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Implementation characteristics of father-inclusive interventions in low- and middle-income countries: A systematic review

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Abstract

Although prior reviews have documented the effectiveness of engaging male caregivers in early childhood interventions, little is known about how these interventions have been designed and implemented to reach, engage, and support male caregivers in low-resource global settings. We searched five bibliographic databases for intervention studies that engaged male caregivers to improve nurturing care for children under five years of age in low- and middle-income countries. Forty-four articles met inclusion criteria, which represented 33 interventions. Fathers specifically were the most common type of male caregivers targeted in these interventions. The majority of interventions invited fathers to participate alongside their female partners. Community-based peer-groups were the most common delivery model. Most interventions used the same program structure for fathers as applied with mothers, with few considering any implementation adaptations for men. Intervention curricula were multicomponent and largely targeted child nutrition, health, and couples' relationships. A minority of programs addressed parenting, psychosocial wellbeing, violence prevention, gender attitudes, or economic support. Behavior change techniques were limited to interactive counseling and peer learning. Male caregivers remain missing from caregiving interventions for young children. A greater focus on implementation research can inform better inclusion, engagement, and support for male caregivers in nurturing care interventions.

Graphical abstract

Although the effectiveness of male caregiving in early childhood interventions has been documented, little is known about how these interventions are designed and implemented in low-resource settings. This review found that most male engagement interventions targeted fathers, used the same program model with men as designed for women, and incorporated relatively

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AUTHOR CONTRIBUTIONS

JJ conceived the study and designed the protocol. JJ, EFS, and JKM reviewed studies for eligibility and extracted the data. JJ drafted the manuscript. All authors contributed to the interpretation of data, critical revision of the manuscript, and approved the final draft.

COMPETING INTERESTS

The authors declare no competing interests.

few behavior change techniques. A greater focus on implementation research can inform better inclusion and support for male caregivers.

Keywords

fathers; implementation research; interventions; male engagement; nurturing care

INTRODUCTION

Early interventions that engage and support all caregivers in providing nurturing care can improve young children's developmental potential.[1] Nurturing care is multidimensional and refers to caregiving knowledge, attitudes, and practices regarding child health, nutrition, early learning, responsive caregiving, and safety and security.[2] At the family level, a wide range of interventions can enhance nurturing care, including maternal and child health and nutrition, parenting, caregiver mental health, violence prevention, and social protection interventions.[1] While there has been growing implementation of nurturing care interventions for children during the first five years of life, the majority of these interventions have been directed singularly towards mothers as *de facto* primary caregivers of children.

Fathers, in addition to mothers, can influence young children through a variety of ways. Globally, studies have shown that fathers' positive interactions with their children (e.g., engagement in play, feeding, health care seeking) are associated with improved early child outcomes, over and above the contributions of mothers.[3,4] Moreover, other studies have suggested gender-differentiated caregiving roles between fathers versus mothers; for example, with regards to paternal parenting responsibilities (e.g., men as the primary breadwinner for child and family)[5] as well as styles of father-child interactions (e.g., engagement in more "rough and tumble" play, manner of child-direct speech).[6,7] In addition to their dyadic relationships with young children, fathers can indirectly impact early child outcomes through their relationship dynamics with their partners (e.g., emotional and financial support, coparenting, couples' decision making processes).[8,9] Beyond their behavioral engagement, fathers can also shape caregiving environments through their own mental wellbeing which underlies their behaviors and family dynamics,[10] as well as their gender attitudes which relate to couples' division of caregiving responsibilities and social norms pertaining to expectations of maternal versus paternal caregiving.[11,12]

Several prior systematic reviews have focused on father engagement in early childhood interventions. These reviews have echoed the fact that fathers are largely missing across various types of caregiving interventions; for example, in the contexts of parenting interventions,[13,14] child nutrition interventions,[15,16] and child health interventions.[17,18] Nonetheless, these reviews have consistently suggested that engaging fathers in caregiving interventions can likely impact a broad range of parent- and child-level outcomes, including improved caregiver knowledge and practices and early child health and nutrition outcomes.

While prior studies have advanced the knowledge-base about the potential benefits of fatherhood interventions, there remain several prominent evidence gaps. The first is that some reviews have been restricted to studies from the United States,[13] or more commonly

the case, previous reviews have largely disregarded how findings fared particularly in low- and middle-income countries (LMIC) and the resulting implications of father engagement interventions in under-resourced global contexts. A specific focus on male engagement in LMICs is warranted not only because of a longstanding "90/10" evidence imbalance[19–21]—in which 90% of the global evidence on child development and caregiving and health research more broadly is done in high-income countries (HIC) that represent 10% of the world's population of caregivers, young children, and families—but also because caregivers' socioeconomic status (e.g., income, education) and access to resources (e.g., financial, food, health services, early education) are generally more constrained/limited in LMIC settings versus HIC settings, which are major contextual impediments to optimal caregiving and early child development.[22]

Particularly over the past decade, there has been a growing body of both observational and intervention research on fatherhood emerging from LMICs. While the role of fathers as primarily financial providers and decision-makers remains salient in LMICs,[23] more recent studies have documented how—as a result of global economic development, greater women's employment, and changes in gender norms—fathers in LMICs are also becoming increasingly engaged in more "intimate" forms of care for their children and partners, such as more responsive involvement with and emotional support for their children and partners.[8,12,24] Moreover, fathers across LMICs are expressing interest in learning more about early childhood development, nutrition, and health and participating in programs to support their young children.[25,26] Considering the general lack of attention devoted to fathers in LMICs and trends pertaining to the evolving roles of fathers in these settings, there is a timely opportunity to conduct an evidence review specifically focused in low-resource global contexts.

A second limitation is that prior reviews have focused on father engagement narrowly around specific types of early caregiving interventions, such as in the context of breastfeeding[16,27] or parenting,[13] or as part of child welfare services[28] or neonatal intensive care units.[17] This has resulted in a series of somewhat fragmented evidence reviews about father engagement defined in terms of a singular caregiving behavior for young children or within particular services. Yet fatherhood is multidimensional and includes various forms of caregiving (e.g., responsive stimulation, positive discipline, feeding, partner support) that can occur in numerous contexts.[29] Applying a nurturing care perspective to embrace a more holistic set of father-inclusive behavioral interventions can allow for a larger and more comprehensive review of theoretically related interventions to potentially inform more generalizable findings about engaging fathers in interventions to support young children in LMICs.

A final limitation regarding prior systematic reviews of fatherhood interventions is that most have focused primarily on examining their effectiveness on outcomes. Generally, the landscape of evidence suggests a broad spectrum of family-wide benefits including maternal and child health, nutrition, and development, but this evidence is based on low-to-moderate quality of evidence involving many non-randomized study designs and significant heterogeneity in terms of outcome measurement tools.[13,18,30] However, few reviews have systematically investigated the implementation characteristics of fatherhood interventions or

the parameters along which these programs have been designed and delivered for fathers in HICs or LMICs,[14] which may plausibly influence program effectiveness.[31] Program implementation characteristics can vary, for example, with regards to: the extent to which male caregivers are engaged as participants and with respect to their partners; the workforce cadre who deliver interventions to fathers; the frequency and location of sessions; which key messages are promoted in program curricula; and what activities or behavior change strategies are used to reach fathers and motivate improved paternal caregiving practices. No known prior review has assessed these implementation factors across interventions with fathers.

The implementation of programs is highly context-dependent,[32] and it is worth recognizing again how the resources available and real-world conditions under which fatherhood interventions operate are notably more restricted in LMICs compared to HICs. For instance, many early child health and education systems in LMICs experience considerable workforce constraints (e.g., scarcity of providers/educators with insufficient training), which limit capacity and potential to sustainably deliver quality services for young children at scale,[33] let alone embrace an additional focus on including fathers. Instead, many services for young children and families implemented in LMICs are targeted to disadvantaged groups and through small-scale pilot programs that are designed and delivered by non-government organizations and are largely reliant on donor funding.[34] Furthermore, the implementation barriers to fatherhood interventions as well as fathers' program participation may also systematically differ in LMICs (e.g., more constrained by poverty-related factors, weak infrastructure, and patriarchal norms) as compared to many HICs.

Taken together, there is a clear and present evidence gap in terms of understanding the scope of fatherhood interventions that have been conducted in LMICs and more specifically how such interventions have been designed and implemented. Therefore, we conducted a systematic review of interventions that engaged male caregivers to promote nurturing care of young children in LMICs. We aimed to describe the implementation characteristics across the landscape of father-inclusive interventions, including the approaches utilized and conditions under which they were delivered, as well as identify barriers and enablers of program success in specifically resource-constrained global contexts. The findings from this implementation review can help to better characterize the key programmatic elements of fatherhood interventions,[35] and guide future efforts towards improving the design, adaptation, and comparability of nurturing care interventions with fathers of young children in LMICs.

METHODS

Search strategy

This systematic review was conducted and reported using the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) guidelines. This review was preregistered in PROSPERO (CRD42022310288). We searched five electronic bibliographic databases (MEDLINE, Embase, PsycINFO, CINAHL, Web of Science, and Global Health Library) for peer-reviewed articles published from database inception until March 7, 2022. A string of search terms combined keywords for concepts relating to program evaluation,

male caregivers, nurturing care, early childhood, and LMICs. See Supplementary Table 1 for search string used in PubMed as an example, which was adapted for use in the other databases.

Study selection

Full-text articles were included if they met all the following criteria: included social and behavioral interventions that focused on improving caregivers' knowledge, attitudes, practices, or skills pertaining to nurturing care for young children (i.e., health, nutrition, responsive caregiving, safety and security, early learning);[22] directly included male caregivers as program participants (with male caregivers including fathers, uncles, grandfathers, or another man who was identified as a caregiver for the child); used a quantitative evaluation design (as a proxy of study quality); focused on caregivers of children who were on average younger than five years of age; and conducted in a LMIC. Studies were excluded if interventions did not include any message pertaining to the direct caregiving behaviors for young children (i.e., interventions only focused on family planning or HIV prevention without any nurturing care message) or did not include any male caregivers as active program participants.

Data extraction

Two reviewers independently screened the titles and abstracts of each study identified in the systematic search using the web-based platform Covidence. Full texts of screened studies were reviewed to assess eligibility. Any discrepancy between the reviewers was resolved through discussion and consensus. Reference lists of included studies were scanned for any additional relevant studies not found through the electronic search.

Three reviewers independently extracted data from each eligible study using a structured extraction form in Excel. The team was trained on how to use the extraction form, which was refined based on a pilot using six relevant articles. Data were extracted with respect to the following categories: study design, sample characteristics, program model, intervention content, delivery strategies, and author reported implementation barriers and enablers. We used these categories to highlight distinct characteristics pertaining to the inclusion and implementation of programs with fathers. Weekly team meetings were held throughout the data extraction process to address any questions, resolve any discrepancies in data extractions between reviewers through group discussion and consensus, and monitor study progress.

