

Research article

The importance of addressing gender inequality in efforts to end vertical transmission of HIV

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Abstract

Issues: The recently launched “Global Plan towards the Elimination of New HIV Infections among Children by 2015 and Keeping their Mothers Alive” sets forth ambitious targets that will require more widespread implementation of comprehensive prevention of vertical HIV transmission (PMTCT) programmes. As PMTCT policymakers and implementers work toward these new goals, increased attention must be paid to the role that gender inequality plays in limiting PMTCT programmatic progress.

Description: A growing body of evidence suggests that gender inequality, including gender-based violence, is a key obstacle to better outcomes related to all four components of a comprehensive PMTCT programme. Gender inequality affects the ability of women and girls to protect themselves from HIV, prevent unintended pregnancies and access and continue to use HIV prevention, care and treatment services.

Lessons Learned: In light of this evidence, global health donors and international bodies increasingly recognize that it is critical to address the gender disparities that put women and children at increased risk of HIV and impede their access to care. The current policy environment provides unprecedented opportunities for PMTCT implementers to integrate efforts to address gender inequality with efforts to expand access to clinical interventions for preventing vertical HIV transmission. Effective community- and facility-based strategies to transform harmful gender norms and mitigate the impacts of gender inequality on HIV-related outcomes are emerging. PMTCT programmes must embrace these strategies and expand beyond the traditional focus of delivering ARV prophylaxis to pregnant women living with HIV. Without greater implementation of comprehensive, gender transformative PMTCT programmes, elimination of vertical transmission of HIV will remain elusive.

Keywords: gender inequality; HIV; PMTCT.

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Introduction

Considerable progress has been made by prevention of vertical HIV transmission programmes (commonly known as and herein referred to as PMTCT programmes) in recent years. Between 2001 and 2010, the estimated annual HIV incidence among children declined from 500,000 to 390,000 [1]. These gains are attributed primarily to achievements in PMTCT service coverage. For example, in low- and middle-income countries, the estimated percentage of HIV-positive pregnant women receiving antiretroviral drugs (ARVs) for PMTCT increased from 15% in 2005 to 53% in 2009 [2]. In light of this progress, UN agencies, donors, government leaders and development partners recently launched the “Global Plan towards the Elimination of New HIV Infections among Children by 2015 and Keeping their Mothers Alive.” The plan sets global targets of less than 5% transmission of HIV from mother to child and a 90% reduction of HIV among young children [3].

Achieving these targets will require implementation of all four programmatic elements of a comprehensive PMTCT strategy, including primary prevention of HIV in women of

reproductive age, reducing unmet need for family planning among women living with HIV, scaling up more efficacious ARV regimens for women living with HIV and HIV-exposed infants and expanding treatment and care to women, children and their families (Figure 1) [3]. To date, however, most PMTCT efforts have focussed primarily on prong 3 – providing ARVs to pregnant women living with HIV [4,5]. Moreover, formidable challenges related to each of the four prongs of the PMTCT framework still exist (Table 1).

Reorienting PMTCT programmes in two key ways could accelerate progress towards the goal of ending vertical transmission of HIV. First, more widespread implementation of comprehensive PMTCT programmes that address all four prongs must be achieved. Second, increased attention must be paid to the role that gender inequality plays in limiting PMTCT programmatic progress.

A growing body of evidence suggests that gender inequality, including gender-based violence (GBV), is a key obstacle to better outcomes related to all four prongs. Gender inequality affects women’s and girls’ ability to protect themselves from HIV, control their fertility and access and adhere to HIV prevention, care and treatment services [14].

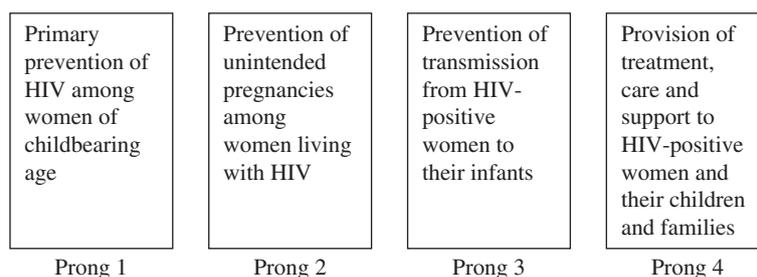


Figure 1. Four-prong strategy for prevention of vertical HIV transmission.

