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Men care too: a qualitative study examining women's perceptions of fathers' engagement in early childhood development (ECD) during an ECD program for HIV-positive mothers in Malawi

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6 Men care too: a qualitative study examining women's perceptions of fathers' engagement in
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8 Malawi
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Abstract

Background

Early childhood development (ECD) interventions improve developmental outcomes and parental support for children affected by HIV. Integration with prevention of mother to child transmission (PMTCT) strategies can benefit both mother and child wellbeing. However, PMTCT and ECD programs rarely target fathers, despite research showing that father involvement improves maternal and child outcomes. More research is needed to understand the acceptability of integrated ECD programs among men.

Methods

We implemented an integrated PMTCT-ECD intervention in six Malawi health facilities for HIV-positive mothers and their infants (ages 1.5-24 months). The intervention provided ECD education and counseling sessions during routine PMTCT visits, following WHO/UNICEF Care for Child Development curriculum. We conducted in-depth interviews with 29 mothers enrolled in the intervention for ≥ 6 months regarding their perception of father buy-in and engagement in ECD activities and the PMTCT-ECD program. Data were coded using inductive and deductive strategies and analyzed using constant comparison methods in Atlas.ti v1.6.

Results

Almost all mothers reported discussing the PMTCT-ECD intervention and lessons learned with their male partners. Most mothers reported that partners viewed ECD as beneficial and practiced ECD activities at home. Several reported improved partner relationships and increased communication due to the intervention. Nearly all believed their partners saw ECD and ECD sessions as important and valuable to their family. However, most mothers believed fathers would not attend the intervention due to concerns regarding HIV-related stigma at PMTCT centers, time required to attend, and perceptions that the intervention was intended only for women.

Conclusions

We found that fathers were interested in the PMTCT-ECD program and actively practiced ECD behaviors at home. However, fathers did not attend the program and felt uncomfortable visiting PMTCT centers. PMTCT-ECD interventions should consider direct outreach in communities or implementing ECD sessions at facility entry points where men frequent, such as outpatient departments.



Article summary

Strengths and limitations of this study

- Reaching fathers in Sub-Saharan Africa with ECD strategies may improve child developmental outcomes, as well as family engagement with health services. This may be particularly true for children affected by HIV, who are more vulnerable to poor health and developmental outcomes.
- Men are rarely included in early childhood development (ECD) programs. Given this gap, we explored the role of an ECD program on men's interest in, engagement in, and unmet needs regarding ECD activities in Malawi. We focus on the male partners of women living with HIV who were enrolled in an integrated prevention-of-mother-to-child-transmission (PMTCT) and ECD program for a minimum of 6 months.
- The study design and research question were based on strong conceptual framework from existing literature regarding male caregiver involvement in maternal/ child health programs and in children's lives.
- This study is limited by its reliance on mothers' perceptions of their male partners attitudes and engagement in ECD activities.

Introduction

Throughout sub-Saharan Africa, national HIV programs are transitioning from acute services to long-term, chronic care for those infected and affected by HIV. As countries transition, holistic, integrated health services are being prioritized. Prevention of mother-to-child transmission (PMTCT) services can especially benefit from a holistic approach. Across the region approximately 90-95% of HIV positive pregnant women are on antiretroviral therapy (ART) and child infections have dropped significantly – now is the time to promote holistic mother and child services, which can benefit PMTCT retention and mothers' and children's general well-being [1,2].

Early Childhood Development (ECD) interventions represent one strategy to promote mothers' PMTCT retention and mother and child wellbeing. ECD programs are associated with improved physical, psychosocial, and cognitive skills in children [3]. Since HIV-exposed uninfected children are at higher risk of mortality and delayed development than HIV-unexposed children, there is an opportunity to reach some of the most vulnerable children with ECD. An integrated program may also encourage PMTCT retention by improving the PMTCT visit experience for women and offering another motivation for clinic attendance [4]. However, both PMTCT and ECD programs tend to focus on women and fail to engage male partners [5]. The lack of male engagement threatens the potential impact of both PMTCT and ECD strategies. Further, there are increasing calls for increased entry points for men to be engaged with health facilities. Excluding men from ECD programs misses key opportunities to engage men as caregivers, and eventually as clients.

When men attend PMTCT programs, there is decreased risk of infant HIV infection and mortality [6]. Male involvement in PMTCT during pregnancy and after birth has been linked to improved maternal health behaviors, increased use of maternal and newborn health services, and is predictive of long-term involvement of fathers in their children's lives [7]. A review of 18 studies assessing male involvement in reproductive health interventions in sub-Saharan Africa found that male involvement was consistently associated with improved reproductive health outcomes and greater spousal communication [8]. With regard to ECD and child wellbeing, increased male caregiver involvement is associated with improved cognitive development, increased social responsiveness and greater school achievement among children [9,10].

However, many obstacles limit male caregiver involvement in both PMTCT and ECD programs. Antenatal care (ANC) services and related PMTCT programs are often not designed to include men [5]. Healthcare providers, who are accustomed to speaking to women, report feeling uncomfortable talking about PMTCT or ECD with men [10]. This likely contributes to men's perception of PMTCT and under-five clinics as 'female spaces' and not 'male-friendly' [5]. Other barriers to men's PMTCT engagement include men's time constraints due to employment, lack of knowledge about PMTCT strategies and the importance of men as caregivers, and harmful gender norms that discourage open communication and joint decision making among couples [5,11,12]. Similar barriers likely also affect men's involvement in ECD programs, although very little research has examined men's engagement in ECD programs [13]. In order to develop successful, holistic PMTCT services, more research is needed to explore how to design and implement integrated PMTCT and ECD strategies that effectively engage men.

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4 We conducted in-depth interviews with women enrolled in an integrated PMTCT-ECD program
5 that optimized clinic wait times to deliver ECD and responsive caregiving lessons to PMTCT
6 clients while they waited to receive routine ART services. Though this program was not targeted
7 to men, we hypothesized that mothers' participation had indirect effects on male caregivers and
8 family dynamics. We investigated participating mother's perceptions regarding fathers' buy-in to
9 the integrated PMTCT-ECD program, level of involvement in ECD activities with their children
10 at home, and any indirect effects the program had on couple dynamics and communication. We
11 also explored perceived barriers to male caregiver involvement in the PMTCT-ECD program, as
12 well as mothers' recommendations to facilitate greater male engagement.
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15 **Methods**

16 ***The Intervention***

17 We conducted an integrated PMTCT-ECD intervention for HIV-positive mothers and their
18 young children (aged 1.5-24 months) in six health facilities in central Malawi. Facilities varied in
19 size, type (district hospital, mission hospital, health center), and district. Mothers who were HIV-
20 positive, enrolled in PMTCT programs at participating facilities, and whose youngest child was
21 <8 weeks of age were recruited to participate in the integrated PMTCT-ECD program. Enrolled
22 mothers received an interactive ECD skills development session during every PMTCT visit
23 (every 1-3 months, depending on mothers' time since ART initiation and ART adherence
24 measures) until they graduated from the PMTCT program when their child reached 24 months of
25 age. Mothers could also access ECD sessions anytime they attended a facility, whether for
26 PMTCT or not. ECD sessions were offered while mothers waited for routine health services, so
27 participation did not require additional time or resources from the mothers.
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32 ECD sessions followed the WHO-UNICEF 'Care for Child Development' package that
33 sensitizes mothers to the developing cognitive, emotional and communication needs of their
34 infants, and reinforces caregiving sensitivity and responsiveness through support and simple play
35 activities [14]. Mothers are trained through interactive lessons, play, and demonstrated scenarios
36 to talk and sing with infants at an early age, make eye contact, mimic infant vocalizations, and
37 recognize and respond to their infant's developmental milestones. All sessions were
38 implemented by trained ECD counselors who were 'Expert Clients', a Malawi cadre of HIV-
39 positive community members who volunteer for a small monthly stipend to provide HIV
40 counseling and support to infected individuals [15].
41
42

43 ***Data Collection***

44 In-depth interviews were conducted from June to July 2019 with a random subset of 29 mothers
45 enrolled in the PMTCT-ECD program across four implementing facilities for ≥ 6 months.
46 Interview guides and the analysis framework were developed to assess mothers' ECD
47 knowledge, practice and male caregiver involvement in ECD. Guides were piloted amongst three
48 women to ensure comprehensibility and refined based on feedback. Interviews were conducted
49 in the local language (Chichewa) in private spaces in the health facilities and ranged in duration
50 from 30-50 minutes. Women were compensated 4000 Malawi Kwacha (approximately US \$5)
51 for their transportation costs to attend the interview.
52
53

54 ***Data analysis***

Audio recordings were translated and transcribed to English for analysis. For this paper, we only include interviews with women who report that the father of their youngest child was present in the child's daily life (since absent fathers will not be exposed to ECD sessions nor will they have a chance to practice ECD activities with the child). A preliminary codebook was generated using deductive coding from existing literature and inductive coding from pilot interviews. Two investigators (TT and PK) coded the same five transcripts separately using Atlas.ti, compared codes, and resolved differences. An additional two transcripts were simultaneously coded with similar codes between investigators. The final codebook was used by the same two investigators to code all remaining transcripts. Data were analyzed using constant comparison methods. Below we present dominant themes related to male engagement and fathers' understanding and interest in PMTCT-ECD programs.

Patient and Public Involvement

Patients or the public were not involved in the design, conduct, reporting, or dissemination plans of our research.

Ethical Approval

Ethical approval was attained from the University of California Los Angeles IRB (ID# 20-003525) and the Malawi institutional review board, National Health Sciences Review Committee (ID# 19/03/2429).

Results

A total of 29 mothers were interviewed. Twenty-two mothers (76%) reported that the father of their youngest child was present in the child's life and were included in this analysis. Mothers had a mean age of 30 years, a median of 4 children, and only one woman had no education (Table 1). All mothers self-reported attending the majority of ECD sessions. Half of these mothers reported that fathers spent time with their youngest child on a daily basis, and only one mother reported that the father spent time with the child once per week or less. All but one mother reported that they communicated with the father about the ECD program. Almost all mothers reported that the fathers' primary responsibility was to provide financially for their children, but that fathers also played with children and looked after children when mothers were busy.

