with some programs showing large and positive impacts and others having null impacts.⁹ This heterogeneity suggests that, across the field and the literature, there may be program features that are systematically related to larger program impacts. Such features could include the type and structure of the program content or various implementation factors (for example, individual versus group-based intervention, or higher versus lower levels of exposure to program activities). Determining whether these components exist and if so, what they are, can inform targeted investments in those features in order to promote bigger impacts for the fathers these programs serve.

7. Osborne (2014).

8. Henry, Julion, Bounds, and Sumo (2020); Knox, Cowan, Cowan, and Bildner (2011).

9. Holmes et al. (2020).

USING META-ANALYSIS TO IDENTIFY CORE COMPONENTS

Most studies examine the impact of a full program and all its various features together, rather than considering the value contributed by each individual feature. Meta-analysis generally combines studies of multiple programs to determine the overall average impacts of programs of a certain type, but still generally examines whole programs. Meta-analysis that moves beyond estimating average impacts and focuses explicitly on program and study characteristics is one nonexperimental methodology researchers can use to determine whether there are measurable program components that are related to larger impacts for study participants. For over two decades, researchers have used this methodology to identify core components across a range of different services, from youth development to parenting to academic interventions, as a strategy to strengthen existing social services.¹⁰

The methodology relies on identifying all the relevant studies of a particular type of program and systematically coding not only effect sizes for eligible outcomes—as one would do in a typical meta-analysis—but also coding all the different features and characteristics of the programs that could be considered core components, including implementation factors such as duration, delivery model, and training for staff members, as well as the type and focus of program content. Relatedly, it is important to code characteristics about the study participants, study design, and other contextual information to include as covariates in eventual analyses. Researchers are then able to use quantitative methodology—namely, metaregression—to examine not only whether there are overall positive impacts of programs (again, as a typical meta-analysis would do) but also to determine which features are associated with the largest impacts within each outcome domain.

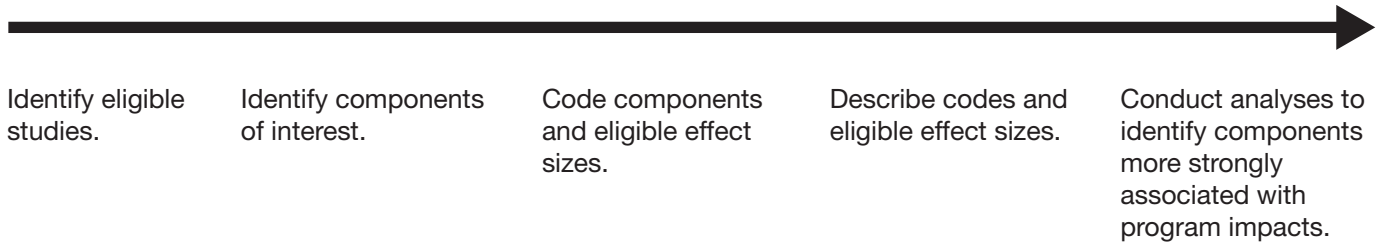
THE FATHERHOOD TIES META-ANALYSIS

The overall aim of the Fatherhood TIES study is to identify fatherhood program core components and then rigorously test the impacts of these core components on outcomes related to fathers' parenting, healthy relationships with coparents, individual well-being, and economic stability. To accomplish the first part of this goal, the team conducted a core components meta-analysis that drew on technical reports and peer-reviewed journal articles describing fatherhood programs. The process for the meta-analysis activities is illustrated in Figure 1. This section summarizes the research team's steps for conducting this meta-analysis.

Identifying eligible studies. The research team used a rapid search strategy to identify eligible studies for the meta-analysis. The search strategy involved locating studies through (a) recent systematic reviews of fatherhood programs, parenting programs, and healthy marriage programs; (b) federal evaluations such as the Building Bridges and Bonds and

10. U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation (2020).

FIGURE 1. Steps for Conducting the Meta-analysis



Parents and Children Together studies; and (c) local evaluations from the 2015 round of federal fatherhood grants.¹¹ The team initially identified 57 studies that were eligible for further coding and analysis. See Box 2 for the full list of eligibility criteria.

Identifying fatherhood program components and outcomes to code. The research team developed a manual to help coders identify the relevant pieces of information to describe for each study. The manual was divided into two sections: (1) study and program characteristics and (2) effect sizes (which in this study were measured as standard deviations for continuous outcomes and as odds ratios for binary outcomes—explained below). Study and program characteristics included a range of theorized core components (for example, program content and program format) as well as contextual information about the study, such as the study design and the demographic composition of the sample. The team developed the list of characteristics by examining what codes similar meta-analyses of other social programs had used in past work, and then tailored those characteristics to the fatherhood literature by drawing on knowledge developed through work on other

BOX 2

Study Eligibility Criteria

To be eligible for the core components meta-analysis, studies of fatherhood programs needed to meet all the following criteria:

1. They were published between 1996 and 2022.
2. They were set in the United States or Canada.
3. They used a randomized controlled trial or quasi-experimental design.
4. They focused on a program that explicitly targeted fathers (though mothers could also be part of the program).
5. They examined a program that provided content on one or more of the following topics: parenting, coparenting/healthy relationships, or economic stability.
6. They estimated program impacts on eligible outcomes, defined as those falling in the domains of parenting, coparenting/healthy relationships, economic stability, and father well-being.

11. Henry, Julion, Bounds, and Sumo (2020); Holmes et al. (2020); Hawkins and Erickson (2015); Hawkins et al. (2022); Brennan, Barden, Elkin, and Bickerton (2021); Manno, Harknett, Sarfo, and Bickerton (2021); Avellar et al. (2018).

federally funded projects (for example, Building Bridges and Bonds and Strengthening the Implementation of Responsible Fatherhood Programs); contributions from practitioners, fathers, and academic experts participating in active engagement sessions run by the project team; and ideas from staff members at the Office of Family Assistance and the Office of Planning, Research, and Evaluation.¹² Appendix A lists all of the theorized components that the team ultimately was able to code. Appendix B describes the outcome domains determined to be eligible for the effect-size coding.

Coding theorized core components and eligible effect sizes. A team made up of six coders and one master coder from MDRC participated in four separate training sessions led by Abt Associates before coding began in November 2022. One of these sessions focused on background information needed to understand the rationale for and design of fatherhood programs, while the others were on coding program characteristics and effect sizes, respectively. The team completed several practice coding rounds and had to establish 80 percent agreement on average across all codes on four separate, master-coded studies before beginning to code studies to include in the meta-analysis. The master coder also spot-checked one study for each coder each month to maintain interrater reliability and the full team met each week with meta-analysis experts from Abt Associates to discuss questions and come to consensus when there were coding disagreements. Abt Associates then did additional quality checking of the coding before data analysis began. This process aimed to ensure acceptable levels of reliability across time but also allowed the team to conduct all coding activities within a relatively short time. Coding began in late November 2022 and was completed by early February 2023. All coding took place using MetaReviewer, a freely available, online platform that aims to facilitate meta-analysis coding in multiperson, multiorganization teams.¹³

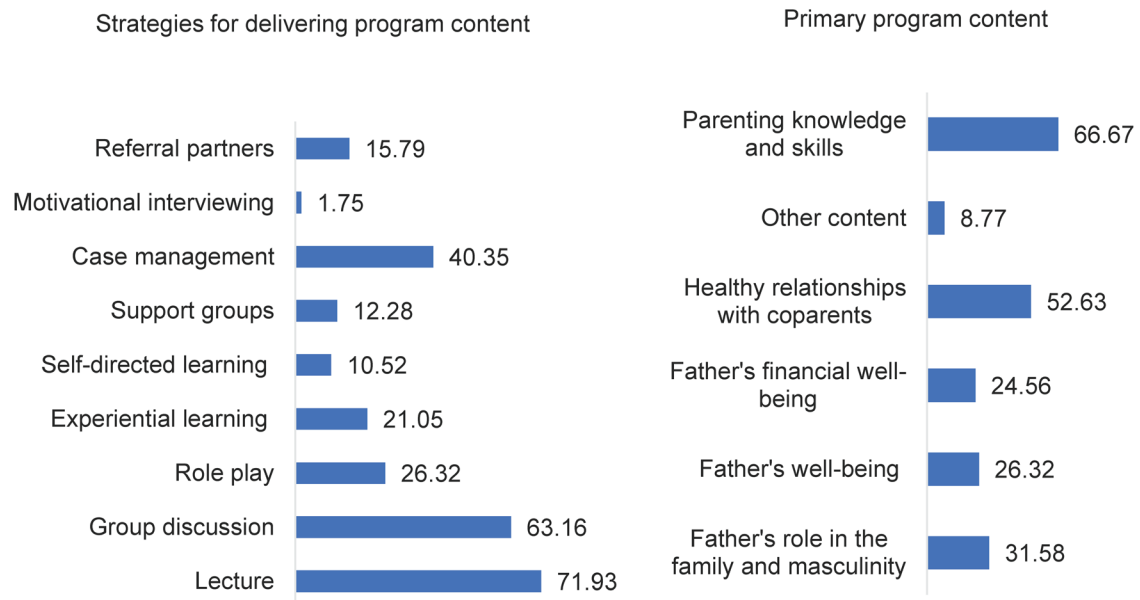
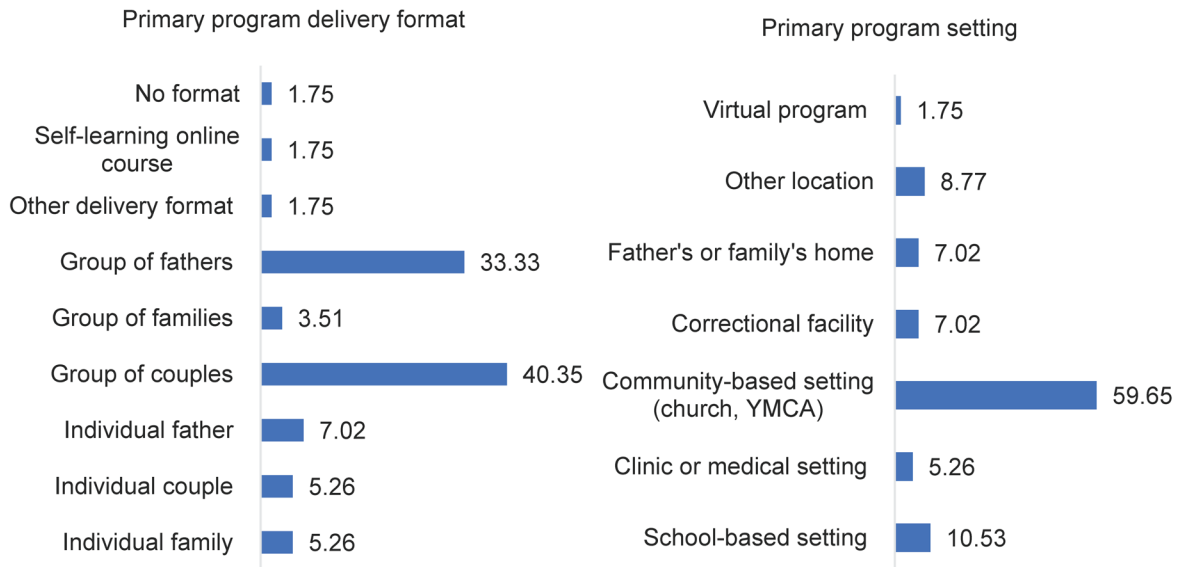
Descriptive findings examining codes and eligible effect sizes. The research team identified 57 studies of fatherhood programs for inclusion in the coding process and descriptive information is presented for all of them in Figure 2. These studies were almost all conducted in the United States; only one took place in Canada. More than half of the studies (57 percent) were published in journal articles; the remainder were published as reports. About 80 percent of the studies used random assignment, and the remaining studies used a quasi-experimental design either with a matched comparison group (11 percent of all studies) or without (9 percent of all studies).