As HIV policymakers and PMTCT implementing partners work towards elimination targets, addressing gender inequality should be central to these efforts. Yet, gender inequality has not been prioritized in the context of PMTCT programme implementation. This paper reviews evidence of the relationship between gender inequality and each of the four prongs of the comprehensive PMTCT framework. We then provide examples of evidence-informed practices for addressing gender inequality that also have potential to enhance PMTCT programme outcomes.

Gender inequality and its impact on PMTCT programmes

The World Health Organization (WHO) defines gender as society's collective ideas about the appropriate roles, rights, duties, responsibilities, accepted behaviours, opportunities and the status of women and men in relation to one another [14]. While societal perceptions of gender vary within and between cultures and can change over time, women tend to be disproportionately harmed by gender norms. These norms often confer greater access to resources, power and influence

Table 1. PMTCT programmatic shortcomings and challenges

Prong 1: Primary prevention of HIV among women of childbearing age	<ul style="list-style-type: none"> • Women of reproductive age shoulder a growing and disproportionate burden of the epidemic; in sub-Saharan Africa, women account for 61% of people living with HIV [1]. • Among young people aged 15 to 24 years, HIV prevalence is on average three times greater among young women than young men [6].
Prong 2: Prevention of unintended pregnancies among women living with HIV	<ul style="list-style-type: none"> • Studies from South Africa, India, Rwanda and Cote D'Ivoire suggest that the rates of unintended pregnancy among women living with HIV may be higher than in the general population [7–10]. • Studies examining data from Kenya, Malawi and Uganda reported low levels of contraceptive use among HIV-positive women who expressed not planning to have more children [11,12]. • Abundant evidence of the powerful contribution contraception can make in preventing vertical transmission exists, yet critical linkages between voluntary family planning services and HIV programmes are not widely implemented [13].
Prong 3: Prevention of transmission from HIV-positive women to their infants	<ul style="list-style-type: none"> • Only 26% of an estimated 125 million pregnant women were tested for HIV in 2009 [2]. • 47% of an estimated 1.4 million pregnant women living with HIV did not receive ARVs to prevent vertical transmission in low and middle income countries in 2009 [2].
Prong 4: Provision of treatment, care and support to HIV-positive women, their children and families	<ul style="list-style-type: none"> • An estimated 15% of pregnant women living with HIV received ARVs for their own health in 2009 [2]. • Of the 1.4 million infants born to mothers living with HIV, only 35% received ARV prophylaxis in 2009 [2]. • Only 15% of infants born to mothers living with HIV were reported to have received testing for HIV within the first two months of life [2]. • Only 28% of children less than 15 years in need of ARV therapy received it in 2009 [2].

PMTCT, prevention of vertical HIV transmission; ARV, antiretroviral.

Table 2. Summary of the impact of gender inequality on prongs of the PMTCT strategy

Element 1: Primary prevention of HIV among women of childbearing age	<ul style="list-style-type: none"> ● Traditional perceptions of masculinity often encourage sexual risk-taking by men, which increases risk of HIV for themselves and their partners and discourage health seeking behaviours amongst men, including testing and uptake of treatment. ● Women, especially in relationship dynamics of younger women partnering with older men, often lack the power to insist on safe sex practices, including faithfulness and condom use, and thus protect themselves from HIV. ● Gender-based violence is widespread and increases risk of HIV in women. ● Men who commit intimate partner violence are more likely to engage in transactional sex, commit sexual violence, have multiple partners and have STIs, including HIV. ● Gender-based violence increases during pregnancy when women are more physiologically vulnerable to HIV.
Prong 2: Prevention of unintended pregnancies among women living with HIV	<ul style="list-style-type: none"> ● Restrictions on women's mobility and lack of access to transportation and financial resources may limit their ability to seek contraceptive services. ● Men often make decisions about childbearing, family size, contraceptive use and the timing and conditions of sex. ● The social and economic status of women is often defined by their ability to bear children. ● HIV-positive women tend to rely on condoms for pregnancy prevention, yet may lack the power to negotiate condom use.
Prong 3: Prevention of transmission from HIV-positive women to their infants	<ul style="list-style-type: none"> ● Restrictions on women's mobility and lack of access to transportation and financial resources may limit their ability to seek PMTCT services. ● Men are often the decision-makers regarding women's health and whether they access services, including PMTCT services.
Prong 4: Provision of treatment, care and support to HIV-positive women and their children and families	<ul style="list-style-type: none"> ● Fear of negative reactions from partners is a major reason for women's refusal of HIV testing and disclosure, especially among pregnant women. ● Women in ANC experience high rates of disclosure-related intimate partner violence. ● Women face challenges adhering to ARVs in the absence of disclosure of HIV status to their partners. ● Intimate partner violence has been attributed to causing women not to take or adhere to ARVs.

