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Father involvement is a protective factor for maternal mental health in Western Kenya

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Abstract

Depression is a major global health concern especially among mothers of young children in low- and middle-income countries (LMICs). While various risk and protective factors have been well-established, the role of fathers in potentially mitigating maternal depression remains understudied. This study aimed to investigate the association between father involvement and maternal depressive symptoms in rural Western Kenya. We used cross-sectional baseline data collected in February–March 2023 from a cluster-randomized controlled trial evaluating the effectiveness of a community-based parenting program for improving early childhood development. Primary caregivers with children 0–18 months of age were enrolled into the trial across 51 villages in Nyamira and Vihiga counties. We analyzed data from 413 mothers who were in a relationship with a male partner (i.e., father of the young child). Maternal depressive symptoms were measured using the CESD-10. Father involvement was reported using a multidimensional measure of men's engagement in childcare activities, household chores, early learning activities, and affection towards their child. We used multilevel regression models to estimate the adjusted associations between father involvement (overall score and by specific domains) and maternal depressive symptoms. We also conducted exploratory subgroup analyses to assess whether this association

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Juliet K. McCann: Writing – review & editing, Writing – original draft, Formal analysis, Data curation. **Silvana Freire:** Writing – review & editing, Writing – original draft. **Clariana Vitória Ramos de Oliveira:** Writing – review & editing. **Michael Ochieng:** Writing – review & editing, Project administration, Investigation. **Joshua Jeong:** Writing – review & editing, Writing – original draft, Supervision, Methodology, Funding acquisition, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.ssmmh.2024.100318>.

differed by child age. Overall, greater father involvement was associated with fewer maternal depressive symptoms. Specifically, fathers' engagement in household chores and childcare activities had the strongest protective associations. Exploratory subgroup analyses revealed larger associations for mothers with younger children under 6 months. Our findings suggest that father involvement is a protective factor for maternal mental health. Engaging fathers in early childhood interventions and encouraging men's involvement in caregiving activities may potentially benefit maternal well-being.

Keywords

Maternal depression; Father involvement; Early childhood; Kenya

1. Introduction

Globally, depression is one of the leading causes of poor health with the disease burden particularly high among mothers of young children and across low- and middle-income countries (LMICs) (Atif et al., 2015; Fisher et al., 2012). Recent meta-analyses have estimated a prevalence of maternal postpartum depression at approximately 20–25% in LMICs (Roddy Mitchell et al., 2023; Wang et al., 2021). When left untreated, maternal depression has negative consequences for both the mother and her children. Mothers experiencing depression are more likely to experience functional impairment, negative peer and partner relationships, parenting difficulties, and increased risk of other mental health problems such as suicidal ideation (Atif et al., 2015). Infants of mothers with depression are more likely to be underweight or stunted, at risk of developmental delays, and exhibit behavioral problems (Gelaye et al., 2016; Slomian et al., 2019; Wachs et al., 2009).

A broad range of determinants have been identified as influencing maternal depression, such as biological, demographic, and social risk factors. For example, biological factors include complications during and after pregnancy, genetic risks, and other co-morbidities, while demographic characteristics include younger maternal age and being a single parent (Atif et al., 2015; Fisher et al., 2012). Social risk factors can also impact maternal depression, such as adverse childhood experiences, marital conflict, and intimate partner violence (Ankerstjerne et al., 2022; Atif et al., 2015; Fisher et al., 2012; Nasreen et al., 2018). At the same time, various protective factors can mitigate against these risks for promoting maternal mental wellbeing, such as social support and positive family engagement (Govender et al., 2020; Reid and Taylor, 2015).

Male partners of women with young children (i.e., fathers) are key individuals who can influence the psychosocial support networks of mothers. The positive influence of fathers with respect to maternal mental health is supported by multiple theoretical frameworks. Namely, Family Systems Theory emphasizes the importance of the interactions and dynamics within a family unit and posits that an individual's functioning cannot be considered in isolation from the roles and relationships with others within the family system (Bowen, 1993; Sano et al., 2020). Additionally, Family Stress Model posits that economic hardships can exacerbate parental psychological stress, couples' relationship conflict, and

negative parenting practices to ultimately in turn impact child wellbeing (Conger and Donnellan, 2007). Both theoretical frameworks highlight the interconnectedness of family dynamics and the importance of considering the role of fathers in influencing maternal mental health outcomes.

