

# Father-Inclusive Perinatal Parent Education Programs: A Systematic Review

Joyce Y. Lee, MSW,<sup>a</sup> Heather A. Knauer, PhD,<sup>a</sup> Shawna J. Lee, PhD,<sup>a</sup> Mark P. MacEachern, MLIS,<sup>b</sup> Craig F. Garfield, MD<sup>c,d</sup>

abstract

**CONTEXT:** Fathers contribute to their children's health starting at the beginning of life. Few parent education programs include fathers. Among those that do, there is little effort to report program effects on father outcomes.

**OBJECTIVE:** In this systematic review, we examined father-inclusive perinatal parent education programs in the United States as they relate to a range of father outcomes.

**DATA SOURCES:** The databases searched were PubMed, Cumulative Index to Nursing and Allied Health Literature, Embase, Ovid Medline, Cochrane Central Register of Controlled Trials, and PsycINFO.

**STUDY SELECTION:** Studies were included if they included an evaluation of a parent education program and a report of father outcomes measured within 1 year of the child's birth and were conducted within the United States.

**DATA EXTRACTION:** Of 1353 total articles, 21 met study criteria.

**RESULTS:** The overall state of the father-inclusive perinatal parent education program literature was poor, with few interventions available to fathers. Available programs were associated with increased father involvement, coparenting relationship, partner relationship quality, father's mental health, and father's supportive behaviors. Program effects on father-infant interaction, parenting knowledge, and attitudes and parenting self-efficacy were inconclusive. Three programs emerged as best evidence-based interventions.

**LIMITATIONS:** Risk of bias was high for many studies. Outcome variability, small sample size, and publication bias contributed to the weak evidence base.

**CONCLUSIONS:** There is a need for more evidence-based interventions to support fathers. Clinicians play a key role in engaging fathers in early parent education programs and health care settings. PROSPERO registration number: CRD42017050099.



<sup>a</sup>School of Social Work, University of Michigan, Ann Arbor, Michigan; <sup>b</sup>Taubman Health Sciences Library, University of Michigan, Ann Arbor, Michigan; <sup>c</sup>Department of Pediatrics, Feinberg School of Medicine, Northwestern University, Evanston, Illinois; and <sup>d</sup>Division of Hospital Based Medicine, Lurie Children's Hospital of Chicago, Chicago, Illinois

Ms Lee conceptualized and designed the study, processed the data, developed the data abstraction and risk of bias instruments, conducted analyses, and drafted the initial manuscript; Dr Knauer processed the data, developed the data abstract and risk of bias instruments, conducted analyses, and drafted portions of the manuscript; Dr Lee conceptualized and designed the study and drafted portions of the manuscript; Mr MacEachern designed the data collection instruments, collected data, conducted analyses, and drafted a portion of the manuscript; Dr Garfield provided input on study conceptualization and design and drafted portions of the manuscript; and all authors reviewed and revised the manuscript and approved the final manuscript as submitted and agree to be accountable for all aspects of the work.

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Father involvement with children has increased in recent decades.<sup>1</sup> Research has demonstrated the positive contributions fathers make to their children's health and well-being.<sup>2-6</sup> For instance, father involvement has been linked to decreased risk of prematurity and infant mortality.<sup>2,3</sup> It has also been associated with the father's parenting confidence,<sup>7</sup> positive father-child interactions,<sup>8,9</sup> future father involvement,<sup>10</sup> and healthier coparenting relationships.<sup>11</sup> Father involvement benefits fathers themselves; men who are involved with their children report greater physical and mental health.<sup>12,13</sup>

Despite the accumulating evidence for the benefits of father involvement, few early parent education programs have focused on including fathers. The vast majority of existing parent education programs target mothers.<sup>14-18</sup> This disparity in service likely hinders men's engagement in important pregnancy- and childbirth-related decision-making processes. It is also important to involve fathers in their children's lives as early as possible because this may serve to reduce the risk of child maltreatment.<sup>19-21</sup> Among programs that do include fathers, relatively few examine whether program effects are associated with father outcomes separate from that of mother or couple.<sup>15</sup> This is because mother and father data in analyses have been aggregated in studies.<sup>15</sup>

Previous systematic reviews of father-inclusive parent education programs have been limited by having either a narrow scope (ie, including randomized controlled trials [RCTs] only) or broad scope (ie, looking at child outcomes spanning from infancy to adolescence, including both international and US studies).<sup>15,22-25</sup> Given the unique characteristics of fathering in the United States, where rates of unmarried childbearing (40%)<sup>26</sup> and nonresidential fathering (16%)

Search Number	Search Combination
1	(MH "Fathers+") AND (MH "Childbirth Education")
2	TI (((("ante-natal" OR antenatal OR childbirth OR "peri-natal" OR perinatal OR "pre-natal" OR prenatal) AND (class* OR "co-parent" OR "co-parenting" OR coparent* OR course* OR educat* OR interaction* OR intervention* OR lecture* OR program* OR series OR session* OR talk OR talks OR therap* OR train*) AND (couple OR couples OR dad OR dads OR father* OR male OR males OR men OR partner* OR patern* OR parent*)))
3	AB (((("ante-natal" OR antenatal OR childbirth OR "peri-natal" OR perinatal OR "pre-natal" OR prenatal) N3 (class* OR "co-parent" OR "co-parenting" OR coparent* OR course* OR educat* OR interaction* OR intervention* OR lecture* OR program* OR series OR session* OR talk OR talks OR therap* OR train*) N10 (couples OR dad OR dads OR father* OR male OR males OR men OR partner* OR patern*)))
4	1 OR 2 OR 3

**FIGURE 1**

A CINAHL adaptation of the search template as an example of the search strategy.

are high,<sup>27</sup> a review that is focused on US-based interventions is warranted. Hence, our aim in this systematic review was to examine literature on US-based father-inclusive parent education programs across the perinatal period. We used the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) approach<sup>28,29</sup> and included a broad range of father outcomes and research designs to ensure comprehensiveness.

## METHODS

### Data Sources

A computer-based search was conducted in 6 electronic databases, including PubMed, the Cumulative Index to Nursing and Allied Health Literature (CINAHL), Embase, Ovid Medline, Cochrane Central Register of Controlled Trials, and PsycINFO on July 28, 2017.

Publication date for included studies was not restricted. Because the United States context in which fathering occurs is diverse, "father" was defined broadly to include biological, residential, nonresidential, adolescent fathers, father figures, and father surrogates. Perinatal was defined as a period spanning from

pregnancy through the first year of the child's life.

We created a general search template using keywords for father involvement in perinatal parenting programs that could be applied to all 6 databases with minimal tailoring (see Fig 1 for an example of a CINAHL adaptation) (Supplemental Information). The computer-based search yielded 1353 unique results that were exported to an EndNote ×6 library.<sup>30</sup> This study was preregistered at PROSPERO: [www.crd.york.ac.uk/PROSPERO/display\\_record.php?ID=CRD42017050099](http://www.crd.york.ac.uk/PROSPERO/display_record.php?ID=CRD42017050099).