PMTCT, prevention of vertical HIV transmission; ARV, antiretroviral, STIs, sexually transmitted infections; ANC, antenatal care.

to men, thereby creating and perpetuating inequalities between women and men [15]. Several dimensions of gender inequality, including GBV, have been identified as propagating the spread of HIV in general and undermining efforts to prevent vertical transmission in particular (Table 2).

Prong 1: primary prevention of HIV among women of childbearing age

In many countries, traditional perceptions of masculinity enable and often encourage men to dominate sexual decision-making, engage in risky sexual behaviours, perpetrate violence against women and refrain from seeking healthcare services – all of which place men and their female partners at risk of HIV [16]. Women, on the other hand, often have limited ability to negotiate safer sexual practices and protect themselves from HIV due to gender-based power

inequities [17]. This power dynamic is accentuated in cases where older men, who are more likely than younger men to be living with HIV, have sexual relations with younger women [1,18–20]. An analysis of more than 40 studies from sub-Saharan Africa suggests that a substantial proportion of adolescent girls have male sexual partners 5 to 10 years older than themselves [21]. A study from Uganda suggests that the risk of acquiring HIV doubles for girls aged 15 to 19 years who have male partners 10 or more years older [20].

GBV¹ is one of the most damaging forms of gender inequality [22] and is another major driver of HIV among women of childbearing age. Most often carried out by an intimate partner, GBV is widespread in many countries hardest hit by HIV [23–25]. Data from several countries suggest that the risk of acquiring HIV is up to seven times higher for women with violent or controlling intimate

partners [26–28]. Studies from South Africa, India, Rwanda and Uganda have found that violent men tend to have multiple sexual partners, engage in transactional sex, use condoms less frequently and are more likely to commit sexual violence and to have sexually transmitted infections, including HIV [29–33]. Data also suggest that violence and forced sex are common features of older male/younger female relationships [20,33].

Pregnancy is a period during which women often experience increased physical and sexual violence from their intimate partners [34,35]. A review of African studies on intimate partner violence (IPV) against pregnant women found that the prevalence of IPV during pregnancy ranges from 2% to 57%, with an average prevalence of 15% [36]. Pregnancy is also a time when women are physiologically at increased risk of HIV [37,38]. Acquiring HIV during pregnancy, in turn, may increase risk of vertical HIV transmission due to increased maternal viral load [14].

Prong 2: prevention of unintended pregnancies among women living with HIV

Preventing unintended pregnancies among women living with HIV requires that women are able make decisions about how many children to have and when have access to family planning services when pregnancy prevention is desired and can initiate and continue use of a contraceptive method as long as they wish to avoid pregnancy. Many women, regardless of HIV status, are often unable to use contraception for a variety of reasons rooted in gender inequality [39,40]. Restrictions on women's mobility and lack of access to transportation and financial resources may limit their ability to seek contraceptive services. In addition, husbands, who tend to desire more children than their wives, often hold greater decision-making power about childbearing, contraceptive use and the timing and conditions of sex [41,42]. Women may also not try to space or limit births because their social and economic status is defined by their ability to bear children [43].