More detailed information about variation across studies with respect to possible core components and other implementation features is included in Figure 2. As illustrated, there were a diverse range of program delivery strategies, formats, settings, and provider types. The average program included in the meta-analysis took place across about 20 weeks (standard deviation = 26.5), offering 11 sessions (standard deviation = 7.9), on average, that each lasted about 2.7 hours (standard deviation = 1.8). Studies reported on 28 separate

12. Wilson, Brown, and Norvell (2021).

13. MetaReviewer (n.d.).

FIGURE 2. Descriptive Findings, by Percentage



(continued)

Figure 2 (continued)



SOURCE: Fatherhood TIES meta-analysis data set from coded studies.

curricula; only 3 curricula were used in more than one study. About three-quarters of studies reported on a program that had a prespecified number of sessions, typically accompanied by a program manual for a curriculum that prespecified the bulk of the instructional content for the provider. Twenty-two percent of the studies reported that the program being studied had been culturally adapted for the target population.

Almost all the studies reported on programs that were voluntary (96 percent) and delivered solely in person (93 percent). In addition, it was challenging for the research team to code anything about the experience (missing 90 percent), demographic characteristics (missing 86 percent), training (missing 40 percent), and supervision (missing 75 percent) of the staff members who were delivering the programs, due to a lack of reported information. About 40 percent of the studies reported some implementation problems.

Fathers included in the studies were about 32 years old at enrollment (standard deviation = 4.5). Forty-two percent of the studies included fathers who were predominantly (more than 60 percent) Black, 18 percent included predominantly White fathers, and 16 percent involved predominately Hispanic fathers. About half of the studies included samples that were predominantly (more than 60 percent) made up of high school graduates, with a smaller percentage (5 percent) focused on those with some college or a four-year degree, those without a high school diploma (5 percent), or fathers with more diverse educational experiences (20 percent). Fathers' relationship status across studies was similarly varied: about 35 percent of the studies included fathers who were predominantly married or engaged, with 30 percent of studies focused on fathers who were never married or were divorced/separated. The remaining 35 percent of studies either had no information on relationship status or focused on a diverse mix of never-married, married, and divorced fathers.

RESULTS OF ANALYSES DONE TO IDENTIFY COMPONENTS MOST STRONGLY ASSOCIATED WITH TARGET OUTCOMES OF FATHERHOOD PROGRAMS

The research team used a series of metaregressions to estimate the overall impacts of fatherhood programs on target outcome domains and to consider variation in impacts for theorized core components. Details on the methodological approach for the analysis are provided in Appendix C.

Overall impacts on target outcomes. Across the four outcome domains (parenting knowledge and skills, father well-being, healthy relationships with coparents, and economic stability), impacts were small, positive, and statistically significant, indicating that, taken together, fatherhood programs coded for the analysis were effective at improving a range of relevant outcomes. See Table 1 for a summary of overall impacts on target outcome domains, not yet taking core components into account. A more detailed set of statistics, including confidence intervals and heterogeneity statistics by outcome domain, is provided in Appendix D.

TABLE 1. Main Effects of Fatherhood Programs on Target Outcomes

Outcome Domain	Number of Studies	Number of Effect Sizes	Effect Size	Standard Error
Parenting knowledge and skills	49	458	0.11 ***	0.02
Father well-being	32	142	0.09 ***	0.02
Healthy relationships with coparents	34	205	0.09 ***	0.02
Parenting, father well-being, healthy relationships with coparents	54	805	0.1 ***	0.02

	Number of Studies	Number of Effect Sizes	Odds Ratio	Standard Error
Economic stability	23	208	1.15 ***	0.04 ^a

SOURCE: Fatherhood TIES meta-analysis data set from coded studies.

NOTES: Statistical significance levels are indicated as *** = 0.01 percent.

^aThis standard error is associated with the logged odds ratio of 0.136; the mean odds ratio and confidence interval are not logged.

Effect sizes for continuous outcomes—those related to parenting, father well-being, and healthy relationships with coparents—are described as standard deviations. Impacts for economic stability outcomes—which were binary measures—are presented as odds ratios.¹⁴ Odds ratios indicate how much higher the odds of a positive outcome (such as improved economic stability) are for the fathers who participated in fatherhood programs than fathers in comparison conditions. An odds ratio greater than 1 means that fathers in fatherhood programs experienced better outcomes than comparison fathers; an odds ratio less than 1 indicates that comparison fathers experienced better outcomes.

As shown in Table 1, effect sizes were similar for outcomes related to parenting knowledge and skills, father well-being, and healthy relationships with coparents. Accordingly, the team combined the impacts for those outcomes when conducting the metaregression analysis, leaving two analytic samples—one for economic stability outcomes and one for all the other remaining outcomes (parenting knowledge and skills, father well-being, and healthy relationships with coparents) grouped together.

Interpreting effect sizes for continuous outcomes. To interpret the magnitude of the effect sizes shown in Table 1, it is helpful to consider the proportion of fathers receiving a program who performed better than comparison fathers on measures related to parenting knowledge and skills, well-being, and healthy relationships with coparents. If one assumes that about 50 percent of comparison fathers are better than average (above the mean), a standardized mean difference effect size of 0.10 (the mean for the combined outcomes related to parenting, well-being, and healthy relationships with coparents) translates into about 54 percent of participants in the program groups performing better than average.

Interpreting estimated impacts for binary outcomes. To interpret the magnitude of the mean odds ratio for the economic stability outcomes, consider that across the studies reporting employment outcomes, about 40 percent of comparison fathers were employed when they enrolled in their studies. The odds ratio of 1.15 translates into an employment rate of about 44 percent across fathers who participated in fatherhood programs, a change of about 4 percentage points. This is a meaningful improvement given the general difficulty in moving employment outcomes for participants in fatherhood programs.

14. Continuous outcomes are those that indicate an amount or level of something, for example, fathers' scores on a questionnaire asking them about their well-being. Binary outcomes are those that measure discrete states, for example, being employed or not.

CORE COMPONENTS ASSOCIATED WITH OUTCOMES RELATED TO PARENTING KNOWLEDGE AND SKILLS, WELL-BEING, AND HEALTHY RELATIONSHIPS WITH COPARENTS

For this exploration of potential core components in the combined set of outcomes related to parenting knowledge and skills, well-being, and healthy relationships with coparents, the team conducted multilevel metaregression analysis with the standardized mean difference effect sizes as the dependent variables and the coded study characteristics as the independent variables. Several of these components were associated with the effect sizes (see Appendix E for the full results). See the sections of Figure 3 indicated with green lines for a summary of these results.

1. First, studies in which program content was primarily delivered in **individual formats**—working with individual families, individual couples, or individual fathers—tended to have larger impacts on economic stability and other combined outcomes (those related to parenting, healthy relationships with coparents, father well-being, and economic stability) than programs that only delivered services to groups of families, couples, or fathers. Group-based services did have positive impacts on target outcomes, but programs that delivered content primarily in individual formats had larger impacts.
2. Separately, studies in which the program content included a **focus on parenting knowledge and skills** tended to have larger impacts on these outcome domains than studies without this type of program content. In addition, studies in which the program content included a **focus on fathers' roles and responsibilities** (with content that helped fathers reenvision their role in the family from being only a financial provider to being a critical member of the coparenting team with a direct influence on the child's development) tended to have larger impacts on these outcome domains than studies without this type of program content. These features emerged as core components in programs that delivered content to both individuals and groups.
3. Finally, studies with more **homogeneous samples** in terms of race or ethnicity (regardless of the particular racial/ethnic group) tended to have larger impacts than studies with more heterogeneous groups. That is, studies with mostly Black participants, mostly Hispanic participants, or mostly White participants tended to find bigger impacts than studies with more diverse populations of fathers. This analysis focused on the characteristics of the fathers themselves and was related to larger impacts on outcomes related to parenting, healthy relationships with coparents, and father well-being regardless of the racial/ethnic characteristics of the program staff members providing services or the racial/ethnic match between the fathers and those program staff members.

FIGURE 3. Findings of the Meta-analysis

Outcomes Related to Parenting Knowledge and Skills, Father Well-Being, and Healthy Relationships with Coparents

Programs delivered in individual formats had larger impacts on economic stability and the other combined outcomes (those related to parenting, father well-being, and healthy relationships with coparents) than programs offering only group-based services.

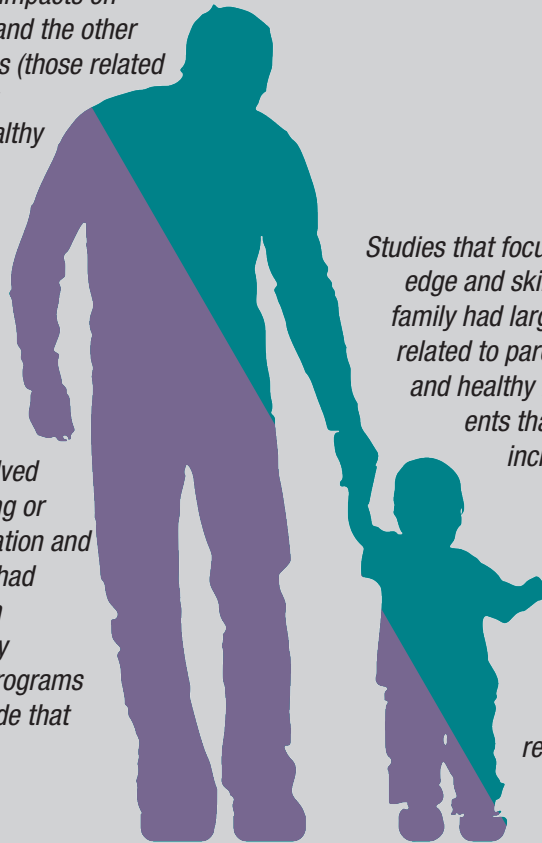
Studies that focused on parenting knowledge and skills or fathers' roles in the family had larger impacts on outcomes related to parenting, father well-being, and healthy relationships with coparents than programs that did not include those content areas.

Studies that involved on-the-job training or job-related education and career guidance had larger impacts on economic stability outcomes than programs that did not include that content.

Studies with more racially/ethnically homogenous samples of participants had larger impacts on outcomes related to parenting, father well-being, and healthy relationships with coparents than studies with more heterogenous groups.

Studies that reported implementation problems tended to have smaller impacts on economic stability outcomes than studies that did not report implementation problems.

Economic Stability Outcomes



CORE COMPONENTS ASSOCIATED WITH ECONOMIC STABILITY OUTCOMES

The team performed a similar set of multilevel metaregression analyses for the economic stability outcomes and identified the following core components that were associated with larger program impacts in that domain (see Appendix E for the full results). See the sections of Figure 3 indicated with purple lines for a summary of these results.