### Inclusion and Exclusion Criteria

To capture the widest breadth, studies were included in this systematic review on the basis of the following criteria: (1) the study was conducted by using experimental (ie, RCT), quasi-experimental (ie, no control group or no pretest), and nonexperimental (eg, qualitative) methods to evaluate perinatal parent education programs; (2) the study included or targeted fathers; (3) a US sample was used in the study; (4) the methods of the study were implemented in various settings (eg, hospital, online); (5) the researchers of the study measured and reported on father outcomes (for details, see

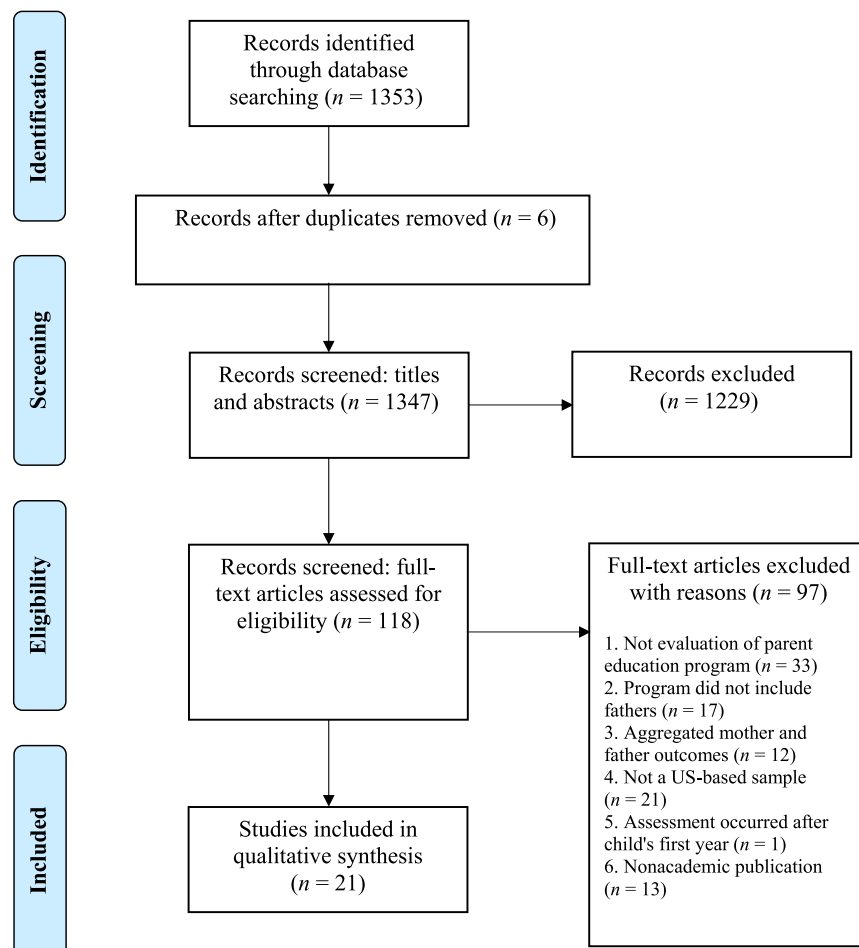
next section); and (6) the researchers of the study assessed outcomes within 1 year of the child's birth (but could have subsequent follow-up assessments). Studies were included regardless of program effectiveness but were excluded if the researchers only reported aggregated mother and father outcomes or if the studies were not peer-reviewed (eg, dissertations and theses). Detailed inclusion and exclusion criteria can be found in the study's PROSPERO preregistration. By using these criteria, study titles, abstracts, and full-texts were reviewed. In Fig 2, a PRISMA flowchart of this selection process is provided.

### Data Abstraction

The following information was abstracted from each study: author, publication year, study aim, study design, name of the program, population, father outcomes, and results. Abstracted father outcomes included: (1) father-infant interaction; (2) father involvement; (3) father's parenting knowledge; (4) father's attitude and parenting self-efficacy; and (5) father's coparenting relationship with the mother. Father's mental health was abstracted as a secondary thematic category, along with "other" father-related outcomes, including partner relationship quality, father's supportive behaviors, and father's evaluation of the intervention.

### Data Synthesis

We used a narrative approach, which is a preferred method when empirical approaches and variables are highly varied across studies, for example, in terms of population, interventions, outcomes, and measurement of outcomes. This approach relies on the use of words and texts to summarize and explain study findings.<sup>31</sup> We examined aspects of study designs and intervention characteristics as reasons for potential differences in directions



**FIGURE 2**  
A PRISMA flowchart of the study selection process.

and effects across programs.<sup>31,32</sup> We used father outcomes as classification schemes for synthesizing data. We also organized the narrative by study design and risk of bias (RoB) assessment to weigh the evidence according to methodological strengths and weaknesses.<sup>32</sup>

### Assessment of RoB

To assess RoB in each study, we used an adapted version of the risk of bias assessment tool for nonrandomized studies (RoBANSs)<sup>33</sup> rather than the Cochrane Risk of Bias Tool<sup>34</sup> because of the small number of RCTs and greater flexibility of the RoBANSs in assessing studies with various research designs. We assessed RoB for the following bias categories: participant selection, detection,

attrition, and reporting. We assigned an RoB rating for each category as "low," "high," or "unclear." A value of 1 was assigned to low-risk responses and a value of 0 to high-risk and unclear responses. Each study received a total value between 0 and 4. Studies receiving a score of 2 or less were deemed to be high-risk. The adapted RoBANSs, along with details of each bias category, is included in the study's PROSPERO preregistration.

## RESULTS

### Description of Studies

Twenty-one of 1353 articles met study criteria. Of these, 16 studies were quantitative (7 RCTs, 1 quasi-RCT, 7 quasi-experimental, and 1

nonexperimental) and 5 studies were qualitative (4 mixed methods and 1 phenomenological) (Table 1). In the 21 studies, 19 different father-inclusive perinatal interventions were evaluated, of which 11 were focused on general education of childbirth and infant care and development,<sup>35–46</sup> 4 were focused on partner relationship and/or coparenting skills,<sup>47–51</sup> and 4 were clinical- or case management–based interventions (Table 2).<sup>52–55</sup> In 8 programs, middle-class, majority white parents were primarily targeted.<sup>38,40–44,47,48,51</sup> In 4 of the programs, unmarried couples were included.<sup>35–37,49</sup> Four programs were designed for adolescent parents, all of whom were ethnic and racial minorities.<sup>39,50,54,55</sup> In 8 programs, first-time parents were primarily targeted.<sup>35–37,43,47–49,51,52</sup> For further details see Table 3.

Study sample sizes were small, and they ranged between 14 and 173 participants. Most studies included examination of a father-inclusive perinatal parent education program at a single time point. Only 1 study contained an examination of long-term outcomes.<sup>48</sup> In the majority of the studies, researchers implemented programs in hospital settings, with outcomes based on parents' self-reports. Some researchers delivered the intervention at the group level,<sup>35–40,48,55</sup> couple level,<sup>43,49,52</sup> or individual level.<sup>10,42,45,46</sup> Studies also differed in whether researchers used a manualized curriculum, who delivered the sessions (eg, nurse versus social worker), when the sessions were delivered (eg, before birth versus after birth), and mode of intervention delivery (eg, in-person versus mobile application) (for details see Table 2). Of the 21 studies, only 4 were categorized as low RoB (ie, scoring 3 or higher) and 17 high RoB (ie, scoring 2 or less) as shown in Table 4. Most of the high-risk studies were given that categorization because of the use of convenience

**TABLE 1** Research Designs of Included Studies (*N* = 21)

Research Design	Distribution of Studies	
	Frequency, <i>n</i> (%)	Reference No.
Quantitative studies	16 (76.2)	
RCT	7 (33.3)	34-35-38-46-47-51-52
Quasi-randomized	1 (4.8)	49
Quasi-experimental	7 (33.3)	
Pretest-posttest control group	3 (14.3)	36-37-54
No pretest or no control group	4 (19.0)	39-40-48-53
Nonexperimental	1 (4.8)	41
Qualitative studies	5 (23.8)	
Mixed methods	4 (19.0)	42-45
Phenomenological	1 (4.8)	50

samples, lack of blinding, and income outcome data. The following section provides a narrative synthesis of study outcomes, with more consideration given to studies with low RoB than those with high RoB.