These gender-based obstacles to contraceptive use have important implications for women with HIV. Several studies have found that HIV-positive women are less likely to report wanting more children than HIV-negative women [44–46]. However, the childbearing intentions of HIV-positive men and women often differ, with HIV-positive men reporting greater fertility desires than HIV-positive women [47–49]. In addition, compared to HIV-negative women, women with HIV who use contraception are more likely to rely on male condoms for pregnancy prevention [50–52]. However, condoms are associated with higher pregnancy rates than other non-barrier contraceptive methods because they must be used correctly and consistently during every act of sexual intercourse [53]. Correct and consistent condom use, in turn, requires the cooperation of male partners. Where gender inequality limits HIV-positive women's decision-making power and ability to negotiate the conditions of sex, discordance about fertility desires and a reliance on condoms for pregnancy prevention among HIV-positive or serodiscordant couples may contribute to unintended pregnancies.

Prong 3: prevention of HIV transmission from HIV-positive women to their infants and Prong 4: provision of treatment, care and support to HIV-positive women and their children and families²

For pregnant women living with HIV, gender inequality often impedes their ability to access and continue using PMTCT services and HIV treatment and care [54–57]. In many settings, traditional gender roles confer power on men to make decisions related to women's participation in PMTCT programmes, including whether women undergo HIV testing, return for follow-up appointments and adhere to ARV regimens [14,55,57,58]. Up to 75% of women in some countries say that their husbands alone make health decisions for their families [14].

Male partners' influence on women's uptake of HIV testing, especially in the context of antenatal services, is well-documented [59]. Women's perception of their husbands' approval of HIV testing has been identified as one of the strongest predictors of women's willingness to accept HIV testing [54]. Likewise, opposition from male partners is associated with low HIV testing uptake as well as failure to return for test results [57,59].

For women who undergo HIV testing, disclosure of HIV status to partners is important for ensuring they are able to access a range of HIV prevention, treatment and care services [60]. However, between 16% and 86% of women in developing countries choose not to disclose their HIV status to their partners [60]. Studies from Tanzania, South Africa and Kenya revealed that between 16% and 51% of women in these countries did not disclose their HIV status to their partners for fear of violence [60]. A review by WHO that included 10 studies in developing countries published between 1990 and 2001 found that women's reported rates of violence as a reaction to disclosure ranged from 3.5% to 14.6% [60]. The highest rates of disclosure-related violence were reported among women attending antenatal services [60]. However, this analysis only included women who chose to disclose and was hampered by underreporting of violence and inconsistent measures of violence.

Women who do not disclose their HIV status to partners and families may experience difficulty adhering to ARV prophylaxis and ongoing treatment [12]. Because these women have to hide their HIV status and their ARV medicines, they may not access treatment at all or they may miss doses and appointments for medication refill [52,53]. Women participating in a study in Malawi reported that domestic violence at the hands of their husbands and intimate partners, and the fear of such violence, had a negative impact on their ability to start and continue using ARVs [52].

The policy environment

As evidence of the link between gender inequality and HIV accumulates, global health donors and international bodies increasingly recognize that addressing gender disparities that put women and children at increased risk for HIV and impede access to HIV services is an essential part of global health programming. Gender equality is not only the focus of Millennium Development Goal (MDG) 3 but also widely acknowledged to be a key driver of all the MDGs [61].

In 2009, UNAIDS published the “UNAIDS Action Framework: Addressing Women, Girls, Gender Equality and HIV” in an attempt to intensify support for a “gender transformative AIDS response.” Shortly thereafter, UNAIDS released the accompanying “Agenda for Accelerated Country Action for Women, Girls, Gender Equality and HIV 2010–2014,” which provided clear targets and timeframes for advancing efforts to remedy gender inequality. The Global Fund to Fight AIDS, Tuberculosis, and Malaria has developed two complementary strategies to articulate its commitment to addressing gender issues: (1) The Gender Equality Strategy and (2) Sexual Orientations and Gender Identity Strategy. Together, these strategies encourage funding of proposals that address the gender dimensions of HIV, tuberculosis and malaria.