Table 1. Respondent demographic characteristics	
	Participants (n=22)
	30 (21-42)
Age, mean (range)	
Married, No. (%)	20 (91)
Number of children, median (range)	4 (1-8)
Household primary income, No. (%)	
Formal employment	0

Informal employment	22 (100)
Not working	0
Education, No. (%)	
No education	1 (5)
Primary	10 (45)
Secondary or higher	11 (50)
Male partner involvement	
With infant every day	11 (50)
With infant several days a week	10 (45)
With infant <1 days a week	1 (5)
Discussed PMTCT-ECD program with male partner	21 (96)
ECD session attendance	
Attend most sessions	22 (100)
Attend a few sessions	0
Dropped out of program	0

Fathers valued ECD and increased their engagement with their youngest child

Most mothers reported that fathers had positive opinions towards the ECD program, reporting that male partners noticed the progress in their youngest child because of new ECD practices. In families with older children, mothers reported that their partners recognized differences between the youngest child and older siblings who were raised without the ECD program.

[My husband] plays with the child and he has seen a change, he asks me why the child is different from the others and I tell him that we learn ECD at the hospital and they teach us about the child's behavior. – Mother of 8, age 31

Most mothers reported that their partners supported and actively implemented ECD practices at home. Mothers directly shared ECD lessons learned from the intervention with their partner, and these lessons were put into practice by both parents.

[My husband] was wondering why I was so fond of making things like balls and toy cars, and when he asked, I explained to him about [what I learned at] the ECD program. Now he helps me with making toys for the kid. – Mother of 7, age 34

After I told my husband about ECD, he is active with the child; he makes him porridge, sings to him, and plays with him – Mother of 2, age 21

Mothers believed that male partners were motivated to practice ECD behavior with their children because their child gave immediate positive response to stimulation and because fathers understood the long-term benefit of ECD practices.

ECD taught me about singing and playing with the child, and when the father of the child does this [singing and playing] and sees how the child is responding, he sees how important the ECD sessions are. – Mother of 3, age 20

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4 ***Family relationships were strengthened as a result of increased communication and ECD***
5 ***knowledge sharing***

6 Several mothers reported that since the ECD program started, their male partners and youngest
7 children have developed a closer, more intimate bond, reportedly due to increases in ECD
8 knowledge and practices.
9

10
11 *The bond has increased between [the father and the child] and I am able to leave the*
12 *child with him and he is able to take care of the child. – Mother of 5, age 37*
13

14 Nearly all reported increases in communication, which often resulted in better teamwork and
15 understanding between the couple. Over half of mothers reported improved relationships with
16 their male partners since starting the ECD program. Frequently cited examples included sharing
17 more responsibilities at home (improved equity), having a common goal regarding their children
18 and childcare, encouragement and support of one another for individual and joint goals, and even
19 living with less conflict due to increased communication and a sense of purpose for childrearing.
20
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22
23 *Me and my husband are living in harmony because we are raising this child together.*
24 *The father of the child has just realized that the responsibility is for the both of us. –*
25 *Mother of 5, age 37*
26

27 *Because of the program, even when we are fighting, the issues that have to do with the*
28 *child bring us together so that we even laugh together and forget the fight. – Mother of 4,*
29 *age 31*
30

31
32 ***Remaining barriers to male partner attendance of the PMTCT-ECD program***

33 Only a few mothers believed that their partner would feel comfortable attending the PMTCT-
34 ECD program, citing examples of their partners' active interest in the ECD sessions. However,
35 only one mother reported that her partner routinely attended the PMTCT-ECD program. Some
36 women believed that men in their community who attended antenatal visits to support their wives
37 might also feel comfortable attending the ECD program, but men who were not comfortable
38 attending antenatal or PMTCT visits would not attend ECD.
39
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41 *I see [my husband's] interest from the way he reacts and asks questions to follow what*
42 *we have learnt at the ECD program, so I think he might come [to the program]. – Mother*
43 *of 7, age 34*
44

45
46 Most mothers believed that their partners would be unwilling to attend ECD sessions at the
47 clinic, particularly because the PMTCT-ECD program was organized around PMTCT services.
48 Several mothers stated that men would not feel comfortable being at PMTCT clinics due to
49 stigma and concerns about being pressured to test for HIV while attending ECD sessions.
50

51 *Many fathers think that [health workers] will be talking to them in public and they will be*
52 *embarrassed. I think the big problem for men is being shy. – Mother of 6, age 31*
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3 Other mothers reported that their partners believed that ECD sessions were only for women and
4 would not attend but desired to hear about ECD through the female partner. These men still
5 practiced ECD activities at home, but believed that men were not meant to attend the PMTCT-
6 ECD intervention.
7

8
9 *Some men will not come because they might say that the program is meant for women not*
10 *men. – Mother of 4, age 31*
11

12 Even if men felt comfortable coming to the clinic, many mothers identified other barriers to
13 participation. A majority of mothers reported that the time required to travel to the clinic and
14 wait for services was a significant barrier – most men would not sacrifice income-generating
15 activities to attend an ECD session.
16

17
18 *Men will not come [to ECD sessions] because when we come here we play with the kids*
19 *and he may consider that as wasting time; he would rather do other helpful things. –*
20 *Mother of 3, age 31*
21

22 ***Additional strategies to engage men in ECD programs***

23 Almost all mothers believed that male caregiver engagement in ECD could be increased through
24 raising awareness and educating men about the importance of PMTCT-ECD activities for
25 children. Most suggested that the program needed to actively invite fathers to attend in order to
26 demonstrate that male caregivers are welcome and encouraged to participate in PMTCT-ECD.
27 Several mothers also believed that men would be more comfortable with male-only sessions.
28

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31 *[Health workers] should make an effort to explain that both fathers and mothers are*
32 *important in ECD. They should help us explain [to male partners] that this is not a place*
33 *to force people to test blood [for HIV] but to know our responsibility as a father and*
34 *mother in caring for children. – Mother of 6, age 31*
35

36
37 *There is a need to invite the fathers as well. Tell the mothers to come with their husbands*
38 *so that the fathers should also be able to listen about ECD ... We should be able to bring*
39 *the husbands to the ECD so that we listen to the counseling together. – Mother of 2, age*
40 *26*
41

42 However, the majority mothers believed that men could best be reached outside the clinic. Most
43 suggested sending illustrated, informational pamphlets home with women after each PMTCT-
44 ECD visit to increase male engagement and awareness regarding ECD practices.
45

46
47 *Men are busy, even sometimes when they can't come for an [ART] refill here we get*
48 *drugs for them because they are so busy, but if they can read [the pamphlet] then they*
49 *will know what they are supposed to do. – Mother of 4, age 34*
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51 Some mothers also suggested directly engaging men in the community to explain ECD through
52 phone calls or home visits to male partners of mothers in the ECD program, or larger community
53 meetings that incorporate all fathers within the community.
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3 *Men should be sensitized to the importance of the program and also the need for the*
4 *participation of everyone. – Mother of 4, age 31*
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7 *A woman should encourage her husband about the advantages of the ECD program and*
8 *also the counselors should be visiting them in their homes and encouraging them to be*
9 *coming to the sessions... If a man comes to get his drugs [ART] as well, he should be*
10 *encouraged to participate [in the ECD program]. The other way is to make phone calls*
11 *to them and remind them about the meetings. – Mother of 5, age 34*
12

13 Finally, a few mothers suggested that ECD sessions should be integrated as part of normal clinic
14 activities of men. For example, at outpatient or sexually transmitted infection (STI) departments
15 where men frequent.
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18 *When [men] come to get drugs on their own, they should be briefed about ECD so the*
19 *men who have children can get that information. – Mother of 4, age 34*
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22 **Discussion**

23 Fathers play a critical role in child development and mothers' engagement in PMTCT strategies.
24 We explored fathers' perception of an integrated PMTCT-ECD intervention that targeted
25 mothers living with HIV in Malawi, including barriers to men's involvement, and
26 recommendations for engaging men in ECD interventions in the future. We relied on secondary
27 reports from mothers participating in the PMTCT-ECD program since they are most familiar
28 with both intervention activities, and the fathers' perception of these activities. We found that
29 nearly all mothers discussed ECD lessons with their male partners (fathers) frequently. Within a
30 PMTCT-ECD intervention that was not specifically targeted to men, most fathers were perceived
31 to have high levels of buy-in for the ECD intervention, accept ECD messaging, and actively
32 practice ECD activities at home with their children. The PMTCT-ECD intervention increased
33 couple communication within some relationships by providing the mother and father with a joint
34 goal around ECD for their family. due to the intervention. However, most mothers believed that
35 fathers would not attend the intervention due to concerns regarding HIV-related stigma at
36 PMTCT centers, time required to attend, and perceptions that the intervention was intended only
37 for women.
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42 Mothers believed that fathers were interested in gaining greater ECD skills and actively involved
43 in actively involved in ECD activities at home. This supports other studies in South Africa
44 reporting that many men are interested in education and counseling to prepare for fatherhood
45 [12]. Our findings contradict literature that suggests that cultural perceptions regarding gender
46 norms continue to be a major barrier to fathers' engagement in ECD and responsive childcare [9]
47 – we find that fathers are, as reported by their female partners, largely seen as engaged and active
48 parents. Future parenting and ECD programs should actively include and target fathers, who
49 have been shown to support antenatal care and PMTCT, prioritize preparing for fatherhood, and
50 may have a deep interest in learning responsive caregiving techniques [5,12,16].
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54 Most mothers reported that fathers engagement in caregiving increased as a result of ECD
55 knowledge gained from mothers' participation in the PMTCT-ECD program. As a result, some
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3 women believed that family relationships were strengthened due to increased couple
4 communication and sharing of caregiver responsibilities between mother and father. These
5 findings are consistent with a study in Tanzania and Zimbabwe that found that interventions
6 aimed to increase male involvement in maternal and child health activities improved
7 relationships and positive emotional outcomes among many couples, which further encouraged
8 men's engagement as caregivers [17]. Other studies highlight the role of male partner
9 engagement in providing additional social support to mothers, which can further improve ECD
10 outcomes [18,19]. Though not examined in our analysis, these positive effects on families may
11 translate to secondary benefits as well. Other studies from the region have found associations
12 between male partner involvement in PMTCT and subsequent health outcomes of both mothers
13 and children including decreased risk of HIV transmission, decreased risk of child mortality, and
14 increased maternal adherence to ART [19, 20]. These findings support the need to tailor
15 programs such as PMTCT-ECD interventions for both parents and welcome fathers into these
16 spaces in order to increase ECD knowledge and awareness among men and strengthen PMTCT
17 through an integrated, holistic approach.
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22 Despite fathers' support for and value of ECD sessions, mothers believed most men were
23 uncomfortable attending the current PMTCT-ECD program. This finding is supported by other
24 studies in sub-Saharan Africa that have found that while many men are interested in participating
25 in maternal and child health interventions, actual male attendance rates remain low [8,21]. Most
26 mothers in our study believed male partners were uncomfortable attending these sessions
27 because they were held at the ART clinic where men assumed they would be pressured or forced
28 to test for HIV. Some mothers also reported that men believed the ECD sessions, and PMTCT
29 services more broadly, were not meant for fathers. Our findings corroborate previous literature.
30 In their systematic review of barriers and facilitators of male partner involvement in PMTCT,
31 Morfaw et al. also found the most salient barrier to male engagement was men's perception that
32 PMTCT and antenatal clinics were 'women's spaces', revealing that men need to be actively
33 welcomed into facility spaces if perceptions of female-centered services are to be overcome [22].
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37 To address these barriers to male involvement, the majority of mothers recommended using
38 direct outreach targeting men in order to increase awareness about the importance of ECD and
39 joint parenting. Some mothers also recommended actively inviting men to the current PMTCT-
40 ECD program or providing ECD sessions at health facility services where men frequent (such as
41 general outpatient services). A range of community-based approaches throughout the region have
42 shown promising results in disseminating important maternal and child-related health
43 information. These include home visits to HIV-positive mothers and their partners by male
44 community 'role models' and male health workers, and community dissemination via radio or
45 community spaces frequented by men including football events, markets, and churches [23–25].
46 In Malawi specifically, community leaders or 'chiefs' can provide the leadership necessary to
47 encourage and normalize male engagement in maternal and child health interventions at the
48 community level [21]. One recent meta-analysis found that community education interventions
49 had the greatest impact, more than clinic invitation letters, facility-based interventions and verbal
50 encouragement [26]. However, community-based outreach is expensive and time consuming,
51 and may limit programs' scalability. Regardless, future integrated PMTCT programs should
52 consider utilizing community services or restructuring facility spaces to directly engage men.
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Limitations