## Narrative Synthesis by Father Outcomes

### Father-Infant Relationship

In 6 quantitative studies (4 RCTs, 1 quasi-experimental, and 1 nonexperimental), researchers examined father-child interaction outcomes.<sup>35–37,42,47,52</sup> The results of an RCT of a coparenting relationship program<sup>47</sup> revealed that intervention group fathers demonstrated fewer dysfunctional parent-child interactions (effect size  $d = 0.70$ ) compared with control group fathers at 6 months postpartum. The results of an RCT of a general education program<sup>35,36</sup> revealed significantly improved sensitivity during father-infant feeding interactions before hospital discharge but not at the 1-month follow-up. The results of a quasi-experimental study of a second general education program<sup>37</sup> revealed significantly more socioemotional growth fostering by fathers and mutual socioemotional father-child interactions with children ages 6 to 24 months. The results of a nonexperimental study of a third general educational program<sup>42</sup> revealed a significant link between full program participation and mothers' reports of father-infant relationship. Finally, the results of

an RCT of a clinical intervention in which fathers observed a neonatal assessment<sup>52</sup> revealed improvement in the quality of father-infant interactions at 2 months postpartum. Although all of the above revealed significant positive program effects on some aspect of father-infant interaction,<sup>35–37,42,52</sup> all but the first RCT<sup>47</sup> were at high RoB.

### Father Involvement

Researchers for 4 quantitative studies (2 RCTs, 1 quasi-RCT, and 1 quasi-experimental) examined father involvement outcomes.<sup>48,50,52,54</sup> The results of an RCT of a coparenting program<sup>48</sup> revealed significantly more positive parenting ( $d = 0.45$ ; eg, support for child exploration) and less negative parenting ( $d = 0.60$ ; eg, irritability) by the father when the child was 1 year old. The results of a quasi-randomized study of another coparenting program<sup>50</sup> revealed no effects at posttest (during pregnancy) but did reveal a significant improvement in father's engagement in caregiving activities (eg, feeding the infant, changing diapers) by both father's and mother's reports (effect sizes  $\eta_p^2 = 0.07$  and  $\eta_p^2 = 0.08$ , respectively) at 3 months postpartum. Both of these studies were rated to have low RoB. The results of a quasi-experimental study of a case management program for adolescent fathers<sup>54</sup> revealed that fathers in the intervention group had greater attendance of prenatal health visits, fatherhood

**TABLE 2** Types of Father-Inclusive Perinatal Parent Education Programs (*N* = 19)

Author, y	Program Name	Program Description and Details
General education programs of childbirth, infant care, and development		
Bryan, <sup>37</sup> 2000	Growing as a Couple and Family	The intervention delivered 3 classes (total 2 h) of parent-child interaction content in the areas of parental roles, infant communication abilities, and patterns of development across the first 3 mo of the infant's life. Use of manualized curriculum was unclear. Intervention was delivered before birth. Mode of delivery included media and potentially in-person lessons.
Diemer, <sup>38</sup> 1997	N/A	The intervention delivered father-focused perinatal discussion classes that included content regarding pregnancy, childbirth, parenting, social network support, and coping skills. The intervention was an 8-wk program and used both a standard curriculum by childbirth educators and a curriculum developed by the researchers. Veteran childbirth teachers taught the classes in person during pregnancy.
Fawcett and Burritt, <sup>43</sup> 1985	N/A	The intervention was an antenatal educational program. Mode of delivery involved a pamphlet with cesarean birth information and a follow-up home visit or telephone call to review the pamphlet content. The intervention did not use a manualized curriculum. It was unclear who delivered the intervention. It seems as if intervention occurred during pregnancy.
Fawcett and Henklin, <sup>44</sup> 1987	N/A	The intervention involved the same pamphlet as above, as well as focused discussions about caesarian birth instead of home visit or telephone call. Mode of delivery included a pamphlet and in-person sessions. There was no manualized curriculum. Discussions were delivered by a childbirth educator during pregnancy.
Hart and Foster, <sup>40</sup> 1997	N/A	The intervention delivered childbirth education classes that included sessions on labor, pain management, unexpected events, relaxation, vaginal or cesarean birth, and rehearsing labor day. Use of manualized curriculum was unclear. It was also unclear who delivered the intervention. It seems to have occurred during pregnancy. Mode of delivery seems to have included both video and in-person sessions.
Mackert et al, <sup>45</sup> 2015	My Pregnancy Today	The intervention was an e-health application that included a slideshow that detailed fetal development wk-by-wk. A total of 5–7 min was allotted for navigating and browsing the application content on a tablet computer. The e-health application was developed by BabyCenter, LLC. It was unclear when the intervention was delivered. Mode of delivery included mobile device.
Mackert et al, <sup>46</sup> 2017	N/A	The intervention was an e-health application that included a slideshow that detailed fetal development wk-by-wk. A total of 5–7 min was allotted for navigating and browsing the application content on a tablet computer. The e-health application was developed by the researchers. It was unclear when the intervention was delivered. Mode of delivery included mobile device.
Pfannenstiel and Honig, <sup>35,36</sup> 1991, 1995	Information and Insights About Infants Intervention	The intervention involved 2 1.5-h in-person sessions regarding fetal capacity and functioning, pregnancy, father self-image, attitude toward infant, infant capacity and functioning, responsive parent-infant interactions, and skills and activities in caring for an infant. A booklet summarized content, and a life-size doll was used to model nurturing and caregiving behaviors. The intervention was delivered between 2 mo of pregnancy and birth by an "intervenor."
Smith and Smith, <sup>41</sup> 1978	Parent Education Project	The intervention involved 9 in-person prenatal and postpartum group classes to educate parents about pregnancy, child birth, infant care, parenting, and child development. The intervention employed a teaching guide to facilitate discussion. The intervention was delivered by an "instructor" and lay volunteers. Four classes were delivered before birth and 5 classes were delivered after birth.
Van de Carr and Lehrer, <sup>42</sup> 1986	Prenatal University	The intervention involved an instructional manual distributed to expectant parents, a video shown in the physician's office, and a question and answer period with the physician. The intervention materials included information to enhance fetal development, early communication, brain growth, and health practices during pregnancy. Two physicians seemed to have delivered the intervention during pregnancy. Mode of delivery included videos, audios, and in-person sessions.
Westney et al, <sup>39</sup> 1988	N/A	The intervention delivered 4 2-h in-person prenatal classes that addressed sexuality, pregnancy and prenatal care, labor and delivery, and infant and child care. The classes employed lectures, audiovisual aids, and discussions. Use of manualized curriculum was unclear. The intervention was delivered during pregnancy by a registered nurse. Mode of delivery included video, audio, and in-person sessions.
Relationship or coparenting programs		
Fagan, <sup>50</sup> 2008	Minnesota Early Learning Design for Young Dads	The intervention involved 5 1.5-h in-person sessions of a coparenting curriculum to educate young fathers about responsibilities for parenthood, communication with the mother, benefits to infants when parents support each other, and development of coparenting solidarity. A manualized curriculum was used. The intervention was delivered prenatally by experienced social workers and peers (ie, male African American parents).