Conceptually, father involvement is multidimensional. Prior qualitative studies from LMICs have characterized father involvement as encompassing men's roles across a spectrum of activities including financial provisions, childcare responsibilities (e.g., bathing, feeding), engagement in early child learning activities (e.g., play, communication with child), and participation in broader household chores (e.g., cleaning the household, preparing food) (Jeong et al., 2023; Pleck, 2012). In Kenya specifically, while fathers' role in childcare has been primarily described in terms of financial support rather than direct engagement with their young child due to restrictive gender norms, recent studies have documented that fathers' gender attitudes and caregiving roles are shifting in Kenya, with many men becoming more engaged in family caregiving behaviors (Abubakar et al., 2017; Okelo et al., 2022; Owino and Yigezu, 2023; Sonkola et al., 2021).

Indeed over the past decade, a growing body of empirical evidence from LMICs has documented positive associations between father involvement and maternal mental health. For example, one study in South Africa found that father involvement during pregnancy and the during the child's first six weeks was associated with lower maternal postnatal depression scores at six weeks postpartum (Drysdale et al., 2021). Another study in Western Kenya found that fathers' interpersonal support for their partners was associated with lower maternal depressive symptoms in sample of caregivers with children under 2 years of age (Garcia et al., 2022). While other studies have similarly highlighted the importance of fathers for maternal mental health (Lin et al., 2017; Maselko et al., 2019; Uriyo et al., 2013; Yargawa and Leonardi-Bee, 2015), one major limitation of this evidence base to date especially in LMICs has been an inconsistent and relatively narrow approach to the operationalization and measurement of father involvement.

This evidence gap is partly due to the lack of ecologically-valid and multidimensional tools for measuring father involvement in LMICs. Many studies either focused on one particular action, such as fathers' accompaniment of the mother to the clinic (Drysdale et al., 2021; Yargawa and Leonardi-Bee, 2015), or used broad indicators of any general perceived support from the father (Drysdale et al., 2021; Uriyo et al., 2013). For example, Drysdale et al. (2021) created a postnatal father involvement score based on maternal reports of whether she received any informational, practical, emotional, or financial support from her partner and an overall rating of the support she received. However, this measure did not capture the specific actions or behaviors performed by the child's father.

Child age can also potentially influence the relationship between father involvement and maternal depression. Studies have shown that child age is a determinant of maternal mental health problems with rates of depression heightened in the postnatal period (Hutchens and Kearney, 2020) as well as a determinant of father involvement with lowest rates during the earliest months of a child's life (Amodia-Bidakowska et al., 2020). For example, in a qualitative study in Western Kenya mothers described a common belief that it was not

acceptable for fathers to be involved with infants (Watts et al., 2016). Yet few studies have explored whether the relationship between father involvement and maternal depression may vary based on the age of the caregiver's child. As an exception, in one birth cohort study in Pakistan, researchers assessed the relationship between father involvement and maternal depression at 3 months versus 12 months postpartum but did not observe any clear differences (Maselko et al., 2019). Further exploration of how the association between father involvement and maternal depression varies based on child age would begin to address this gap in the literature.

Therefore, the purpose of the current study was to investigate the associations between father involvement and maternal depressive symptoms in households with young children in rural Western Kenya. We examined how father involvement, in terms of the overall score as well as by domains, related to risk of maternal depression. As a secondary objective, we explored whether the relationship between father involvement and risk of maternal depression varied by child age. We hypothesized that the protective associations of father involvement against risk of maternal depression may be stronger during infancy than early childhood.

2. Methods

2.1. Study design

This study used cross-sectional data collected at baseline for a cluster randomized control trial to evaluate the Moments that Matter (MTM) program in rural Western Kenya ([ClinicalTrials.gov: NCT05796934](https://clinicaltrials.gov/ct2/show/study/NCT05796934)). The MTM program is a community-based, multi-component parenting program delivered to primary caregivers of children under three years of age in Nyamira and Vihiga counties. The program aims to improve early childhood development (ECD) and caregiving outcomes through monthly caregiver support and learning groups and home visits delivered by trained ECD community volunteers and faith leaders.