1. As was the case for the combined outcomes related to parenting knowledge and skills, healthy relationships with coparents, and father well-being, studies where program content was primarily delivered in an **individual format** where a staff member worked with an individual family, couple, or father tended to have larger impacts on economic stability outcomes than studies that solely used group-based services.
2. Separately, studies in which participants were provided with **on-the-job training** tended to have larger impacts on economic stability outcomes than studies without this type of program content. In addition, studies where participants received **job-related education or career guidance** (for example, help creating a résumé or honing their interview skills in any type of program setting, group-based or individual) tended to have larger impacts on average than studies without this type of program content. These features emerged as core components in programs that delivered content to both individuals and groups.
3. Studies that reported implementation problems tended to have smaller impacts on economic stability outcomes than studies that reported no problems or that did not report on implementation, as might be expected. Notably, this finding only emerged when examining economic stability outcomes.

Results also revealed that the research design (randomized controlled trial versus quasi-experimental design) was associated with differences in program impacts for both outcome domains (economic stability outcomes and outcomes related to parenting knowledge and skills, well-being, and healthy relationships with coparents). Randomized controlled trials tended to have smaller impacts than quasi-experimental designs on outcomes related to parenting knowledge and skills, father well-being, and healthy relationships with coparents, but had larger impacts than quasi-experimental designs on economic stability outcomes. Although some studies overlapped across the two analytic data sets, each sample contained some unique studies.

A finding like this one can be difficult to explain. Quasi-experimental designs may be more likely to experience selection bias and have groups that are imbalanced when the study starts following them. Depending on its direction, this imbalance could lead to biased impact estimates for quasi-experimental designs. On the other hand, researchers conducting randomized controlled trials may have more funding and, as a result, are able to monitor implementation, retention, and other factors more carefully than research teams with fewer resources, which may lead to larger impacts. Whatever the reason, research methods can and do influence estimated impacts in diverse ways. It was important in this

study for the research team to control for these factors in analyses to account for this differential pattern of results.

LIMITATIONS OF THIS CORE COMPONENTS META-ANALYSIS

Using a meta-analytic approach to identify core components builds on decades of published research on fatherhood programs, draws on a rigorous set of quantitative methods, and can be used to describe the size of relationships between core components and target outcomes. However, it has some limitations. First, the team could only code the components that were described in the literature. A number of components—such as staff training and supervision policies—could be happening in these programs, but they are not described in the literature and thus are largely missing from the meta-analysis. Meta-analyses like the current investigation can only be helpful for learning more about core components if researchers in the underlying studies include information about program implementation in the papers they publish. Providing better information about factors such as the recruitment and engagement of program participants, the training and supervision program staff members receive, and the characteristics of those staff members themselves will yield valuable information that can strengthen understanding of core components not just in the field of fatherhood research, but across the broader literature evaluating social programs.

A second limitation of this work is that there must be *variation* in implementation of a feature in order to tie it to variation in participant outcomes. In other words, if a feature never happens or always happens, then it will not yield helpful information for this type of analysis. And third, any evidence from a core components meta-analysis is correlational and does not allow for causal inference, a limitation that further rigorous testing of the component can help address.

USING THE META-ANALYSIS RESULTS TO IDENTIFY CORE COMPONENTS FOR FURTHER TESTING

Even with these methodological limitations, however, this core components meta-analysis yielded valuable information that can inform the fatherhood field, in addition to serving the immediate next steps of the Fatherhood TIES project. The research team found that there was empirical evidence demonstrating that a number of fatherhood program components—including individual formats, content focused on parenting knowledge and skills and on fathers' roles and responsibilities, on-the-job training, and job-related education and career guidance—were associated with larger impacts in fatherhood program outcome domains, compared with programs that did not implement these features.

As noted above, the team combined information from the meta-analysis, a secondary analysis of data from current fatherhood grant recipients, a review of qualitative evidence, and interviews and focus groups with fathers, program staff members, and academic experts. Components that have positive evidence across a range of these activities will be

further studied with rigorous tests of those components launching in 2024. Taken together, findings from the study as a whole aim to provide needed information to the field on the features of programs worthy of further investment and strengthening in order to yield bigger impacts for fathers and their families.

APPENDIX

A

Program Characteristics Coded for the Meta-analysis

Coded domain, component, and subcomponent (where applicable)

OVERALL PROGRAM APPROACH AND FOCUS

- Parenting
- Healthy relationships
- Economic stability
- Manualized program (a program that follows a step-by-step curriculum, protocol or plan)
- Program adapted from an earlier version for the target population of participants
- Materials made accessible for the target population of participants (for example, by being translated into different languages, being written in easy-to-understand language, using visuals, being brief)
- Voluntary or mandatory participation

PROGRAM CONTENT

Parenting

- Parenting knowledge and skills
- Child development
- Discipline

Coparenting/healthy relationships

- Coparenting strategies
- Conflict resolution

Fatherhood

- The role of fathers/masculinity in the family

Family life

- Partner relationship
- Home environment
- Negotiating work and family

Father well-being

- Managing stress and feelings
- Mental health
- Physical health

Father financial stability/responsibility

- Obtaining educational credentials
- Job/education/career guidance
- On-the-job training
- Financial literacy
- Information/education related to child support
- Navigating the criminal justice or child welfare system (the system that responds in cases of alleged child abuse or neglect)

PRIMARY PROGRAM STRATEGIES

Recruitment and initial engagement strategies

- Referrals from one dominant source
- Engagement activities and links to support services
- Matching fathers to areas of direct interest
- Workshops that begin immediately
- Workshops that begin after a wait

Engagement and retention strategies

- Removal of barriers to participation (through transportation, childcare, etc.)
- Reminders to attend sessions and meetings
- Case management provided at intake to address participants' immediate financial needs

Instruction or pedagogy

- Lecture and direct instruction
- Group discussion

- Role play, behavioral rehearsal, and discussion
- Experiential or “hands-on” learning
- Self-evaluation, reflection, and self-monitoring
- Self-directed learning

Extended activities

- Support groups for parents/caregivers
- Mentorship
- Case management throughout the program
- Motivational interviewing (a method for changing behavior by developing inner motivation, with the aim of helping clients identify and change behaviors that make it harder for them to achieve their goals)
- Partners that provide extended support services

PROGRAM IMPLEMENTATION

- Years the program has been in operation
- Years the organization has been in operation
- Problems with the implementation of the program
- Problems with the implementation of the research study

PROGRAM DELIVERY

- Primary program setting (community, home, etc.)
- Primary delivery mode (virtual or in-person)
- Primary delivery format (individual fathers, groups, etc.)

DOSAGE

- Duration of the program (in weeks)
- Frequency of program meetings
- Length of sessions
- Total number of sessions

STAFF CHARACTERISTICS

- Type of program staff
- Experience of program staff members
- Match between demographic characteristics of provider staff members and fathers
- Program staff members' gender
- Program staff members' own fatherhood status
- Training of program staff members
- Supervision of program staff members

APPENDIX

B

Description of Outcomes Eligible for the Meta-analysis

PARENTING

Includes measures of: positive parenting, child maltreatment, cognitive stimulation, warmth, harsh discipline, monitoring, developmental milestones, father involvement with the child, quality of the father-child relationship

HEALTHY RELATIONSHIPS WITH COPARENTS

Includes measures of: coparenting satisfaction and relationship quality, cooperation and conflict with the coparent, joint decision-making, communication skills, time spent with coparent and coparent/child, attitude toward the coparent

ECONOMIC STABILITY

Includes measures of: earnings or wages, employment status, hours worked, part- or full-time status, financial literacy, educational attainment, and child support payments or other monetary/material support of the child

FATHER WELL-BEING

Includes measures of: mental and physical health, involvement in the criminal legal system, risk-taking behaviors, and substance use

APPENDIX

C

Additional Details on Effect-Size Coding and the Analytic Approach

CODING EFFECT SIZES

The research team recorded study findings in the form of effect sizes. For continuous outcome measures, the team collected data in the form of group means, unadjusted standard deviations, and sample sizes to calculate effect sizes. For dichotomous outcome variables, the team collected data in the form of counts or percentages of successful and failed events. They recorded model coefficients, independent t-tests, F-test statistics, chi-square statistics, and other information to support effect-size calculation as needed. For studies that did not provide sufficient data to calculate an effect size, the team used author-reported effect sizes if they were available and if the method used by the authors was described and consistent with either an odds ratio or a standardized mean difference.¹

For studies with outcomes measured on a continuous scale (for example, group differences in average scores on a relationship-quality measure), the team used the standardized mean difference effect size. All effect sizes were coded such that effect sizes larger than 0 represent situations where the program had better outcomes than the control group in target domains. The basic formulation of the standardized mean difference effect size (d) is:

$$d = \frac{\bar{X}_{Gc} - \bar{X}_{Gt}}{s_p},$$

where the numerator is the difference in group means for the program and comparison groups, and the denominator is the pooled standard deviation of the two groups. All standardized mean difference effect sizes were adjusted with the small-sample correction factor to provide unbiased estimates of the effect size. This small-sample-corrected effect size (g) can be represented as:

$$g = \left[1 - \left(\frac{3}{4N-9} \right) \right] * d,$$

and the sampling variance as:

$$var_g = \frac{n_{Gt} + n_{Gc}}{n_{Gt} n_{Gc}} + \frac{d^2}{2(n_{Gt} + n_{Gc})},$$

where n is the total sample size for the program and comparison groups, d is the original standardized mean difference effect size, n_{Gt} is the sample size for the program group, and n_{Gc} is the sample size for the comparison group.

DATA ANALYSIS

All data management and analyses reported in this paper were conducted using R.² Before conducting any analyses, the team examined the effect-size distributions for outliers; these

1 Cohen's d , Hedges' g .

2 The R Foundation (2022).

were winsorized (that is, recoded to less extreme values) using Tukey’s outer fences.³ Tukey’s fences are derived from the interquartile range; the inner fences are 1.5 times the interquartile range and the outer fences are 3 times the interquartile range. These values are subsequently added or subtracted from the first and third quartiles, respectively. Researchers generally use the outer fences and recode any values outside the fences to the value at the fence. If all or most of the outliers fall on the positive side of the distribution, the goal of winsorizing is to make the mean smaller. It is important to implement this process because it can be misleading to report a larger mean effect size driven by a small number of very large outliers. Making this adjustment more accurately represents the distribution of impacts. By making these adjustments, the research team was able to retain outliers in the analysis but prevent those outliers from having a large influence on the findings.