The US Government, one of the largest funders of HIV programmes, has also recently increased its commitment to address gender inequality through global health and development programmes. In 2012, the US Agency for International Development (USAID) released a newly updated policy on Gender Equality and Female Empowerment. This policy demands that approaches and actions to advance gender equality and empower women and girls are integrated into all USAID investments, including investments in HIV and AIDS. Concurrently, a “focus on women, girls, and gender equality” remains a cross-cutting principle of the US Global Health Initiative (GHI). As a flagship programme of the GHI, the US President’s Emergency Plan for AIDS Relief (PEPFAR) has also expanded its commitment to addressing gender, prioritizing the following strategies: increase gender equity to HIV and AIDS programmes and services; reduce violence and coercion; address male norms and behaviours; increase women’s legal protection; and increase women’s access to income and productive resources.

The policy environment at country level is also becoming more attuned to the intersections between gender inequality and HIV. A review of 20 National HIV Strategic Plans of southern and eastern African countries found that these plans frequently include language emphasizing the importance of addressing gender equality in the context of HIV. However, the review also found that the plans do not operationalize this language with gender-specific interventions or comprehensive strategies that target the underlying gender inequalities [62].

The need for approaches that seek to overcome gender-based obstacles to preventing vertical HIV transmission is evident. The current supportive policy environment provides unprecedented opportunities to better integrate the medical and socio-cultural aspects deemed critical to the success of comprehensive PMTCT programmes.

Taking action: evidence-informed interventions for addressing gender inequality in PMTCT programmes

Effective strategies to transform harmful gender norms and mitigate the impacts of gender inequality on HIV programming are emerging. Global research has shown that programmes that target transformation of gender roles and promote gender equitable relationships between men and

women have better health outcomes than programmes that do not take gender inequalities into account [63].

Gender-based interventions can be implemented at the community or facility level. Community-based HIV programmes that seek to address gender inequality tend to take one of three programmatic approaches: empowering women and girls; engaging men and boys to promote gender equality; or working with men/boys and women/girls together. At the facility level, interventions that include men such as couples counselling, gender sensitization of health-care providers and IPV screening also have demonstrated potential to enhance health outcomes by addressing harmful norms and inequalities. We provide examples of community- and facility-based interventions that seek to transform gender relations as a means to achieve HIV or reproductive health-related outcomes. We include community-based interventions that were rigorously evaluated for their impact on both HIV/reproductive health- and gender-related outcomes. Few facility-based gender transformative interventions have been rigorously evaluated for their impact on gender outcomes, so we describe promising interventions that warrant further investigation.

Community-based interventions

Several community-based HIV and reproductive health interventions hold promise as effective approaches to addressing gender inequality and enhancing PMTCT programming (Table 3). While these programmes have not been scaled up and data on their long-term impact is lacking, the interventions were rigorously evaluated in the pilot phase and have achieved promising outcomes relevant to the four prongs of a comprehensive PMTCT strategy.

Empowerment of women and girls

Decreasing women’s vulnerability to HIV through empowerment initiatives can take many forms. Most of these initiatives seek to improve women’s access to information, education, services and technologies; strengthen skills to communicate and negotiate safer sex; and/or increase control over financial and material resources. Ultimately, these efforts aim to tackle gender-based inequalities that place women at increased risk of HIV in the first place.

The Intervention with Microfinance for AIDS and Gender Equality (IMAGE) Project from South Africa was a multi-faceted women’s empowerment intervention that sought to reduce gender-based violence and HIV in communities by offering women microfinance loans paired with a year-long participatory gender-training programme, “Sisters for Life.” The training programme included six months of a structured participatory group curriculum focussed on building women’s understanding of HIV, gender norms, domestic violence and sexuality, followed by a six-month community mobilization phase [64]. Evaluation results suggest the intervention was effective in achieving a number of outcomes directly relevant to PMTCT programmes [64]. After 24 months, the experience of violence was reduced by 55% in programme participants, while it remained constant or increased in control groups [64]. The project also positively impacted HIV-related communication, increased women’s autonomy in decision-making, improved uptake of voluntary HIV counselling and