For this evaluation study, 46 total villages were randomly selected with stratification by county (half of villages in Luanda subcounty in Vihiga county and half in Borabu subcounty in Nyamira county). Within each village, 13 households were randomly selected for enrollment based on the following inclusion criteria: primary caregivers with a child aged 0–18 months; the household resides within the geographic boundary of the given village selected into the study; and primary caregiver provides informed consent for themselves and their child(ren) under aged 18 months to participate. Primary caregivers were defined as the individual who self-identified as the main care provider for the young child, which was most frequently the mother (91%) or the grandmother (8%). After recruitment, eligible caregivers were communicated the purpose of the research study and that their participation would include responding to a questionnaire that included modules about the parenting practices of the primary caregiver as well as the child's father, mental wellbeing of the primary caregiver, and couples' relationships.

2.2. Study context

This study was carried out in rural areas of Luanda subcounty in Vihiga county and Borabu subcounty in Nyamira county, where the majority of households are impoverished (KNBS & ICF, 2023). According to the latest 2022 Kenya Demographic and Health Survey, in both Vihiga and Nyamira counties, most (71% of and 73%, respectively) children under 18 years of age live with their father and polygyny is rare (2% and 6%, respectively) (KNBS & ICF, 2023). In both counties, agriculture is one of the most common sources of income for both men and women (KNBS & ICF, 2023).

2.3. Study sample

A total of 595 households were enrolled in this study, which was determined to provide sufficient power to detect a program effect of 0.25 standard deviations for primary outcome of ECD across study groups at endline and 6-month follow-up. For the purposes of this analysis, we restricted the sample of primary caregivers to mothers who were in a partnered relationship (e.g. formally married or living with partner) with the child's father (N = 413). Caregivers that were not mothers, who were never married or living in a consensual union, or who were widowed, divorced, or separated from a marriage or consensual union were excluded from sample for this analysis (N = 172).

2.4. Data collection

Data was collected by a team of 12 Kenya-based research assistants between February and March 2023, and was overseen by two Kenyan supervisors. Research assistants received a 7-day training which included four days of classroom-based instruction and three days of study tool piloting and field practice. The classroom-based training included instruction on survey content, study tools, informed consent and ethical research practices, and study logistics. All research assistants were from the counties within which they were collecting data and had a bachelor's education and prior field-based research experience. Each survey lasted approximately 1–2 h in duration and was administered verbally in Kiswahili in a private location within participants' households. All surveys were translated by our Kenya-based research collaborators bilingual in English and Kiswahili. Translated surveys were reviewed by the entire research team for quality, pretested in a non-study community, and iteratively refined based on feedback. Data were collected via Android mobile devices using the Open Data Kit app.

2.5. Ethical considerations

This study protocol received institutional review board (IRB) approvals from the Harvard T.H. Chan School of Public Health and the Jaramogi Oginga Odinga Teaching and Referral Hospital. Written informed consent was provided by all participants in this study and all participants received a small token of appreciation for their participation (approximately \$1.50 USD value/participant).

2.6. Measures

Maternal depressive symptoms were self-reported using the Center of Epidemiologic Studies Depression Scale, 10-item questionnaire (CESD-10). The CESD-10 is a screening tool

whereby participants are asked to indicate their frequency of experiencing 10 common symptoms of depression in the past week (e.g., “I feel too down to do anything”, “I felt lonely”) on a 4-point Likert scale (0 = Rarely to 3 = Most or almost all days). Total scores thus ranged from 0 to 30 with higher scores indicating greater severity of depression symptoms ($\alpha = 0.79$). A binary indicator was created to identify mothers at risk of maternal depression (e.g. moderate-to-severe symptoms of depression) based on a validated cut-off score of 10 (Andresen et al., 1994). The CESD-10 has been validated in the Kenyan context against probable major depressive disorder (MDD) using the PHQ-9 scoring algorithm and was found to have strong diagnostic performance in terms of both its sensitivity (50%) and specificity (91%) in identifying MDD among postpartum women in Kenya (Larsen et al., 2023) and youth in sub-Saharan Africa, including in Kenya (Kilburn et al., 2018).