Studies often contributed multiple effect sizes in the same outcome domain (for example, the same type of outcome reported by different informants, or two different measures of parenting practices). To account for the statistical dependencies that result from having multiple effect sizes from the same study sample, the team used multilevel random-effects models for all analyses.⁴ All analyses were inverse-variance weighted using random-effects statistical models that incorporate both within-study and between-study sampling variance estimates into the study level weights. The between-studies variance component (σ^2) was estimated using restricted maximum likelihood. Estimates of Cochrane’s Q, I-squared, and σ^2 were used to assess heterogeneity in the effect sizes. Effect-size calculations, heterogeneity statistics, and metaregression analyses were performed using the “metafor” package.⁵

Prior to analysis, the team determined the number of coded effect sizes in the odds ratio and standardized mean difference metrics in each outcome domain. If both odds ratio and standardized mean difference metrics occurred within a given outcome domain, the team transformed the effect-size metric with the smaller proportion into the metric with the larger proportion using the Cox transformation.⁶ As a result, the parenting knowledge and skills, healthy relationship, and father well-being outcomes are analyzed using the standardized mean difference metric and the economic stability outcomes are analyzed using logged odds ratios. Analytic results from the logged odds ratio effect sizes are reported as calculated and converted back to the original odds ratio metric to assist with interpretation. To maximize the sample size available for the core component analysis, the team elected to combine the three outcome domains with mostly continuous outcome measures for analysis (that is, parenting knowledge and skills, healthy relationships, and father well-being).

In order to conduct the core component analyses, the research team first needed to establish that there was enough variability in the effect-size distributions for the outcomes.

3 Tukey (1977).

4 Konstantopoulos (2011); Viechtbauer (2010).

5 Viechtbauer (2010).

6 Sánchez-Meca, Marín-Martínez, and Chacón-Moscoso (2003).

One standard metric for assessing this variability is for the I-squared values to be greater than 50 percent or to observe a statistically significant Q-test. The data for this analysis met both of those criteria. As such, the team proceeded building metaregression models that included moderators (the potential core components) that had the strongest independent relationships with the effect sizes and the best overall fit. The resulting metaregression models describe the relative contribution of each potential core component for predicting program impacts.

APPENDIX

D

**Complete Set of Statistics
Summarizing the Main Effects of
Fatherhood Programs on Target
Outcomes, Mean Effect Sizes,
Confidence Intervals,
and Heterogeneity,
by Outcome Domain**

APPENDIX TABLE D.1. Complete Set of Statistics Summarizing Main Effects of Fatherhood Programs on Target Outcomes, Mean Effect Sizes, Confidence Intervals, and Heterogeneity, by Outcome Domain

Outcome Domain	k	n	\bar{g}	se	ci.l	ci.u	Q	I ² _T (%)	I ² _b (%)	I ² _w (%)
Parenting knowledge and skills	49	458	0.11 ***	0.02	0.07	0.14	951 ***	59.3	50.4	8.9
Father well-being	32	142	0.09 ***	0.02	0.05	0.13	191 ***	18.5	18.5	0
Healthy relationships with coparents	34	205	0.09 ***	0.02	0.06	0.13	312 ***	37.8	21.5	16.3
Parenting, well-being, healthy relationships	54	805	0.1 ***	0.02	0.07	0.13	1,490 ***	54.8	41.7	13.1
	k	n	\overline{OR}	se	ci.l	ci.u	Q	I ² _T (%)	I ² _b (%)	I ² _w (%)
Economic stability	23	208	1.15 ***	0.04 ^a	1.05	1.26	603 ***	66.6	58.1	8.5

SOURCE: Fatherhood TIES meta-analysis dataset from coded studies.

NOTES: Statistical significance levels are indicated as *** = 0.01 percent. k = number of studies; n = number of effect sizes; \bar{g} is the mean standardized mean difference effect size; se = standard error of the effect size estimate; \overline{OR} is the mean logged odds ratio effect size back-transformed into an odds ratio; ci.l and ci.u describe the 95 percent confidence interval around the mean effect size. Statistically significant mean \bar{g} or odds ratio values indicate that the mean effect size is statistically significant; statistically significant Q-tests indicate that there is more variability in the distribution of effect sizes than would be expected from sampling error alone. I²_T, I²_b, and I²_w represent total I², I² between studies, and I² within studies, respectively.

^aThis standard error is associated with the logged odds ratio of 0.136; the mean odds ratio and confidence interval are not logged.

APPENDIX

E

Full Results from the Core Components Meta-analysis: Mean Effect Sizes by Moderator and Outcome Domain

The tables in this section display the bivariate relationships between each potential core component and observed impacts on the four primary outcomes (parenting knowledge and skills, healthy relationships, father well-being, and economic stability). The topics covered in each of the tables are as follows:

- Appendix Tables E.1–E.4: publication and method variables
- Appendix Tables E.5–E.8: setting and context
- Appendix Tables E.9–E.12: participant characteristics
- Appendix Tables E.13–E.16: program content
- Appendix Tables E.17–E.20: program strategies

These tables may be helpful for understanding the gaps in the research base. For example, the tables can be used to identify when there are very small sample sizes for certain outcomes or when certain potential core components are not reported across studies. Tables show the number of studies (k), the number of effect sizes (n), the regression coefficient for any continuous moderators (b) or the mean effect size (\bar{g} —the standardized mean difference or \overline{OR} —the mean odds ratio) for the levels of each categorical variable. Asterisks for the individual b , \bar{g} , or \overline{OR} coefficients indicate whether the coefficient is different from zero to a statistically significant degree. Importantly, these coefficients simply indicate whether implementing that component as part of the program is associated with a target outcome. They do not indicate whether implementation of the component is associated with a larger impact in the target domain, which is the criterion needed to determine whether a feature has evidence as a core component.

This information—which is most directly tied to the results of the core components analysis described in the main text—is given in the Q_M column. Asterisks in the Q_M column for continuous moderators indicate that the test of the coefficient associated with the moderator variable is statistically significant at the p -value associated with that number of asterisks. Asterisks in the Q_M column for binary moderators indicate that the two coefficients are significantly different from each other at the p -value associated with that number of asterisks. Asterisks in the Q_M column for categorical moderators with more than two levels indicate that the joint or omnibus test of all the coefficients for the moderator is statistically significant at the p -value associated with that number of asterisks. For categorical moderators with more than two levels, pairwise tests are reported in individual notes below the table. The research team selected moderators to test in the meta-regression analysis based on these Q_M findings.

HOW TO USE THESE TABLES

Consider the example of the first table (Appendix Table E.1), focused on publication and method variables. Appendix Table E.1 indicates that there are 40 randomized controlled trial studies with 395 effect sizes for parenting knowledge and skills outcomes and 9 quasi-experimental design studies with 63 effect sizes for parenting knowledge and skills outcomes. Both types of studies have **mean effect sizes (\bar{g})** that are different from 0 to a statistically significant degree, meaning that both randomized controlled trials and quasi-experimental designs have, on average, found significant impacts on parenting knowledge and skills. The **Q_M sig** column for parenting knowledge and skills has one asterisk, indicating that the mean effect size for randomized controlled trials is significantly different from the mean effect size for quasi-experimental designs for outcomes in this domain.

Appendix Tables E.2 and E.3 show that randomized controlled trials also have significant impacts on outcomes related to father well-being and healthy relationships with coparents, but there are no studies with quasi-experimental designs that assess father well-being and only one that assessed healthy relationships (not finding a significant impact). Due to this lack of data, there is no evidence to show whether study design is associated with larger or smaller impacts on these outcomes.

APPENDIX TABLE E.1 Mean Effect Sizes for Parenting Knowledge and Skills (Publication and Method Variables)

Publication or Method Variable	k	n	b or \bar{g}	Q_M sig
Publication year				
Publication year	49	458	-0.0003	ns
Publication type				
Journal article	29	209	0.21 ***	***
Report	20	249	0.04	
Method of assignment				
Randomized controlled trial	40	395	0.11 ***	*
Quasi-experimental design	9	63	0.24 ***	
Type of comparison group^a				
No services	11	84	0.12 **	ns
Services as usual	28	339	0.11 ***	
Placebo	10	35	0.24 ***	
Source of outcome^b				
Self-report		341	0.12 ***	*
All other sources		117	0.16 ***	

SOURCE: Fatherhood TIES meta-analysis data set from coded studies.

NOTES: k = number of studies; n = number of effect sizes; ns= not statistically significant. The table reports unstandardized regression coefficients (b) for continuous moderators and model-adjusted mean effect sizes (\bar{g}) for the categorical moderators from inverse-variance-weighted, multilevel random effects metaregression analyses using Restricted Maximum Likelihood (REML) estimation. The model-adjusted means were derived from models with no intercepts. Asterisks tied to individual coefficients or model-adjusted means indicate that the value is different from zero to a statistically significant degree at the p-value shown below. Asterisks in the Q_M column for continuous moderators indicate that the test of the coefficient associated with the moderator variable is statistically significant at the p-value shown below. Asterisks in the Q_M column for categorical moderators with more than two levels indicate that the joint or omnibus test of all the coefficients for the moderator is statistically significant at the p-value shown below. For categorical moderators with more than two levels, pairwise tests are reported in individual footnotes below.

* p < 5 percent, ** p < 1 percent, *** p < 0.1 percent

^aPlacebos are significantly different from services as usual.

^bThe source of the outcome variable is an effect-size-level moderator, so counts of studies are not shown.

**APPENDIX TABLE E.2 Mean Effect Sizes for Father Well-Being
(Publication and Method Variables)**

Publication or Method Variable	k	n	b or \bar{g}	Q_M sig
Publication year				
Publication year	32	142	0.0064	ns
Publication type				
Journal article	15	48	0.0001	ns
Report	17	94	0.05 **	
Method of assignment				
Randomized controlled trial	32	142	0.04 **	ns
Quasi-experimental design	0	0	--	
Type of comparison group				
No services	8	30	0.05	ns
Services as usual	16	94	0.04 *	
Placebo	8	18	-0.01	
Source of outcome^a				
Self-report		131	0.04 *	ns
All other sources		11	0.06	

SOURCE: Fatherhood TIES meta-analysis data set from coded studies.

NOTES: k = number of studies; n = number of effect sizes; ns = not statistically significant. The table reports unstandardized regression coefficients (b) for continuous moderators and model-adjusted mean effect sizes (\bar{g}) for the categorical moderators from inverse-variance-weighted, multilevel random effects metaregression analyses using Restricted Maximum Likelihood (REML) estimation. The model-adjusted means were derived from models with no intercepts. Asterisks tied to individual coefficients or model-adjusted means indicate that the value is different from zero to a statistically significant degree at the p-value shown below. Asterisks in the Q_M column for continuous moderators indicate that the test of the coefficient associated with the moderator variable is statistically significant at the p-value shown below. Asterisks in the Q_M column for categorical moderators with more than two levels indicate that the joint or omnibus test of all the coefficients for the moderator is statistically significant at the p-value shown below. For categorical moderators with more than two levels, pairwise tests are reported in individual footnotes below.

* p < 5 percent, ** p < 1 percent, *** p < 0.1 percent

^aThe source of the outcome variable is an effect-size level moderator so counts of studies are not shown.

APPENDIX TABLE E.3 Mean Effect Sizes for Healthy Relationships with Coparents (Publication and Method Variables)

Publication or Method Variable	k	n	b or \bar{g}	Q_M sig
Publication year				
Publication year	34	205	-0.002	ns
Publication type				
Journal articles	20	76	0.05 *	ns
Reports	14	129	0.03 *	
Method of assignment				
Randomized controlled trial	33	201	0.04 **	ns
Quasi-experimental design	1	4	0.17	
Type of comparison group^a				
No services	8	49	0.1 ***	**
Services as usual	19	119	0.01	
Placebo	7	37	0.03	
Source of outcome^b				
Self-report		176	0.04 **	ns
All other sources		29	0.03	

SOURCE: Fatherhood TIES meta-analysis data set from coded studies.