Table 3. Summary of evidence-informed gender transformative interventions

Intervention/programmatic example	Evaluation design and key outcomes	Relevance to PMTCT programming
<p>Empowerment of women and girls</p> <ul style="list-style-type: none"> ● The IMAGE Project (South Africa/ N = 5400) 	<p>Community randomized control trial:</p> <ul style="list-style-type: none"> ● 55% reduction in direct participants' experience of violence while it remained constant or increased in control groups ● Increased positive HIV-related communication ● Increased female autonomy in decision-making ● Improved uptake of voluntary HIV counselling and testing ● Decreased unprotected sex with a non-spousal partner 	<ul style="list-style-type: none"> ● A reduction in violence against women can contribute to HIV prevention in women of reproductive age and better access and adherence to services. ● Increased positive HIV-related communication can support HIV disclosure and subsequent access to services. ● Increased autonomy in women can help women negotiate safe sex to prevent HIV and unintended pregnancies in addition to helping women access HIV services.
<p>Engaging men and boys</p> <ul style="list-style-type: none"> ● Programme H (Brazil/N = 780) ● Malawi Male Motivator Project (Malawi/N = 400) 	<p>Quasi-experimental design:</p> <ul style="list-style-type: none"> ● Improved gender equitable attitudes, beliefs ● Increased recognition of women as having sexual rights and agency in male participants ● Increased HIV testing ● Increased condom use <p>Randomized controlled trial:</p> <ul style="list-style-type: none"> ● Increased contraceptive use ● Improved communication within couples 	<ul style="list-style-type: none"> ● Positive changes in gender attitudes in men can reduce harmful behaviours that place women at increased risk of HIV and unintended pregnancy and foster greater access to services. ● Increased condom use can contribute to primary prevention of HIV and fewer unintended pregnancies. ● Increased recognition of women as having sexual rights and agency can enable women to protect themselves from HIV and unintended pregnancy. ● The increase in HIV testing by men can facilitate better uptake and adherence to clinic-based PMTCT services. ● Better communication between spouses about reproductive health and increased contraceptive use can reduce unintended pregnancies.
<p>Working with women/girls and men/ boys together</p> <ul style="list-style-type: none"> ● Stepping Stones (South Africa/ N = 2794) 	<p>Cluster randomized control trial:</p> <ul style="list-style-type: none"> ● Reduced gender norm-related risk behaviours in men (fewer sexual partners, higher condom use, less transactional sex, less perpetration of sexual violence and substance abuse) ● Women exposed to the intervention had 33% reduction in HSV-2 incidence 	<ul style="list-style-type: none"> ● Improvements in gender-norm risk behaviours in men can contribute to primary prevention of HIV in women of reproductive age and prevention of unintended pregnancies. ● Less perpetration of violence can contribute to primary prevention and better access and adherence to services. ● Fewer herpes infections can contribute to prevention of HIV in women of reproductive age.

IMAGE, Intervention with Microfinance for AIDS and Gender Equality; PMTCT, prevention of vertical HIV transmission; HSV-2, herpes simplex virus type 2.

testing and decreased unprotected sex with a non-spousal partner. Notably, the average age of participants was 42 years; thus, many of the women were outside the high-risk age group for HIV and the reproductive age group typically served by PMTCT programmes. Questions remain as to

whether the IMAGE programme would have a similar impact if implemented as part of a PMTCT programme strategy. However, a secondary analysis of IMAGE data examining HIV risk behaviours among young female participants aged 15 to 35 years offers encouraging evidence. Compared with

controls, young participants reported higher levels of HIV-related communication, greater uptake of VCT and less unprotected sex after two years of follow-up [65].

Working with men and boys for gender equality

Increasingly, research suggests that constructively engaging men as supportive partners for women's health and working with them to challenge attitudes and behaviours that perpetuate gender inequality can improve HIV and reproductive health outcomes for women and men. In the context of PMTCT, male involvement strategies have largely focussed on encouraging male partners to learn their HIV status and increasing men's support for their female partner's participation in prong 3 PMTCT services. They have not sought to address the underlying inequalities that hamper women's participation in PMTCT services in the first place. While no community-based men's engagement interventions have been evaluated for their impact on women's uptake of PMTCT services, Programme H and the Malawi Male Motivators project are examples of gender transformative approaches for constructively engaging men, which may have the potential to positively influence PMTCT outcomes.