Paternal involvement was reported by mothers using a survey developed by the authors for the purposes of this study that was adapted from previous measures of father involvement in child nutrition and caregiving and qualitative studies about fatherhood in similar contexts in East Africa (Bilal et al., 2016; Bogale et al., 2022; Flax et al., 2022; Jeong et al., 2021, 2023). This survey included indicators of fathers’ engagement in supportive activities related to caregiving, nutrition, and household chores in the past two weeks. The initial list of proposed survey items was then reviewed by Kenyan-based research collaborators who made further adaptations based on their understanding of father’s parenting involvement within the study context. Additionally, mothers reported on fathers’ engagement in early childhood stimulation practices in the past week using a measure adapted from the United Nations Children’s Fund (UNICEF) Family Care Indicators (Kariger et al., 2012). This measurement tool included items such as playing, singing songs, and reading books with the young child. Through exploratory and confirmatory factor analyses, a final scale for father involvement was created that included 23 items ($\alpha = 0.90$), which was best represented by a four-factor model structure: 1) Childcare activities (7 items, $\alpha = 0.81$; e.g., “looked after the child when partner was not around”, “changed or helped partner change child’s diapers or clothes”); 2) Early learning interactions (4 items, $\alpha = 0.75$; e.g., “draw things with child”, “read books or look at picture books with child”); 3) Household chores (7 items, $\alpha = 0.84$; e.g., “washed dishes”, “prepared or helped partner prepare food”); and 4) Play and affection (5 items, $\alpha = 0.86$; e.g., “play with child”, “praise child”). See elsewhere for more details on development and validation of this father involvement measure (manuscript under review).

Socio-demographic data were also collected from the mother and included maternal-, child-, and household-level characteristics. Maternal characteristics included maternal age, marital status, and highest level of education. Child characteristics included child sex and age in months. Household characteristics included household assets (categorized into wealth quintiles for analysis), total number of individuals and specifically children under 5 years living in the household, and the co-residence of any secondary caregivers besides the mother or father living in the household.

2.7. Statistical analysis

First, we examined the descriptive statistics of the study variables. We then estimated the unadjusted and adjusted associations between father involvement (overall score and by each subscale of father involvement) and maternal depressive symptoms. The adjusted models controlled for sociodemographic variables including maternal age, marital status, maternal education, child sex and age in months, household assets, individuals and children under 5 years living in the household, and co-residence of non-parental caregivers. We then explored potential effect modification of the adjusted association between father involvement and maternal depressive symptoms by child age using 6 months of age as the cutoff. We tested the significance of the interaction term between father involvement and child age with respect to maternal depressive symptoms in the fully adjusted model and also ran two separate models for the adjusted associations between father involvement and maternal depressive symptoms stratified by child age groups.

As a robustness check and to explore whether findings varied based on the measurement approach of the primary exposure and outcome variables, we reran analyses using binary indicators of any father involvement (i.e., any of the overall items as well as for each of the father involvement subscales). Finally, we also reran analyses using a binary indicator of risk of maternal depression (i.e., CESD-10 cutoff score of 10) instead of the continuous outcome of depressive symptoms, as this binary outcome is more directly relevant to informing clinical significance.

All analyses used multilevel regression models that accounted for the complex survey design and the clustering of households at the village level. Both unstandardized (*b*) and standardized coefficients (β) are reported throughout. Analyses were conducted using Stata 16.1.

3. Results

3.1. Sample characteristics

The final sample included 413 mothers of children 0–18 months of age. Sample characteristics are summarized in Table 1. On average, mothers were 28.0 years of age (SD: 5.7; range: 18–46 years) with the majority not completing secondary school (55.5%). On average, a total of 4.8 individuals (SD: 1.6; range 1–11) and 1.4 children under 5 years (SD: 0.5; range: 1–3) lived in a given household. Index children were 8.4 months of age on average (SD: 5.5; range 1–18 months) with slightly more than half of index children being female (56.2%). In approximately one in five households (21.6%), another adult caregiver besides the child's parents (e.g., grandparent) co-resided with the child.

On average, mothers had a depressive symptom score of 8.4 (SD: 6.0; range: 0–30). Approximately one third (33.9%) of mothers were classified as at risk of maternal depression using a threshold score of at least 10. Most fathers (89.8%) were involved in at least one caregiving activity, with the average father engaged in 9.0 activities out of the total of 23 activities (SD: 5.9; range: 0–23). Father involvement varied across specific subscales with the majority of fathers engaged in at least one childcare activity (84.0%) or play and affection activity (74.6%) with their young child. Fathers were relatively less engaged in any

household chores (64.5%) or early learning interactions (37.5%). More specifically, fathers engaged in 3.3 out of 7 childcare activities (SD: 2.3; range: 0–7), 2.7 out of 5 activities relating to play and affection (SD 2.0; range: 0–5), 2.2 out of 7 household chores (SD: 2.3; range: 0–7), and 0.8 out of 4 activities that support early learning interactions (SD: 1.2, range: 0–4).