TABLE 2 Continued

Author, y	Program Name	Program Description and Details
Feinberg and Kan, <sup>47</sup> 2008; Feinberg et al, <sup>48</sup> 2009	Family Foundations	The intervention involved 8 psychoeducational group classes. The intervention was focused on emotion management, conflict management, problem solving, communication, and mutual support strategies. A manualized curriculum was used. Four sessions were delivered prenatally and 4 postnatally. The intervention was delivered by a male-female team. Mode of delivery included didactic presentations, exercises, videos, and group discussion.
Gambrel and Piercy, <sup>51</sup> 2015	Mindful Transition to Parenthood Program	The intervention delivered a 4-wk group-based program that used mindfulness practices (eg, body scan, mindfulness of breath, open awareness) and activities (eg, communication and perspective-taking exercise) to develop interpersonal attunement. Each session was 2 h long and held once a wk. Use of a manualized curriculum was unclear. The intervention was delivered by Gambrel <sup>51</sup> who has experience working as a therapist for 15 y. It was unclear exactly when the intervention was delivered, although it seems as if it occurred during pregnancy. Mode of delivery included in-person sessions.
Salman-Engin et al, <sup>49</sup> 2017	Figuring It Out for the Child	The intervention involved 6 sessions of a dyadic coparenting curriculum, and intervention content included consciousness raising, skill building, and enactment of skills. A booster session was delivered 1 mo postpartum. A manualized curriculum was used. The intervention was delivered prenatally by 3 African American male mentors who were affiliated with county fatherhood programs and 4 African American female mentors who were experienced home visitors or health educators. All mentors had experience working with young African American men or women but had little to no formal couple counseling experiences. Mode of delivery involved in-person sessions.
Clinical or case management programs		
Barth et al, <sup>54</sup> 1988	Teenage Pregnancy and Parenting Project	The intervention involved in-person sessions with counselors to manage clients across programs and systems. The intervention provided one-to-one counseling, brokering services, and a weekly fatherhood group. A manualized curriculum was not used. It was unclear when the intervention was delivered, although seemingly it was delivered postpartum. The intervention was delivered by counselors.
Beal, <sup>52</sup> 1989	Neonatal Behavioral Assessment Scale	The intervention involved a single in-person demonstration of the Neonatal Behavioral Assessment Scale. Immediate and continuing feedback, as well as a terminal summary statement, was provided to parents during the demonstration. A manualized curriculum was not used. The intervention was delivered 2–3 d postpartum, usually before hospital discharge, by Beal. <sup>52</sup>
Field et al, <sup>53</sup> 2008	N/A	The intervention involved fathers learning how to conduct a pregnancy massage, a DVD on the massage, and fathers delivering 20-min massages to the mother twice a wk for 16 wk. Each session included the father massaging the mother's head, neck, back, arms, hands, and feet. A manualized curriculum was not used. The intervention was delivered between the second trimester and 32 wk of pregnancy by trained massage therapists. Mode of delivery involved DVD and in-person sessions.
Smith et al, <sup>55</sup> 2016	Centering Pregnancy	The intervention was a group-based prenatal care program and case management. The prenatal class examined nutrition, exercise, relaxation, childbirth preparation, infant care and feeding, postpartum care, communication, relationships, and parenting. Case management involved assessment of participant needs and identification of resources. The intervention used handouts, worksheets, and skill-building exercises to enhance group sessions. Use of a manualized curriculum was unclear. The intervention seems to have been delivered during pregnancy. The intervention was delivered by male social workers. Mode of delivery involved in-person sessions.

DVD, digital video disc; e-health, electronic health; N/A, not applicable.

groups, birthing classes, and at birth compared with control group fathers. Additionally, mothers in a qualitative study of a relationship program<sup>51</sup> reported greater commitment from their male partners as well as willingness from male partners to discuss preparations for childbirth and future involvement. However, these studies were rated at high RoB. In contrast, the results of an RCT of a clinical intervention<sup>52</sup> with a high RoB revealed no effects on father involvement in caregiving.

### Father's Knowledge, Attitudes, and Mental Health

#### Father's Parenting Knowledge

Researchers for 3 quantitative studies (1 RCT, 1 quasi-experimental, and 1 nonexperimental) examined fathers' parenting knowledge outcomes.<sup>35,39,41</sup> All 3 programs had significant effects on fathers' knowledge of infant care and/or development or pregnancy and prenatal parent knowledge.<sup>35,39,41</sup> However, these studies were deemed to be at high RoB because

of methodological limitations, such as ambiguity in when pretest and posttest were administered (eg, whether during pregnancy or how many months at postpartum).

#### Father's Attitudes and Parenting Self-Efficacy

Researchers for 3 quantitative studies (1 RCT, 1 quasi-RCT, and 1 nonexperimental) and 1 qualitative study examined father's attitudes and parenting self-efficacy outcomes.<sup>40,50–52</sup> The results of

**TABLE 3** Study Characteristics and Results for Father's Parenting and Health Outcomes (*N* = 21)

Author, Program	Study Design	Study Aim	Study Population	Results Related to Father Outcomes
Beal <sup>52</sup> ; NBAS; Brazelton <sup>56</sup>	RCT	To investigate the effects of NBAS on father-infant interaction and other outcomes	Target population: working class, white <i>N</i> = 44 fathers All first-time fathers; mean age 28 y; 14 y of education; working class; majority white	Outcomes assessed at 2 mo postpartum Father-infant interaction: higher father-infant interaction quality ( $P < .01$ ). No difference in father-infant interaction amount between groups Father involvement in caregiving: no significant differences between groups Father's attitude and parenting self-efficacy: no significant differences between groups Outcomes assessed at 6 mo and 1 y postpartum Father-infant interaction: less parent-child dysfunctional interactions compared with control at 6 mo postpartum ( $P < .05$ ) Father involvement: higher levels of positive parenting (eg, sensitivity) and lower levels of negative parenting (eg, irritability) compared with control at 1 y ( $P < .05$ ) Coparenting relationship: higher coparenting support and parenting-based closeness with their partner compared with control at 6 mo postpartum ( $P < .05$ ). Lower coparental competition and triangulation compared with control at 1 y ( $P < .05$ ). No significant difference between groups for coparenting undermining at 6 mo or 1 y Father's mental health: no significant differences between groups for depressive symptoms and anxiety at 6 mo Other (ie, partner relationship): more partner warmth compared with control at 1 y ( $P < .05$ ) Outcomes assessed at 32-wk gestation Father's mental health: decreased levels of depression and anxiety compared with control ( $P < .01$ ) Other (ie, partner relationship quality): improved perceptions of relationship with their partner compared with control ( $P < .01$ )
Feinberg and Kan, <sup>47</sup> Feinberg et al <sup>48</sup> , FF	RCT	To assess whether the FF had positive effects on the short-term outcomes, including coparenting, parental depression and anxiety, and distress in the parent-infant relationship at posttest	Target population: middle class, white <i>N</i> = 169 couples All primiparous and cohabiting couples; mean age 29.76 y; 14.5 y of education; median family income \$65 000; 90% white	
Field et al <sup>53</sup> , pregnancy massage therapy delivered to mothers by fathers	RCT	To examine whether pregnancy massage therapy delivered by fathers twice a wk for 16 wk could reduce fathers' mental health issues and improve perceptions of relationship with mother	Target population: low- to middle-income, ethnic and racial minorities <i>N</i> = 47 women Prenatally depressed women and their partner in second trimester of pregnancy; mean age 27.9 y; 46% of women with high school degree or less; predominantly low to middle income; 59% of the women Hispanic, 32% African American, 9% white Target population: low-income, majority white <i>N</i> = 67 fathers All first-time fathers; age range 19–32 y; mean 11 y of education; 70% white; 54% unmarried	
Prannenstiel and Honig <sup>55,56</sup> , Information and Insights About Infants (III)	RCT	To determine the effectiveness of a prenatal information support program on father's knowledge of child care and development, sensitivity, and empathy with infants among first-time, low-income fathers-to-be in both low- and high-risk pregnancy situations		Outcomes assessed at intrapartum (birth through hospital discharge of infant) and 1 mo postpartum Father-infant interaction: more sensitive during feeding interactions on the day of hospital discharge than control ( $P < .01$ ). Fade out of program effect by 1 mo postpartum ( $P = .06$ ) Father's parenting knowledge: more knowledge of infant care and development than control ( $P < .001$ )