This study has several limitations that should be noted. First, we rely on mothers' perceptions of their male partners – we do not have direct feedback from men themselves. Women participating in the study may have incomplete or skewed perceptions of their partners perceptions of and barriers to ECD sessions. Additional research is needed that directly engages fathers to further understand their perceptions of integrated PMTCT-ECD services, and how to engage them in these strategies. Second, the study is limited to mothers in central Malawi and may not be representative of other settings. However, our findings are similar to those found throughout the region, suggesting some comparability with other settings. Third, our data rely on mothers who were active in the PMTCT-ECD program for a minimum of 6 months. Future analyses should examine male engagement at the end of the program as fathers may show increased engagement over time.

Conclusion

Most mothers enrolled in a PMTCT-ECD program in Malawi believed fathers saw value in the PMTCT-ECD program, demonstrated interest in gaining ECD knowledge, and actively implemented ECD activities at home. Despite not having direct engagement with this PMTCT-ECD program, male caregivers still received ECD messaging and began to prioritize ECD activities at home, suggesting that men might be easily reached if programs were designed to include them. Although mothers reported increased interest in ECD among men, integrating PMTCT and ECD services alone was not enough to change perceptions that PMTCT is a women's space. The structure of PMTCT strategies should be revised if men are to be engaged. In addition, ECD strategies could be implemented in locations where men frequent (community or outpatient departments) in order to directly engage men in ECD program activities.

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Author contributions

TC and LR led the parent PMTCT-ECD trial design, with involvement from LB and EU. KD and TT conceptualized the study as it pertained to male caregivers. TT, PK, CM and SM lead study implementation and data collection with support from SG. TT, PK and KD analyzed and interpreted study data. TT and JH drafted the manuscript and all authors were involved in editing and final review of drafts. All authors have approved the final manuscript.

Availability of data and materials

All relevant data are included in the article. Datasets used during the current study are available from the corresponding author on reasonable request.

Competing interests

The authors report no competing interests.

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References

1. 2013 UNAIDS Report on the global AIDS epidemic | UNAIDS. https://www.unaids.org/en/resources/documents/2013/20130923_UNAIDS_Global_Report_2013. Accessed February 12, 2020.
2. WHO | Global guidance on criteria and processes for validation: Elimination of Mother-to-Child Transmission of HIV and Syphilis. *WHO*. 2019.
3. Daelmans B, Black MM, Lombardi J, et al. Effective interventions and strategies for improving early child development. *BMJ*. 2015;351:h4029. doi:10.1136/bmj.h4029
4. Gourlay A, Birdthistle I, Mburu G, Iorpenda K, Wringe A. Barriers and facilitating factors to the uptake of antiretroviral drugs for prevention of mother-to-child transmission of HIV in sub-Saharan Africa: A systematic review. *J Int AIDS Soc*. 2013;16(1). doi:10.7448/IAS.16.1.18588
5. Koo K, Makin JD, Forsyth BWC. Barriers to male-partner participation in programs to prevent mother-to-child HIV transmission in south Africa. *AIDS Educ Prev*. 2013;25(1):14-24. doi:10.1521/aeap.2013.25.1.14
6. Aluisio A, Richardson BA, Bosire R, John-Stewart G, Mbori-Ngacha D, Farquhar C. Male antenatal attendance and HIV testing are associated with decreased infant HIV infection and increased HIV-free survival. *J Acquir Immune Defic Syndr*. 2011;56(1):76-82. doi:10.1097/QAI.0b013e3181fdb4c4
7. Van den Berg (ed). *State of Africa's Fathers: A MenCare Advocacy Publication. Adapted from Levtoy R, van Der Gaag N, Greene M, Kaufman M, and Barker H. State of the World's Fathers: A MenCare Advocacy Publication*. Washington D.C.; 2015.
8. Nkwonta CA, Messias DAKH. Male participation in reproductive health interventions in Sub-Saharan Africa: A scoping review. *Int Perspect Sex Reprod Health*. 2019;45:71-85. doi:10.1363/45e8119
9. Engle PL, Breaux C. Fathers' Involvement with Children: Perspectives from Developing Countries. *Soc Policy Rep*. 1998;12(1):1-24. doi:10.1002/j.2379-3988.1998.tb00007.x
10. Garcia M, Pence A, Evans JL. *Africa's Future, Africa's Challenge Early Childhood Care and Development in Sub-Saharan Africa Human Development*.; 2008.
11. Colvin CJ. Gender, Health and Change in South Africa: Three Ways of Working with Men and Boys for Gender Justice. *Rech Sociol Anthropol RS A*. 2017;48(1):109.
12. Ditekemena J, Koole O, Engmann C, et al. Determinants of male involvement in maternal and child health services in sub-Saharan Africa: a review. *Reprod Health*. 2012;9(1):32. doi:10.1186/1742-4755-9-32
13. Britto PR, Lye SJ, Proulx K, et al. Nurturing care: promoting early childhood development. *Lancet*. 2017;389(10064):91-102. doi:10.1016/S0140-6736(16)31390-3
14. WHO | Care for child development: improving the care for young children. *WHO*. 2019.
15. Cataldo F, Sam-Agudu NA, Phiri S, Shumba B, Cornelius LJ, Foster G. The roles of expert mothers engaged in prevention of mother-to-child transmission (PMTCT) programs: A commentary on the INSPIRE studies in Malawi, Nigeria, and Zimbabwe. *J Acquir Immune Defic Syndr*. 2017;75:S224-S232. doi:10.1097/QAI.0000000000001375
16. Theuring S, Mbezi P, Luvanda H, Jordan-Harder B, Kunz A, Harms G. Male involvement in PMTCT services in Mbeya Region, Tanzania. *AIDS Behav*. 2009;13(SUPPL. 1):92-102. doi:10.1007/s10461-009-9543-0
17. 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.' *Cult Health Sex*. August 2019:1-18.
doi:10.1080/13691058.2019.1630564
18. Cunningham SA, Elo IT, Herbst K, Hosegood V. Prenatal development in rural South Africa: relationship between birth weight and access to fathers and grandparents. *Popul Stud (NY)*. 2010;64(3):229-246. doi:10.1080/00324728.2010.510201
 19. Montgomery CM, Hosegood V, Busza J, Timaeus IM. Men's involvement in the South African family: engendering change in the AIDS era. *Soc Sci Med*. 2006;62(10):2411-2419. doi:10.1016/J.SOCSCIMED.2005.10.026
 20. Aluisio AR, Bosire R, Bourke B, et al. Male partner participation in antenatal clinic services is associated with improved HIV-free survival among infants in Nairobi, Kenya: A prospective cohort study. *J Acquir Immune Defic Syndr*. 2016;73(2):169-176. doi:10.1097/QAI.0000000000001038
 21. Sifunda S, Peltzer K, Rodriguez VJ, et al. Impact of male partner involvement on mother-to-child transmission of HIV and HIV-free survival among HIV-exposed infants in rural South Africa: Results from a two phase randomised controlled trial. Price MA, ed. *PLoS One*. 2019;14(6):e0217467. doi:10.1371/journal.pone.0217467
 22. Manda-Taylor L, Mwale D, Phiri T, et al. Changing times? Gender roles and relationships in maternal, newborn and child health in Malawi. *BMC Pregnancy Childbirth*. 2017;17(1):321. doi:10.1186/s12884-017-1523-1
 23. Morfaw F, Mbuagbaw L, Thabane L, et al. Male involvement in prevention programs of mother to child transmission of HIV: a systematic review to identify barriers and facilitators. *Syst Rev*. 2013;2(1):5. doi:10.1186/2046-4053-2-5
 24. Aliyu MH, Blevins M, Audet CM, et al. Integrated prevention of mother-to-child HIV transmission services, antiretroviral therapy initiation, and maternal and infant retention in care in rural north-central Nigeria: A cluster-randomised controlled trial. *Lancet HIV*. 2016;3(5):e202-e211. doi:10.1016/S2352-3018(16)00018-7
 25. Audet CM, Blevins M, Chire YM, et al. Engagement of Men in Antenatal Care Services: Increased HIV Testing and Treatment Uptake in a Community Participatory Action Program in Mozambique. *AIDS Behav*. 2016;20(9):2090-2100. doi:10.1007/s10461-016-1341-x
 26. Semrau K, Kuhn L, Vwalika C, et al. Women in couples antenatal HIV counseling and testing are not more likely to report adverse social events. *AIDS*. 2005;19(6):603-609. doi:10.1097/01.aids.0000163937.07026.a0
 27. Takah NF, Kennedy ITR, Johnman C. The impact of approaches in improving male partner involvement in the prevention of mother-to-child transmission of HIV on the uptake of maternal antiretroviral therapy among HIV-seropositive pregnant women in sub-Saharan Africa: A systematic review and meta-analysis. *BMJ Open*. 2017;7(11):e018207. doi:10.1136/bmjopen-2017-018207