There were significant differences in father involvement by child age. Father involvement scores (overall score and most subscale scores) were lower with children younger than 6 months of age, except for the household chores subscale that was higher among younger children (Supplementary Table 1). There was no significant difference in maternal depressive symptoms or risk of maternal depression by child age (Supplementary Table 1).

3.2. Father involvement and maternal mental health

Table 2 reports the unadjusted and adjusted associations between father involvement scores and maternal depressive symptoms. In both the unadjusted and adjusted models, overall father involvement scores were associated with fewer maternal depressive symptoms (Unadjusted: $\beta = -0.04$, 95% CI: $-0.05, -0.02$, $p < 0.01$; Adjusted: $\beta = -0.03$, 95% CI: $-0.05, -0.02$, $p < 0.01$).

In terms of subscales of father involvement, father involvement in household chores was the strongest protective factor for maternal depressive symptoms (Adjusted: $\beta = -0.08$, 95% CI: $-0.12, -0.04$, $p < 0.01$) followed by father involvement in childcare activities (Adjusted: $\beta = -0.06$, 95% CI: $-0.10, -0.02$, $p < 0.01$). While father involvement in play and affection activities was significantly associated with fewer maternal depressive symptoms in the unadjusted model ($\beta = -0.07$, 95% CI: $-0.12, -0.02$, $p < 0.01$), after adjusting for potential covariates, this association was no longer significant ($\beta = -0.04$, 95% CI: $-0.09, 0.01$, $p = 0.10$). Finally, father involvement in early learning interactions was not significantly associated with maternal depressive symptoms in the unadjusted ($\beta = -0.06$, 95% CI: $-0.14, 0.02$; $p = 0.12$) or the adjusted models ($\beta = -0.07$, 95% CI: $-0.15, 0.00$; $p = 0.06$). The effects sizes for the associations between father involvement were small across all subscales.

3.3. Exploratory subgroup results by child age

Table 3 presents the results for the associations between father involvement scores and maternal depressive symptoms stratified by child age. Although we did not observe a significant interaction effect between child age and father involvement total score for any of the subscale scores ($p > 0.05$ for all interaction terms), the associations were generally greater in magnitude among mothers of children under 6 months. When focusing within the subsample of mothers with children older than 6 months, the associations between father involvement (total score and subscale scores) and maternal depressive symptoms were mostly null.

3.4. Sensitivity analyses

Upon re-estimating models using binary indicators for father involvement in any activities overall and for each subscale, the associations remained consistent (Supplementary Table 2). Father involvement in any activity was associated with a medium-sized reduction

in maternal depressive symptoms (Adjusted: $\beta = -0.34$, 95% CI: $-0.65, -0.04$, $p = 0.03$), compared to fathers who were entirely uninvolved. In terms of the domains, father involvement in any childcare activity and any household chores had the greatest associations with maternal depressive symptoms compared to the other domains, which were consistent with the results based on continuous subdomain scores. There was no significant association between father involvement in any early learning interactions or any play and affection activities and maternal depressive symptoms.

Child age stratified results were also largely consistent when using the binary indicators of father involvement, with descriptively greater associations among mothers with young children than older children (Supplementary Table 3). For example, the association between paternal involvement in any household chore and maternal depressive symptoms was nearly five times greater among caregivers with children <6 months ($\beta = -0.61$, $p < 0.01$) versus older children ($\beta = -0.12$, $p = 0.29$).

Finally, the associations were robust when using a binary outcome variable for maternal depressive symptoms (CESD = 10) (Table 4). Higher levels of overall father involvement were associated with lower adjusted odds of maternal risk of depression, which was a small effect size (OR = 0.91, 95% CI: 0.87, 0.95; $p < 0.01$). These protective association were consistent for father involvement in childcare activities (OR = 0.83, 95% CI: 0.75, 0.93; $p < 0.01$) and household chores (OR = 0.80, 95% CI: 0.71, 0.90; $p < 0.01$).

4. Discussion

In this study, we examined the association between father involvement and maternal depressive symptoms among a sample of mothers of young children. Our findings revealed a small protective association between overall father involvement in child and family caregiving activities and maternal depressive symptoms. Upon exploring associations by specific domains of father involvement, engagement in household chores and childcare activities had stronger associations with maternal depressive symptoms compared to father involvement in early learning or play and affection. Father involvement appeared to be more beneficial for mothers with children under 6 months, compared to those with older aged children.