NOTES: k = number of studies; n = number of effect sizes; ns = not statistically significant. The table reports unstandardized regression coefficients (b) for continuous moderators and model-adjusted mean effect sizes (\bar{g}) for the categorical moderators from inverse-variance-weighted, multilevel random effects metaregression analyses using Restricted Maximum Likelihood (REML) estimation. The model-adjusted means were derived from models with no intercepts. Asterisks tied to individual coefficients or model-adjusted means indicate that the value is different from zero to a statistically significant degree at the p-value shown below. Asterisks in the Q_M column for continuous moderators indicate that the test of the coefficient associated with the moderator variable is statistically significant at the p-value shown below. Asterisks in the Q_M column for categorical moderators with more than two levels indicate that the joint or omnibus test of all the coefficients for the moderator is statistically significant at the p-value shown below. For categorical moderators with more than two levels, pairwise tests are reported in individual footnotes below.

* p < 5 percent, ** p < 1 percent, *** p < 0.1 percent

^aConditions where the comparison group received no services are significantly different from placebos.

^bThe source of the outcome variable is an effect-size level moderator so counts of studies are not shown.

**APPENDIX TABLE E.4 Mean Effect Sizes for Economic Stability
(Publication and Method Variables)**

Publication or Method Variable	k	n	b or \overline{OR}	Q_M sig
Publication year				
Publication year	23	208	0.99	ns
Publication type				
Journal article	6	30	1.23	ns
Report	17	178	1.13 *	
Method of assignment				
Randomized controlled trial	21	176	1.11 *	*
Quasi-experimental design	2	32	1.46 **	
Type of comparison group				
No services	3	3	1.25	ns
Services as usual	18	199	1.12 *	
Placebo	2	6	1.48	
Source of outcome^a				
Self-report		147	1.15 **	ns
All other sources		61	1.13 *	

SOURCE: Fatherhood TIES meta-analysis data set from coded studies.

NOTES: k = number of studies; n = number of effect sizes; ns = not statistically significant. The table reports unstandardized regression coefficients (b) for continuous moderators and model-adjusted mean effect sizes (\overline{OR}) for the categorical moderators from inverse-variance-weighted, multilevel random effects metaregression analyses using Restricted Maximum Likelihood (REML) estimation. The economic stability outcomes were analyzed as logged odds ratios; the coefficients and model-adjusted means were then transformed back into odds ratios for reporting in the table. The model-adjusted means were derived from models with no intercepts. Asterisks tied to individual coefficients or model-adjusted means indicate that the value is different from zero to a statistically significant degree at the p-value shown below. Asterisks in the Q_M column for continuous moderators indicate that the test of the coefficient associated with the moderator variable is statistically significant at the p-value shown below. Asterisks in the Q_M column for categorical moderators with more than two levels indicate that the joint or omnibus test of all the coefficients for the moderator is statistically significant at the p-value shown below. For categorical moderators with more than two levels, pairwise tests are reported in individual footnotes below.

* p < 5 percent, ** p < 1 percent, *** p < 0.1 percent

^aThe source of the outcome variable is an effect-size level moderator so counts of studies are not shown.

APPENDIX TABLE E.5 Mean Effect Sizes for Parenting Knowledge and Skills (Setting and Context)

Setting or Context Variable	k	n	b or \bar{g}	Q_M sig
Primary setting				ns
Community (community center, church)	30	294	0.1 ***	
Academic setting	5	55	0.13	
Clinic (mental health center, hospital)	3	42	0.24 **	
Home	4	30	0.32 ***	
Correctional facility	4	29	0.15	
Other (including virtual)	3	8	0.33	
Delivery format				*
Individual or family with provider (or alone)	7	38	0.27 ***	
Group of individuals or families with provider	40	374	0.11 ***	
Other	2	46	0.25 **	
Delivery format (alternate coding)				***
Individual family or group of families with provider	5	45	0.28 ***	
Individual father or group of fathers with provider	19	86	0.22 ***	
Individual couple or group of couples with provider	23	281	0.04	
Other	2	46	0.23 **	
Duration of services				
Duration (weeks)	45	436	0.001	ns
Frequency of services				ns
Monthly	3	63	0.18 *	
1x/week	23	215	0.09 **	
1-2x/week	5	33	0.28 ***	
2-4x/week	2	16	0.03	
Daily	2	10	0.1	
No information provided	14	121	0.15 ***	
Staff member providing services				ns
Clinical professional	13	119	0.09 *	
Trained program staff member	25	249	0.14 ***	
Other	5	35	0.28 **	
No information provided	6	55	0.1	
Staff training				ns
Training = yes	29	302	0.11 ***	
Training = no or no information provided	20	156	0.17 ***	
Staff supervision				ns
Supervision = yes	12	187	0.11 *	
Supervision = no or no information provided	37	272	0.14 ***	

(continued)

APPENDIX TABLE E.5 (continued)

Setting or Context Variable	k	n	b or \bar{g}	Q _M sig
Implementation problems				ns
No problems	4	28	0.17 *	
Possible problems	12	101	0.11 **	
Clear problems	7	98	0.05	
No information provided	26	231	0.16 ***	

SOURCE: Fatherhood TIES meta-analysis data set from coded studies.

NOTES: k = number of studies; n = number of effect sizes; ns = not statistically significant. The table reports unstandardized regression coefficients (b) for continuous moderators and model-adjusted mean effect sizes (\bar{g}) for the categorical moderators from inverse-variance-weighted, multilevel random effects metaregression analyses using Restricted Maximum Likelihood (REML) estimation. The model-adjusted means were derived from models with no intercepts. Asterisks tied to individual coefficients or model-adjusted means indicate that the value is different from zero to a statistically significant degree at the p-value shown below. Asterisks in the Q_M column for continuous moderators indicate that the test of the coefficient associated with the moderator variable is statistically significant at the p-value shown below. Asterisks in the Q_M column for categorical moderators with more than two levels indicate that the joint or omnibus test of all the coefficients for the moderator is statistically significant at the p-value shown below. For categorical moderators with more than two levels, pairwise tests are reported in notes below.

* p < 5 percent, ** p < 1 percent, *** p < 0.1 percent

^aFor “primary setting,” counts of settings other than “community” are too small to conduct interpretable pairwise tests. Individual formats are significantly different from group formats. For “frequency of services,” some pairwise contrasts are significant but the pattern of effects does not have a clear interpretation. None of the provider types are significantly different from each other. Studies with provider training are not significantly different from studies without training (including those that didn’t report on training at all). Studies with provider supervision are not significantly different from studies without provider supervision (including those that didn’t report on supervision at all). Studies reporting clear implementation problems and studies reporting possible implementation problems are significantly different from those not providing information about implementation.

**APPENDIX TABLE E.6 Mean Effect Sizes for Father Well-Being
(Setting and Context)**

Setting or Context Variable	k	n	b or \bar{g}	Q_M sig
Primary setting				ns
Community (community center, church)	27	116	0.04 **	
Academic setting	3	15	-0.007	
Clinic (mental health center, hospital)	2	11	-0.007	
Home	0	0	-	
Correctional facility	0	0	-	
Other (including virtual)	0	0	-	
Delivery format				ns
Individual or family with staff member (or alone)	0	0	-	
Group of individuals or families with staff member	31	133	0.04 **	
Other	1	9	-0.01	
Delivery format (alternate coding)				ns
Individual family or group of families with staff member	0	0	-	
Individual father or group of fathers with staff member	11	30	0.05	
Individual couple or group of couples with staff member	20	103	0.04 *	
Other	1	9	-0.01	
Duration of services				
Duration (weeks)	30	132	0.001	ns
Frequency of services				*
Monthly	1	9	0.1	
1x/week	15	57	0.03	
1-2x/week	5	28	-0.09 *	
2-4x/week	2	4	0.05	
Daily	2	6	0.1 *	
No information provided	7	38	0.07 *	
Staff member providing services				ns
Clinical professional	8	26	0.07 **	
Trained program staff member	17	85	0.008	
Other	2	10	0.02	
No information provided	5	21	0.07 **	
Staff training				ns
Training = yes	19	90	0.05 **	
Training = no or no information provided	13	52	0.001	
Staff supervision				ns
Supervision = yes	10	60	0.04	
Supervision = no or no information provided	22	82	0.03	

(continued)

APPENDIX TABLE E.6 (continued)

Setting or Context Variable	k	n	b or \bar{g}	Q_M sig
Implementation problems				ns
No problems	4	14	0.04	
Possible problems	7	37	0.02	
Clear problems	4	21	0.1 *	
No information provided	17	70	0.02	

SOURCE: Fatherhood TIES meta-analysis data set from coded studies.

NOTES: k = number of studies; n = number of effect sizes; ns = not statistically significant. The table reports unstandardized regression coefficients (b) for continuous moderators and model-adjusted mean effect sizes (\bar{g}) for the categorical moderators from inverse-variance-weighted, multilevel random effects metaregression analyses using Restricted Maximum Likelihood (REML) estimation. The model-adjusted means were derived from models with no intercepts. Asterisks tied to individual coefficients or model-adjusted means indicate that the value is different from zero to a statistically significant degree at the p-value shown below. Asterisks in the Q_M column for continuous moderators indicate that the test of the coefficient associated with the moderator variable is statistically significant at the p-value shown below. Asterisks in the Q_M column for categorical moderators with more than two levels indicate that the joint or omnibus test of all the coefficients for the moderator is statistically significant at the p-value shown below. For categorical moderators with more than two levels, pairwise tests are reported in notes below.

* p < 5 percent, ** p < 1 percent, *** p < 0.1 percent

For “frequency of services,” services 1-2x/week is significantly different from all other frequencies. For “delivery format,” none of the format types are significantly different from each other. For “provider type,” licensed clinical professionals are significantly different from trained staff members. Studies with provider training are significantly different from studies without training (including those that didn’t report on training at all). Studies with provider supervision are not significantly different from studies without provider supervision (including those that didn’t report on supervision at all). For “implementation problems,” none of the pairs are significantly different from each other.

APPENDIX TABLE E.7 Mean Effect Sizes for Healthy Relationships with Coparents (Setting and Context)

Setting or Context Variable	k	n	b or \bar{g}	Q_M sig
Primary setting				ns
Community (community center, church)	26	162	0.04 **	
Academic setting	3	25	-0.01	
Clinic (mental health center, hospital)	1	8	0.02	
Home	1	4	0.17	
Correctional facility	0	0	--	
Other (including virtual)	3	6	0.15	
Delivery format				ns
Individual or family with staff member (or alone)	4	10	0.15 *	
Group of individuals or families with staff member	30	195	0.04 **	
Other	0	0	--	
Delivery format (alternate coding)				ns
Individual family or group of families with staff member	1	4	0.17	
Individual father or group of fathers with staff member	10	43	0.005	
Individual couple or group of couples with staff member	23	158	0.05 **	
Other	0	0	-	
Duration of services				
Duration (weeks)	31	186	-0.0007	ns
Frequency of services				ns
Monthly	1	8	0.05	
1x/week	15	99	0.05 **	
1-2x/week	5	22	0.01	
2-4x/week	2	19	0.005	
Daily	2	8	0.02	
No information provided	9	49	0.02	
Staff member providing services				ns
Clinical professional	11	53	0.06 *	
Trained program staff member	18	128	0.04 *	
Other	0	0	--	
No information provided	5	24	-0.007	
Staff training				ns
Training = yes	19	152	0.04 *	
Training = no or no information provided	15	53	0.04	
Staff supervision				ns
Supervision = yes	10	82	0.02	
Supervision = no or no information provided	24	123	0.05 **	

(continued)

APPENDIX TABLE E.7 (continued)

Setting or Context Variable	k	n	b or \bar{g}	Q_M sig
Implementation problems				*
No problems	5	48	0.04	
Possible problems	10	58	0.09 ***	
Clear problems	5	33	0.03	
No information provided	15	66	0.004	

SOURCE: Fatherhood TIES meta-analysis data set from coded studies.