Data synthesis

We summarized findings through tabular and narrative synthesis. We used descriptive statistics to report patterns in the study designs, sample characteristics, program model characteristics, intervention content, and implementation strategies applied across the included studies. Three reviewers classified intervention content first using a deductive approach based on the five components of the nurturing care. We grouped the nurturing care components of early learning and responsive caregiving as "parenting/early child development (ECD)", operationalized safety and security as "violence prevention", and then examined health and nutrition separately.[22] Informed by family stress[36] and family systems

theory,[37] we additionally considered whether any content addressed male caregivers' mental health, couples' relationship dynamics, or male caregiver involvement not just specifically with the male caregiver-child dyad, but for the family or household more broadly. Then, we applied an inductive approach to identify other potential content areas represented across the programs and to ultimately establish the main intervention content categories.

To classify implementation strategies, we drew upon program implementation and behavior change strategies identified in other systematic reviews of caregiver and/or child-related psychosocial interventions in LMICs.[38–40] We expanded upon this list by adding any additional strategies that were described across the studies. This list of strategies, including their definitions, was piloted by the three reviewers and iteratively refined over the course of analysis and through regular group discussions. To identify barriers and enablers encountered through program implementation involving male caregivers, three reviewers extracted any relevant information about these two general categories from reading the Discussion sections of each article. Two reviewers conducted inductive qualitative analysis to these excerpts and identified themes of barriers and enablers and narratively synthesized this information.

RESULTS

A total of 6,977 unique articles were identified through the electronic database search strategy. An additional eight were identified through other sources (e.g., scanning of references, authors' personal knowledge). A total of 44 articles met the eligibility criteria and were included in the systematic review (Figure 1). These articles represented 33 unique intervention evaluations with most published in the past five years (Supplementary Figure 1).

Table 1 provides an overview of intervention characteristics, with program specific details in Table 2. Nearly half of interventions were conducted in Sub-Saharan Africa (46%) and 39% had overall study sample sizes fewer than 400 caregivers. Few interventions were integrated within existing services and delivered at scale. Approximately half of the studies were evaluated using a randomized controlled trial (RCT) design (i.e., cluster-RCT, 27%; individual-level RCT, 24%), compared to a quasi-experimental study (36%) or a non-experimental study design (12%) (Supplementary Table 2).

As for the types of male caregivers represented in the study samples, 76% of interventions targeted fathers specifically, compared to 6.1% of interventions that sampled married husbands of pregnant women (who were not explicitly defined as the child's father), 6.1% of interventions that involved any male caregiver of the child (e.g., father, grandfather, uncle), and 12.1% of interventions that most broadly included any male caregiver with respect to the mother (e.g., current male partner) and/or child (e.g., uncle). Considering that most studies represented fathers specifically, we use the term "fathers" hereon to refer to all male caregivers. In terms of average child age at enrollment, most studies targeted caregivers during the prenatal period (42%) or in the first (15%) or second year of life (24%).

Program model

There was considerable variation with respect to program structure and implementation characteristics. In terms of program models, the majority involved some degree of peer-groups (76%), compared to either individualized approaches exclusively (e.g., home visits) (15%) or media (9%). Of the total interventions, 46% incorporated multiple delivery modalities, of which group and individualized counseling was the most common mixed delivery model. Slightly more than half of programs had some component delivered in the community (e.g., community center or church) (55%). Of the total interventions, 21% were delivered across multiple settings, of which the combination of community-based sessions and home-visit was the most common. The median number of program sessions/contacts was 10, which were most commonly between 1–2 hours long per session (33%). These sessions/contacts were mostly scheduled on a weekly (27%) or biweekly basis (18%).

Approximately half of programs were delivered by health providers (49%), of whom community health workers were most common. Lay persons (24%) also delivered interventions and mostly community-based programs. The gender composition of delivery agents was unspecified in the majority of programs (67%). However, four programs (12%) intentionally selected and trained male staff to deliver the program to fathers and mentioned this decision as a way of respecting local gender norms and increasing cultural acceptability among participants.

Participants

Most interventions (61%) engaged couples, or both male and female caregivers together, thus allowing two caregivers per household to potentially participate in the program. Roughly a quarter of interventions (24%) were delivered to fathers as the sole program participant without also engaging their partners (i.e., mothers). The remaining 15% of interventions were not systematic about fathers' participation and allowed participation of either parent or any primary caregiver more broadly, which ultimately represented mostly mothers.

Among the majority of programs that were intended for both mothers and fathers, most used the same program model for mothers as with fathers (Table 2). In contrast, only a handful of interventions (9%) tailored the delivery model for fathers relative to mothers, such as through processes involving formative research or pretesting to optimize the model for men. In terms of how fathers participated in the program with respect to mothers, the majority involved fathers participating together alongside their partners as couples across all or the majority of program sessions, whereas two programs had fathers mostly participating in gender-separated groups from their partners.

Program content

Overall, and ranked in order of frequency across studies, thematic areas covered in curricula used with fathers spanned nutrition, health, positive couples' relationships, father involvement in household responsibilities, parenting, psychosocial wellbeing, violence prevention, gender attitudes, and cash transfers (Figure 2; see Supplementary Table 3 for specific messages promoted in each intervention). Nutrition was the most represented

content (79%) and focused on increasing fathers' knowledge about the importance of complementary feeding. Health messages (70%) pertained to educating fathers about HIV prevention and child illness. Messages about couples' relationships (64%) aimed to improve fathers' positive communication skills with their partners (e.g., listening techniques, making decisions with their partner). For general household responsibilities (45%), fathers were encouraged to increase their participation in family responsibilities (e.g., financially provisions, household chores). Parenting messages (36%) focused on increasing fathers' knowledge of ECD milestones and engagement in play and communication activities with young children. Psychosocial wellbeing messages (27%) had more variability across studies, ranging from generally promoting parental mental wellbeing to specifically targeting depressive symptoms. Violence prevention messages (21%) aimed to replace fathers' perpetration of violence against their partners and children with non-violent conflict resolution techniques and positive discipline. Messages about gender attitudes (18%) targeted fathers' critical self-reflection about patriarchal gender norms and masculine stereotypes in relation to their partners' roles in family life. Finally, cash transfers (6%) were incorporated in two programs.

Most programs were multicomponent, and of these eight components, the average number covered per program was 3.6 (SD=1.8, range=1–7). The most reflected type of multicomponent program involved some combination of addressing father involvement in nutrition and health (61%). Most recent programs (2020–2022) have bundled more content components, averaging 4.4 content areas, compared to earlier programs from 2010–2019 and before 2010 that each averaged 3.3 content areas.

Program implementation strategies

We coded for 21 specific behavior change strategies that were organized across five broader categories (i.e., information-based, performance-based, social context, materials, and media/communication; see Supplementary Table 4 for taxonomy and definitions of program strategies). The median number of categories represented across studies was 3 out of the five. The most common approach combined an information-based strategy with some performance-based strategy and some social context strategy.

Figure 3 presents the number of programs that used each of the 21 specific strategies (see Supplementary Table 5 for results organized by each program). The majority of programs used "two-way" education (79%), which commonly involved facilitated dialogues or reflective dialogues; leveraged the social context by engaging men together with their female partners (76%), mostly through mixed gender peer group sessions; and incorporated the performance-based strategy of leveraging social interactions and encouraging peer social support (76%).

All remaining strategies were used in fewer than half of the interventions, of which the broad category of media-based strategies was the least commonly represented of the 5 types. More specifically in terms of individual strategies, the rarest strategies applied in only a handful of programs (≤15%) included the use of stories, skits, or visuals that illustrated fathers; assigning homework or goal setting; convening fathers together with their children as part of the sessions; or incorporating child learning materials (e.g., toys, books).

Barriers and enablers to program implementation

Study authors shared several barriers and enablers to delivering interventions with fathers, with illustrative examples presented in Tables 3 and 4. Multiple studies encountered low participation rates of fathers relative to that of mothers (Table 3). Fathers' employment was a consistently mentioned reason for their unavailability and limited participation. Restrictive gender attitudes were also perceived as a barrier to increasing paternal involvement and behavior change particularly relating to childcare and domestic chores. Poverty, such as food and financial insecurity, was another underlying constraint to father involvement.

Despite the barriers, other factors were reported as facilitating the successful delivery of interventions and particularly with respect to supporting fathers (Table 4). Flexible scheduling, whereby program sessions were organized in locations and times that were most convenient for fathers; engaging influential community stakeholders; and integrating father engagement programs within existing delivery platforms were noted as successful for increasing fathers' participation and program implementation. Incorporating participatory and peer-engaged methods (e.g., critical reflections, role-plays/skits, community events) were highlighted as especially advantageous for addressing gender norms. Additionally, the use of media (e.g., digital, print, mass media) were noted as success factors in both recruitment and dissemination of messages to reach and pique the interest of fathers. Other reported enablers include conducting formative research with fathers themselves to design intervention content that is tailored for fathers and the local context, balancing some gender-separated peer group sessions, and targeting fathers early during the transition to fatherhood/prenatal period.

DISCUSSION

In this study, we conducted a systematic review of the implementation characteristics of interventions that engaged fathers and other male caregivers to improve nurturing care for young children during the first five years of life in LMICs. Although fathers were largely underrepresented in interventions focused on the wellbeing of children, we uncovered how there has been a rapidly growing number of father-inclusive interventions in recent years, with programs becoming increasingly multicomponent in content, using more multilevel delivery platforms, and incorporating a greater number of behavior change techniques. Based on our review, we highlight several evidence gaps that deserve further investigation to improve the design and delivery of programs for fathers of young children in LMICs.

Even though all programs were selected for this review were based their inclusion of male caregivers, female participants outnumbered male participants. This partly reflects the fact that most studies did not explicitly recruit fathers at the outset of the study but instead more indirectly encouraged mothers to invite their partners or allowed multiple caregivers of the child to participate. Notwithstanding, implementation challenges also contributed to the lesser representation and retention issues of fathers. Of those studies that explicitly aimed to target both the mother and father, most did not incorporate any gender-related adaptations to the delivery approach. Applying the same delivery models of interventions originally developed for mothers with fathers can cause challenges to men's participation considering the known gender differences in parental preferences, roles, and daily time use—with fathers

often considered as the financial providers who spend most time outside of the home.[81,82] Those interventions that achieved high rates of fathers' attendance attributed success to tailoring programs during times and locations that were most convenient and preferred by men (e.g., evenings/weekends)[83] and also by engaging influential community members who helped reach fathers and generate demand for participation.[56]

The most common delivery model used across these interventions with fathers involved peer groups in the community. Similar to the reported social benefits of mothers' groups,[84] peer groups with fathers were useful for building peer support, facilitating social learning and critical reflections among men, and addressing men's gender attitudes.[25] Most group-based models with couples combined men in the same groups as their partners for all or the majority of sessions without justification, but perhaps to support social learning between couples and address relationship dynamics with couples meeting together[85] or because it was likely easier to manage practically and more cost saving. On the other hand, a few couples group programs were deliberate about having fathers meet in gender-separated sessions as a strategy for increasing buy-in to the program and allowing sensitive topics to be discussed more openly among men.[63] Future implementation research should investigate the tradeoffs between gender-separated versus mixed/couples' groups with respect to feasibility, cultural norms, and delivering certain key messages. Although most interventions purely used group sessions, it is worth noting that the more recent interventions increasingly incorporated multiple modes of program delivery with fathers, combining group sessions with home visits and/or mass media.[56,57] This multi-context strategy may increase fathers' exposure to program services that are not entirely contingent upon their in-person arrival to group sessions and facilitate reinforcement of messages across complementary channels.