Our findings build upon previous studies in LMICs that have highlighted how father involvement can benefit maternal mental health during the first years after birth (Fisher et al., 2012; Yargawa and Leonardi-Bee, 2015). Much of this literature to date has narrowly operationalized father involvement in terms of a single item (Yargawa and Leonardi-Bee, 2015) or regarding mothers' general perceptions about male partner social support (Lanjewar et al., 2021; Senturk et al., 2011). We extended this evidence base in Western Kenya using a novel and multidimensional measure of father involvement that focused on men's specific caregiving practices both for the child and the family. We found that father involvement generally was associated with fewer maternal depressive symptoms, but also that father involvement in childcare and household chores was especially beneficial for maternal mental health.

There are several explanations behind how paternal engagement could theoretically benefit maternal mental health in this context. Greater father involvement in caregiving responsibilities may improve maternal feelings of support, strengthen the coparenting alliance, and enhance couples' relationship quality (McClain and Brown, 2017) that can in turn reduce stress and maternal depressive symptoms. Indeed, a few studies from high-income countries have documented coparenting and couples' relationship quality as particular mediators underlying the association between father involvement and maternal mental health in the U.S. (Zhang and Razza, 2022) and Portugal (d'Orsi et al., 2023). Studies from Kenya, Rwanda, and Uganda have additionally shown how improvements in couples' relationships are a primary mechanism by which father involvement programs improves family outcomes (Doyle et al., 2018; A. Giusto et al., 2021; Singla et al., 2015). Besides improving couples' relationships dynamics, fathers' increased engagement in childcare and family responsibilities can redistribute the childcare time burdens that are disproportionately placed upon mothers (Maina and Kimani, 2019) and provide women with additional time, energy, and agency to participate in other desired activities for herself (e.g., leisure, rest, paid work) that can benefit maternal psychosocial wellbeing (Stepanikova et al., 2020).

While fathers' engagement in household chores and childcare activities was significantly associated with maternal depressive symptoms, in our study, fathers' engagement in stimulation activities, such as play and learning, was not associated. This could suggest that fathers' engagement in activities related to caregiving and household chores are more impactful to mothers directly via the hypothesized mechanisms of increasing mothers' time availability and perceived support. Fathers' engagement in play and affection are more focused on the child and thus perhaps less directly beneficial for supporting maternal mental well-being. It is also possible that fathers' increased participation in unpaid work within the household (i.e., childcare and chores) could free up mothers' time availability to seek paid employment opportunities or engage in other leisure activities that would support her mental health (Oloo and Parkes, 2021).

Our exploratory subgroup analyses suggested a stronger protective association among mothers with younger infants. Past studies have emphasized that the first months postpartum and early infancy represent a significant transition marked by new responsibilities but also a heightened period of stress and mental health challenges for mothers (Habel et al., 2015; Schiller et al., 2015). Similarly, research, including in Western Kenya, has indicated that father involvement tends to be relatively low during this earliest period of life as some fathers are reluctant about engaging with newborns or because of restrictive gender norms that consider infant care as entirely women's responsibilities (Jeong et al., 2023; Watts et al., 2016). Our findings revealed that the protective associations of father involvement may be especially beneficial for maternal mental health during the earliest month of parenthood (Wang et al., 2021), and thus suggesting a potentially promising window for interventions. Additionally, given that maternal depression has been linked to parenting and child development (Ramos de Oliveira et al., 2022), fathers' support for maternal mental health should be explored as an avenue for improving child development outcomes.

It should be noted, however, that the effect sizes estimated in this study were small, which is in line with previous studies on father involvement and maternal mental health (Garcia et al., 2022; Maselko et al., 2019). Collectively, these modest associations raise questions about whether there are other ways by which fathers can support maternal mental health, such as through shared decision making, provision of financial support to partners, or communication styles and relationship dynamics with their partners (Antonioni et al., 2021; McCann et al., 2023). Embracing a family systems perspective and exploring other such pathways can enrich our understanding about the role of fathers and maternal mental health.