NOTES: k = number of studies; n = number of effect sizes; ns = not statistically significant. The table reports unstandardized regression coefficients (b) for continuous moderators and model-adjusted mean effect sizes (\bar{g}) for the categorical moderators from inverse-variance-weighted, multilevel random effects metaregression analyses using Restricted Maximum Likelihood (REML) estimation. The model-adjusted means were derived from models with no intercepts. Asterisks tied to individual coefficients or model-adjusted means indicate that the value is different from zero to a statistically significant degree at the p-value shown below. Asterisks in the Q_M column for continuous moderators indicate that the test of the coefficient associated with the moderator variable is statistically significant at the p-value shown below. Asterisks in the Q_M column for categorical moderators with more than two levels indicate that the joint or omnibus test of all the coefficients for the moderator is statistically significant at the p-value shown below. For categorical moderators with more than two levels, pairwise tests are reported in notes below.

* p < 5 percent, ** p < 1 percent, *** p < 0.1 percent

For “primary setting,” none of the pairs are significantly different from each other. For “delivery format,” none of the format types are significantly different from each other. For “frequency of services,” none of the pairs are significantly different from each other. For “provider type,” licensed clinical professionals are significantly different from studies where this information was missing. Studies with provider training are not significantly different from studies without training (including those that didn’t report on training at all). Studies with provider supervision are not significantly different from studies without provider supervision (including those that didn’t report on supervision at all). For “implementation problems,” none of the pairs are significantly different from each other.

**APPENDIX TABLE E.8 Mean Effect Sizes for Economic Stability
(Setting and Context)**

Setting or Context Variable	k	n	b or \overline{OR}	Q_M sig
Primary setting				***
Community (community center, church)	18	163	1.07	
Academic setting	1	14	1.05	
Clinic (mental health center, hospital)	0	0	--	
Home	0	0	--	
Correctional facility	0	0	--	
Other (including virtual)	4	31	1.54***	
Delivery format				***
Individual or family with staff member (or alone)	5	48	1.55***	
Group of individuals or families with staff member	18	160	1.03	
Other	0	0	--	
Delivery format (alternate coding)				ns
Individual family or group of families with staff member	0	0	-	
Individual father or group of fathers with staff member	11	89	1.22**	
Individual couple or group of couples with staff member	12	119	1.08	
Other	0	0	-	
Duration of services				
Duration (weeks)	20	188	1	ns
Frequency of services				ns
Monthly	2	29	1.21	
1x/week	7	65	1.03	
1-2x/week	3	11	0.96	
2-4x/week	1	21	1.06	
Daily	3	17	1.38**	
No information provided	7	65	1.2*	
Staff member providing services				ns
Clinical professional	5	36	1.23	
Trained program staff member	11	114	1.09	
Other	0	0	--	
No information provided	7	58	1.18*	
Staff training				*
Training = yes	10	129	1.03	
Training = no or no information provided	13	79	1.27***	
Staff supervision				ns
Supervision = yes	7	92	1.06	
Supervision = no or no information provided	16	116	1.2**	

(continued)

APPENDIX TABLE E.8 (continued)

Setting or Context Variable	k	n	b or \overline{OR}	Q_M sig
Implementation problems				ns
No problems	1	21	1.06	
Possible problems	6	54	1.03	
Clear problems	4	46	1.19	
No information provided	12	87	1.2**	

SOURCE: Fatherhood TIES meta-analysis data set from coded studies.

NOTES: k = number of studies; n = number of effect sizes; ns = not statistically significant. The table reports unstandardized regression coefficients (b) for continuous moderators and model-adjusted mean effect sizes (OR) for the categorical moderators from inverse-variance-weighted, multilevel random effects metaregression analyses using Restricted Maximum Likelihood (REML) estimation. The economic stability outcomes were analyzed as logged odds ratios; the coefficients and model-adjusted means were then transformed back into odds ratios for reporting in the table. The model-adjusted means were derived from models with no intercepts. Asterisks tied to individual coefficients or model-adjusted means indicate that the value is different from zero to a statistically significant degree at the p-value shown below. Asterisks in the Q_M column for continuous moderators indicate that the test of the coefficient associated with the moderator variable is statistically significant at the p-value shown below. Asterisks in the Q_M column for categorical moderators with more than two levels indicate that the joint or omnibus test of all the coefficients for the moderator is statistically significant at the p-value shown below. For categorical moderators with more than two levels, pairwise tests are reported in notes below.

* p < 5 percent, ** p < 1 percent, *** p < 0.1 percent

For “primary setting,” settings coded as ‘other’ are significantly different from community settings; none of the other pairs are significantly different from each other. Individual formats are significantly different from group formats. For “frequency of services,” 1-2x/week is significantly different from daily services; none of the other pairs are significantly different from each other. None of the provider types are significantly different from each other. Studies with provider training are significantly different from studies without training (including those that didn’t report on training at all). Studies with provider supervision are not significantly different from studies without provider supervision (including those that didn’t report on supervision at all). For “implementation problems,” studies reporting possible implementation problems are significantly different from those not providing information about implementation.

APPENDIX TABLE E.9 Mean Effect Sizes for Parenting Knowledge and Skills (Participant Characteristics)

Participant Characteristic	k	n	b or \bar{g}	Q_M sig
Racial/ethnic mix of the sample				*
Mostly Black	21	158	0.16 ***	
Mostly White	10	94	0.2 ***	
Mostly Hispanic	8	65	0.12 *	
Mixed, no group > 60%	8	126	0.004	
No information provided	2	15	0.25 *	
Predominant education level				ns
Less than a high school diploma	3	17	0.31 ***	
High school diploma or equivalent	24	246	0.09 ***	
Associate's degree or some college	1	2	0.49 *	
Bachelor's degree or higher	2	30	0.27 *	
Mixed, no predominant level	9	77	0.16 **	
No information provided	2	86	0.12 *	
Predominant marital status				ns
Married	17	119	0.14 ***	
Divorced	1	3	0.27	
Never married	13	200	0.05	
Mixed	7	77	0.16 **	
No information provided	11	59	0.2 ***	
Criminal justice history				ns
Ever or currently incarcerated	4	29	0.15	
Never incarcerated or no information provided	43	405	0.13 ***	

SOURCE: Fatherhood TIES meta-analysis data set from coded studies.

NOTES: k = number of studies; n = number of effect sizes; ns = not statistically significant. The table reports unstandardized regression coefficients (b) for continuous moderators and model-adjusted mean effect sizes (\bar{g}) for the categorical moderators from inverse-variance-weighted, multilevel random effects meta-regression analyses using Restricted Maximum Likelihood (REML) estimation. The model-adjusted means were derived from models with no intercepts. Asterisks tied to individual coefficients or model-adjusted means indicate that the value is different from zero to a statistically significant degree at the p-value shown below. Asterisks in the Q_M column for categorical moderators with more than two levels indicate that the joint or omnibus test of all the coefficients for the moderator is statistically significant at the p-value shown below. For categorical moderators with more than two levels, pairwise tests are reported in notes below.

* p < 5 percent, ** p < 1 percent, *** p < 0.1 percent

Studies with mostly Black samples are significantly different from studies with mostly Hispanic samples and studies with mixed samples. Studies with mostly White samples are significantly different from studies with mixed samples. Studies in which most of the sample members had received high school diplomas or equivalents are significantly different from studies in which most of the samples had not received high school diplomas. Studies with mostly married samples are significantly different from studies with mostly never-married samples. For “criminal justice history,” studies in which most members of the sample were incarcerated or had been in the past are not significantly different from studies in which most of the sample had never been incarcerated (including studies that did not provide incarceration information).

**APPENDIX TABLE E.10 Mean Effect Sizes for Father Well-Being
(Participant Characteristics)**

Participant Characteristic	k	n	b or \bar{g}	Q_M sig
Racial/ethnic mix of the sample				
Mostly Black	11	46	0.06**	*
Mostly White	3	18	0.08	
Mostly Hispanic	8	26	0.05	
Mixed, no group > 60%	9	48	-0.006	
No information provided	1	4	-0.21	
Predominant education level				
Less than a high school diploma	1	1	0.05	ns
High school diploma or equivalent	21	106	0.04**	
Associate's degree or some college	0	0	--	
Bachelor's degree or higher	0	0	--	
Mixed, no predominant level	4	12	0.07	
No information provided	6	23	-0.03	
Predominant marital status				
Married	14	40	0.009	ns
Divorced	0	0	--	
Never married	9	73	0.04	
Mixed	2	9	0.12*	
No information provided	7	20	0.05	
Criminal justice history				
Ever or currently incarcerated	2	10	-0.003	ns
Never incarcerated or no information provided	30	132	0.04**	

SOURCE: Fatherhood TIES meta-analysis data set from coded studies.

NOTES: k = number of studies; n = number of effect sizes; ns = not statistically significant. The table reports unstandardized regression coefficients (b) for continuous moderators and model-adjusted mean effect sizes (\bar{g}) for the categorical moderators from inverse-variance-weighted, multilevel random effects metaregression analyses using Restricted Maximum Likelihood (REML) estimation. The model-adjusted means were derived from models with no intercepts. Asterisks tied to individual coefficients or model-adjusted means indicate that the value is different from zero to a statistically significant degree at the p-value shown below. Asterisks in the Q_M column for categorical moderators with more than two levels indicate that the joint or omnibus test of all the coefficients for the moderator is statistically significant at the p-value shown below. For categorical moderators with more than two levels, pairwise tests are reported in notes below.

* p < 5 percent, ** p < 1 percent, *** p < 0.1 percent

Studies with mostly Black samples are significantly different from studies with mixed samples. Studies with no information on the racial/ethnic makeup of the sample are significantly different from studies with mostly Black samples, from studies with mostly Hispanic samples, and from studies with mostly White samples. Studies in which most members of the sample had received a high school diploma or equivalent are significantly different from studies in which sample education information was not provided. For “predominant marital status,” none of the pairs are significantly different from each other. For “criminal justice history,” studies in which most members of the sample were incarcerated or had been in the past are not significantly different from studies in which most of the sample had never been incarcerated (including studies that did not provide incarceration information).