In terms of specific content covered, interventions involving fathers of young children predominantly focused on child health and nutrition, especially those targeting children during the first 1,000 days of life. We found that many of these interventions for fathers additionally incorporated distinct content to strengthen aspects of couples' relationships and father engagement more broadly in childcare and household responsibilities spanning beyond nutrition and health. This combination of content addressing both fathers' dyadic nurturing care with their children and relationships with their partners reflects a family systems perspective to father involvement, which has shown increasing empirical support and cross-cultural relevance in LMICs.[5,86]

While nutrition and health were the most common program areas, our review also uncovered a recent expansion of more multicomponent fatherhood interventions, particularly with attention to responsive parenting, violence prevention, mental health, and gender norms. For example, two couples interventions in Rwanda[63] and Burkina Faso[61] and one intervention specifically for fathers in Uganda[54] jointly promoted messages to increase paternal nurturing care behaviors for their children and to enhance fathers' relationships with their partners, while supporting effective parenting stress management and/or addressing toxic masculinity to dismantle restrictive gender norms and increase gender equity within families. Indeed, these programmatic priorities reflect a growing, contemporary evidence base demonstrating strong links and clustering between fathers' parenting practices, partner relationships, gender attitudes, psychological wellbeing, and child outcomes in LMICs.[87,88]

Although gender was one of the least represented content areas (incorporated in only four interventions), these programs that explicitly addressed gender roles and norms underscored this component as a major success factor. Gender-transformative interventions have been gaining traction and demonstrating success with male engagement and improving various outcomes over the lifecourse.[89,90] Similarly, gender-transformative interventions may hold promise for improving nurturing care and supporting families with young children. In addition to universal approaches, more targeted program design and implementation is needed to support vulnerable groups of male caregivers, such as fathers with depression.[76]

We identified "two-way" educational counseling, engagement of men with their partners, and peer social learning as the most used behavior change strategies. Other performance-based strategies—such as demonstrations, problem solving, behavioral practice during the sessions, inclusion of children during sessions—were infrequently used with fathers. However, this latter set of performance-based strategies have been underscored as highly impactful for enabling nurturing care behavior change in prior systematic reviews focused on interventions with mothers,[91] thus suggesting a missed opportunity for father-focused programming. Despite being used in fewer than one-third of interventions, media was regarded by study authors as effective for reinforcing key messages for men. For example, text messaging was highlighted as advantageous for expanding program reach by overcoming in-person attendance that disproportionately affects fathers, and mass media was noted as a unique way to address gender attitudes and social norms.[57] During the COVID-19 pandemic, there has been increasing implementation of media-based delivery models for promoting nurturing care, but primarily among mothers.[92] More implementation research particularly regarding media-based program components is warranted, such as the extent to which media relative to other modalities can increase the reach and coverage of fathers and promote paternal caregiving behavior change.

There are several limitations to this review. First, many programs were relatively small pilots under controlled conditions, which limits the ability to make comparisons from different studies and generalize conclusions from the narrative synthesis. Second, many studies did not adequately report on intervention design and implementation processes (e.g., dosage, contents of intervention curricula, behavior change strategies) or objectively evaluate implementation processes. We did not contact authors for additional information and therefore were limited to the reported information in manuscripts and any publicly available sources. Finally, we focused on programs that were evaluated using a quantitative design for the purpose of a companion paper reviewing the effectiveness of these father-inclusive interventions, and thus we may have excluded other relevant programs such as qualitative evaluations.

CONCLUSIONS

We reviewed the implementation characteristics of interventions aimed at enhancing the caregiving behaviors of fathers and other male caregivers with young children during the first five years of life in LMICs. Our review updates and reinforces the results of several prior reviews to underscore a lack of attention towards fathers in interventions focused on the wellbeing of young children and specifically in LMIC contexts. Together, this

accumulating evidence highlights the global need for more father-inclusive interventions equally so in HICs and LMICs. Extending previous reviews, we unpack variations in program characteristics and highlight multiple dimensions along which implementation can be honed to engage, support, and include male caregivers in nurturing care interventions. We recommend that implementors explicitly target fathers and other male caregivers from the outset and design interventions with and for male caregivers. Initial formative research with fathers and incorporating qualitative implementation evaluations to understand the perspectives of fathers themselves, including about any barriers and enablers faced to program engagement, can enhance program design and delivery that is responsive to the needs of fathers. We encourage the design of new curricula for fathers that shift beyond the prevailing approach of imparting information to promote child health and nutrition and move towards supporting fathers' nurturing care more holistically; from a family systems and gender-transformative perspective and incorporating multiple behavior change techniques. At the same time, it is worth recognizing that programs and delivery approaches that are feasible and promising in one cultural context may not be equally applicable and relevant to the needs of male caregivers, children, and their families in other cultural contexts. Therefore, more fatherhood interventions will need to be disseminated across diverse cultural settings in more countries, where cultural adaptations of curricula and different recruitment strategies may be required to most appropriately engage and support fathers in the local context. Having documented in this review the implementation characteristics of father-inclusive interventions, a critical next research direction will be to link these implementation factors with programs' impacts on parent, couple, and child outcomes to identify effective ingredients of fatherhood interventions. In addition to strong measurement of outcome measures, this will necessitate deeper investigations and detailed reported of implementation processes. Finally, considering how male engagement is multidisciplinary, such efforts will necessitate building partnerships with local stakeholders across multiple levels (e.g., community, sub-national, national levels) and deploying interventions while also strengthening local policies (e.g., parental leave, social protection) that facilitate father involvement.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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REFERENCES

1. Britto PR, Lye SJ, Proulx K, et al. Nurturing care: promoting early childhood development. Lancet 2017; 389(10064): 91–102. [PubMed: 27717615]
2. World Health Organization, United Nations Children's Fund, World Bank Group. Nurturing care for early childhood development: a framework for helping children survive and thrive to transform health and human potential. 2018.
3. Jeong J, McCoy DC, Yousafzai AK, Salhi C, Fink G. Paternal Stimulation and Early Child Development in Low- and Middle-Income Countries. Pediatrics 2016; 138(4).

4. Bilal SM, Dinant G, Blanco R, Crutzen R, Mulugeta A, Spigt M. The influence of father's child feeding knowledge and practices on children's dietary diversity: a study in urban and rural districts of Northern Ethiopia, 2013. Matern Child Nutr 2016; 12(3): 473–83. [PubMed: 25522228]
5. Jeong J, Siyal S, Fink G, McCoy DC, Yousafzai AK. "His mind will work better with both of us": a qualitative study on fathers' roles and coparenting of young children in rural Pakistan. BMC Public Health 2018; 18(1): 1274. [PubMed: 30453979]
6. Amodia-Bidakowska A, Laverty C, Ramchandani PG. Father-child play: A systematic review of its frequency, characteristics and potential impact on children's development. Developmental Review 2020; 57: 100924.
7. Rowe ML, Coker D, Pan BA. A Comparison of Fathers' and Mothers' Talk to Toddlers in Low-income Families. Social Development 2004; 13(2): 278–91.
8. Jeong J, Ahun MN, Bliznashka L, Velthausz D, Donco R, Yousafzai AK. Barriers and facilitators to father involvement in early child health services: A qualitative study in rural Mozambique. Soc Sci Med 2021; 287: 114363.
9. Cowan PA, Cowan CP, Pruett MK, Pruett K. Fathers' and mothers' attachment styles, couple conflict, parenting quality, and children's behavior problems: an intervention test of mediation. Attach Hum Dev 2019; 21(5): 532–50. [PubMed: 30821614]
10. Gutierrez-Galve L, Stein A, Hanington L, Heron J, Ramchandani P. Paternal depression in the postnatal period and child development: mediators and moderators. Pediatrics 2015; 135(2): e339–47. [PubMed: 25560437]
11. Comrie-Thomson L, Tokhi M, Ampt F, et al. Challenging gender inequity through male involvement in maternal and newborn health: critical assessment of an emerging evidence base. Culture, Health & Sexuality 2015; 17(sup2): 177–89.
12. Kato-Wallace J, Barker G, Eads M, Levtov R. Global pathways to men's caregiving: Mixed methods findings from the International Men and Gender Equality Survey and the Men Who Care study. Global Public Health 2014; 9(6): 706–22. [PubMed: 24938308]
13. Lee JY, Knauer HA, Lee SJ, MacEachern MP, Garfield CF. Father-Inclusive Perinatal Parent Education Programs: A Systematic Review. Pediatrics 2018; 142(1).
14. Panter-Brick C, Burgess A, Eggerman M, McAllister F, Pruett K, Leckman JF. Practitioner review: Engaging fathers--recommendations for a game change in parenting interventions based on a systematic review of the global evidence. J Child Psychol Psychiatry 2014; 55(11): 1187–212. [PubMed: 24980187]
15. Davison KK, Kitos N, Aftosmes-Tobio A, et al. The forgotten parent: Fathers' representation in family interventions to prevent childhood obesity. Prev Med 2018; 111: 170–6. [PubMed: 29499214]
16. Mahesh PKB, Gunathunga MW, Arnold SM, et al. Effectiveness of targeting fathers for breastfeeding promotion: systematic review and meta-analysis. BMC Public Health 2018; 18(1): 1140. [PubMed: 30249216]
17. Filippa M, Saliba S, Esseily R, Gratier M, Grandjean D, Kuhn P. Systematic review shows the benefits of involving the fathers of preterm infants in early interventions in neonatal intensive care units. Acta Paediatrica 2021; 110(9): 2509–20. [PubMed: 34053115]
18. Tokhi M, Comrie-Thomson L, Davis J, Portela A, Chersich M, Luchters S. Involving men to improve maternal and newborn health: A systematic review of the effectiveness of interventions. PLoS One 2018; 13(1): e0191620.
19. Kilama WL. The 10/90 gap in sub-Saharan Africa: Resolving inequities in health research. Acta Tropica 2009; 112: S8–S15. [PubMed: 19695211]
20. Henrich J, Heine SJ, Norenzayan A. The weirdest people in the world? Behav Brain Sci 2010; 33(2–3): 61–83; discussion −135. [PubMed: 20550733]
21. Nielsen M, Haun D, Kartner J, Legare CH. The persistent sampling bias in developmental psychology: A call to action. J Exp Child Psychol 2017; 162: 31–8. [PubMed: 28575664]
22. Black MM, Walker SP, Fernald LCH, et al. Early childhood development coming of age: science through the life course. The Lancet 2017; 389(10064): 77–90.
23. Nsamenang AB. Fathers, families, and children's well-becoming in Africa. The role of the father in child development, 5th ed: John Wiley & Sons Inc; 2010. p. 388–412.