No.	Topic	Title and abstract	Item
S1		Title	Concise description of the nature and topic of the study identifying the study as qualitative or indicating the approach (e.g., ethnography, grounded theory) or data collection methods (e.g., interview, focus group) is recommended
S2		Abstract	Summary of key elements of the study using the abstract format of the intended publication; typically includes background, purpose, methods, results, and conclusions
1			
2		Introduction	
S3		Problem formulation	Description and significance of the problem/phenomenon studied; review of relevant theory and empirical work; problem statement
3			
S4		Purpose or research question	Purpose of the study and specific objectives or questions
4		Methods	
S5		Qualitative approach and research paradigm	Qualitative approach (e.g., ethnography, grounded theory, case study, phenomenology, narrative research) and guiding theory if appropriate; identifying the research paradigm (e.g., postpositivist, constructivist/interpretivist) is also recommended; rationale ^a
5			
S6		Researcher characteristics and reflexivity	Researchers' characteristics that may influence the research, including personal attributes, qualifications/experience, relationship with participants, assumptions, and/or presuppositions; potential or actual interaction between researchers' characteristics and the research questions; approach, methods, results, and/or transferability
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S7		Context	Setting/site and salient contextual factors; rationale ^b
9			
S8		Sampling strategy	How and why research participants, documents, or events were selected; criteria for deciding when no further sampling was necessary (e.g., sampling saturation); rationale ^b
10			
S9		Ethical issues pertaining to human subjects	Documentation of approval by an appropriate ethics review board and participant consent, or explanation for lack thereof; other confidentiality and data security issues
11			
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S10		Data collection methods	Types of data collected; details of data collection procedures including (as appropriate) start and stop dates of data collection and analysis, iterative process, triangulation of sources/methods, and modification of procedures in response to evolving study findings; rationale ^b
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S11		Data collection instruments and technologies	Description of instruments (e.g., interview guides, questionnaires) and devices (e.g., audio recorders) used for data collection; if/how the instrument(s) changed over the course of the study
15			
S12		Units of study	Number and relevant characteristics of participants, documents, or events included in the study; level of participation (could be reported in results)
16			
S13		Data processing	Methods for processing data prior to and during analysis, including transcription, data entry, data management and security, verification of data integrity, data coding, and anonymization/deidentification of excerpts
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S14		Data analysis	Process by which inferences, themes, etc., were identified and developed, including the researchers involved in data analysis; usually references a specific paradigm or approach; rationale ^b
19			
20			
S15		Techniques to enhance trustworthiness	Techniques to enhance trustworthiness and credibility of data analysis (e.g., member checking, audit trail, triangulation); rationale ^b
21			
22		Results/findings	
S16		Synthesis and interpretation	Main findings (e.g., interpretations, inferences, and themes); might include development of a theory or model, or integration with prior research or theory
23			
S17		Links to empirical data	Evidence (e.g., quotes, field notes, text excerpts, photographs) to substantiate analytic findings
24			
25		Discussion	
S18		Integration with prior work, implications, transferability, and contribution(s) to the field	Short summary of main findings; explanation of how findings and conclusions connect to, support, elaborate on, or challenge conclusions of earlier scholarship; discussion of scope of application/generalizability; identification of unique contribution(s) to scholarship in a discipline or field
26			
27			
S19		Limitations	Trustworthiness and limitations of findings
28		Other	
S20		Conflicts of interest	Potential sources of influence or perceived influence on study conduct and conclusions; how these were managed
29			
S21		Funding	Sources of funding and other support; role of funders in data collection, interpretation, and reporting
30			
31			

The SRQR was created by searching the literature to identify guidelines, reporting standards, and other empirical information on qualitative research, including the role of experts in training and consulting experts to gain feedback. The SRQR aims to improve the transparency of all aspects of qualitative research by providing clear standards for reporting qualitative research.

The rationale should briefly discuss the justification for choosing that theory, approach, method, or technique rather than other options available, the assumptions and limitations implicit in those choices, and how those choices influence study conclusions and transferability. As appropriate, the rationale for several items might be assessed together.

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Men care too: a qualitative study examining women's perceptions of fathers' engagement in early childhood development (ECD) during an ECD program for HIV-positive mothers in Malawi

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3 1 Men care too: a qualitative study examining women's perceptions of fathers' engagement in
4 2 early childhood development (ECD) during an ECD program for HIV-positive mothers in
5 3 Malawi
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3 **20 Abstract**

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5 **22 Objectives:**

6 **23** Integrated early childhood development (ECD) and prevention of mother to child transmission
7 **24** (PMTCT) interventions rarely target fathers, a missed opportunity given existing research
8 **25** demonstrating that father involvement improves maternal and child outcomes. We aimed to
9 **26** explore mother's perceptions of fathers' buy-in to an integrated PMTCT-ECD program, any
10 **27** impact the program had on couple dynamics, and perceived barriers to fathers' involvement in
11 **28** ECD activities.

12 **29 Design:**

13 **30** Qualitative study using individual in-depth interviews with mothers participating in a PMTCT-
14 **31** ECD program. Interviews assessed mothers' perceptions of father buy-in and engagement in the
15 **32** program and ECD activities. Data were coded using inductive and deductive strategies and
16 **33** analyzed using constant comparison methods in Atlas.ti v1.6.

17 **34 Setting:**

18 **35** Four health facilities in Malawi where PMTCT services were provided.

19 **36 Participants:**

20 **37** Study participants were mothers living with HIV who were enrolled in the PMTCT-ECD
21 **38** program for >6 months.

22 **39 Interventions:**

23 **40** The PMTCT-ECD intervention provided ECD education and counseling sessions during routine
24 **41** PMTCT visits for mothers living with HIV and their infants (infant age 1.5-24 months). The
25 **42** intervention did not target fathers, but mothers were encouraged to share information with them.

26 **43 Results:**

27 **44** Interviews were conducted with 29 mothers. Almost all mothers discussed the PMTCT-ECD
28 **45** intervention with male partners. Most mothers reported that fathers viewed ECD as valuable and
29 **46** practiced ECD activities at home. Several reported improved partner relationships and increased
30 **47** communication due to the intervention. However, most mothers believed fathers would not
31 **48** attend the PMTCT-ECD intervention due to concerns regarding HIV-related stigma at PMTCT
32 **49** clinics, time required to attend, and perceptions that the intervention was intended for women.

33 **50 Conclusions:**

34 **51** Fathers were interested in an integrated PMTCT-ECD program and actively practiced ECD
35 **52** activities at home, but felt uncomfortable visiting PMTCT clinics. Interventions should consider
36 **53** direct community outreach or implementing ECD programs at facility entry points where men
37 **54** frequent, such as outpatient departments.

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3 57 **Article summary**
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5 59 ***Strengths and limitations of this study***
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- 7 60 • Reaching fathers in Sub-Saharan Africa with early childhood development (ECD)
8 61 strategies may improve child developmental outcomes, as well as family engagement
9 62 with health services. This may be particularly true for children affected by HIV, who are
10 63 more vulnerable to poor health and developmental outcomes.
11 64 • Men are rarely included in early childhood development (ECD) programs. Given this
12 65 gap, we explored the role of an ECD program on men's interest in, engagement in, and
13 66 unmet needs regarding ECD activities in Malawi. We focus on the male partners of
14 67 women living with HIV who were enrolled in an integrated prevention-of-mother-to-
15 68 child-transmission (PMTCT) and ECD program for a minimum of 6 months.
16 69 • The study design and research question were based on strong conceptual framework from
17 70 existing literature regarding male caregiver involvement in maternal/ child health
18 71 programs and in children's lives.
19 72 • This study is limited by its reliance on mothers' perceptions of their male partners
20 73 attitudes and engagement in ECD activities.
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76 Introduction

77 Throughout sub-Saharan Africa, national HIV programs are transitioning from acute services to
78 long-term, chronic care for those infected and affected by HIV. As countries transition, holistic,
79 integrated health services are being prioritized. Prevention of mother-to-child transmission
80 (PMTCT) services can especially benefit from a holistic approach. Across the region
81 approximately 90-95% of HIV positive pregnant women are on antiretroviral therapy (ART) and
82 child infections have dropped significantly – now is the time to promote holistic mother and
83 child services, which can benefit PMTCT retention and mothers’ and children’s general well-
84 being [1,2].

85
86 Early Childhood Development (ECD) interventions represent one strategy to promote mothers’
87 PMTCT retention and mother and child wellbeing. ECD programs are associated with improved
88 physical, psychosocial, and cognitive skills in children [3]. Since HIV-exposed uninfected
89 children are at higher risk of mortality and delayed development than HIV-unexposed children,
90 there is an opportunity to reach some of the most vulnerable children with ECD. An integrated
91 program may also encourage PMTCT retention by improving the PMTCT visit experience for
92 women and offering another motivation for clinic attendance [4]. However, both PMTCT and
93 ECD programs tend to focus on women and fail to engage male partners [5]. The lack of male
94 engagement threatens the potential impact of both PMTCT and ECD strategies. Further, there are
95 increasing calls for increased entry points for men to be engaged with health facilities. Excluding
96 men from ECD programs misses key opportunities to engage men as caregivers, and eventually
97 as clients.