In this study, there was substantial variation in father involvement across domains, with engagement in early learning and household chores being especially low. Restrictive gender norms are major drivers of fathers' limited engagement in such activities. For example, a prior study from a similar context in rural Western Kenya highlighted how community members viewed caregiving as the primary role of the mother with father involvement in childcare and household chores often perceived as a form of assistance or support rather than a shared responsibility (Okelo et al., 2022). Studies from high-income contexts, such as the United States and Denmark, have highlighted that contemporary families in these settings have moved away from traditional gender roles and towards equal distribution of childcare and paid workforce participation (Bianchi et al., 2012; Gracia and Esping-Andersen, 2015; McGill, 2014). Globally, studies have demonstrated that gender inequitable attitudes towards parenting and women's engagement in income-generating work are harmful for both the mother and the child (Ewerling et al., 2020; Raghavan et al., 2022). For example, a study using data from 122 countries found that gender inequality was significantly correlated with gender disparities in depressive disorders, suggesting women's mental wellbeing is strongly impacted by inequalities at the societal level (Yu, 2018). To support maternal economic empowerment and mental wellbeing, interventions and public policies in Kenya must therefore adopt gender-transformative approaches that move towards more equitable divisions of caregiving and income-generating activities, such as through the intentional engagement of fathers and community leaders to reflect on and question traditional parenting roles (Galvin et al., 2023; Jeong et al., 2024; Slegh et al., 2013).

Future research and programming should additionally consider paternal mental health in the context of gender-equitable distribution of caregiving roles. Gender norms and pressures for fathers to be the sole financial provider within the family have been identified as major causes of their parenting stress and depressive symptoms in Tanzania (Jeong et al., 2024). Further, mixed-methods studies in Kenya have highlighted fathers' excessive alcohol use as a key determinant of couples' relationship quality and fathers' involvement in the care for their children (A. Giusto et al., 2021; A. M. Giusto et al., 2022). Adopting a holistic approach to fathers' parenting experiences, including related to their mental health and substance use, is critical for the design of effective implementation gender-transformative interventions targeting fathers' caregiving behaviors (A. Giusto and Puffer, 2018; Satyanarayana et al., 2016).

4.1. Limitations

There are several limitations to this study that are worth noting. First, the cross-sectional nature of our data prevents us from causal inference. Future research should reassess these associations in longitudinal datasets. Second, both maternal depressive symptoms and father involvement were measured through mother's self-reports, potentially introducing recall bias and social desirability bias. Moreover, mothers experiencing severe depressive symptoms may potentially hold systematically different perceptions about their partners' involvement. Complementing maternal reports of father involvement with paternal self-reports of their engagement or observational assessments of fathers' caregiving behaviors may reduce such potential biases. It should also be noted that our study did not include a clinical diagnosis of depression by a specialized clinician, but rather the CESD-10 measure was used as a screening tool to assess mothers for a specific range of depressive symptoms. Thus, this measure may be susceptible to potential errors as false positives or negatives in its assessment. Additionally, while our measure of father involvement was adapted to the Kenyan context, we did not receive input from fathers themselves about the list of activities included in the measures. Furthermore, this measure only captured whether fathers engaged in various activities rather than the frequency of their engagement. Future studies should also consider how the frequency and quality of father involvement relates to maternal mental health outcomes. Our survey also did not capture potential covariates that may confound the relationship between paternal involvement and maternal mental health (e.g., father age, fathers' mental health). Finally, our subgroup analyses based on the child's age were exploratory and likely underpowered to detect interaction effects or subgroup differences. Larger sample sizes are needed in future studies to validate these suggestive findings.

5. Conclusion

Our study reveals a protective association between father involvement and maternal depressive symptoms among mothers of young children in rural Western Kenya. These associations were particularly apparent for fathers' engagement in childcare and household activities. Our results add valuable evidence to the growing body of research emerging from LMICs regarding the positive influence of fathers for their families. Our study suggests that engaging fathers in parenting interventions and encouraging their early involvement in caregiving responsibilities and support for their partners may have promising effects on improving maternal mental health.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1

Sample characteristics.