Programme H is a community-education and social marketing campaign to promote gender-equitable attitudes and action among young men in relation to sexual and reproductive health, including HIV prevention, care, treatment and support, gender-based violence and fatherhood [66]. The programme includes a series of group educational activities and videos, critical reflection, social marketing to change community norms and advocacy efforts.

In an evaluation of the programme in three low-income communities in Brazil, with assessments before the intervention and six and twelve months postintervention, Programme H increased men's support for gender equality as well as their uptake of HIV prevention services and use of condoms [66]. The programme thus has potentially important implications for PMTCT programming insofar as it reduces harmful behaviours that place women at increased risk of HIV and unintended pregnancy and fosters increased uptake of clinical services.

A men's engagement intervention that has proven effective in increasing contraceptive uptake is the Malawi Male Motivator Project [67]. This project, which sought to increase contraceptive use among married couples, consisted of a peer-delivered educational intervention targeting husbands that included information about family planning, discussions about impact of gender roles on outcomes and an emphasis on joint decision-making about fertility and contraceptive desires. The evaluation found significant increases in contraceptive use in the intervention arm compared to the control arm; increased ease and frequency of communication within couples were the only significant predictors of contraceptive uptake. While not designed specifically for HIV-positive couples, this gender-based family planning intervention holds promise as an effective strategy for improving the quality of women and men's relationships and reducing unintended pregnancies among married women with HIV.

Working with men and women together

Changing harmful gender norms and promoting gender equality may require working together with men and women to create collective understanding of how people are shaped by these norms and to identify shared values to overcome them. A recent review of the strengths and limitations of approaches that either focus on women's empowerment or work with men for gender equality concluded that policy-makers needed "to increasingly consider synergistic and integrated approaches that simultaneously target men and women for gender-transformative work" [68].

Stepping Stones is a participatory gender-focussed programme that brings together men and women in a community to discuss and analyze factors that increase their vulnerability to HIV and take actions to address these factors. It features the use of 18 workshops that convene different combinations of four groups of older and younger men and women and also includes intergenerational, community dialogues to challenge harmful gender norms that exist in communities.

Stepping Stones was evaluated in a rigorous cluster randomized controlled trial in South Africa [69]. Its promising findings, which are relevant to all components of PMTCT programming, include statistically significant reductions in a number of gender norm-related risk behaviours among men, including men reporting fewer sexual partners, higher condom use, less transactional sex, less substance abuse and less perpetration of IPV. Moreover, the impact of the programme on perpetration of IPV was strengthened over the two-year follow-up period. While there was no evidence that Stepping Stones directly lowered the incidence of HIV in intervention participants, it was associated with a 33% reduction in the incidence of herpes simplex virus type 2 (HSV-2) over a two-year period. Given that IPV and HSV-2 are risk factors for HIV acquisition, the Stepping Stones programme holds promise as a gender transformative approach that could contribute to better PMTCT outcomes. However, despite these encouraging findings, it should be noted that the programme did not produce desired behaviour changes among women. The evaluation found more transactional sex among women in the intervention arm at 12 months and a suggestion of more unwanted pregnancies at 24 months.

Facility-based interventions

Few interventions at the facility level have been rigorously evaluated for their gender transformative impact. However, couples HIV testing and counselling (HTC) and IPV screening show promise for improving PMTCT outcomes through attention to issues of gender inequality.

Several studies have documented the positive impact of couples HTC on uptake of HIV testing and other PMTCT services [70,71]. However, no consistent guidance exists on the components of couples HTC and which ones have the greatest impact. The scope of couples HTC can range from simply testing male partners for HIV in PMTCT services, to efforts to enhance communication dynamics within couples, to gender transformative counselling where providers are sensitized to the links between gender inequality and HIV and trained to challenge harmful gender norms, attitudes

and behaviours in the couples they counsel. More research is needed to examine the nuances of how PMTCT outcomes and gender relations are affected by couples HTC. In addition, particular attention needs to be paid to potential negative consequences of promoting couples HTC and involving men in other clinic-based activities. In the absence of evidence-informed guidance for and sophisticated measures of engaging male partners in clinic-based interventions for women's HIV prevention, concerns have been raised that such efforts may have unintended consequences, such as reinforcing men's roles as decision-makers, disempowering women or promoting IPV [72]. Indeed, one randomized controlled trial found that male involvement in PMTCT services had a negative impact on women's uptake of PMTCT services and antenatal care [73].