98
99 When men attend PMTCT programs, there is decreased risk of infant HIV infection and
100 mortality [6]. Male involvement in PMTCT during pregnancy and after birth has been linked to
101 improved maternal health behaviors, increased use of maternal and newborn health services, and
102 is predictive of long-term involvement of fathers in their children’s lives [7]. A review of 18
103 studies assessing male involvement in reproductive health interventions in sub-Saharan Africa
104 found that male involvement was consistently associated with improved reproductive health
105 outcomes and greater spousal communication [8]. Another review of behavioral couples-based
106 interventions around the time of pregnancy found that male involvement had the potential to
107 improve HIV preventive behaviors and infant survival [9]. With regard to ECD and child
108 wellbeing, increased male caregiver involvement is associated with improved cognitive
109 development, increased social responsiveness and greater school achievement among children
110 [10,11].

111
112 However, many obstacles limit male caregiver involvement in both PMTCT and ECD programs.
113 Antenatal care (ANC) services and related PMTCT programs are often not designed to include
114 men [5]. Healthcare providers, who are accustomed to speaking to women, have reported feeling
115 uncomfortable talking about PMTCT or ECD with men [11]. This likely contributes to men’s
116 perception of PMTCT and under-five clinics as ‘female spaces’ and not ‘male-friendly’ [5].
117 Other barriers to men’s PMTCT engagement include men’s time constraints due to employment,
118 lack of knowledge about PMTCT strategies and the importance of men as caregivers, harmful
119 gender norms that discourage open communication and joint decision making among couples,
120 and the fact that male attendance is still not expected or required by community members or
121 health care providers [5,12-15]. Similar barriers likely also affect men’s involvement in ECD

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3 122 programs, although very little research has examined men's engagement in ECD programs [16].
4 123 In order to develop successful, holistic PMTCT services, more research is needed to explore how
5 124 to design and implement integrated PMTCT and ECD strategies that effectively engage men.
6 125

7
8 126 We conducted in-depth interviews with mothers participating in an integrated PMTCT-ECD
9 127 intervention in Malawi in order to investigate mothers' perception of fathers' buy-in to the
10 128 integrated PMTCT-ECD program, level of fathers' involvement in ECD activities with their
11 129 children at home, and any indirect effects the program had on couple dynamics and
12 130 communication. We also aimed to explore perceived barriers to male caregiver involvement in
13 131 the PMTCT-ECD program, as well as mothers' recommendations to facilitate greater male
14 132 engagement.
15 133

16 134 **Methods**

17
18 135 The primary objectives of this study were to use qualitative interviews to evaluate mothers'
19 136 perceptions of male partners' experiences with and perceptions of an integrated PMTCT-ECD
20 137 intervention in Malawi.
21 138

22 139 ***The Intervention***

23
24 140 A detailed description of the PMTCT-ECD intervention can be found elsewhere [17]. In brief,
25 141 we conducted an integrated PMTCT-ECD intervention for HIV-positive mothers and their young
26 142 children (aged 1.5-24 months) in six health facilities in central Malawi. Facilities varied in size,
27 143 type (district hospital, mission hospital, health center), and district (Lilongwe, Kasungu,
28 144 Nkhotakota). Mothers who were HIV-positive, enrolled in PMTCT programs at participating
29 145 facilities, and whose youngest child was <8 weeks of age were recruited to participate in the
30 146 integrated PMTCT-ECD program. Enrolled mothers received an interactive ECD skills
31 147 development session during every PMTCT visit (every 1-3 months, depending on mothers' time
32 148 since ART initiation and ART adherence measures) until they graduated from the PMTCT
33 149 program when their child reached 24 months of age. Mothers could also access ECD sessions
34 150 anytime they attended a facility, whether for PMTCT or not. ECD sessions were offered while
35 151 mothers waited for routine health services, so participation did not require additional time or
36 152 resources from the mothers.
37 153

38
39 154 ECD sessions followed the WHO-UNICEF 'Care for Child Development' package that
40 155 sensitizes mothers to the developing cognitive, emotional and communication needs of their
41 156 infants, and reinforces caregiving sensitivity and responsiveness through support and simple play
42 157 activities [18]. Mothers are trained through interactive lessons, play, and demonstrated scenarios
43 158 to talk and sing with infants at an early age, make eye contact, mimic infant vocalizations, and
44 159 recognize and respond to their infant's developmental milestones. All sessions were
45 160 implemented by trained ECD counselors who were 'Expert Clients', a Malawi cadre of HIV-
46 161 positive community members who volunteer for a small monthly stipend to provide HIV
47 162 counseling and support to infected individuals [19].
48 163

49 164 ***Study Design***

50
51 165 This was a qualitative study using individual in-depth interviews with mothers who had
52 166 participated in the PMTCT-ECD intervention for >6 months. Given the relative lack of research
53 167 in this specific area, we used a grounded theory approach [20]. Individual in-depth interviews
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3 168 were used instead of focus group discussions in order to emphasize the experiences of individual
4 169 participants and investigate the unique effects of the program within individual family units.
5 170

7 171 ***Participant Selection***

8 172 Mothers participating in the PMTCT-ECD program were eligible for study participation if they
9 173 had been enrolled in the program for >6 months in order to ensure exposure to the majority of the
10 174 ECD curriculum. Participants were selected randomly in order to avoid biases in sample
11 175 selection. Thirty-two mothers were randomly selected using a computer-generated random
12 176 sequence of mothers and were stratified by health facility (8 participants selected from each of 4
13 177 facilities) to ensure representation of all districts and facility types. Participants were invited by
14 178 study staff for an in-depth interview at the health facility. Written informed consent was obtained
15 179 from each participant prior to study participation.
16 180

18 181 ***Interview guide***

19 182 The interview guide was developed based on existing literature and previous experiences with
20 183 the PMTCT-ECD program and pilot [21,22]. Interview guides assessed mothers' ECD
21 184 knowledge, practice, and male caregiver involvement in ECD. Specifically, with regard to male
22 185 caregivers, mothers were asked to describe their perceptions of their male partners' attitudes
23 186 towards the program, involvement in ECD activities at home, any indirect effects of the program
24 187 on couple and family dynamics, and potential barriers to male caregivers' direct involvement
25 188 with the PMTCT-ECD program at the health facilities. The interview guide was reviewed and
26 189 edited by local study staff to ensure cultural humility and acceptability. Guides were piloted
27 189 amongst three women to ensure comprehensibility and refined based on feedback.
28 190
29 191

31 192 ***Data Collection***

32 193 In-depth interviews were conducted from June to July 2019 with a random subset of 29 mothers
33 194 enrolled in the PMTCT-ECD program across four implementing facilities for ≥ 6 months. Data
34 195 collection was stopped after 29 interviews as thematic saturation had been reached. Interviews
35 196 were conducted in the local language (Chichewa) by a trained, local female research assistant in
36 197 private spaces in the health facilities. Interviews ranged in duration from 30-50 minutes and were
37 198 audio recorded. Women were compensated 4000 Malawi Kwacha (approximately US \$5) for
38 199 their transportation costs to attend the interview.
40 200

41 201 ***Data analysis***

42 202 Audio recordings were translated and transcribed to English for analysis. For this paper, we only
43 203 include interviews with women who report that the father of their youngest child was present in
44 204 the child's daily life. Interviews with women who reported absent fathers were omitted from this
45 205 analysis since absent fathers would not have been exposed to ECD sessions nor would they have
46 206 a chance to practice ECD activities with the child. A preliminary codebook was generated using
47 207 a combination of deductive and inductive approaches. Using deductive coding, we developed an
48 207 a priori codebook based on an initial version of the interview guide and themes found in existing
49 208 literature. Additional codes were added using inductive coding from pilot interviews, which
50 209 allowed additional themes and theories to emerge from the preliminary data. Two investigators
51 210 (TT and PK) coded the same five transcripts separately using Atlas.ti, compared codes, and
52 211 resolved differences. One investigator was a Malawian researcher with extensive qualitative
53 212 research experience. The other investigator was a U.S. medical student with training in
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214 qualitative research. An additional two transcripts were simultaneously coded with similar codes
 215 between investigators. The final codebook was used by the same two investigators to code all
 216 remaining transcripts. Data were analyzed using constant comparison methods. Below we
 217 present dominant themes related to male engagement and fathers' understanding and interest in
 218 PMTCT-ECD programs.

219

220 *Patient and Public Involvement*

221 Patients or the public were not involved in the design, conduct, reporting, or dissemination plans
 222 of our research.

223

224 *Ethical Approval*

225 Ethical approval was attained from the University of California Los Angeles IRB (ID# 20-
 226 003525) and the Malawi institutional review board, National Health Sciences Review Committee
 227 (ID# 19/03/2429).

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229

230 **Results**

231 Of the 32 mothers randomly selected for an interview, a total of 29 mothers were successfully
 232 interviewed. Twenty-two mothers (76%) reported that the father of their youngest child was
 233 present in the child's life and were included in this analysis. Mothers had a mean age of 30 years,
 234 a median of 4 children, and only one woman had no education (Table 1). All mothers self-
 235 reported attending the majority of ECD sessions. Half of these mothers reported that fathers
 236 spent time with their youngest child on a daily basis, and only one mother reported that the father
 237 spent time with the child once per week or less. All but one mother reported that they
 238 communicated with the father about the ECD program. Almost all mothers reported that the
 239 fathers' primary responsibility was to provide financially for their children, but that fathers also
 240 played with children and looked after children when mothers were busy.

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Table 1. Respondent demographic characteristics

Variables (N=22)	Participants N (%)
Age, mean (range)	30 (21-42)
Married	20 (91)
Number of children, median (range)	4 (1-8)
Household primary income	
Formal employment	0
Informal employment	22 (100)
Not working	0
Education	
No education	1 (5)
Primary	10 (45)
Secondary or higher	11 (50)

Male partner involvement	
With infant every day	11 (50)
With infant several days a week	10 (45)
With infant <1 days a week	1 (5)
Discussed PMTCT-ECD program with male partner	21 (96)
ECD session attendance	
Attend most sessions	22 (100)
Attend a few sessions	0
Dropped out of program	0

Fathers valued ECD and increased their engagement with their youngest child

Most mothers reported that fathers had positive opinions towards the ECD program, reporting that male partners noticed the progress in their youngest child because of new ECD practices. In families with older children, mothers reported that their partners recognized differences between the youngest child and older siblings who were raised without the ECD program.