24. Comrie-Thomson L, Mavhu W, Makungu C, et al. Male involvement interventions and improved couples' emotional relationships in Tanzania and Zimbabwe: 'When we are walking together, I feel happy'. Culture, Health & Sexuality 2020; 22(6): 722–39.
25. Doyle K, Kato-Wallace J, Kazimbaya S, Barker G. Transforming gender roles in domestic and caregiving work: preliminary findings from engaging fathers in maternal, newborn, and child health in Rwanda. Gender & Development 2014; 22(3): 515–31.
26. Siu GE, Wight D, Seeley J, et al. Men's Involvement in a Parenting Programme to Reduce Child Maltreatment and Gender-Based Violence: Formative Evaluation in Uganda. The European Journal of Development Research 2017; 29(5): 1017–37.
27. Yourkavitch JM, Alvey JL, Prosnitz DM, Thomas JC. Engaging men to promote and support exclusive breastfeeding: a descriptive review of 28 projects in 20 low- and middle-income countries from 2003 to 2013. J Health Popul Nutr 2017; 36(1): 43. [PubMed: 29246194]
28. Maxwell N, Scourfield J, Featherstone B, Holland S, Tolman R. Engaging fathers in child welfare services: a narrative review of recent research evidence. Child & Family Social Work 2012; 17(2): 160–9.
29. Pleck JH. Paternal involvement: Revised conceptualization and theoretical linkages with child outcomes. The role of the father in child development, 5th ed. Hoboken, NJ, US: John Wiley & Sons Inc; 2010: 58–93.
30. Abbass-Dick J, Brown HK, Jackson KT, Rempel L, Dennis C-L. Perinatal breastfeeding interventions including fathers/partners: A systematic review of the literature. Midwifery 2019; 75: 41–51. [PubMed: 30999255]
31. Yousafzai AK, Aboud FE, Nores M, Kaur R. Reporting guidelines for implementation research on nurturing care interventions designed to promote early childhood development. Annals of the New York Academy of Sciences 2018; 1419(1): 26–37. [PubMed: 29791737]
32. Peters DH, Adam T, Alonge O, Agyepong IA, Tran N. Implementation research: what it is and how to do it. BMJ : British Medical Journal 2013; 347: f6753. [PubMed: 24259324]
33. Richter LM, Daelmans B, Lombardi J, et al. Investing in the foundation of sustainable development: pathways to scale up for early childhood development. Lancet 2017; 389(10064): 103–18. [PubMed: 27717610]
34. Jeong J, Franchett EE, Ramos de Oliveira CV, Rehmani K, Yousafzai AK. Parenting interventions to promote early child development in the first three years of life: A global systematic review and meta-analysis. PLoS Med 2021; 18(5): e1003602.
35. Peters DH, Adam T, Alonge O, Agyepong IA, Tran N. Republished research: Implementation research: what it is and how to do it. British Journal of Sports Medicine 2014; 48(8): 731. [PubMed: 24659611]
36. Conger RD, Donnellan MB. An interactionist perspective on the socioeconomic context of human development. Annual Review of Psychology 2006; 58(1): 175–99.
37. Cox MJ, Paley B. Families as systems. Annual Review of Psychology 1997; 48(1): 243–67.
38. Hartog K, Hubbard CD, Krouwer AF, Thornicroft G, Kohrt BA, Jordans MJD. Stigma reduction interventions for children and adolescents in low- and middle-income countries: Systematic review of intervention strategies. Soc Sci Med 2020; 246: 112749.
39. Briscoe C, Aboud F. Behaviour change communication targeting four health behaviours in developing countries: a review of change techniques. Soc Sci Med 2012; 75(4): 612–21. [PubMed: 22541798]
40. Singla DR, Waqas A, Hamdani SU, et al. Implementation and effectiveness of adolescent life skills programs in low- and middle-income countries: A critical review and meta-analysis. Behav Res Ther 2020; 130: 103402.
41. Susin LR, Giugliani ER, Kummer SC, Maciel M, Simon C, da Silveira LC. Does parental breastfeeding knowledge increase breastfeeding rates? Birth 1999; 26(3): 149–56. [PubMed: 10655814]
42. Susin LR, Giugliani ER. Inclusion of fathers in an intervention to promote breastfeeding: impact on breastfeeding rates. Journal of Human Lactation 2008; 24(4): 386–92; quiz 451. [PubMed: 18784322]

43. Turan JM, Nalbant H, Bulut A, Sahip Y. Including expectant fathers in antenatal education programmes in Istanbul, Turkey. Reprod Health Matters 2001; 9(18): 114–25. [PubMed: 11765387]
44. Mullany BC, Becker S, Hindin MJ. The impact of including husbands in antenatal health education services on maternal health practices in urban Nepal: results from a randomized controlled trial. Health Education Research 2007; 22(2): 166–76. [PubMed: 16855015]
45. Sahip Y, Molzan Turan J. Education for expectant fathers in workplaces in Turkey. Journal of Biosocial Science 2007; 39(6): 843–60. [PubMed: 17537276]
46. Sloand E, Astone NM, Gebrian B. The impact of fathers' clubs on child health in rural Haiti. Am J Public Health 2010; 100(2): 201–4. [PubMed: 20019318]
47. Bich TH, Hoa DT, Målqvist M. Fathers as supporters for improved exclusive breastfeeding in Viet Nam. Matern Child Health J 2014; 18(6): 1444–53. [PubMed: 24162509]
48. Bich TH, Hoa DT, Ha NT, Vui le T, Nghia DT, Målqvist M. Father's involvement and its effect on early breastfeeding practices in Viet Nam. Maternal & Child Nutrition 2016; 12(4): 768–77. [PubMed: 26260287]
49. Bich TH, Cuong NM. Changes in knowledge, attitude and involvement of fathers in supporting exclusive breastfeeding: a community-based intervention study in a rural area of Vietnam. Int J Public Health 2017; 62(Suppl 1): 17–26. [PubMed: 27586035]
50. Ozlüses E, Celebioglu A. Educating fathers to improve breastfeeding rates and paternal-infant attachment. Indian Pediatrics 2014; 51(8): 654–7. [PubMed: 25129001]
51. Singla DR, Kumbakumba E, Aboud FE. Effects of a parenting intervention to address maternal psychological wellbeing and child development and growth in rural Uganda: a community-based, cluster randomised trial. Lancet Glob Health 2015; 3(8): e458–e69. [PubMed: 26144389]
52. Mukuria AG, Martin SL, Egondi T, Bingham A, Thuita FM. Role of Social Support in Improving Infant Feeding Practices in Western Kenya: A Quasi-Experimental Study. Glob Health Sci Pract 2016; 4(1): 55–72. [PubMed: 27016544]
53. Su M, Ouyang YQ. Father's Role in Breastfeeding Promotion: Lessons from a Quasi-Experimental Trial in China. Breastfeeding Medicine 2016; 11: 144–9. [PubMed: 26836960]
54. Ashburn K, Kerner B, Ojamuge D, Lundgren R. Evaluation of the Responsible, Engaged, and Loving (REAL) Fathers Initiative on Physical Child Punishment and Intimate Partner Violence in Northern Uganda. Prev Sci 2017; 18(7): 854–64. [PubMed: 27738782]
55. Nguyen PH, Kim SS, Sanghvi T, et al. Integrating Nutrition Interventions into an Existing Maternal, Neonatal, and Child Health Program Increased Maternal Dietary Diversity, Micronutrient Intake, and Exclusive Breastfeeding Practices in Bangladesh: Results of a Cluster-Randomized Program Evaluation. J Nutr 2017; 147(12): 2326–37. [PubMed: 29021370]
56. Nguyen PH, Frongillo EA, Sanghvi T, et al. Engagement of Husbands in a Maternal Nutrition Program Substantially Contributed to Greater Intake of Micronutrient Supplements and Dietary Diversity during Pregnancy: Results of a Cluster-Randomized Program Evaluation in Bangladesh. Journal of Nutrition 2018; 148(8): 1352–63. [PubMed: 29931108]
57. Rempel LA, Rempel JK, Khuc TN, Vui LT. Influence of father-infant relationship on infant development: A father-involvement intervention in Vietnam. Dev Psychol 2017; 53(10): 1844–58. [PubMed: 28816464]
58. Bich TH, Long TK, Hoa DP. Community-based father education intervention on breastfeeding practice-Results of a quasi-experimental study. Maternal & Child Nutrition 2019; 15 Suppl 1(Suppl 1): e12705.
59. Rempel JK, Rempel LA, Hoa DTP, Vui LT, Long TK. Parenting Teamwork: The Impact of a Fathering Intervention on Mothers and Infants in Vietnam. Child Dev 2020; 91(2): e345–e64. [PubMed: 30937897]
60. Verma A, Maria A, Pandey RM, Hans C, Verma A, Sherwani F. Family-centered care to complement care of sick newborns: A randomized controlled trial. Indian Pediatrics 2017; 54(6): 455–9. [PubMed: 28667715]
61. Daniele MA, Ganaba R, Sarrassat S, et al. Involving male partners in maternity care in Burkina Faso: a randomized controlled trial. Bull World Health Organ 2018; 96(7): 450–61. [PubMed: 29962548]

62. Dinga LA, Kiage B, Kyallo F. Effect of paternal education about complementary feeding of infants in Kisumu County, Kenya. African Journal of Food, Agriculture, Nutrition and Development 2018; 18(3): 13702–16.

63. Doyle K, Levtov RG, Barker G, et al. Gender-transformative Bandebereho couples' intervention to promote male engagement in reproductive and maternal health and violence prevention in Rwanda: Findings from a randomized controlled trial. PLoS One 2018; 13(4): e0192756.

64. Hazra A, Khan ME, Mondal SK. Mobile Phone Messaging to Husbands to Improve Maternal and Child Health Behavior in India. J Health Commun 2018; 23(6): 542–9. [PubMed: 29902122]

65. Jones DL, Rodriguez VJ, Mandell LN, Lee TK, Weiss SM, Peltzer K. Influences on Exclusive Breastfeeding Among Rural HIV-Infected South African Women: A Cluster Randomized Control Trial. AIDS and Behavior 2018; 22(9): 2966–77. [PubMed: 29926300]

66. Turan JM, Darbes LA, Musoke PL, et al. Development and Piloting of a Home-Based Couples Intervention During Pregnancy and Postpartum in Southwestern Kenya. AIDS Patient Care and STDS 2018; 32(3): 92–103. [PubMed: 29620927]

67. Abimpaye M, Dusabe C, Nzabonimpa JP, Ashford R, Pisani L. Improving parenting practices and development for young children in Rwanda: Results from a randomized control trial. International Journal of Behavioral Development 2019; 44(3): 205–15.