TABLE 3 Continued

Author, Program	Study Design	Study Aim	Study Population	Results Related to Father Outcomes
Westney et al <sup>38</sup> ; prenatal education program	RCT, nonrandom sample	To examine (1) the effects of a prenatal education program for unwed adolescent fathers on their knowledge of prenatal care, labor, delivery, and infant development and care; and (2) the relation between knowledge and supportive behaviors toward mother	Target population: adolescent, African American N = 28 couples All unmarried couples; mean age 16.9 y for intervention group fathers; mean age 17 y for control group fathers; African American	Outcomes assessed immediately after the program Father's parenting knowledge: intervention fathers significantly increased mean total parenting knowledge scores ( $P < .05$ ), as well as scores on pregnancy and prenatal ( $P < .05$ ) and infant development and care ( $P < .01$ ) subscales, compared with control Other (ie, father's supportive behaviors): significant correlations ( $P < .05$ ) between father's parenting knowledge and supportive behaviors for both intervention and control group fathers
Fagan <sup>50</sup> ; Minnesota Early Learning Design <sup>57</sup> for Young Dads (Minnesota Early Learning Design, 1997)	Quasi-RCT; rather than follow an intent-to-treat model, the authors created a no-intervention control group from the postrandomization attrition group	To examine the effects of a prebirth coparenting intervention on fathers' support of the mother; parental alliance, coparenting communication, father prenatal involvement, father engagement with the infant, and parenting self-efficacy	Target population: adolescent, ethnic and racial minorities N = 154 fathers Age range 14–25 y; 55% completed <12th grade; 47.3% African American, 38.8% Hispanic; 85.5% primiparous	Outcomes assessed immediately after program (during pregnancy) with a follow-up at 3 mo postpartum Father involvement: no significant differences between groups in prenatal involvement immediately after program. There was significantly higher father involvement with infant caregiving compared with control at 3 mo postpartum ( $P < .05$ ). Effect size, $\eta_p^2 = 0.07$ for fathers' reports Father's attitude and parenting self-efficacy: no significant differences in parenting competence at follow-up Coparenting relationship: significant increases in parenting alliance ( $P < .001$ ) and communication ( $P < .01$ ) compared with controls immediately after program. Effect sizes, $\eta_p^2 = 0.09$ and $\eta_p^2 = 0.10$ , respectively. Significant increases in parenting alliance ( $P < .001$ ) at follow-up ( $\eta_p^2 = 0.19$ ) compared with controls Other (ie, father's supportive behaviors): significant increases in father's support of the mother ( $P < .05$ ) compared with control immediately after program. Effect size, $\eta_p^2 = 0.05$ . Significant increases in father's support of the mother ( $P < .05$ ) compared with controls at follow-up ( $\eta_p^2 = 0.07$ )
Bryan <sup>37</sup> ; GCF	Quasi-experimental (ie, pretest-posttest control group)	To determine the effects of GCF, a prenatal couple group intervention, on parent-infant interaction postbirth	Target population: low- to middle-income, white N = 77 couples All married or unmarried couples; mean age 28 y; 44% of participants had some college education and 39% had completed college or beyond; median annual income \$20 000–\$29 999; majority white; primiparous	Outcomes assessed at on average 10.5 mo postpartum Father-infant interaction: intervention group fathers scored higher in socioemotional growth fostering ( $P < .05$ ) compared with control group fathers. Intervention group fathers also scored higher on the contingency scores for mutual socioemotional interaction between father and child compared with control group fathers ( $P < .05$ )



TABLE 3 Continued

Author, Program	Study Design	Study Aim	Study Population	Results Related to Father Outcomes
Diemer <sup>38</sup> , father-focused discussion perinatal classes	Quasi-experimental (ie, pretest-posttest control group)	To compare the effects of father-focused discussion perinatal classes with traditional childbirth classes on expectant fathers' stress or psychological symptom status, coping strategies, social support, and spousal relations at posttest	Target population: middle-income, white <i>N</i> = 83 couples Mean age 28 y; average education 14.3 y; average family income \$35 250; majority white and married; 71% first pregnancy	Outcomes assessed during third trimester Father's mental health: higher levels of seeking social support as a coping mechanism compared with control ( $P < .05$ ). No significant group differences in other coping strategies Other (ie, father's supportive behaviors): more housework support compared with control ( $P < .05$ ). There were no significant group differences in other spousal supportive behaviors (eg, infant and/or pregnancy support) Other (ie, partner relationship quality): more reasoning as a conflict tactic compared with control ( $P < .05$ ). No significant group differences in the use of verbal aggression as a conflict tactic
Smith et al <sup>55</sup> , Rising, <sup>38</sup> group-based prenatal care program and case management	Quasi-experimental (ie, pretest-posttest control group)	To examine the effects of the prenatal intervention on partner relationship and perceived male partner support	Target population: adolescent, ethnic and racial minorities <i>N</i> = 173 adolescents Mean age 18.7 (range: 15–29); majority of mothers in school: 42.2% did not have enough money to live on; majority African American and Hispanic	Outcomes assessed at 1 mo postpartum Other (ie, father's supportive behaviors): no differences between groups Other (ie, partner relationship quality): no differences between groups
Barth et al <sup>54</sup> , TAPP	Quasi-experimental, (ie, no pretest; posttest only with nonequivalent groups)	To describe TAPP and analyze its effects on infants' birth weights	Target population: adolescent, ethnic and racial minorities <i>N</i> = 121 fathers Mean age 19; 33% enrolled in school and 34% graduated from high school; 50% African American, 30% Hispanic, 10% white	Outcomes assessed at various time points during pregnancy and at birth Father involvement: TAPP fathers were more likely to attend birth ( $P < .01$ ), participate in prenatal health visit ( $P < .05$ ), attend fatherhood groups ( $P < .001$ ), attend birthing classes ( $P < .001$ ) compared with non-TAPP fathers
Hart and Foster <sup>40</sup> , child birth education classes that included sessions on signs of labor, stages of labor, pain management, etc	Quasi-experimental (ie, no control group; 1 group pretest-posttest)	To examine couples' prenatal attitudes toward childbirth before and after childbirth education classes	Target population: middle-income, majority white <i>N</i> = 73 couples Mean age 31 y (range: 15–54); all had high school degree and 42% had college degree; majority white; 82% of mothers primiparous	Outcomes assessed immediately after the program Father's attitude and parenting self-efficacy: increase in father's levels of anticipated control during labor and delivery after participating in the childbirth classes ( $P < .01$ )
Salman-Engin et al <sup>49</sup> , FIOC	Quasi-experimental (ie, no control group; 1 group pretest-posttest)	To examine whether parents derived material benefits from participation in the prenatal FIOC coparenting intervention	Target population: low-income, African American <i>N</i> = 14 couples All primiparous couples; mean age 24 y for fathers (range: 14–40); all families had income 200% below poverty level; African American; unmarried	Outcomes assessed at 3 mo postpartum Father's mental health: fathers' self-reported depression scores did not significantly decline