**APPENDIX TABLE E.11 Mean Effect Sizes for Healthy Relationships
with Copartners (Participant Characteristics)**

Participant Characteristic	k	n	b or \bar{g}	Q_M sig
Racial/ethnic mix of the sample				***
Mostly Black	14	67	-0.005	
Mostly White	3	24	0.12 ***	
Mostly Hispanic	7	47	0.09 ***	
Mixed, no group > 60%	9	62	0.03	
No information provided	1	5	-0.07	
Predominant education level				ns
Less than a high school diploma	0	0	--	
High school diploma or equivalent	22	141	0.04	
Associate's degree or some college	0	0	--	
Bachelor's degree or higher	0	0	--	
Mixed, no predominant level	4	39	0.04	
No information provided	8	25	0.06	
Predominant marital status				*
Married	14	84	0.06 ***	
Divorced	0	0	--	
Never married	10	67	0.01	
Mixed	2	15	0.14 **	
No information provided	8	39	-0.0005	
Criminal justice history				ns
Ever or currently incarcerated	2	12	0.02	
Never incarcerated or no information provided	32	193	0.04 **	

SOURCE: Fatherhood TIES meta-analysis data set from coded studies.

NOTES: k = number of studies; n= number of effect sizes; ns = not statistically significant. The table reports unstandardized regression coefficients (b) for continuous moderators and model-adjusted mean effect sizes (\bar{g}) for the categorical moderators from inverse-variance-weighted, multilevel random effects metaregression analyses using Restricted Maximum Likelihood (REML) estimation. The model-adjusted means were derived from models with no intercepts. Asterisks tied to individual coefficients or model-adjusted means indicate that the value is different from zero to a statistically significant degree at the p-value shown below. Asterisks in the Q_M column for categorical moderators with more than two levels indicate that the joint or omnibus test of all the coefficients for the moderator is statistically significant at the p-value shown below. For categorical moderators with more than two levels, pairwise tests are reported in notes below.

* p < 5 percent, ** p < 1 percent, *** p < 0.1 percent

Studies with mostly Hispanic samples are significantly different from studies with mostly Black samples and studies with mixed samples. Studies with mostly White samples are significantly different from studies with mostly Black samples and from studies with mixed samples. For “predominant education level,” none of the pairs are significantly different from each other. For “predominant marital status,” studies with mostly married samples are significantly different from studies with mostly never-married samples. Studies with no information on sample marital status are significantly different from studies with mostly married samples and mixed samples. Studies with mixed samples are significantly different from studies with mostly never-married samples. For “criminal justice history,” studies in which most members of the sample were incarcerated or had been in the past are not significantly different from studies in which most of the sample had never been incarcerated (including studies that did not provide incarceration information).

**APPENDIX TABLE E.12 Mean Effect Sizes for Economic Stability
(Participant Characteristics)**

Participant Characteristic	k	n	b or \overline{OR}	Q_M sig
Racial/ethnic mix of the sample				ns
Mostly Black	14	108	1.13	
Mostly White	0	0	--	
Mostly Hispanic	3	45	1.18	
Mixed, no group > 60%	6	55	1.18	
No information provided	0	0	--	
Predominant education level				ns
Less than a high school diploma	0	0	--	
High school diploma or equivalent	15	140	1.11 *	
Associate's degree or some college	0	0	--	
Bachelor's degree or higher	0	0	--	
Mixed, no predominant level	3	45	1.1	
No information provided	5	23	1.45 **	
Predominant marital status				ns
Married	2	2	1.2	
Divorced	0	0	--	
Never married	12	143	1.15 *	
Mixed	1	1	1.29	
No information provided	8	62	1.13	
Criminal justice history				ns
Ever or currently incarcerated	3	33	1.38 *	
Never incarcerated or no information provided	20	176	1.12	

SOURCE: Fatherhood TIES meta-analysis data set from coded studies.

NOTES: k = number of studies; n = number of effect sizes; ns = not statistically significant. The table reports unstandardized regression coefficients (b) for continuous moderators and model-adjusted mean effect sizes (\overline{OR}) for the categorical moderators from inverse-variance-weighted, multilevel random effects metaregression analyses using Restricted Maximum Likelihood (REML) estimation. The economic stability outcomes were analyzed as logged odds ratios; the coefficients and model-adjusted means were then transformed back into odds ratios for reporting in the table. The model-adjusted means were derived from models with no intercepts. Asterisks tied to individual coefficients or model-adjusted means indicate that the value is different from zero to a statistically significant degree at the p-value shown below. Asterisks in the Q_M column for categorical moderators with more than two levels indicate that the joint or omnibus test of all the coefficients for the moderator is statistically significant at the p-value shown below. For categorical moderators with more than two levels, pairwise tests are reported in notes below.

* p < 5 percent, ** p < 1 percent, *** p < 0.1 percent

None of the pairs are significantly different from each other for “racial/ethnic mix of the sample,” “predominant education level,” “predominant education level,” or “criminal justice history.”

APPENDIX TABLE E.13 Mean Effect Sizes for Parenting Knowledge and Skills (Program Content)

Program Approach or Content Component	k	n	b or \bar{g}	Q_M sig
Broad program approach				
Parenting	36	269	0.19 ***	*
Healthy relationships with coparents	28	265	0.07 **	***
Economic stability	8	35	0.16 **	ns
Content components				
Parenting	32	257	0.18 ***	**
Knowledge and skills	27	235	0.19 ***	**
Child development	20	176	0.19 ***	*
Discipline	8	41	0.23 ***	ns
Healthy relationships with coparents	22	269	0.1 **	ns
Coparenting strategies	20	260	0.08 *	*
Negotiating interparental conflicts	17	238	0.07 *	*
Fatherhood				
Father role/responsibility, masculinity	20	183	0.17 ***	ns
Family life				
Partner relationship	19	135	0.11 **	ns
Home environment	6	21	0.03	ns
Work and family	4	40	0.09	ns
Father well-being				
Managing stress	15	95	0.13 **	ns
Mental health	5	28	0.23 **	ns
Physical health	3	25	0.23 *	ns
Father financial stability				
Educational credential	3	34	0.19	ns
Job education	7	41	0.1	ns
On-the-job training	0	0	--	ns
Financial literacy	1	4	-0.03	ns
Child support information/education	2	14	0.29 **	ns
Navigating the criminal justice or child welfare system ^a	0	0	--	ns

SOURCE: Fatherhood TIES meta-analysis data set from coded studies.

NOTES: k = number of studies; n = number of effect sizes; ns = not statistically significant. The table reports unstandardized regression coefficients (b) for continuous moderators and model-adjusted mean effect sizes (\bar{g}) for the categorical moderators from inverse-variance-weighted, multilevel random effects meta-regression analyses using Restricted Maximum Likelihood (REML) estimation. The model-adjusted means were derived from models with no intercepts. Asterisks tied to individual coefficients or model-adjusted means indicate that the value is different from zero to a statistically significant degree at the p-value shown below. Asterisks in the Q_M column for binary moderators indicate that the two coefficients are significantly different from each other at the p-value shown below.

* p < 5 percent, ** p < 1 percent, *** p < 0.1 percent

^aThe child welfare system responds in cases of alleged child abuse or neglect.

**APPENDIX TABLE E.14 Mean Effect Sizes for Father Well-Being
(Program Content)**

Program Approach or Content Component	k	n	b or \bar{g}	Q_M sig
Broad program approach				
Parenting	18	58	0.03	ns
Healthy relationships with coparents	24	122	0.04 *	ns
Economic stability	7	18	0.08 **	ns
Content components				
Parenting	16	56	0.04	ns
Knowledge and skills	12	44	0.01	ns
Child development	11	41	0.04	ns
Discipline	4	17	0.007	ns
Healthy relationships with coparents	25	106	0.02	ns
Coparenting strategies	17	106	0.02	ns
Negotiating interparental conflicts	16	104	0.02	ns
Fatherhood				ns
Father role/responsibility, masculinity	9	24	0.06 *	ns
Family life	16	51	0.03	ns
Partner relationship	15	51	0.03	ns
Home environment	6	13	0.03	ns
Work and family	3	6	0.08	ns
Father well-being	15	47	0.04	ns
Managing stress	14	46	0.04	ns
Mental health	4	10	0.1	ns
Physical health	0	0	--	ns
Father financial stability	8	23	0.07 *	ns
Educational credential	2	10	-0.004	ns
Job education	6	21	0.08 *	ns
On-the-job training	0	0	--	ns
Financial literacy	1	2	0	ns
Child support information/education	0	0	--	ns
Navigating the criminal justice or child welfare system ^a	0	0	--	ns

SOURCE: Fatherhood TIES meta-analysis data set from coded studies.

NOTES: k = number of studies; n = number of effect sizes; ns = not statistically significant. The table reports unstandardized regression coefficients (b) for continuous moderators and model-adjusted mean effect sizes (\bar{g}) for the categorical moderators from inverse-variance-weighted, multilevel random effects metaregression analyses using Restricted Maximum Likelihood (REML) estimation. The model-adjusted means were derived from models with no intercepts. Asterisks tied to individual coefficients or model-adjusted means indicate that the value is different from zero to a statistically significant degree at the p-value shown below. Asterisks in the Q_M column for binary moderators indicate that the two coefficients are significantly different from each other at the p-value shown below.

* p < 5 percent, ** p < 1 percent, *** p < 0.1 percent

^aThe child welfare system responds in cases of alleged child abuse or neglect.

**APPENDIX TABLE E.15 Mean Effect Sizes for Healthy Relationships
with Coparents (Program Content)**

Program Approach or Content Component	k	n	b or \bar{g}	Q_M sig
Broad program approach				
Parenting	20	89	0.05 *	ns
Healthy relationships with coparents	28	182	0.04 **	ns
Economic stability	9	37	0.02	ns
Content Components				
Parenting	17	77	0.04	ns
Knowledge and skills	13	61	0.05	ns
Child development	10	42	0.03	ns
Discipline	5	13	0.08	ns
Healthy relationships with coparents	21	136	0.03	ns
Coparenting strategies	20	134	0.02	ns
Negotiating interparental conflicts	19	124	0.03	ns
Fatherhood				ns
Father role/responsibility, masculinity	9	41	0.04	ns
Family life	18	113	0.07 ***	*
Partner relationship	18	113	0.07 ***	*
Home environment	6	46	0.07 **	ns
Work and family	3	24	0.11 ***	**
Father well-being	14	67	0.04	ns
Managing stress	14	67	0.04	ns
Mental health	2	21	0.06	ns
Physical health	0	0	--	ns
Father financial stability	10	40	0.05 *	ns
Educational credential	3	15	0.04	ns
Job education	6	23	0.06	ns
On-the-job training	0	0	--	ns
Financial literacy	1	8	0.02	ns
Child support information/education	3	9	0.07	ns
Navigating the criminal justice or child welfare system ^a	0	0	--	ns

SOURCE: Fatherhood TIES meta-analysis data set from coded studies.

NOTES: k = number of studies; n = number of effect sizes; ns = not statistically significant. The table reports unstandardized regression coefficients (b) for continuous moderators and model-adjusted mean effect sizes (\bar{g}) for the categorical moderators from inverse-variance-weighted, multilevel random effects meta-regression analyses using Restricted Maximum Likelihood (REML) estimation. The model-adjusted means were derived from models with no intercepts. Asterisks tied to individual coefficients or model-adjusted means indicate that the value is different from zero to a statistically significant degree at the p-value shown below. Asterisks in the Q_M column for binary moderators indicate that the two coefficients are significantly different from each other at the p-value shown below.