68. Downs SM, Sackey J, Kalaj J, Smith S, Fanzo J. An mHealth voice messaging intervention to improve infant and young child feeding practices in Senegal. Matern Child Nutr 2019; 15(4): e12825. [PubMed: 30950190]

69. Rahman AE, Perkins J, Tapas M, et al. Capacities of women and men to improve maternal and newborn health: effect of a community-based intervention package in rural Bangladesh. Journal of Global Health 2019; 9(1): 010413-.

70. Swigart T, Hollowell J, Remes P, et al. Can health promotion videos 'go viral'? A non-randomised, controlled, before-and-after pilot study to measure the spread and impact of local language mobile videos in Burkina Faso. Glob Health Action 2019; 12(1): 1600858.

71. Betancourt TS, Jensen SKG, Barnhart DA, et al. Promoting parent-child relationships and preventing violence via home-visiting: a pre-post cluster randomised trial among Rwandan families linked to social protection programmes. BMC Public Health 2020; 20(1): 621. [PubMed: 32375840]

72. Jensen SK, Placencio-Castro M, Murray SM, et al. Effect of a home-visiting parenting program to promote early childhood development and prevent violence: a cluster-randomized trial in Rwanda. BMJ Glob Health 2021; 6(1).

73. Heath R, Hidrobo M, Roy S. Cash transfers, polygamy, and intimate partner violence: Experimental evidence from Mali. Journal of Development Economics 2020; 143: 102410.

74. Lakkis NA, Osman MH, Aoude LC, Maalouf CJ, Issa HG, Issa GM. A Pilot Intervention to Promote Positive Parenting in Refugees from Syria in Lebanon and Jordan. Front Psychiatry 2020; 11: 257. [PubMed: 32372979]

75. Carneiro P, Kraftman L, Mason G, Moore L, Rasul I, Scott M. The Impacts of a Multifaceted Prenatal Intervention on Human Capital Accumulation in Early Life. American Economic Review 2021; 111(8): 2506–49.

76. Husain MI, Chaudhry IB, Khoso AB, et al. A Group Parenting Intervention for Depressed Fathers (LTP + Dads): A Feasibility Study from Pakistan. Children (Basel) 2021; 8(1).

77. Luoto JE, Lopez Garcia I, Aboud FE, et al. Group-based parenting interventions to promote child development in rural Kenya: a multi-arm, cluster-randomised community effectiveness trial. Lancet Glob Health 2021; 9(3): e309–e19. [PubMed: 33341153]

78. Sokolovic N, Grujic S, Pajic S. Evaluation of the Support, not Perfection Parenting Program in Serbia. European Journal of Developmental Psychology 2022; 19(3): 365–82.

79. Skar AS, Sherr L, Macedo A, Tetzchner Sv, Fostervold KI. Evaluation of Parenting Interventions to Prevent Violence Against Children in Colombia: A Randomized Controlled Trial. Journal of Interpersonal Violence 2021; 36(1–2): NP1098–NP126. [PubMed: 29294970]

80. Jones DL, Rodriguez VJ, Soni Parrish M, et al. Maternal and infant antiretroviral therapy adherence among women living with HIV in rural South Africa: a cluster randomised trial of

the role of male partner participation on adherence and PMTCT uptake. SAHARA-J: Journal of Social Aspects of HIV/AIDS 2021; 18(1): 17–25.

81. Frank TJ, Keown LJ, Dittman CK, Sanders MR. Using Father Preference Data to Increase Father Engagement in Evidence-Based Parenting Programs. Journal of Child and Family Studies 2015; 24(4): 937–47.
82. Gibbs A, Dunkle K, Washington L, et al. Factors associated with young people's attendance at an IPV prevention intervention in informal settlements in South Africa: A prospective analysis. Global Public Health 2020; 15(2): 161–72. [PubMed: 31510867]
83. Bich TH, Long TK, Hoa DP. Community-based father education intervention on breastfeeding practice—Results of a quasi-experimental study. Maternal & child nutrition 2019; 15: e12705.
84. Gram L, Fitchett A, Ashraf A, Daruwalla N, Osrin D. Promoting women's and children's health through community groups in low-income and middle-income countries: a mixed-methods systematic review of mechanisms, enablers and barriers. BMJ Global Health 2019; 4(6): e001972.
85. Cowan PA, Cowan CP, Pruett MK, Pruett K, Wong JJ. Promoting Fathers' Engagement With Children: Preventive Interventions for Low-Income Families. Journal of Marriage and Family 2009; 71(3): 663–79.
86. Aubel J, Martin SL, Cunningham K. Introduction: A family systems approach to promote maternal, child and adolescent nutrition. Matern Child Nutr 2021; 17 Suppl 1: e13228.
87. Chan KL, Emery CR, Fulu E, Tolman RM, Ip P. Association Among Father Involvement, Partner Violence, and Paternal Health: UN Multi-Country Cross-Sectional Study on Men and Violence. Am J Prev Med 2017; 52(5): 671–9. [PubMed: 28209281]
88. Jeong J, Adhia A, Bhatia A, McCoy DC, Yousafzai AK. Intimate Partner Violence, Maternal and Paternal Parenting, and Early Child Development. Pediatrics 2020; 145(6).
89. Ruane-McAteer E, Gillespie K, Amin A, et al. Gender-transformative programming with men and boys to improve sexual and reproductive health and rights: a systematic review of intervention studies. BMJ Glob Health 2020; 5(10).
90. Levy JK, Darmstadt GL, Ashby C, et al. Characteristics of successful programmes targeting gender inequality and restrictive gender norms for the health and wellbeing of children, adolescents, and young adults: a systematic review. Lancet Glob Health 2020; 8(2): e225–e36. [PubMed: 31879212]
91. Aboud FE, Yousafzai AK. Global Health and Development in Early Childhood. Annual Review of Psychology 2015; 66(1): 433–57.
92. Proulx K, Lenzi-Weisbecker R, Hatch R, et al. Nurturing care during COVID-19: a rapid review of early evidence. BMJ Open 2022; 12(6): e050417.

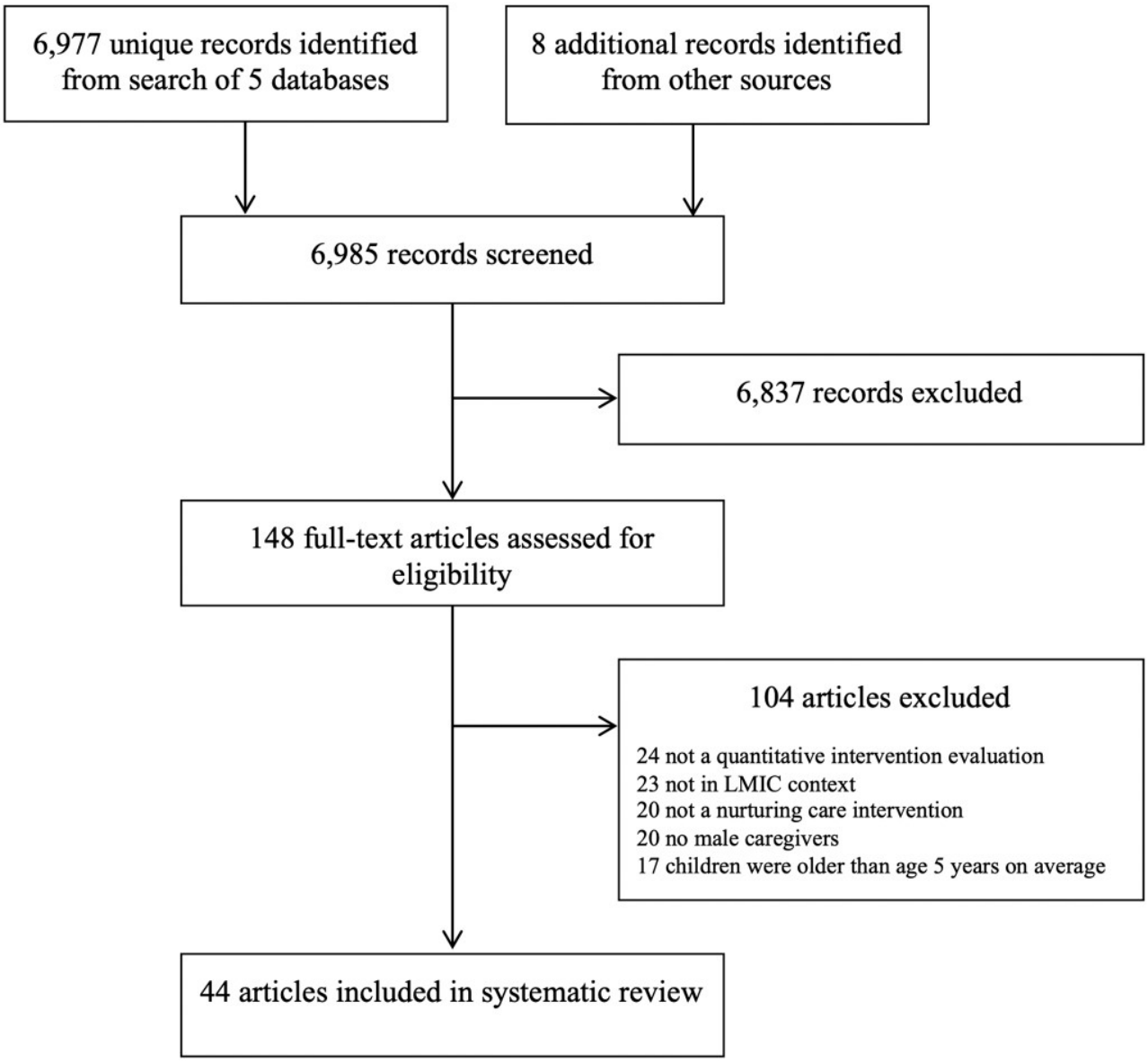

FIGURE 1.
PRISMA flow diagram of search results and process. Abbreviation: low- and middle-income countries (LMIC)