TABLE 3 Continued

Author, Program	Study Design	Study Aim	Study Population	Results Related to Father Outcomes
Smith and Smith <sup>41</sup> ; parent education project	Quasi-experimental (ie, no control group; 1 group pretest-posttest)	To educate parents about the physical and psychological aspects of pregnancy, childbirth, infant care, parenting, and child development, and to establish and strengthen parents' systems of support	Target population: middle-income, married N = 41 couples Mean age 29.1 y; 70% of fathers and 47% of mothers completed greater than high school; 75% were primiparous; married	Outcomes assessed at last session Father's parenting knowledge: no improvement in father knowledge of when a child begins to see or hear, but there was improvement in father knowledge of child development ( $P < .05$ )
Van de Carr and Lehrer <sup>42</sup> ; Prenatal University (Van de Carr, 1979) program during pregnancy	Nonexperimental (3 groups, posttest only)	To examine the effects of the Prenatal University program on father-infant relationships as perceived by the mother	Target population: middle-income N = 150 parents Multiparous (no other demographic information)	Outcomes assessed on 6 mo to 3-y-old children Father-infant interaction: full- and partial-participant groups reported more enhanced father-child relationship compared with the nonparticipants group ( $P < .05$ )
Fawcett and Burritt <sup>43</sup> ; educational pamphlet on cesarean delivery and follow-up via home visit or telephone call to reinforce pamphlet content	Mixed methods	To develop and test an antenatal education program of cesarean birth information	Target population: upper-middle income N = 15 couples Primiparous who had a cesarean birth; mean age 31.3 y for fathers; upper-middle to upper class	Outcome assessed shortly after birth Other (ie, father's evaluation of the intervention): 13 of 15 fathers indicated that the pamphlet was informative. All fathers stated that the follow-up home visit or phone call was beneficial in that it provided opportunity for clarification of pamphlet content and provision of additional information about pregnancy in general and cesarean birth
Mackert et al <sup>46</sup> ; pregnancy-related e-health application on a tablet computer developed by authors	Mixed methods	To investigate the value of an e-health application to educate men about pregnancy-related health	Target population: majority white N = 23 adult men Mean age 26 y; all men had at least some level of postsecondary education; 52% white, 26% Hispanic, 9% Asian, 9% multiracial or other; 4% African American	Outcome assessed during and immediately after the e-health application was used Other (ie, father's evaluation of the intervention): most men reported enjoying the graphics and stated that they were easy to understand. They also liked the overall "feel" of the application. Men expressed mixed opinions about whether they would use an application such as this one in the future
Fawcett and Henkin <sup>44</sup> ; educational pamphlet on cesarean delivery and follow-up via home visit or telephone call to reinforce pamphlet content	Mixed methods	To compare responses of vaginally delivered and cesarean-delivered parents to an antenatal educational program of cesarean birth information and to determine the feasibility of incorporating the educational program into Lamaze childbirth preparation classes	Target population: upper-middle to upper class N = 42 couples Pregnant women and their male partner; mean age 31.5 y for men; majority upper-middle to upper class	Outcome assessed at 1–3 wk postpartum Other (ie, father's evaluation of the intervention): no significant differences in men's reactions to the pamphlet were found between the fathers from the cesarean delivery group and those from the vaginal delivery group. Most men indicated that the pamphlet provided the information they needed to prepare for the possibility of a cesarean birth. All but 1 man in each delivery group stated that the pamphlet and class discussion provided desired information
Mackert et al <sup>45</sup> ; My Pregnancy Today (BabyCenter; no date), a pregnancy-related e-health application on a tablet computer	Mixed methods	To investigate the value of an e-health application to educate men about pregnancy-related health information regardless of the men's level of health literacy	Target population: ethnic and racial minorities N = 32 adult men Mean age 33.2 y; 75% reported having at least high school diploma or GED; 38% Hispanic, 28% African American; 28% white; 6% multiracial; majority had at least 1 child or a partner who was pregnant	Outcome assessed during and immediately after using the tool, during pregnancy Other (ie, father's evaluation of the intervention): men generally stated that the application was easy to use and that it contained useful information; in general, participants felt there was "just the right amount of information" presented, and they did not need to click on the videos for more information

TABLE 3 Continued

Author, Program	Study Design	Study Aim	Study Population	Results Related to Father Outcomes
Gambrel and Piercy <sup>51</sup> ; Mindful Transition to Parenthood Program adapted from the Mindfulness-Based Stress Reduction program <sup>58</sup>	Phenomenological qualitative study	To assess the effects of the parenting program on internal and interpersonal attunement	Target population: middle-income, majority white N = 13 couples Couples expecting their first child; parents age 24–41 y old; median range of income was \$30 000–\$39 000; 73% were white	Outcome assessed 1 wk after last session Father involvement: mothers in the program reporting stronger commitment from their male partners as well as more willingness from male partners to discuss preparations for childbirth and future involvement Father's attitude and parenting self-efficacy: fathers reported preparedness for parenthood; they felt more confident about becoming parents Father's mental health: fathers reported increases in regulation of negative emotions and feelings of joy, relaxation, peace, enjoyment, and energy level as a result of the intervention Other (ie, partner relationship quality): fathers reported that they felt the intervention helped them to be more present with their partner and led to deeper connections in their relationships. They felt more love and appreciation for and from partners. Fathers also experienced an increased ability to relate to partner's point of view and resolve conflict more effectively

e-health, electronic health; FF, Family Foundations; FIOC, Figuring It Out for the Child; GOF, Growing as a Couple and Family; GED, General Education Development; NBAS, Neonatal Behavioral Assessment Scale; TAPP, Teenage Pregnancy and Parenting Project.

a quasi-RCT of a coparenting program<sup>50</sup> revealed no program effects on fathers' sense of parenting competence at 3 months postpartum. This was the only study considered to have low RoB. Similarly, the results of an RCT of a clinical program<sup>52</sup> revealed no program effects on fathers' attitudes toward caregiving at 2 months postpartum. In contrast, the results of 2 nonexperimental studies<sup>40,51</sup> revealed positive effects in the prepartum period. Specifically, the results of 1 nonexperimental study of a general education program<sup>40</sup> revealed a significant increase from pretest to posttest in fathers' level of anticipated control during labor and delivery. The results of another study, which was a qualitative study of a relationship program,<sup>51</sup> revealed that fathers reported feelings of confidence and preparedness for fatherhood before the birth of the infant.

#### Father's Mental Health

Researchers for 4 quantitative (2 RCTs and 2 quasi-experimental) and 1 qualitative studies examined fathers' mental health outcomes.<sup>38,47,49,53</sup> The results of a low RoB quasi-experimental study of a general education program<sup>38</sup> revealed significant increases in fathers' social support seeking related to pregnancy-related stressors measured during the third trimester. It was reported in a qualitative study of a relationship program intervention that occurred during pregnancy<sup>51</sup> that fathers felt improved emotion regulation and greater relaxation, peace, and enjoyment after the intervention. In a high RoB RCT of a massage-based program,<sup>53</sup> significant decreases in fathers' depression and anxiety levels at 36 weeks of pregnancy were reported. In contrast, the results of 2 studies of coparenting programs<sup>47,49</sup> did not reveal significant effects on fathers' mental health in the

**TABLE 4** RoB Assessment for Included Studies

Author, y	Participant Selection	Blinding of Outcome	Incomplete Outcome Data	Selective Reporting	Cumulative Risk Value
Barth et al, <sup>54</sup> 1988	Low	Low	Unclear	High	2
Beal, <sup>52</sup> 1989	Unclear	Low	Unclear	Low	2
Bryan, <sup>37</sup> 2000	Low	High	Low	High	2
Diemer, <sup>38</sup> 1997	Low	Unclear	Low	Low	3
Fagan, <sup>50</sup> 2008	Low	Low	Low	Low	4
Fawcett and Burritt, <sup>43</sup> 1985	Unclear	Unclear	Unclear	Unclear	0
Fawcett and Henklin, <sup>44</sup> 1987	Unclear	Low	High	Low	2
Feinberg and Kan, <sup>47</sup> 2008	Low	High	Low	Low	3
Feinberg et al, <sup>48</sup> 2009	Low	Low	Unclear	Low	3
Field et al, <sup>53</sup> 2008	Low	High	Unclear	Low	2
Gambrel and Piercy, <sup>51</sup> 2015	Unclear	Unclear	Low	Low	2
Hart and Foster, <sup>40</sup> 1997	Low	Unclear	Unclear	Low	2
Mackert et al, <sup>45</sup> 2015	Unclear	Unclear	Low	Low	2
Mackert et al, <sup>46</sup> 2017	Unclear	Unclear	Low	Low	2
Pfannenstiel and Honig, <sup>36</sup> 1991	Low	Low	High	High	2
Pfannenstiel, and Honig, <sup>35</sup> 1995	Low	High	Unclear	High	1
Salman-Engin et al, <sup>49</sup> 2017	Unclear	Unclear	Unclear	Low	1
Smith and Smith, <sup>41</sup> 1978	High	Unclear	Unclear	High	0
Smith et al, <sup>55</sup> 2016	High	Unclear	High	Low	1
Van de Carr and Lehrer, <sup>42</sup> 1986	Low	Unclear	High	Low	2
Westney et al, <sup>39</sup> 1988	Unclear	Unclear	Unclear	Unclear	0

Low risk = 1; high risk = 0; unclear risk = 0. Each study could receive up to a cumulative risk value of 4. Studies scoring a cumulative risk value of  $\leq 2$  are considered to possess high RoB.