Sample characteristics (N = 413)	
Maternal characteristics	
Maternal age (years), <i>mean (SD)</i>	28.0 (5.7)
Maternal secondary education, <i>n (%)</i>	
Completion of at least some secondary education	184 (44.6%)
No secondary education	229 (55.5%)
Household characteristics	
County, <i>n (%)</i>	
Nyamira	205 (49.6%)
Vihiga	208 (50.4%)
Total children under 5 years, <i>mean (SD)</i>	1.4 (0.5)
Total individuals living in household, <i>mean (SD)</i>	4.8 (1.6)
Co-residence of another adult caregiver besides parent, <i>n (%)</i>	89 (21.6%)
Index child characteristics	
Child age (months), <i>mean (SD)</i>	8.4 (5.5)
Child age (categorical), <i>n (%)</i>	
Age <6 months	146 (35.4%)
Age ≥ 6 months	267 (64.6%)
Child sex, <i>n (%)</i>	
Female	232 (56.2%)
Male	181 (43.8%)
Maternal depression	
Mean maternal depressive symptoms [range: 0–30], <i>mean (SD)</i>	8.4 (6.0)
Risk of maternal depression (CESD-10 ≥ 10), <i>n (%)</i>	140 (33.9%)
Father involvement	
Overall	
Mean [range: 0–23], (<i>SD</i>)	9.0 (5.9)
Any (%)	371 (89.8%)
Childcare activities	
Mean [range: 0–7], (<i>SD</i>)	3.3 (2.3)
Any (%)	347 (84.0%)
Early learning interactions	
Mean [range: 0–4], (<i>SD</i>)	0.8 (1.2)
Any (%)	155 (37.5%)
Household chores	
Mean [range: 0–7], (<i>SD</i>)	2.2 (2.3)
Any (%)	271 (64.5%)
Play and affection	
Mean [range: 0–5], (<i>SD</i>)	2.7 (2.0)
Any (%)	308 (74.6%)

Table 2

Unadjusted and adjusted associations of father involvement scores with maternal depressive symptoms.

Predictor	Unadjusted results			Adjusted results ^a		
	<i>b</i> (95% CI)	β (95% CI)	p-value	<i>b</i> (95% CI)	β (95% CI)	p-value
Father involvement total score	-0.24 (-0.34, -0.14)	-0.04 (-0.05, -0.02)	<0.01	-0.19 (-0.29, -0.10)	-0.03 (-0.05, -0.02)	<0.01
Childcare activities	-0.48 (-0.72, -0.23)	-0.08 (-0.11, -0.04)	<0.01	-0.41 (-0.66, -0.16)	-0.06 (-0.10, -0.02)	<0.01
Early learning interactions	-0.40 (-0.89, 0.10)	-0.06 (-0.14, 0.02)	0.12	-0.47 (-0.96, 0.03)	-0.07 (-0.15, 0.00)	0.06
Household chores	-0.66 (-0.91, -0.42)	-0.11 (-0.15, -0.07)	<0.01	-0.52 (-0.76, -0.27)	-0.08 (-0.12, 0.04)	<0.01
Play and affection	-0.44 (-0.73, -0.14)	-0.07 (-0.12, -0.02)	<0.01	-0.26 (-0.56, 0.05)	-0.04 (-0.09, 0.01)	0.10

^aAdjusted for caregiver age, child sex, child age, caregiver education, child's number of siblings under 5 years, number of members in household, wealth quintile, county, presence of a non-parent caregiver in household, and caregiver marital status.

Table 3

Subgroup results for the adjusted associations between father involvement scores and maternal depressive symptoms by child age.

Predictor	Child aged <6 months (N = 146)		Child aged 6–18 months (N = 267)		Father involvement x child age group interaction term p-value
	β (95% CI)	p-value	β (95% CI)	p-value	
Father involvement total score	-0.06 (-0.09, -0.03)	<0.01	-0.02 (-0.04, 0.00)	0.10	0.08
Childcare activities	-0.12 (-0.20, -0.04)	<0.01	-0.04 (-0.09, 0.01)	0.11	0.29
Early learning interactions	-0.09 (-0.26, 0.07)	0.30	-0.06 (-0.15, 0.03)	0.19	0.91
Household chores	-0.14 (-0.20, 0.08)	<0.01	-0.05 (-0.10, 0.00)	0.05	0.24
Play and affection	-0.12 (-0.21, -0.04)	0.01	-0.00 (-0.06, 0.06)	0.92	0.13

Adjusted for caregiver age, child sex, child age, caregiver education, child's number of siblings under 5 years, number of members in household, wealth quintile, county, presence of a non-parent caregiver in household, and caregiver marital status.

Table 4

Adjusted associations between father involvement and maternal depression (CESD 10).

Predictor	Maternal Depression (CESD 10)	
	OR (95% CI)	p-value
Father involvement total score	0.91 (0.87, 0.95)	<0.01
Childcare activities	0.83 (0.75, 0.93)	<0.01
Early learning interactions	0.71 (0.56, 0.89)	<0.01
Household chores	0.80 (0.71, 0.90)	<0.01
Play and affection	0.88 (0.78, 1.00)	0.05

Adjusted for caregiver age, child sex, child age, caregiver education, child's number of siblings under 5 years, number of members in household, wealth quintile, county, presence of a non-parent caregiver in household, and caregiver marital status.

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