Given the increase in reported IPV during pregnancy, the links between IPV and women's risk of HIV and IPV as a barrier to uptake of services, several studies have highlighted the importance of IPV screening in the context of HIV programmes [74,75]. While little data exist on the feasibility and impact of IPV screening in PMTCT care settings, HTC has been deemed an appropriate and accessible venue for IPV screening and counselling in resource-poor settings [76,77]. A pilot intervention aimed at addressing IPV among pregnant women in Peru found that simply asking women about abuse and offering a referral could potentially interrupt and prevent further abuse [78]. IPV screening may also provide an opportunity to engage clients in discussions around gender inequality in relationships and related HIV risks [79]. However, further research is needed to determine the impact of IPV screening on reducing women's experience of violence and on increasing women's access, uptake and continued use of PMTCT services.

Conclusions

International commitment to end paediatric AIDS is greater than ever. However, to successfully implement a comprehensive PMTCT approach, programmes must address the underlying gender inequalities that make women and children vulnerable to HIV and often prevent them from accessing and continuing to use services.

A growing body of evidence indicates that health programmes that seek to transform gender roles and promote gender equitable relationships between men and women are more effective than gender-neutral programmes or programmes that do not take gender inequality into account [63]. In the context of PMTCT programmes, promoting gender equality in conjunction with facility-based medical interventions has the potential to produce gains on all four PMTCT prongs. It can enable PMTCT programmes to expand beyond the traditional focus of delivering ARV prophylaxis to pregnant women living with HIV and also work towards enabling women to protect themselves from HIV, control their fertility and access and continue to use a full continuum of HIV prevention, care and treatment services.

Several community-based programmes that were designed to challenge gender inequality have proven effective at enhancing HIV and reproductive health-related outcomes and, therefore, have potential to improve PMTCT programme

outcomes. Yet, these interventions have limitations, and more research to understand the impact of these interventions in the context of PMTCT programmes is needed. Nonetheless, by integrating these underutilized approaches into national HIV plans and advocating for their implementation, there is promise that governments and donors can achieve better results. Where these approaches take root, they should be accompanied by rigorous evaluations so that the evidence-informed of effective gender-integrated PMTCT programme strategies can expand.

The "Global Plan towards the Elimination of New HIV Infections among Children by 2015 and Keeping Their Mothers Alive" acknowledges the importance of placing women at the centre of the response, meaningfully engaging men and addressing structural barriers that impede service access, uptake and retention. Gender must become a fundamental consideration as countries develop plans for accelerated action towards the Global Plan goals so that gender-based obstacles to PMTCT progress are identified and steps to overcome them are outlined. Without more widespread implementation of comprehensive, gender transformative PMTCT programmes, elimination of vertical transmission of HIV will remain elusive.

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Competing interests

The authors have no competing interests to declare.

Authors' contributions

E. Ghanotakis and R. Wilcher conceptualized the paper and were the lead writers. D. Peacock contributed original ideas and provided detailed comments on the paper.

Abbreviations

ARV, antiretroviral; GBV, gender-based violence; HSV-2, herpes simplex virus type 2; HTC, HIV testing and counselling; IMAGE, Intervention with Micro-finance for AIDS and Gender Equality; IPV, intimate partner violence; PMTCT, prevention of vertical HIV transmission; USAID, US Agency for International Development.

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Notes

1. The United Nations Declaration on the Elimination of Violence Against Women defines violence against women and girls as any form of gender based violence that results in, or is likely to result in, physical, sexual, or psychological harm or suffering to women, including threats of such acts, coercion or arbitrary deprivation of liberty, whether occurring in public or private life. The definition differentiates between three forms of sexual, physical and psychological violence that occur in the family, the general community and perpetrated or condoned by the state wherever it occurs.

2. Given the increasing trend towards integration of HIV care and treatment services and PMTCT programming, we have combined prongs 3 and 4 in this section.

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