**TABLE 5** Recommendations for Father-Inclusive Perinatal Parent Education Programs

1. Father-inclusive perinatal parent education programs should employ a family systems approach by involving both the father and mother <sup>60</sup>
2. When possible, programs should employ men or male-female teams as facilitators <sup>47,48</sup>
3. Consider employing facilitators that mirror the characteristics (eg, ethnicity or race, age, culture, language) of the fathers being served <sup>61,62</sup>
4. Train facilitators to welcome, engage, and directly speak with fathers <sup>6,15,63</sup>
5. Include father-only group sessions to provide a safe space for men to express their feelings, combat social isolation, and receive peer support <sup>38,60</sup>
6. Use a strengths-based perspective by focusing on and building on the positive characteristics fathers bring to parenting <sup>60,63,64</sup>
7. Implement programs that are tailored to fathers' parenting needs (for example, programs that are sensitive to the needs of nonresidential fathers) <sup>62,64</sup>
8. Consider whether aspects of the clinical environment are welcoming and friendly to fathers (eg, pictures of men with infants, magazines for fathers and mothers in the waiting room) <sup>65</sup>
9. Include in the curriculum content related to improving the coparenting relationship between the father and mother <sup>15,60</sup>
10. Allow room for fathers and mothers to discuss topics that are most relevant to their parenting circumstances and needs <sup>60</sup>
11. Develop special events that celebrate fathers and fatherhood <sup>64</sup>
12. Provide literature, such as brochures, to fathers that contain educational content related to infant care and development, stress management, and community-based resources <sup>64</sup>
13. Educate mothers about the importance of father involvement on child development and well-being <sup>6</sup>
14. Consider providing child care, financial incentives, meals, and/or transportation <sup>60,65</sup>
15. Deliver programs during times (eg, evenings or weekends) when it is convenient for fathers to participate <sup>62,64</sup>
16. Offer parent education along with other services, such as employment assistance, General Education Development test preparation, and support to address mental health and substance abuse problems <sup>65,66</sup>
17. When welcomed, use mobile technology, such as text messages, as reminders for program sessions, check-ins, and follow-ups (especially after a father misses a session) <sup>60</sup>

postpartum period. More specifically, the results of a quasi-experimental study of a coparenting program<sup>49</sup> (high RoB) revealed no program effects on fathers' depressive scores at 3 months postpartum. Similarly, the results of an RCT of another coparenting program<sup>47</sup> (low RoB) revealed no effects on fathers' depressive symptoms and anxiety at 6 months postpartum.

### Father-Mother Relationship

#### *Father's Coparenting Relationship With Mother*

Researchers for 3 quantitative studies (2 RCTs and 1 quasi-RCT) evaluated 2 coparenting programs that assessed father's coparenting relationship with the mother.<sup>47,48,50</sup> The results of 2 RCTs of the same coparenting program<sup>47,48</sup> revealed

increased fathers' coparenting support ( $d = 0.54$ ) and closeness with the mother ( $d = 0.44$ ) at 6 months postpartum. Intervention group fathers also reported reduced coparenting competition ( $d = 0.36$ ) and triangulation ( $d = 0.28$ ) when the child was 1 year old.<sup>47,48</sup> The results of a quasi-RCT of another coparenting program<sup>50</sup> revealed moderate effects on fathers' reports

of parenting alliance ( $\eta_p^2 = 0.09$ ) and coparenting communication ( $\eta_p^2 = 0.10$ ) at posttest during pregnancy. The same program<sup>50</sup> had a greater effect on parenting alliance at 3 months postpartum ( $\eta_p^2 = 0.19$ ).

### *Partner Relationship Quality*

Researchers for 4 quantitative studies (2 RCTs and 2 quasi-experimental) and 1 qualitative study examined couples' partner relationship quality outcomes.<sup>38,48,51,53,55</sup> The results of an RCT of a coparenting program<sup>48</sup> revealed positive intervention effects on men's warmth toward their female partner when the child was 1 year old. The results of a quasi-experimental study of a general education program<sup>38</sup> revealed positive effects on men's use of reasoning measured during the third trimester. Both studies were considered to have low RoB.

Researchers for a qualitative study of a relationship program<sup>51</sup> reported that fathers felt the intervention helped them establish deeper connections in their relationships, feel more love and appreciation toward their partner, relate to their partner's point of view, and resolve conflict more effectively during pregnancy. Researchers for a high RoB RCT of a massage-based clinical program<sup>53</sup> also reported significant increases in both fathers' and mothers' perceptions of partner relationship quality at 36 weeks of pregnancy. In contrast, a high RoB quasi-experimental study of a case management program for expectant adolescent parents<sup>55</sup> found no effects on partner relationship quality at 1 month postpartum.

### *Father's Supportive Behaviors*

Researchers for 3 quantitative studies (1 quasi-RCT and 2 quasi-experimental) examined fathers' supportive behavior outcomes.<sup>38,50,55</sup> The results of a quasi-randomized study of a coparenting program<sup>50</sup> revealed moderate program effects

on both fathers' ( $\eta_p^2 = 0.05$ ) and mothers' ( $\eta_p^2 = 0.07$ ) reports of fathers' supportive behaviors toward the mother at posttest during pregnancy. Similarly, the results of a quasi-experimental study of a general education program<sup>38</sup> revealed a significant positive effect on fathers' support with housework in the third trimester. Both of these studies had low RoB. In contrast, a high RoB quasi-experimental study of a case management program for expectant adolescent parents<sup>55</sup> found no effects on fathers' support for the mother at 1 month postpartum.

## **DISCUSSION**

To the best of our knowledge, we are the first to examine, in a systematic review, US-based father-inclusive perinatal parent education programs, and whether such programs are associated with important father outcomes. Overall, we demonstrated in our review of the literature that there are few father-inclusive programs during the perinatal period. We found only 19 different father-inclusive perinatal interventions evaluated in the literature despite considering a broad range of outcomes and taking a comprehensive approach to our review, with no limitations on publication date and research methodology. In addition to the small number of interventions, we found the general state of this research base to be weak, with only 4 out of the 21 studies rated as having low RoB. These results are consistent with previous systematic reviews on father-inclusive parent education programs.<sup>15,22,24,25,60</sup> For example, in their review of the literature on father involvement programs for low-income families, Pruett et al<sup>60</sup> noted few privately and federally funded programs have yielded promising outcomes. Suto et al<sup>24</sup> found similar results in that their review revealed a lack of evidence for the effectiveness

of father-focused prenatal childbirth education programs in protecting against paternal postpartum depression and improving partner relationship quality.

Given the weak evidence base, we were unable to draw firm conclusions about the effectiveness of early father-inclusive parent education programs. Nevertheless, there was some limited (ie, primarily based on 3 low RoB studies) evidence to suggest that early father-inclusive parent education programs may improve outcomes related to father involvement, coparenting relationship, partner relationship quality, father's mental health, and father's supportive behaviors. On the other hand, there was generally a lack of evidence for program effects on father-infant interaction, father's parenting knowledge, and father's attitudes and parenting self-efficacy.