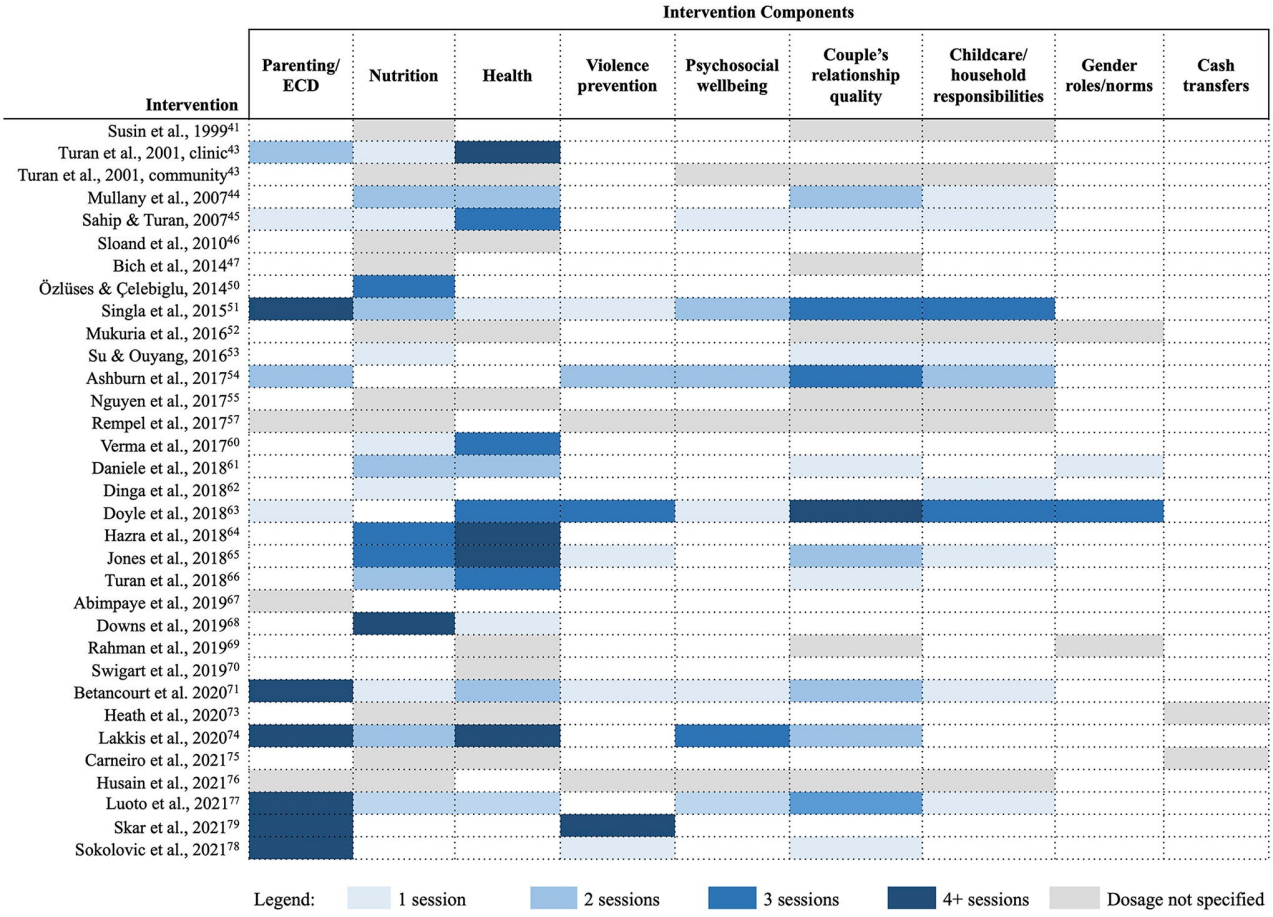

FIGURE 2.
Relative distribution of content represented across intervention curricula used with male caregivers.

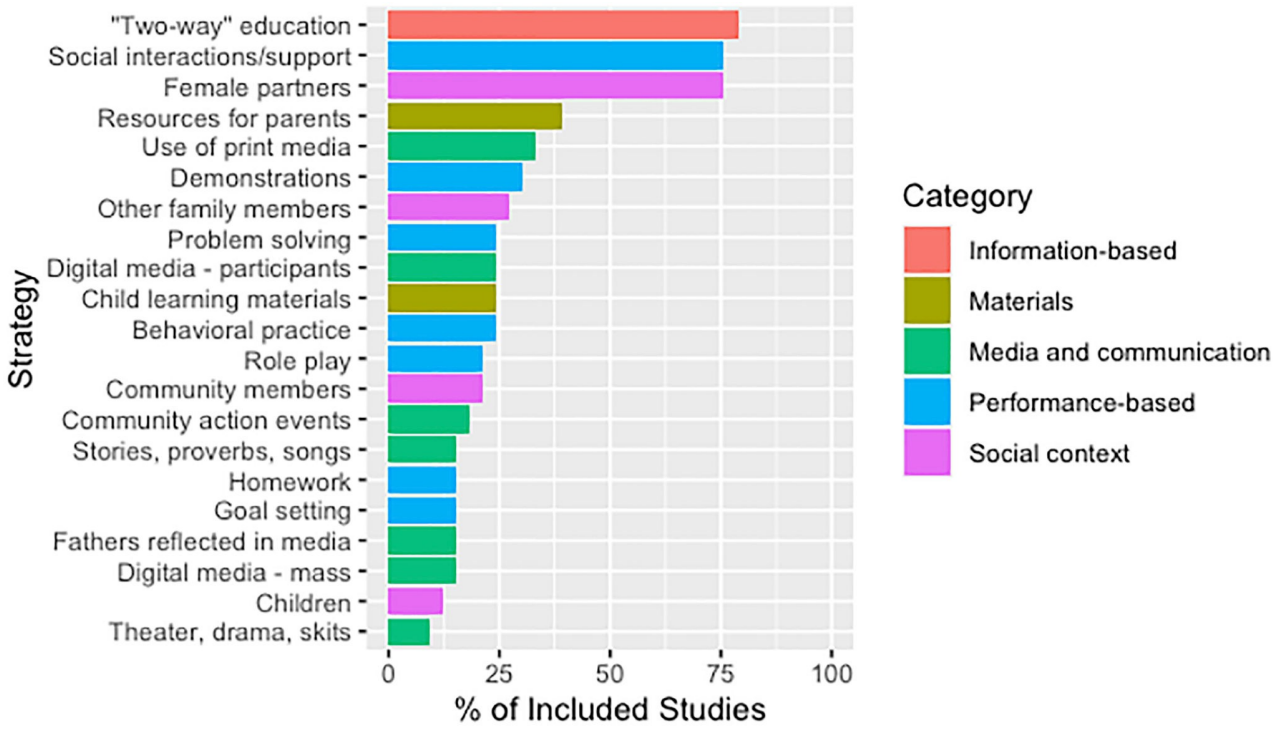

FIGURE 3.
Behavior change techniques used across interventions that included male caregivers.

Table 1.

Intervention characteristics of included studies.

Characteristics	N	%
Country		
Sub-Saharan Africa	15	45.5%
Latin America & the Caribbean	3	9.1%
South East Asia	6	18.2%
Europe & Central Asia	5	15.2%
Middle East & North Africa	1	3.0%
East Asia & Pacific	3	9.1%
Sample size		
<100	5	15.2%
101–400	8	24.2%
401–1000	10	30.3%
>1001	10	30.3%
Study design		
Clustered RCT	9	27.3%
Individual-level RCT	8	24.2%
Quasi-experimental	12	36.4%
Non-experimental	4	12.1%
Type of male caregiver represented in study sample		
Fathers	25	75.8%
Married husbands of pregnant women, but not specifically defined as fathers	2	6.1%
Any male caregivers specifically with respect to child (father, grandfathers, uncles)	2	6.1%
Any male caregivers broadly with respect to the mother and/or child	4	12.1%
Average child age at enrollment		
prenatal	14	42.4%
0–1 yr	5	15.2%
1–2 yrs	8	24.2%
2–4 yrs	3	9.1%
<5 yrs	3	9.1%
Who participates		
Both parents/couple	20	60.6%
Only father	8	24.2%
Open to any caregiver(s) broadly	5	15.2%
Delivery strategy		
Group	10	30.3%
Individual	5	15.2%
Media	3	9.1%
Group+individual	13	39.4%
Group+media	2	6.1%
Number of contacts		

Characteristics	N	%
<5	12	36.4%
6–10	6	18.2%
11–20	11	33.3%
>20	4	12.1%
Time per session		
<30 min	1	3.0%
30–60 min	2	6.1%
1–2 hrs	11	33.3%
2+ hrs	5	15.2%
Not stated	14	42.4%
Session frequency		
Weekly	9	27.3%
Biweekly	6	18.2%
Monthly	4	12.1%
Other	5	15.2%
Not stated	9	27.3%
Setting		
Community	11	33.3%
Home	2	6.1%
Clinic	9	27.3%
Workplace	1	3.0%
Community+home	4	12.1%
Community+home+clinic	3	9.1%
Delivery model applied with fathers compared to mothers[a]		
Same approach (no gender adaptation)	14	42.4%
Lighter touch for fathers	2	9.1%
More intensive for father	3	9.1%
Delivery agent		
Health providers	16	48.5%
Psychologist/researcher	4	12.1%
Lay persons	8	24.2%
None (i.e., entirely digital-based)	3	9.1%

[a]Among those interventions that engage both men and women (N=19)

TABLE 2

Description of included interventions.

Intervention	Country	Program Description	Program participants	Delivery model used with fathers (relative to mothers and as applicable)
Susin et al., 1999;[41] Susin et al., 2008[42]	Brazil	A hospital-based intervention delivered to mothers and fathers to improve breastfeeding practices that uses informational videos followed by an open discussion and distribution of an explanatory handout.	Both mothers and fathers	**Mothers:** 18-minute video on breastfeeding followed by an open discussion. **Fathers:** Same delivery model as mothers.
Turan et al., 2001 (clinic)[43]	Turkey	A clinic-based antenatal education program with couples to provide information about health topics and the role fathers can play in supporting women during pregnancy, delivery, and post-partum.	Both mothers and fathers	**Mothers:** Four group sessions, each 90 minutes, delivered in hospital clinic. Telephone counseling service available. **Fathers:** Same delivery model as mothers.
Turan et al., 2001 (community)[43]	Turkey	A community-based program delivered at a community center for first-time expectant mothers and fathers on postpartum health behaviors and health knowledge, attitudes, and behaviors during pregnancy and childbirth.	Fathers only	**Fathers:** Six group sessions held once per week on weekends or evenings for approximately three hours in community center.
Mullany et al., 2007[44]	Nepal	A facility-based health education intervention delivered to pregnant women and their husbands on topics related to maternal and child health practices during the antenatal and post-partum periods.	Both mothers and male caregivers (husbands)	**Mothers:** Two 35-minute health education sessions delivered in a private room at hospital. First health education session took place on day of enrollment at 16–28 weeks gestational age, with second session four to six weeks later. **Fathers:** Same delivery model as mothers.
Sahip & Turan, 2007[45]	Turkey	A workplace intervention delivered to expectant fathers that included sessions surrounding the health of families during the pregnancy, birth, and newborn periods.	Fathers only	**Fathers:** Six group sessions, approximately three to four hours in workplaces.
Sloand et al. 2010[46]	Haiti	A fathers club strategy in which fathers meet regularly to learn about child and family health and discuss how to support their wives and mutually care for their children.	Fathers only	**Fathers:** Fathers clubs met at community level (typically weekly or every two to three weeks). Total program duration not specified.
Bich et al., 2014;[47] Bich et al, 2016;[48] Bich & Cuong, 2017[49]	Vietnam	A community-based education intervention for fathers and expectant fathers with pregnant wives designed to stimulate father's involvement in supporting early and exclusive breastfeeding practices.	Fathers only	**Fathers:** Seven total monthly group counseling sessions held for 30–45 minutes on the 25th day of each month and integrated into local immunization activities and other maternal health-care services. Home visits (first visit at last trimester, second at the first week postpartum, third and fourth visits at 42 days and 3.5 months after birth). 1 public event in the Cultural House of the district for fathers ("Fathers' Contest") open to all community members (e.g., mothers, other community members). Two air times each week of two community-wide broadcast messages on father support for exclusive breastfeeding.
Özlüses & Çelebiglu, 2014[50]	Turkey	A hospital-based breastfeeding education program provided to mothers and fathers with the aim of improving exclusive breastfeeding and paternal-infant attachment.	Both mothers and fathers	**Mothers:** Daily 20-minute education sessions for duration of stay in hospital after delivery (average duration of three days). 28-page education manual for mothers. **Fathers:** Same delivery model as mothers, except that education manual was 20 pages for fathers.
Singla et al., 2015[51]	Uganda	A community-based parenting program delivered to mothers and fathers that targeted child development and maternal wellbeing through interactive sessions and home visits.	Both mothers and fathers	**Mothers:** 12 group sessions, every two weeks for 60–90 minutes, plus one booster session. One to two home visits, each 40–50