[My husband] plays with the child and he has seen a change, he asks me why the child is different from the others and I tell him that we learn ECD at the hospital and they teach us about the child's behavior. – Mother of 8, age 31

Most mothers reported that their partners supported and actively implemented ECD practices at home. Mothers directly shared ECD lessons learned from the intervention with their partner, and these lessons were put into practice by both parents.

[My husband] was wondering why I was so fond of making things like balls and toy cars, and when he asked, I explained to him about [what I learned at] the ECD program. Now he helps me with making toys for the kid. – Mother of 7, age 34

After I told my husband about ECD, he is active with the child; he makes him porridge, sings to him, and plays with him – Mother of 2, age 21

Mothers believed that male partners were motivated to practice ECD behavior with their children because their child gave immediate positive response to stimulation and because fathers understood the long-term benefit of ECD practices.

ECD taught me about singing and playing with the child, and when the father of the child does this [singing and playing] and sees how the child is responding, he sees how important the ECD sessions are. – Mother of 3, age 20

Family relationships were strengthened as a result of increased communication and ECD knowledge sharing

Several mothers reported that since the ECD program started, their male partners and youngest children have developed a closer, more intimate bond, reportedly due to increases in ECD knowledge and practices.

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3 280
4 281 *The bond has increased between [the father and the child] and I am able to leave the*
5 282 *child with him and he is able to take care of the child. – Mother of 5, age 37*
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7 284
8 284 Nearly all reported increases in communication, which often resulted in better teamwork and
9 285 understanding between the couple. Over half of mothers reported improved relationships with
10 286 their male partners since starting the ECD program. Frequently cited examples included sharing
11 287 more responsibilities at home (improved equity), having a common goal regarding their children
12 288 and childcare, encouragement and support of one another for individual and joint goals, and even
13 289 living with less conflict due to increased communication and a sense of purpose for childrearing.
14 290

15 291
16 291 *Me and my husband are living in harmony because we are raising this child together.*
17 292 *The father of the child has just realized that the responsibility is for the both of us. –*
18 293 *Mother of 5, age 37*
19 294

20 295
21 295 *Because of the program, even when we are fighting, the issues that have to do with the*
22 296 *child bring us together so that we even laugh together and forget the fight. – Mother of 4,*
23 297 *age 31*
24 298

25 299 **Remaining barriers to male partner attendance of the PMTCT-ECD program**

26 300 Only a few mothers believed that their partner would feel comfortable attending the PMTCT-
27 301 ECD program, citing examples of their partners' active interest in the ECD sessions. However,
28 302 only one mother reported that her partner routinely attended the PMTCT-ECD program. Some
29 303 women believed that men in their community who attended antenatal visits to support their wives
30 304 might also feel comfortable attending the ECD program, but men who were not comfortable
31 305 attending antenatal or PMTCT visits would not attend ECD.
32 306

33 307
34 307 *I see [my husband's] interest from the way he reacts and asks questions to follow what*
35 308 *we have learnt at the ECD program, so I think he might come [to the program]. – Mother*
36 309 *of 7, age 34*
37 310

38 311
39 311 Most mothers believed that their partners would be unwilling to attend ECD sessions at the
40 312 clinic, particularly because the PMTCT-ECD program was organized around PMTCT services.
41 313 Several mothers stated that men would not feel comfortable being at PMTCT clinics due to
42 314 stigma and concerns about being pressured to test for HIV while attending ECD sessions.
43 315

44 316
45 316 *Many fathers think that [health workers] will be talking to them in public and they will be*
46 317 *embarrassed. I think the big problem for men is being shy. – Mother of 6, age 31*
47 318

48 319 Other mothers reported that their partners believed that ECD sessions were only for women and
49 320 would not attend but desired to hear about ECD through the female partner. These men still
50 321 practiced ECD activities at home, but believed that men were not meant to attend the PMTCT-
51 322 ECD intervention.
52 323

53 324
54 324 *Some men will not come because they might say that the program is meant for women not*
55 325 *men. – Mother of 4, age 31*
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326
 327 Even if men felt comfortable coming to the clinic, many mothers identified other barriers to
 328 participation. A majority of mothers reported that the time required to travel to the clinic and
 329 wait for services was a significant barrier – most men would not sacrifice income-generating
 330 activities to attend an ECD session.

331
 332 *Men will not come [to ECD sessions] because when we come here we play with the kids*
 333 *and he may consider that as wasting time; he would rather do other helpful things. –*
 334 *Mother of 3, age 31*

335 336 **Additional strategies to engage men in ECD programs**

337 Almost all mothers believed that male caregiver engagement in ECD could be increased through
 338 raising awareness and educating men about the importance of PMTCT-ECD activities for
 339 children. Most suggested that the program needed to actively invite fathers to attend in order to
 340 demonstrate that male caregivers are welcome and encouraged to participate in PMTCT-ECD.
 341 Several mothers also believed that men would be more comfortable with male-only sessions.

342
 343 *[Health workers] should make an effort to explain that both fathers and mothers are*
 344 *important in ECD. They should help us explain [to male partners] that this is not a place*
 345 *to force people to test blood [for HIV] but to know our responsibility as a father and*
 346 *mother in caring for children. – Mother of 6, age 31*

347
 348 *There is a need to invite the fathers as well. Tell the mothers to come with their husbands*
 349 *so that the fathers should also be able to listen about ECD ... We should be able to bring*
 350 *the husbands to the ECD so that we listen to the counseling together. – Mother of 2, age*
 351 *26*

352
 353 However, the majority mothers believed that men could best be reached outside the clinic. Most
 354 suggested sending illustrated, informational pamphlets home with women after each PMTCT-
 355 ECD visit to increase male engagement and awareness regarding ECD practices.

356
 357 *Men are busy, even sometimes when they can't come for an [ART] refill here we get*
 358 *drugs for them because they are so busy, but if they can read [the pamphlet] then they*
 359 *will know what they are supposed to do. – Mother of 4, age 34*

360
 361 Some mothers also suggested directly engaging men in the community to explain ECD through
 362 phone calls or home visits to male partners of mothers in the ECD program, or larger community
 363 meetings that incorporate all fathers within the community.

364
 365 *Men should be sensitized to the importance of the program and also the need for the*
 366 *participation of everyone. – Mother of 4, age 31*

367
 368 *A woman should encourage her husband about the advantages of the ECD program and*
 369 *also the counselors should be visiting them in their homes and encouraging them to be*
 370 *coming to the sessions... If a man comes to get his drugs [ART] as well, he should be*

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3 371 *encouraged to participate [in the ECD program]. The other way is to make phone calls*
4 372 *to them and remind them about the meetings. – Mother of 5, age 34*

5 373
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7 374 Finally, a few mothers suggested that ECD sessions should be integrated as part of normal clinic
8 375 activities of men. For example, at outpatient or sexually transmitted infection (STI) departments
9 376 where men frequent.

10 377
11 378 *When [men] come to get drugs on their own, they should be briefed about ECD so the*
12 379 *men who have children can get that information. – Mother of 4, age 34*

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15 382 **Discussion**

16 383 Fathers play a critical role in child development and mothers' engagement in PMTCT strategies.
17 384 We explored fathers' perception of an integrated PMTCT-ECD intervention that targeted
18 385 mothers living with HIV in Malawi, including barriers to men's involvement, and
19 386 recommendations for engaging men in ECD interventions in the future. We relied on secondary
20 387 reports from mothers participating in the PMTCT-ECD program since they are most familiar
21 388 with both intervention activities, and the fathers' perception of these activities. We found that
22 389 nearly all mothers discussed ECD lessons with their male partners (fathers) frequently. Within a
23 390 PMTCT-ECD intervention that was not specifically targeted to men, most fathers were perceived
24 391 to have high levels of buy-in for the ECD intervention, accept ECD messaging, and actively
25 392 practice ECD activities at home with their children. The PMTCT-ECD intervention increased
26 393 couple communication within some relationships by providing the mother and father with a joint
27 394 goal around ECD for their family. However, most mothers believed that fathers would not attend
28 395 the intervention due to concerns regarding HIV-related stigma at PMTCT centers, time required
29 396 to attend, and perceptions that the intervention was intended only for women.

30 397

31 398 Mothers believed that fathers were interested in gaining greater ECD skills and actively involved
32 399 in actively involved in ECD activities at home. This supports other studies in South Africa
33 400 reporting that many men are interested in education and counseling to prepare for fatherhood
34 401 [13]. Our findings contradict literature that suggests that cultural perceptions regarding gender
35 402 norms continue to be a major barrier to fathers' engagement in ECD and responsive childcare
36 403 [10] – we find that fathers are, as reported by their female partners, largely seen as engaged and
37 404 active parents at home. Future parenting and ECD programs should actively include and target
38 405 fathers, who have been shown to support antenatal care and PMTCT, prioritize preparing for
39 406 fatherhood, and may have a deep interest in learning responsive caregiving techniques [5,13,23].