Results from the RoB assessment suggested that 2 coparenting programs (Minnesota Early Learning Design for Young Dads<sup>50</sup> and Family Foundations<sup>47,48</sup>) as well as a general perinatal education program developed by Diemer<sup>38</sup> may serve as the best set of father-inclusive evidence-based interventions given their rigorous study designs, low levels of bias, promising outcomes, and methods of implementing the intervention that appeal to fathers. For example, the Minnesota Early Learning Design for Young Dads program<sup>50</sup> not only used a manualized coparenting curriculum but also aimed to provide positive role models to adolescent fathers by employing previous male participants as facilitators. Family Foundations<sup>47,48</sup> also used a manualized coparenting curriculum as well as a male-female facilitator team to implement interactive skills-based group sessions. Diemer<sup>38</sup> developed a general perinatal education program that allowed for a men-only and women-only group for the first session so that fathers



can share their feelings, combat their sense of isolation, and experience peer support. In subsequent mixed-sex groups, veteran childbirth educators were trained to ask questions and share comments directly with fathers to encourage participation.

### Emerging Intervention Practices

As noted, there are few father-inclusive perinatal parent education programs. However, innovative perinatal programs are emerging to help fill this void.<sup>67–71</sup> One intervention approach that shows promise is the use of home visitation program “add-ons” that target fathers. Home visitation models, such as the Nurse Family Partnership, that target low-income mothers are recognized as having lasting positive effects on the health and well-being of children.<sup>69</sup> The Dads Matter program<sup>72</sup> has trained female home visitors to work with fathers during their home visits, thus expanding the program to include working with mothers and fathers. Preliminary evidence from an RCT of the Dads Matter program suggested that the program was associated with increases in fathers’ reports of attitudes regarding the values of their contributions to children’s well-being, mothers’ reports of support from fathers, and both parents’ reports of father engagement.<sup>70,71</sup>

Another promising approach is facilitating positive father-child interactions. The Baby Elmo Program<sup>73</sup> is a brief intervention originally designed for incarcerated teenage fathers. It uses a theoretically driven intervention approach and interactive sessions to help fathers understand their infant’s emotional needs and thus support positive father-child interactions.<sup>73,74</sup> The program is now being tested as an RCT with community-based samples of low-income fathers.<sup>75,76</sup> Supporting Father Involvement, a group-based relationship

strengthening program that has been successful in promoting father involvement,<sup>77,78</sup> is currently being tested with high-risk couples involved in the child welfare system.<sup>60</sup> In hospital settings, Conscious Fathering, an early father involvement program by Dorsey,<sup>79</sup> has been providing expectant men with infant care skills and education on responsive fathering.

### Clinical Implications

Despite the emergence of several noteworthy programs, research to develop and test early father-inclusive interventions has generally not kept pace with demographic trends showing increased father involvement and the important roles fathers play in promoting optimal child development. This issue likely persists because of multiple factors,<sup>80,81</sup> including clinicians being unwilling or inadequately trained to engage fathers,<sup>15,63</sup> programs not being tailored to men’s parenting needs,<sup>14,61,65</sup> and maternal gatekeeping preventing men’s active involvement in programs during pregnancy.<sup>82,83</sup> These factors may help explain some of the reasons for men feeling marginalized from health care settings<sup>84,85</sup> and men’s perceptions that there is little role for their involvement during pregnancy and infancy.<sup>86–88</sup>

Clinicians play a key role in promoting early father involvement because they are likely to be among the first to come in contact with mothers and fathers expecting an infant or recently had an infant.<sup>6,89</sup> As such, it is important for clinicians to consider fathers when developing or implementing programs for parents as well as to employ practices that would support fathers to be engaged with the mother and infant across the perinatal period (Table 5). Yogman and Garfield<sup>6</sup> have provided clinical recommendations, including acknowledging fathers’ presence when they attend health care

visits, welcoming fathers directly, and soliciting their opinions when appropriate. Research suggests that many fathers do attend early health care visits, and positive interactions with health care providers are important in fathers’ evaluations of their experiences with the health care system and their willingness to participate in future visits.<sup>90</sup> Clinicians can highlight fathers as important contributors to their children’s health and well-being by educating men on the roles they play in their children’s early years.

Clinicians can also play a key role in promoting positive coparenting and partner relationship quality by openly discussing with fathers and mothers the changes they are likely to experience during pregnancy and after the birth of the infant. Research suggests that men typically rely on women for parenting knowledge and thus could benefit from having positive male role models.<sup>91</sup> In this regard, male health care staff may be effective in directly engaging fathers, educating them about infant care and child development, and providing anticipatory guidance. When appropriate and welcomed, fathers can be encouraged to provide supportive behaviors to mothers and assume more active child care roles.

Fathers’ mental health is another area of concern for clinicians. Research reveals that elevated paternal postpartum depression is associated with negative fathering behaviors and subsequent child outcomes.<sup>92–94</sup> Yet, paternal depression is rarely acknowledged in health care settings. Clinicians can adopt both a family-centered care<sup>95</sup> and family systems<sup>96</sup> approach, screening both mothers and fathers for depression at pediatric settings to improve the health of men, their children, and their families across the perinatal period.<sup>6,92</sup>

### Limitations of the Evidence Quality

The majority of studies in this systematic review were deemed

to possess high RoB, suggesting that the general quality of evidence supporting father-inclusive parent education programs is weak. This systematic review may also be limited by the file drawer problem.<sup>97</sup> Because we included only published studies, it is possible that unpublished research of father-inclusive interventions was missed. Furthermore, publication bias may result in some studies reporting significant results only, thus biasing the systematic review toward significant findings. We note that this review is exclusively focused on US-based programs to complement existing research conducted internationally.<sup>15,23</sup> Most studies in this systematic review implemented interventions within a clinical setting, preventing the generalization of findings to other contexts. With several exceptions,<sup>43,44,47,48,50</sup> most studies examined program effects at a single time point without follow-ups. As such, the existing evidence does not allow for understanding long-term program effects. Variability in the operationalization and measurement of study outcomes, small sample sizes, and other intervention characteristics also contribute to the weak evidence base. The authors of previous systematic reviews have noted similar methodological limitations.<sup>15,22,24</sup>

## CONCLUSIONS

In this systematic review, we examined the current state of the literature on father-inclusive perinatal parent education programs. There were several notable findings. First, the overall evidence base revealed that there were few programs in which fatherhood is targeted across the perinatal period. This underscores the need for evidence-based interventions in which fathers are supported during this important period of child development. Second, available programs were associated with increased father involvement, coparenting relationship, partner relationship quality, father's mental health, and father's supportive behaviors. Third, evidence for program effects on father-infant interaction, father's parenting knowledge, and father's attitudes and parenting self-efficacy was inconclusive. Finally, the Minnesota Early Learning Design for Young Dads<sup>50</sup> and Family Foundations<sup>47,48</sup> coparenting programs and Diemer's<sup>38</sup> perinatal education program emerged as the best evidence-based interventions. Collectively, these results suggest that although some early father-inclusive parent education programs

are promising, more rigorous evaluation research is necessary to examine program effects on father outcomes. Clinicians can help promote optimal outcomes for children and families by involving men in early parent education programs and health care visits across the perinatal period.

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## ABBREVIATIONS

CINAHL: Cumulative Index to Nursing and Allied Health Literature  
PRISMA: Preferred Reporting Items for Systematic Reviews and Meta-Analyses  
RCT: randomized controlled trial  
RoB: risk of bias  
RoBANS: risk of bias assessment tool for nonrandomized study

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Address correspondence to Joyce Y. Lee, MSW, School of Social Work, University of Michigan, 1080 South University Ave., Ann Arbor, MI 48109. E-mail: joyceyl@umich.edu

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