Intervention	Country	Program Description	Program participants	Delivery model used with fathers (relative to mothers and as applicable)
				minutes. **Fathers:** Same delivery model as mothers.
Mukuria et al., 2016[52]	Kenya	An intervention to engage infants' fathers and grandmothers to support optimal infant feeding practices using dialogue-based groups with mother/father and mother/grandmother pairs.	Mothers, fathers, grandmothers	**Mothers:** One Family Bazaar in the community and one home counseling visit on maternal and child nutrition delivered by community health workers. **Fathers:** Dialogue groups with 8–12 fathers twice a month for six months at community locations of choice (schools, churches, homes). One Family Bazaar in the community to showcase fathers' learnings. Five Fathers Days at local clinics. 1 home counseling visit on maternal and child nutrition delivered by community health workers.
Su & Ouyang, 2016[53]	China	An antenatal breastfeeding education program provided to couples in which a "father support" model was used to foster father involvement in decision making with mothers and in supporting breastfeeding.	Both mothers and fathers	**Mothers:** One group session, approximately 60–90 minutes, in university hospital setting. **Fathers:** Same delivery model as mothers.
Ashburn et al., 2017[54]	Uganda	The REAL Fathers Initiative is a father mentoring program to reduce child exposure to violence at home and to address gender norms that promote use of violence in child discipline and with intimate partner through the promotion of positive parenting and partnership skills building.	Fathers only	**Fathers:** Meetings twice per month for six months for 40–90 minutes each. One individual meeting per month between a mentor and mentee. One meeting per month was a group session with three to four mentors and their mentees. Open community meeting held at end of program for participants and their families. Series of six posters displayed in locations frequented by young fathers, changed monthly.
Nguyen et al., 2017;[55] Nguyen et al., 2018[56]	Bangladesh	Alive and Thrive is a nutrition-focused maternal, neonatal, and child health intervention targeting wives and husbands to promote greater engagement of husbands and support of their wives during pregnancy.	Both mothers and male caregivers (husbands)	**Mothers:** 21 home visits during pregnancy (seven from health workers, 14 from health volunteers) and 15 home visits during the postpartum period (five from health workers, 10 from health volunteers). **Fathers:** Same delivery model as mothers plus two husbands' forums during pregnancy in community.
Rempel et al., 2017;[57] Bich et al., 2019;[58] Rempel et al., 2020[59]	Vietnam	An integrated community-based educational intervention targeting fathers at antenatal, delivery, and postnatal periods for supporting breastfeeding practices in Vietnam.	Fathers only	**Fathers:** One prenatal group session at health clinic (two months before wives expected due date), one prenatal home visit (following initial clinic session), and three postnatal home visits (when infants were one, six, and 15 weeks old). Fathers clubs met at least monthly over approximately six months to allow fathers to share joys and concerns of mutual interest. Two messages delivered via communal speaker system. Distribution of flyer, mugs, T-shirt, and father–infant relationship calendar to fathers; motivational posters in health facilities to encourage fathers' involvement.
Verma et al., 2017[60]	India	A family-centered care intervention delivered to parent attendants (mother/father/grandparent/relative) via an audio-visual tool that covered domains related to the delivery of care to sick newborns.	Both mothers and fathers (and potentially other male relatives)	**Parents/relatives:** Individual family or groups of families received four training sessions in neonatal unit, each approximately two hours.
Daniele et al., 2018[61]	Burkina Faso	An intervention designed to involve the male partners of pregnant women in facility-based maternity care through interactive group discussions for male partners and couple counseling sessions during pregnancy and the postnatal period.	Both mothers and male partners (defined as "cohabitating male partner")	**Mothers:** One prenatal counselling session with couples. One postnatal counselling session with couples. Each session lasted approximately one hour in private consultation room at health center. **Fathers:** Same delivery model as mothers, plus one interactive

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Intervention	Country	Program Description	Program participants	Delivery model used with fathers (relative to mothers and as applicable)
				group discussion for male partners in an open-air meeting space at each primary health-care center, approximately one hour long.
Dinga et al., 2018[62]	Kenya	A nutrition education program in which mother-father pairs participated in group education sessions on breastfeeding and complementary feeding and were each provided a pamphlet on key messages after the sessions.	Both mothers and fathers	**Mothers:** One group session, approximately four hours, in hospital clinic setting. **Fathers**: Same delivery model as mothers.
Doyle et al., 2018[63]	Rwanda	Bandebereho ("Role model") is a gender-transformative couples' intervention that engages expectant/current fathers and their partners through participatory, small group sessions to reflect on gender norms in their lives, rehearse equitable and non-violent attitudes and behaviors, and apply them to own lives and relationships.	Both mothers and fathers	**Mothers:** Eight weekly sessions (max 24 hours total). **Fathers:** 15 weekly group sessions for men only (maximum 45 hours total); eight weekly sessions with mothers invited in addition to the men (max 24 hours total).
Hazra et al., 2018[64]	India	A mHealth voice message intervention delivered to husbands describing optimal maternal and child health practices and encouraging husbands to discuss messages with their wives and family members.	Fathers only	**Fathers:** Voice messages sent to mobile phones, twice per week over four months messages sent to fathers.
Jones et al., 2018[65]	South Africa	"Protect Your Family" is a behavioral intervention to increase adherence to the prevention of mother to child transmission protocol delivered to rural HIV-positive pregnant women both with and without male partners to determine if male partner involvement has an additive effect.	Both mothers and male partner (defined as "husband, current baby's father, current male sexual partner, or trusted male friend actively involved in the mother's life")	**Mothers:** Three group sessions held weekly for approximately two hours. Three counseling sessions held monthly. **Fathers:** Same delivery model as mothers, except fathers received two instead of three counseling sessions.
Turan et al., 2018[66]	Kenya	The Jamii Bora strategy is a home-based intervention with couples to facilitate couple HIV testing and mutual disclosure of HIV status within pregnant mothers and their male partners to increase prevention of mother-to-child transmission of HIV and promote family health.	Both mothers and male partners (defined as "person identified by the pregnant woman as her primary [male] partner")	**Mothers:** Three home visits (two prenatal, one postnatal). **Fathers:** Same delivery model as mothers.
Abimpaye et al., 2019[67]	Rwanda	The "First Steps" ("Intera za Mbere") program is a holistic parenting education program for families with children under three years aiming to improve physical, socio-emotional, cognitive, and language aspects of child development through weekly participatory radio programming delivered to parents' groups.	Any caregiver(s), included small proportion of fathers	**Any caregiver(s):** 1.5-hour long programs once a week for 17 weeks, meeting at village level, and three to four home visits.
Downs et al., 2019[68]	Rural Senegal	An mHealth voice messaging intervention delivered to mothers and fathers targeting infant and young child feeding practices for households with children 6–23 months.	Both mothers and fathers	**Mothers**: Receive 2 voice messages per week for 4 weeks that target infant and young child feeding practices. Voice messages were approximately 90 seconds in duration. **Fathers**: Same delivery model as mother.
Rahman et al., 2019[69]	Bangladesh	A community-based intervention package with women, men, and the broader community to improve maternal and newborn health and increase men's involvement in maternal and newborn health.	Both mothers and fathers	**Mothers:** Community meetings 1–3 times per year at individual's home or other location in the community, for approximately 30 minutes to 2 hours each. Birth planning counseling at clinic visits. Home visits by healthcare workers. **Fathers:** Same delivery model as mothers.

Intervention	Country	Program Description	Program participants	Delivery model used with fathers (relative to mothers and as applicable)
Swigart et al., 2019[70]	Burkina Faso	A media intervention delivered to the entire community but primarily targeted at mothers to promote life-saving child health behaviors related to diarrhea, malaria, and pneumonia by distributing short health promotion films in local language on the mobile phones.	All in the community	**Anyone in community:** 8 short videos around 3 minutes in duration with 3 films distributed in first wave and 5 videos distributed in second wave 3 months later.
Betancourt et al. 2020;[71] Jensen et al., 2021[72]	Rwanda	Sugira Muryango (Strengthen the Family) is a father-engaged home-visiting intervention for families with young children to promote early childhood development and reduce family violence, implemented by community-based coaches and delivered in combination with Rwanda's social protection program.	Both mothers and fathers	**Mothers:** 12 weekly home visits (average 90-minutes); 2 1-hr booster home visits at 3-months and 6-months post-intervention. **Fathers:** Same delivery model as mothers.
Heath et al., 2020[73]	Mali	Jigisemejiri is a national unconditional cash transfer program targeting household heads (primarily men) that also integrated training sessions (nutrition, health, etc.) offered to the household head and other household members as well as preventive nutrition packages targeted to children under 5 years and pregnant women.	Any caregiver, but mainly targeted "primary decision-maker" or household heads (defined as whoever in the household "makes decisions about general expenses and income", which were mostly men)	**Household head (mostly fathers):** Cash transfers delivered 4 times per year for 3 years. 12 group sessions delivered twice per month for 6 months.
Lakkis et al., 2020[74]	Lebanon and Jordan	Parenting intervention delivered to mothers and fathers through group training sessions and activities aimed at positively influencing early childhood development and parents' psychological wellbeing.	Both mothers and fathers	**Mothers:** 21 weekly group sessions, each approximately 2–3 hours. **Fathers:** Same delivery model as mothers.
Carneiro et al., 2021[75]	Nigeria	The Child Development Grant Program is a multifaceted pre-natal intervention including information provided to mothers and fathers on recommended practices related to pregnancy and infant feeding and high-valued unconditional cash transfers provided to mothers starting in pregnancy.	Both mothers and fathers	**Mothers:** Media campaign (posters, radio messages, voice messages); Community gatherings (preaching, food demonstrations, health talks). Group sessions once per month; One-on-one-counseling as needed; Monthly cash transfers, from birth until the child is 24 months. **Fathers:** Same delivery model as mothers, except fathers did not receive monthly cash transfer.
Husain et al., 2021[76]	Pakistan	Learning Through Play Plus Dads (LTP + Dads) is an intervention targeted at fathers to equip them with cognitive and behavioral tools and knowledge to be effective in their parental role and alleviate paternal depression.	Fathers only	**Fathers:** 10 group sessions over a 3-month period.
Luoto et al., 2021[77]	Kenya	An integrated parenting intervention to improve child developmental outcomes among families with young children by testing a group-only delivery model versus a mixed delivery that combined group sessions with home visits.	Both mothers and fathers	**Mothers:** 16 group sessions, every 2 weeks, each approximately 90 minutes in local community centers or churches. (Half of villages randomized to additionally receive home visits) **Fathers:** Same delivery model as mothers.
Sokolovic et al., 2021[78]	Serbia	The International Child Development Programme (ICDP) is a parenting group program held for caregivers at childcare centers that focused on health, nutrition, education, and optimal parent-child interactions. Some groups further incorporated a Violence Prevention Curriculum (VC), or ICDP+VC.	Any parent(s)	**Any parent**: Weekly, 2-hour sessions for groups of up to 18 parents held in the community. 10 total sessions.