40 407

41 408 Most mothers reported that fathers engagement in caregiving increased as a result of ECD
42 409 knowledge gained from mothers' participation in the PMTCT-ECD program. As a result, some
43 410 women believed that family relationships were strengthened due to increased couple
44 411 communication and sharing of caregiver responsibilities between mother and father. These
45 412 findings are consistent with a study in Tanzania and Zimbabwe that found that interventions
46 413 aimed to increase male involvement in maternal and child health activities improved
47 414 relationships and positive emotional outcomes among many couples, which further encouraged
48 415 men's engagement as caregivers [24]. Other studies highlight the role of male partner
49 416 engagement in providing additional social support to mothers, which can further improve ECD

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3 417 outcomes [25,26]. Though not examined in our analysis, these positive effects on families may
4 418 translate to secondary benefits as well. Other studies from the region have found associations
5 419 between male partner involvement in PMTCT and subsequent health outcomes of both mothers
6 420 and children including decreased risk of HIV transmission, decreased risk of child mortality, and
7 421 increased maternal adherence to ART [26, 27]. These findings support the need to tailor
8 422 programs such as PMTCT-ECD interventions for both parents and welcome fathers into these
9 423 spaces in order to increase ECD knowledge and awareness among men and strengthen PMTCT
10 424 through an integrated, holistic approach.
11 425

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14 426 Despite fathers' support for and value of ECD sessions, mothers believed most men were
15 427 uncomfortable attending the current PMTCT-ECD program. This finding is supported by other
16 428 studies in sub-Saharan Africa that have found that while many men are interested in participating
17 429 in maternal and child health interventions, actual male attendance rates remain low [8,28]. Most
18 430 mothers in our study believed male partners were uncomfortable attending these sessions
19 431 because they were held at the ART clinic where men assumed they would be pressured or forced
20 432 to test for HIV. Some mothers also reported that men believed the ECD sessions, and PMTCT
21 433 services more broadly, were not meant for fathers. Our findings corroborate previous literature in
22 434 Malawi and throughout Sub-Saharan Africa [29-31]. In their systematic review of barriers and
23 435 facilitators of male partner involvement in PMTCT, Morfaw et al. also found the most salient
24 436 barrier to male engagement was men's perception that PMTCT and antenatal clinics were
25 437 'women's spaces', revealing that men need to be actively welcomed into facility spaces if
26 438 perceptions of female-centered services are to be overcome [30]. A qualitative study in Malawi
27 439 found that while men were comfortable with supporting their partners' antenatal clinic
28 440 attendance in discrete ways (financial support, encouragement, reminders about clinic
29 441 appointments), they felt that existing norms in their community prevented them from
30 442 accompanying their partners to clinic appointments [15].
31 443

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34 444 To address these barriers to male involvement, the majority of mothers recommended using
35 445 direct outreach targeting men in order to increase awareness about the importance of ECD and
36 446 joint parenting. Some mothers also recommended actively inviting men to the current PMTCT-
37 447 ECD program or providing ECD sessions at health facility services where men frequent (such as
38 448 general outpatient services). A recent review found that making antenatal clinics more 'male-
39 449 friendly' contributed to normalization of father attendance [32]. These findings suggest that
40 450 efforts to tailor ECD programs to include fathers may promote community-wide acceptance of
41 451 male caregiver involvement in such programs
42 452

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45 453 A range of community-based approaches throughout the region have also shown promising
46 454 results in disseminating important maternal and child-related health information and promoting
47 455 ECD. These include home visits to mothers and their partners by male community 'role models'
48 456 and male health workers, and community dissemination via radio or community spaces
49 457 frequented by men including football events, markets, and churches [30,33-35]. In Malawi
50 458 specifically, community leaders or 'chiefs' can provide the leadership necessary to encourage
51 459 and normalize male engagement in maternal and child health interventions at the community
52 460 level [15,26]. One recent meta-analysis found that community education interventions had the
53 461 greatest impact, more than clinic invitation letters, facility-based interventions and verbal
54 462 encouragement [36]. However, community-based outreach is expensive and time consuming,
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3 463 and may limit programs' scalability. Regardless, future integrated PMTCT programs should
4 464 consider utilizing community services or restructuring facility spaces to directly engage men.
5 465

6 466 **Limitations**

7
8 467 This study has several limitations that should be noted. First, we rely on mothers' perceptions of
9 468 their male partners – we do not have direct feedback from men themselves. Women participating
10 469 in the study may have incomplete or skewed perceptions of their partners perceptions of and
11 470 barriers to ECD sessions. Additional research is needed that directly engages fathers to further
12 471 understand their perceptions of integrated PMTCT-ECD services, and how to engage them in
13 472 these strategies. Second, the study is limited to mothers in central Malawi and may not be
14 473 representative of other settings. However, our findings are similar to those found throughout the
15 474 region, suggesting some comparability with other settings. Third, our data rely on mothers who
16 475 were active in the PMTCT-ECD program for a minimum of 6 months. Future analyses should
17 476 examine male engagement at the end of the program as fathers may show increased engagement
18 477 over time.
19 478

20 479 **Conclusion**

21
22 480 Most mothers enrolled in a PMTCT-ECD program in Malawi believed fathers saw value in the
23 481 PMTCT-ECD program, demonstrated interest in gaining ECD knowledge, and actively
24 482 implemented ECD activities at home. Despite not having direct engagement with this PMTCT-
25 483 ECD program, male caregivers still received ECD messaging and began to prioritize ECD
26 484 activities at home, suggesting that men might be easily reached if programs were designed to
27 485 include them. Although mothers reported increased interest in ECD among men, integrating
28 486 PMTCT and ECD services alone was not enough to change perceptions that PMTCT is a
29 487 women's space. The structure of PMTCT strategies should be revised if men are to be engaged.
30 488 In addition, ECD strategies could be implemented in locations where men frequent (community
31 489 or outpatient departments) in order to directly engage men in ECD program activities.
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5 494 implemented the intervention, the mothers who participates in the intervention and the research
6 495 staff who collected study data.

7 496

8 497 **Author contributions**

9 498 TC and LR led the parent PMTCT-ECD trial design, with involvement from LB and EU. KD and
10 499 TT conceptualized the study as it pertained to male caregivers. TT, PK, CM and SM lead study
11 500 implementation and data collection with support from SG. TT, PK and KD analyzed and
12 501 interpreted study data. TT and JH drafted the manuscript and all authors were involved in editing
13 502 and final review of drafts. All authors have approved the final manuscript.

14 503

15 504 **Availability of data and materials**

16 505 All relevant data are included in the article. Datasets used during the current study are available
17 506 from the corresponding author on reasonable request.

18 507

19 508 **Competing interests**

20 509 The authors report no competing interests.

21 510

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541 **References**

- 542 1. 2013 UNAIDS Report on the global AIDS epidemic | UNAIDS.
543 https://www.unaids.org/en/resources/documents/2013/20130923_UNAIDS_Global_Report_2013. Accessed February 12, 2020.
- 544 2. WHO | Global guidance on criteria and processes for validation: Elimination of Mother-to-Child Transmission of HIV and Syphilis. *WHO*. 2019.
- 545 3. Daelmans B, Black MM, Lombardi J, et al. Effective interventions and strategies for improving early child development. *BMJ*. 2015;351:h4029. doi:10.1136/bmj.h4029
- 546 4. Gourlay A, Birdthistle I, Mburu G, Iorpenda K, Wringe A. Barriers and facilitating factors to the uptake of antiretroviral drugs for prevention of mother-to-child transmission of HIV in sub-Saharan Africa: A systematic review. *J Int AIDS Soc*. 2013;16(1). doi:10.7448/IAS.16.1.18588
- 547 5. Koo K, Makin JD, Forsyth BWC. Barriers to male-partner participation in programs to prevent mother-to-child HIV transmission in south Africa. *AIDS Educ Prev*. 2013;25(1):14-24. doi:10.1521/aeap.2013.25.1.14
- 548 6. Aluisio A, Richardson BA, Bosire R, John-Stewart G, Mbori-Ngacha D, Farquhar C. Male antenatal attendance and HIV testing are associated with decreased infant HIV infection and increased HIV-free survival. *J Acquir Immune Defic Syndr*. 2011;56(1):76-82. doi:10.1097/QAI.0b013e3181fdb4c4
- 549 7. Van den Berg (ed). *State of Africa's Fathers: A MenCare Advocacy Publication. Adapted from Levtoy R, van Der Gaag N, Greene M, Kaufman M, and Barker H. State of the World's Fathers: A MenCare Advocacy Publication*. Washington D.C.; 2015.
- 550 8. Nkwonta CA, Messias DAKH. Male participation in reproductive health interventions in Sub-Saharan Africa: A scoping review. *Int Perspect Sex Reprod Health*. 2019;45:71-85. doi:10.1363/45e8119
- 551 9. Hampanda K, Pelowich K, Chi BH, et al. A Systematic Review of Behavioral Couples-Based Interventions Targeting Prevention of Mother-to-Child Transmission in Low- and Middle-Income Countries. *AIDS Behav*. 2022;26(2):443. doi:10.1007/S10461-021-03401-X
- 552 10. Engle PL, Breaux C. Fathers' Involvement with Children: Perspectives from Developing Countries. *Soc Policy Rep*. 1998;12(1):1-24. doi:10.1002/j.2379-3988.1998.tb00007.x
- 553 11. Garcia M, Pence A, Evans JL. *Africa's Future, Africa's Challenge Early Childhood Care and Development in Sub-Saharan Africa Human Development*.; 2008.
- 554 12. Colvin CJ. Gender, Health and Change in South Africa: Three Ways of Working with Men and Boys for Gender Justice. *Rech Sociol Anthropol RS A*. 2017;48(1):109.
- 555 13. Ditekemena J, Koole O, Engmann C, et al. Determinants of male involvement in maternal and child health services in sub-Saharan Africa: a review. *Reprod Health*. 2012;9(1):32. doi:10.1186/1742-4755-9-32
- 556 14. Iliyasu Z, Galadanci HS, Muhammad B, et al. Correlates of HIV-Positive Fathers' Involvement in Prevention of Mother-to-child Transmission Programs in Northern Nigeria. *Curr HIV Res*. 2020;18(6):443-457. doi:10.2174/1570162X18666200810133347
- 557 15. M'baya Kansinjiro B, Nyondo-Mipando AL. A qualitative exploration of roles and expectations of male partners from PMTCT services in rural Malawi. *BMC Public Health*. 2021;21(1). doi:10.1186/S12889-021-10640-Z
- 558 16. Britto PR, Lye SJ, Proulx K, et al. Nurturing care: promoting early childhood development. *Lancet*. 2017;389(10064):91-102. doi:10.1016/S0140-6736(16)31390-3