* p < 5 percent, ** p < 1 percent, *** p < 0.1 percent

^aThe child welfare system responds in cases of alleged child abuse or neglect.

**APPENDIX TABLE E.16 Mean Effect Sizes for Economic Stability
(Program Content)**

Program Approach or Content Component	k	n	b or \overline{OR}	Q_M sig
Broad program approach				
Parenting	12	47	1.18 *	ns
Healthy relationships with coparents	16	135	1.04	***
Economic stability	12	92	1.25 ***	*
Content components				
Parenting	11	45	1.16 *	ns
Knowledge and skills	7	33	1.25 *	ns
Child development	8	24	1.07	ns
Discipline	5	27	1.18	ns
Healthy relationships with coparents	15	144	1.08	ns
Coparenting strategies	14	142	1.07	ns
Negotiating interparental conflicts	14	129	1.06	*
Fatherhood				ns
Father role/responsibility, masculinity	7	36	1.1	ns
Family life	6	29	1.11	ns
Partner relationship	6	29	1.11	ns
Home environment	0	0	--	ns
Work and family	0	0	--	ns
Father well-being	8	18	1.15	ns
Managing stress	8	18	1.15	ns
Mental health	0	0	--	ns
Physical health	0	0	--	ns
Father financial stability	12	84	1.28 ***	**
Educational credential	5	52	1.33 **	ns
Job education	9	70	1.31 ***	**
On-the-job training	3	43	1.61 ***	***
Financial literacy	0	0	--	ns
Child support information/education	4	29	1.23	ns
Navigating the criminal justice or child welfare system ^a	0	0	--	ns

SOURCE: Fatherhood TIES meta-analysis data set from coded studies.

NOTES: k = number of studies; n = number of effect sizes; ns = not statistically significant. The table reports unstandardized regression coefficients (b) for continuous moderators and model-adjusted mean effect sizes (\overline{OR}) for the categorical moderators from inverse-variance-weighted, multilevel random effects meta-regression analyses using Restricted Maximum Likelihood (REML) estimation. The economic stability outcomes were analyzed as logged odds ratios; the coefficients and model-adjusted means were then transformed back into odds ratios for reporting in the table. The model-adjusted means were derived from models with no intercepts. Asterisks tied to individual coefficients or model-adjusted means indicate that the value is different from zero to a statistically significant degree at the p-value shown below. Asterisks in the Q_M column for binary moderators indicate that the two coefficients are significantly different from each other at the p-value shown below.

* p<5 percent, ** p<1 percent, *** p<0.1 percent

^aThe child welfare system responds in cases of alleged child abuse or neglect.

**APPENDIX TABLE E.17 Mean Effect Sizes for Parenting Knowledge and Skills
(Program Strategies)**

Program Strategy	k	n	b or \bar{g}	Q_M sig
Recruitment and initial engagement strategies	48	436	0.14 ***	ns
Referral strategies	32	292	0.14 ***	ns
Initial links to support services	7	46	0.04	*
Matching fathers to areas of interest	2	10	0.09	ns
Immediate services	12	143	0.14 **	ns
Waiting list	31	298	0.13 ***	ns
Engagement and retention strategies	26	280	0.05 *	***
Removing barriers to participation	20	231	0.03	***
Reminders	10	143	0.02	**
Case management	12	81	0.07	ns
Instructional or pedagogical strategies	46	415	0.14 ***	ns
Lecture, instruction	35	305	0.1 ***	*
Group discussion	32	302	0.12 ***	ns
Role play, rehearsal, practice, and discussion	12	97	0.16 ***	ns
Experiential or "hands-on" learning	9	103	0.19 ***	ns
Self-evaluation, reflection, monitoring	3	58	0.11	ns
Self-directed learning	3	25	0.38 ***	**
Extended activities	22	181	0.09 **	ns
Support groups for parents	5	25	0.23 ***	ns
Mentoring	0	0	--	ns
Case management	18	149	0.08 *	*
Motivational interviewing ^a	1	3	0.1	ns
Partners that provide extended services	7	60	0.05	ns

SOURCE: Fatherhood TIES meta-analysis data set from coded studies.

NOTES: k = number of studies; n = number of effect sizes; ns = not statistically significant. The table reports unstandardized regression coefficients (b) for continuous moderators and model-adjusted mean effect sizes (\bar{g}) for the categorical moderators from inverse-variance-weighted, multilevel random effects metaregression analyses using Restricted Maximum Likelihood (REML) estimation. The model-adjusted means were derived from models with no intercepts. Asterisks tied to individual coefficients or model-adjusted means indicate that the value is different from zero to a statistically significant degree at the p-value shown below. Asterisks in the Q_M column for binary moderators indicate that the two coefficients are significantly different from each other at the p-value shown below.

* p < 5 percent, ** p < 1 percent, *** p < 0.1 percent

^aMotivational interviewing is a method for changing behavior by developing inner motivation. The aim of this approach is to help clients identify and change behaviors that make it harder for them to achieve their personal goals.

**APPENDIX TABLE E.18 Mean Effect Sizes for Father Well-Being
(Program Strategies)**

Program Strategy	k	n	b or \bar{g}	Q_M sig
Recruitment and initial engagement strategies	38	133	0.03 *	ns
Referral strategies	17	58	0.05 *	ns
Initial links to support services	7	22	0.07 *	ns
Matching fathers to areas of interest	2	6	0.04	ns
Immediate services	6	42	0.04	ns
Waiting list	23	109	0.4 *	ns
Engagement and retention strategies	34	120	0.03	ns
Removing barriers to participation	22	107	0.02	ns
Reminders	9	45	0.05	ns
Case management	11	32	0.06 *	ns
Instructional or pedagogical strategies	36	124	0.04 **	ns
Lecture, instruction	28	114	0.04 *	ns
Group discussion	24	99	0.04 **	ns
Role play, rehearsal, practice, and discussion	7	29	0.05	ns
Experiential or "hands-on" learning	3	12	0.08 *	ns
Self-evaluation, reflection, monitoring	0	0	--	ns
Self-directed learning	1	9	-0.01	ns
Extended activities	24	82	0.05 **	ns
Support groups for parents	5	18	-0.007	ns
Mentoring	0	0	--	ns
Case management	18	73	0.05 **	ns
Motivational interviewing ^a	0	0	--	ns
Partners that provide extended services	6	27	0.07 *	ns

SOURCE: Fatherhood TIES meta-analysis data set from coded studies.

NOTES: k = number of studies; n = number of effect sizes; ns = not statistically significant. The table reports unstandardized regression coefficients (b) for continuous moderators and model-adjusted mean effect sizes (\bar{g}) for the categorical moderators from inverse-variance-weighted, multilevel random effects meta-regression analyses using Restricted Maximum Likelihood (REML) estimation. The model-adjusted means were derived from models with no intercepts. Asterisks tied to individual coefficients or model-adjusted means indicate that the value is different from zero to a statistically significant degree at the p-value shown below. Asterisks in the Q_M column for binary moderators indicate that the two coefficients are significantly different from each other at the p-value shown below.

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**APPENDIX TABLE E.19 Mean Effect Sizes for Healthy Relationships
with Coparents (Program Strategies)**

Program Strategy	k	n	b or \bar{g}	Q_M sig
Recruitment and initial engagement strategies	33	197	0.04 **	ns
Referral strategies	18	128	0.05 **	ns
Initial links to support services	8	49	0.04	ns
Matching fathers to areas of interest	2	8	-0.005	ns
Immediate services	8	38	0.009	ns
Waiting list	24	128	0.05 **	ns
Engagement and retention strategies	27	177	0.04 **	ns
Removing barriers to participation	24	166	0.03 *	ns
Reminders	8	61	0.004	ns
Case management	11	65	0.05 *	ns
Instructional or pedagogical strategies	31	187	0.04 ***	ns
Lecture, instruction	27	166	0.05 ***	*
Group discussion	25	151	0.03 *	ns
Role play, rehearsal, practice, and discussion	9	62	0.05 *	ns
Experiential learning	4	33	0.06	ns
Self-evaluation, reflection, monitoring	0	0	--	ns
Self-directed learning	0	0	--	ns
Extended activities	23	115	0.05 **	ns
Support groups for parents	6	22	0.07	ns
Mentoring	0	0	--	ns
Case management	24	102	0.05 **	ns
Motivational interviewing ^a	1	3	0.1	ns
Partnerships	8	47	0.06 *	ns

SOURCE: Fatherhood TIES meta-analysis data set from coded studies.

NOTES: k = number of studies; n = number of effect sizes; ns = not statistically significant. The table reports unstandardized regression coefficients (b) for continuous moderators and model-adjusted mean effect sizes (\bar{g}) for the categorical moderators from inverse-variance-weighted, multilevel random effects meta-regression analyses using Restricted Maximum Likelihood (REML) estimation. The model-adjusted means were derived from models with no intercepts. Asterisks tied to individual coefficients or model-adjusted means indicate that the value is different from zero to a statistically significant degree at the p-value shown below. Asterisks in the Q_M column in binary moderators indicate that the two coefficients are significantly different from each other at the p-value shown below.

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**APPENDIX TABLE E.20 Mean Effect Sizes for Economic Stability
(Program Strategies)**

Program Strategy	k	n	b	Q_M sig
Recruitment and initial engagement strategies	22	194	1.15**	ns
Referral strategies	10	111	1.18*	ns
Initial links to support services	6	51	1.31***	*
Matching fathers to areas of interest	3	23	1.18	ns
Immediate services	8	64	1.18*	ns
Waiting list	17	136	1.13*	ns
Engagement and retention strategies	15	153	1.13	* ns
Removing barriers to participation	12	135	1.12	ns
Reminders	6	78	1.03	ns
Case management	5	43	1.31**	ns
Instructional or pedagogical strategies	19	161	1.14	* ns
Lecture, instruction	16	127	1.11	ns
Group discussion	15	129	1.04	***
Role play, rehearsal, practice, and discussion	6	59	1.22*	ns
Experiential or "hands-on" learning	3	29	1.47***	**
Self-evaluation, reflection, monitoring	0	0	--	ns
Self-directed learning	0	0	--	ns
Extended activities	18	142	1.2	*** ns
Support groups for parents	3	11	0.97	ns
Mentoring	0	0	--	ns
Case management	15	109	1.17**	ns
Motivational interviewing ^a	0	0		ns
Partners that provide extended services	6	53	1.2*	ns

SOURCE: Fatherhood TIES meta-analysis data set from coded studies.

NOTES: k = number of studies; n = number of effect sizes; ns = not statistically significant. The table reports unstandardized regression coefficients (b) for continuous moderators and model-adjusted mean effect sizes (\overline{OR}) for the categorical moderators from inverse-variance-weighted, multilevel random effects meta-regression analyses using Restricted Maximum Likelihood (REML) estimation. The economic stability outcomes were analyzed as logged odds ratios; the coefficients and model-adjusted means were then transformed back into odds ratios for reporting in the table. The model-adjusted means were derived from models with no intercepts. Asterisks tied to individual coefficients or model-adjusted means indicate that the value is different from zero to a statistically significant degree at the p-value shown below. Asterisks in the Q_M column for binary moderators indicate that the two coefficients are significantly different from each other at the p-value shown below.

* p < 5 percent, ** p < 1 percent, *** p < 0.1 percent

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