Intervention	Country	Program Description	Program participants	Delivery model used with fathers (relative to mothers and as applicable)
Skar et al., 2021[79]	Colombia	"Support, not Perfection" is a parenting support program delivered to mothers and fathers to increase parents' ability to engage in positive parenting practices and improve parent and child mental health and marital satisfaction.	Either mother or father	**Any parent:** 12 group sessions in child centers.

Table 3.

Reported barriers of program implementation with fathers.

Theme	Illustrative quote from article
Low fathers' participation rates	"We had hoped that our study would inform whether involving fathers in these programmes delivers additional benefits, but low father attendance prevented us from succeeding." (Luoto et al., 2021[77])
	"Female participants outnumbered male participants by a ratio of approximately six to one, highlighting a need for greater efforts to recruit and retain fathers." (Sokolovic et al., 2021[78])
	"The study team was not able to engage all participants as couples, with some men being difficult to reach or refusing to participate, and some women (notably all of them HIV+) subsequently changing their minds about involving their male partner in the study." (Turan et al., 2018[66])
	"…participation rate was low, and this may be due to the fact that many of them [fathers] having busy work schedules with occupations such as truck driver, construction worker, and worker in factories." (Bich et al., 2019[58])
	"In our study, intervention exposure among husbands was moderate, with two-thirds of husbands participating in ≥1 of the 3 intervention platforms. […] In rural, resource-poor settings, achieving high participation rates among husbands is difficult because men are typically working away from home during the day." (Nguyen et al., 2018[56])
Restrictive gender attitudes	"Men do not generally see pregnancy, birth and infant care as being in their sphere of responsibility. Women wanted them to attend but most did not have the negotiating power to get them to do so." (Turan et al., 2001[43])
	"The fathers in the present study may have concluded that for their wives to breastfeed, they would have to share tasks such as cleaning the house, doing dishes, changing diapers, and caring for the other children more actively than they were prepared to do. This might have caused a conflict that translated into a negative impact on the duration of breastfeeding." (Susin et al., 2008[42])
	"Other barriers to male involvement in maternal health included low levels of knowledge, embarrassment, and social stigma related to the perceived notion that pregnancy and maternity care–related discussions are relevant only to women" (Nguyen et al., 2018[56])
Poverty	"The achievement of greater dietary diversity, on the other hand, is likely to have required more than awareness and motivation on the part of the pregnant women and their husbands and required that families purchase additional foods. The program did not address economic constraints related to acquisition of diverse foods in the low-income setting of our study." (Nguyen et al., 2018[56])
	"Malnutrition appears resistant to HHF [Haitian Health Foundation] efforts and is instead affected by factors well beyond the scope of a public health services program, such as the underlying conditions of economic deprivation in rural Haiti and the political upheaval that has endured in Haiti for many years." (Sloand et al., 2010[46])
Resource and gender-related constraints to engaging fathers at health facilities	"There were a number of institutional and social barriers specific to men's participation, e.g., the 'female' atmosphere of the antenatal clinic, past exclusion from antenatal visits and difficulties in getting time off work… men were more comfortable attending the programme in a neutral place than in an antenatal clinic." (Turan et al., 2001[43])
	"There are also systemic barriers to supporting male involvement in rural clinics, such as limited space, which may overshadow the positive benefits of promoting male partner participation" (Jones et al., 2021[80])

Table 4.

Reported enablers of program implementation with fathers.

Theme	Illustrative quote from article
Flexible scheduling	"The fathers were encouraged to organize club's activities in different locations (house of father's leader, commune health centre), at different times (evening, weekend) to get more involvement of the fathers." (Bich et al., 2019[58])
	"Flexible scheduling and messaging about the importance of fathers in ensuring a nurturing and safe environment for young children to grow and thrive resulted in both high module attendance by fathers and a significant relative increase in fathers' involvement in childcare." (Jensen et al., 2021[72])
	"Employers were sometimes reluctant to invest any extra resources in health education and to take employees away from production to attend educational sessions. However, it was also possible to reach compromises, such as having educational sessions after work hours or half during work hours and half in the workers' own time…" (Sahip & Turan, 2007[45])
	"In our programmes, men's attendance was better when sessions were held on evenings or weekends. In addition, men were more comfortable attending the programme in a neutral place than in an antenatal clinic." (Turan et al., 2001[43])
Engaging community members	"Successful engagement requires careful planning and collaboration with community leaders, local health authorities, and professionals so that communities and households have the institutional support needed to increase their control over their children's health." (Mukuria et al., 2016[52])
	"Community opinion leaders who influence male family members were engaged through meetings as well." (Nguyen et al., 2018[56])
Integrating within existing delivery platforms	"Rapid integration and high coverage of interventions were facilitated by the strong health delivery system already in place.… BRAC's networks of health volunteers and workers are motivated and well supervised, and cover small catchment areas, making it a health program with a high potential for success." (Nguyen et al., 2017[55])
	"This study benefitted from strong political and health system support that made it possible to integrate the father-involvement counseling into the health care system." (Rempel et al., 2017[57])
	"Our intervention was designed and implemented based on the principles of continuum of care, and integrated with the primary peripheral health care system with the involvement of health workers at grass root levels, social organizations and communities, and was highly recommended in Viet Nam to improve early breastfeeding practices" (Bich et al., 2016[48])
Incorporating participatory methods	"They developed fun and informative skits, songs, poems, art, or photo displays that demonstrated how a father can show love to his wife by supporting breastfeeding and love for his infant through positive, responsive interactions. By being open to the public, the contest had the potential to further shift community norms about father breastfeeding support and father–infant engagement" (Rempel et al., 2020[59])
	"Husbands' forums brought together husbands in the community and gave them opportunities to engage in peer-to-peer discussion on issues related to maternal nutrition and how they could support their wives." (Nguyen et al., 2018[56])
	"After the final mentoring session, an open community meeting, or "community celebration," took place in each study community and were attended by LC1s [Local Council 1 leaders], program participants, and their wives and families. These celebrations supported norm change at the community level by providing fathers a public forum to commit to continue practicing new skills and for the LC1s [Local Council 1 leaders] and family members to commit their support for the men's adoption of positive change." (Ashburn et al., 2017[54])
	"It seems likely that the more intensive, continuous and 'support group' nature of the community-based programme for expectant fathers, compared to the clinic-based programme [not peer-based], may be a more successful method for involving men." (Turan et al., 2001[43])
Use of media	"Fathers also liked using the Father–Infant Relationship Calendar and found that it helped them learn how to interact with their infant. Having a place to record their own experiences in words and pictures may have motivated them to increase their involvement." (Rempel et al., 2017[57])
	"Reaching men through strategies such as using radio, home visit, and men-to-men outreach can increase the engagement of men in children's upbringing and development." (Abimpaye et al., 2019[67])
	"Involving men using mobile could be an effective mechanism. Findings clearly revealed that a significant subset of husbands could be reached with information through mobile phones and that it was possible to involve them in maternal and newborn health care to have a positive impact on healthy behaviors." (Hazra et al., 2018[64])
Conducting formative research, especially including fathers	"The intervention model was developed using in-depth formative research and a robust community stakeholder process.… Before the current study, we conducted qualitative research with HIV-positive pregnant women (n=20),

Theme	Illustrative quote from article
	male partners (n = 20), and service providers (n = 16) to inform the development of an intervention in this setting." (Jones et al., 2018[65])
	"Specific topics were designed by and for expectant fathers, instead of including men in a programme meant for women. Sessions specifically addressed men's experiences, feelings and need for guidance, as well as women's." (Turan et al., 2001[46])
	"Priority behaviors and "small doable actions" specific to the program context were carefully selected through formative research (unpublished data) to raise husbands' awareness of better maternal nutrition practices and build their supportive role." (Nguyen et al., 2018[56])
	"Promundo and RWAMREC [Rwanda Men's Resource Centre] adapted the curriculum between May 2013 and January 2014, informed by formative research, and input from the Rwanda Ministry of Health, which approved the curriculum for implementation, and from community pilot implementations…. the findings highlight the promise of the Bandebereho intervention, designed and adapted to fit the particular cultural context." (Doyle et al., 2018[63])
Gender-separated peer groups	"Another concern was related to the perceived power of men over women, especially in regions where sex inequality is a significant barrier to social development and public health. To overcome this barrier, several studies suggest creating spaces for men to learn and exchange with other men on supporting maternal and child nutrition to improve their family's health. Interventions, such as husbands' forums, therefore become even more relevant to permit such peer-to-peer exchange." (Nguyen et al., 2018[56])
	"Future research should compare the impact of different formats of male involvement; perhaps, reaching men in peer groups may increase maternal health practices even more." (Mullany et al., 2007[44])
Targeting fathers early during the transition to fatherhood (starting prenatal period)	"We suspect that the timing of the intervention in the exciting period just before and after the transition to parenthood likely engaged fathers at an optimal teach- able stage of their lives. Right from birth, intervention fathers started interacting with their infants because they were taught about the value of early infant interaction prior to the birth and were shown how responsive and capable newborn infants can be." (Rempel et al., 2017[57])
	"It is interesting to observe that for mothers the influence of the prenatal period diminished with the intervention, but that the opposite occurred with the fathers. It is possible that the advice given to fathers during the prenatal period made them interested in the topic, and thus they took greater advantage of the advice provided after the birth." (Susin et al., 1999[41])