- 1
2
3 587 17. Dovel K, Kalande P, Udedi E, et al. Integrated early childhood development services
4 588 improve mothers' experiences with prevention of mother to child transmission (PMTCT)
5 589 programs in Malawi: a qualitative study. *BMC Health Serv Res.* 2021;21(1).
6 590 doi:10.1186/S12913-021-06342-2
- 7
8 591 18. WHO | Care for child development: improving the care for young children. *WHO.* 2019.
- 9 592 19. Cataldo F, Sam-Agudu NA, Phiri S, Shumba B, Cornelius LJ, Foster G. The roles of
10 593 expert mothers engaged in prevention of mother-to-child transmission (PMTCT)
11 594 programs: A commentary on the INSPIRE studies in Malawi, Nigeria, and Zimbabwe. *J*
12 595 *Acquir Immune Defic Syndr.* 2017;75:S224-S232. doi:10.1097/QAI.0000000000001375
- 13 596 20. Strauss, Anselm and Juliet Corbin. *Basics of Qualitative Research: Grounded Theory*
14 597 *Procedures and Techniques.* Newbury Park, CA: Sage Publications, 1990.
- 15 598 21. Betancourt TS, Abrams EJ, McBain R, Fawzi MCS. Family-centred approaches to the
16 599 prevention of mother to child transmission of HIV. *J Int AIDS Soc.* 2010;13 Suppl 2(Suppl
17 600 2). doi:10.1186/1758-2652-13-S2-S2
- 18 601 22. Redinger S, Udedi E, Richter LM, et al. Double benefit? Integrating an early childhood
19 602 development programme into HIV PMTCT Option B+ services in Malawi. *AIDS Care.*
20 603 2021;33(12):1595-1602. doi:10.1080/09540121.2021.1876834
- 21 604 23. Theuring S, Mbezi P, Luvanda H, Jordan-Harder B, Kunz A, Harms G. Male involvement
22 605 in PMTCT services in Mbeya Region, Tanzania. *AIDS Behav.* 2009;13(SUPPL. 1):92-
23 606 102. doi:10.1007/s10461-009-9543-0
- 24 607 24. Comrie-Thomson L, Mavhu W, Makungu C, et al. Male involvement interventions and
25 608 improved couples' emotional relationships in Tanzania and Zimbabwe: 'When we are
26 609 walking together, I feel happy.' *Cult Health Sex.* August 2019:1-18.
27 610 doi:10.1080/13691058.2019.1630564
- 28 611 25. Cunningham SA, Elo IT, Herbst K, Hosegood V. Prenatal development in rural South
29 612 Africa: relationship between birth weight and access to fathers and grandparents. *Popul*
30 613 *Stud (NY).* 2010;64(3):229-246. doi:10.1080/00324728.2010.510201
- 31 614 26. Montgomery CM, Hosegood V, Busza J, Timaeus IM. Men's involvement in the South
32 615 African family: engendering change in the AIDS era. *Soc Sci Med.* 2006;62(10):2411-
33 616 2419. doi:10.1016/J.SOCSCIMED.2005.10.026
- 34 617 27. Aluisio AR, Bosire R, Bourke B, et al. Male partner participation in antenatal clinic
35 618 services is associated with improved HIV-free survival among infants in Nairobi, Kenya:
36 619 A prospective cohort study. *J Acquir Immune Defic Syndr.* 2016;73(2):169-176.
37 620 doi:10.1097/QAI.0000000000001038
- 38 621 28. Sifunda S, Peltzer K, Rodriguez VJ, et al. Impact of male partner involvement on mother-
39 622 to-child transmission of HIV and HIV-free survival among HIV-exposed infants in rural
40 623 South Africa: Results from a two phase randomised controlled trial. Price MA, ed. *PLoS*
41 624 *One.* 2019;14(6):e0217467. doi:10.1371/journal.pone.0217467
- 42 625 29. Manda-Taylor L, Mwale D, Phiri T, et al. Changing times? Gender roles and relationships
43 626 in maternal, newborn and child health in Malawi. *BMC Pregnancy Childbirth.*
44 627 2017;17(1):321. doi:10.1186/s12884-017-1523-1
- 45 628 30. Morfaw F, Mbuagbaw L, Thabane L, et al. Male involvement in prevention programs of
46 629 mother to child transmission of HIV: a systematic review to identify barriers and
47 630 facilitators. *Syst Rev.* 2013;2(1):5. doi:10.1186/2046-4053-2-5
- 48 631 31. Matenga TFL, Zulu JM, Nkwemu S, Shankalala P, Hampanda K. Men's perceptions of
49 632 sexual and reproductive health education within the context of pregnancy and HIV in
50
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- 1
2
3 633 Zambia: a descriptive qualitative analysis. *BMC Public Health*. 2021;21(1).
4 634 doi:10.1186/S12889-021-11430-3
5 635 32. Clark J, Sweet L, Nyoni S, Ward PR. Improving male involvement in antenatal care in
6 636 low and middle-income countries to prevent mother to child transmission of HIV: A
7 637 realist review. *PLoS One*. 2020;15(10). doi:10.1371/JOURNAL.PONE.0240087
8 638 33. Aliyu MH, Blevins M, Audet CM, et al. Integrated prevention of mother-to-child HIV
9 639 transmission services, antiretroviral therapy initiation, and maternal and infant retention in
10 640 care in rural north-central Nigeria: A cluster-randomised controlled trial. *Lancet HIV*.
11 641 2016;3(5):e202-e211. doi:10.1016/S2352-3018(16)00018-7
12 642 34. Audet CM, Blevins M, Chire YM, et al. Engagement of Men in Antenatal Care Services:
13 643 Increased HIV Testing and Treatment Uptake in a Community Participatory Action
14 644 Program in Mozambique. *AIDS Behav*. 2016;20(9):2090-2100. doi:10.1007/s10461-016-
15 645 1341-x
16 646 35. Jensen SK, Placencio-Castro M, Murray SM, et al. Effect of a home-visiting parenting
17 647 program to promote early childhood development and prevent violence: a cluster-
18 648 randomized trial in Rwanda. *BMJ Glob Heal*. 2021;6(1). doi:10.1136/BMJGH-2020-
19 649 003508
20 650 36. Takah NF, Kennedy ITR, Johnman C. The impact of approaches in improving male
21 651 partner involvement in the prevention of mother-to-child transmission of HIV on the
22 652 uptake of maternal antiretroviral therapy among HIV-seropositive pregnant women in sub-
23 653 Saharan Africa: A systematic review and meta-analysis. *BMJ Open*. 2017;7(11):e018207.
24 654 doi:10.1136/bmjopen-2017-018207
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No.	Topic	Title and abstract	BMJ Open	Page 20 of 19
S1	Title		Lines 1-3	Concise description of the nature and topic of the study identifying the study as qualitative or indicating the approach (e.g., ethnography, grounded theory) or data collection methods (e.g., interview, focus group) is recommended
S2	Abstract		Lines 20-54	Summary of key elements of the study using the abstract format of the intended publication; typically includes background, purpose, methods, results, and conclusions
1				
2	Introduction			
S3	Problem formulation		Lines 82-133	Description and significance of the problem/phenomenon studied; review of relevant theory and empirical work; problem statement
3				
S4	Purpose or research question		Lines 135-141	Purpose of the study and specific objectives or questions
4	Methods			
S5	Qualitative approach and research paradigm		Lines 173-181	Qualitative approach (e.g., ethnography, grounded theory, case study, phenomenology, narrative research) and guiding theory if appropriate; identifying the research paradigm (e.g., postpositivist, constructivist/interpretivist) is also recommended; rationale ^a
5				
S6	Researcher characteristics and reflexivity		Line 208 Lines 224-226	Researchers' characteristics that may influence the research, including personal attributes, qualifications/experience, relationship with participants, assumptions, and/or presuppositions; potential or actual interaction between researchers' characteristics and the research questions; approach, methods, results, and/or transferability
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S7	Context		Lines 148-171	Setting/site and salient contextual factors; rationale ^b
9				
S8	Sampling strategy		Lines 183-191 Line 207	How and why research participants, documents, or events were selected; criteria for deciding when no further sampling was necessary (e.g., sampling saturation); rationale ^b
10				
S9	Ethical issues pertaining to human subjects		Lines 190-191 Lines 236-239	Documentation of approval by an appropriate ethics review board and participant consent, or explanation for lack thereof; other confidentiality and data security issues
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S10	Data collection methods		Lines 204-211	Types of data collected; details of data collection procedures including (as appropriate) start and stop dates of data collection and analysis, iterative process, triangulation of sources/methods, and modification of procedures in response to evolving study findings; rationale ^b
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S11	Data collection instruments and technologies		Lines 193-202	Description of instruments (e.g., interview guides, questionnaires) and devices (e.g., audio recorders) used for data collection; if/how the instrument(s) changed over the course of the study
15				
S12	Units of study		Lines 242-252 Table 1	Number and relevant characteristics of participants, documents, or events included in the study; level of participation (could be reported in results)
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S13	Data processing		Lines 205-214	Methods for processing data prior to and during analysis, including transcription, data entry, data management and security, verification of data integrity, data coding, and anonymization/deidentification of excerpts
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S14	Data analysis		Lines 213-230	Process by which inferences, themes, etc., were identified and developed, including the researchers involved in data analysis; usually references a specific paradigm or approach; rationale ^b
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S15	Techniques to enhance trustworthiness		Lines 218-230	Techniques to enhance trustworthiness and credibility of data analysis (e.g., member checking, audit trail, triangulation); rationale ^b
21				
22	Results/findings			
S16	Synthesis and interpretation		Lines 242-395	Main findings (e.g., interpretations, inferences, and themes); might include development of a theory or model, or integration with prior research or theory
23				
S17	Links to empirical data		Lines 242-395	Evidence (e.g., quotes, field notes, text excerpts, photographs) to substantiate analytic findings
24				
25	Discussion			
S18	Integration with prior work, implications, transferability, and contribution(s) to the field		Lines 414-502	Short summary of main findings; explanation of how findings and conclusions connect to, support, elaborate on, or challenge conclusions of earlier scholarship; discussion of scope of application/generalizability; identification of unique contribution(s) to scholarship in a discipline or field
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S19	Limitations		Lines 504-515	Trustworthiness and limitations of findings
28	Other			
S20	Conflicts of interest		Lines 546-547	Potential sources of influence or perceived influence on study conduct and conclusions; how these were managed
29				
S21	Funding		Lines 549-555	Sources of funding and other support; role of funders in data collection, interpretation, and reporting
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The SRQR was created by searching the literature to identify guidelines, reporting standards, and other empirical information on qualitative research, including the role of experts in training and consulting experts to gain feedback. The SRQR aims to improve the transparency of all aspects of qualitative research by providing clear standards for reporting qualitative research.

The rationale should briefly discuss the justification for choosing that theory, approach, method, or technique rather than other options available, the assumptions and limitations implicit in those choices, and how those choices influence study conclusions and transferability. As appropriate, the rationale for several items might be assessed together.