Does gender equality and availability of contraception influence maternal and child mortality? A systematic review

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ABSTRACT

Background Current global maternal and child health policies rarely value gender equality or women's rights and are restricted to policies addressing clinical interventions and family planning. Gender equality influences the knowledge, autonomy and utilisation of contraception and healthcare, thereby affecting maternal and child health. This systematic review aims to analyse the concurrent effect of gender equality and contraception on maternal and under-5 child mortality.

Methods A systematic review was conducted to investigate the current evidence. Studies were eligible if three themes—namely, indicators of gender equality (such as female education, labour force participation, gender-based violence), contraception, and maternal or child mortality—were present together in a single article analysing the same sample at the same time.

Results Even though extensive literature on this topic exists, only three studies managed to fit the selection criteria. Findings of two studies indicated an association between intimate partner violence (IPV) and infant mortality, and also reported that women's contraceptive use increased the risk of IPV. The third study found that the mother's secondary education attainment significantly reduced child mortality, while the mother's working status increased the odds of child mortality. The researchers of all included studies specified that contraceptive use significantly reduced the risk of child mortality.

Conclusion Improvement in gender equality and contraception concurrently affect the reduction in child mortality. These findings provide strong support to address the research gaps and to include a gender equality approach towards maternal and child health policies.

Key messages

► Several knowledge gaps exist in the literature about the impact of gender inequality on maternal and child mortality, including inconsistency in defining what exactly constitutes gender equality.
► Maternal and child mortality rates are influenced by gender equality and contraceptive utilisation.
► Addressing women's rights is key to improving maternal and child health outcomes globally.

INTRODUCTION

Disproportionate population growth, as well as maternal and child mortality, remain a significant challenge in human development.[1] Globally, approximately 830 women die daily during pregnancy and childbirth.[2] From 1990 to 2015, the global maternal mortality ratio declined from 385 per 100 000 live births to 216 per 100 000 live births, and under-5 child mortality fell from 90.6 per 1000 live births to 42.5 per 1000 live births.[3] Despite advances in clinical management and improvements in healthcare services which helped in the reduction of maternal and under-5 child mortality, this reduction fell substantially short of the 2015 millennium development goals (MDG) 4 and 5 targets (ie, reduce maternal by three-quarters and child mortality by two-thirds) in 50 out of 195 countries.[4 5]

For several decades, contraception was a vital tool to reduce maternal and under-5 child mortality.[6 7] Family planning empowers women to engage fully in socio-economic development by increasing their

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productivity and improving their reproductive health choices.[8] However, despite implementation of family planning policies in the majority of countries globally, approximately 12% of women around the world do not have access to contraception and the unmet need for contraception is approximately 200 million women globally.[9] Ewerling *et al* found that more than half of women in need of contraception from 77 low and middle income countries were unable to utilise any method of contraception.[10] The underutilisation of contraception was attributed to unfavourable social factors, including poverty, illiteracy, political, sociocultural and religious barriers, as well as the reproductive health rights of women.[10 11] Reproductive coercion, intimate partner violence (IPV) and patriarchal control of religious teachings have also been found to affect women's choice of use and access to contraception.[12]

Women in several countries do not have fundamental human rights or sufficient resources to access contraception and seek supervised healthcare during pregnancy, which has widened the gap of inequality globally.[13] Reducing these inequalities is the biggest challenge that exists in improving the reproductive health of women.[14] Enhancing women's status and autonomy is an imperative policy tool to reduce inequalities.[15 16] Empowering women increases women's sense of autonomy, thereby improving their health and contraceptive use, and by extension reducing population growth.[15] Women's education and economic status improve self, as well as child healthcare service utilisation.[13 17] Gender equality results in a reduction in unintended pregnancies,[18] an increase in contraception utilisation[19] and a decrease in child mortality rates.[20] Intended and planned pregnancies can motivate women to use healthcare services, and use contraception for birth spacing, which can lead to a reduction in maternal and under-5 child mortalities.[13] Brinda *et al* suggested that initiatives to reduce child mortality must move beyond medical interventions and prioritise women's rights and autonomy.[20]

Issues that hinder women's empowerment, and cause inequality and gender-based violence, are significant factors that require a strategic approach to achieve sustainable improvement in reproductive health outcomes.[21] Maternal and child health research and policies have not adequately addressed the 'human rights' aspect of gender equality.[21] Women's reproductive rights include the right to decide the starting, spacing and terminating of the pregnancy or birth.[22] Various international agreements and policy frameworks like the most recent Sustainable Development Goals (SDG) agenda have affirmed the importance of promoting gender equality and human rights in reproductive health. Despite this, high-quality research papers that could help in understanding the effect of gender equality on reproductive health are limited.[21] There is also a lack of a comprehensive and inclusive definition of gender equality, clarity on indicators of gender equality, and a logical framework about how gender equality influences health. Gupta *et al* commissioned a series in the *Lancet* on gender equality, gender norms and health, and stressed the need to bridge theories of gender equality and health in order to fill gaps in the literature.[23] However, none of the articles in the *Lancet* series, or other literature, has mentioned a conceptual model on how gender equality influences health. Attempts have been made to measure gender equality through cross-country indices, such as the United Nation's Gender Development Index and the Organisation for Economic Co-operation and Development's Social Institutions and Gender Index, but Hawken *et al* identified several limitations of these indices.[24] Researchers have also indicated that there is scant research that explicitly investigates gender equality, contraception and healthcare utilisation.[13 25] Singh *et al* stressed that gender equality should be used as a tool to improve maternal and child health outcomes globally.[26] By minimising these significant gaps in the literature, gender inequality and maternal and child mortality can be strategically addressed together. Hence, this systematic review aims to be a starting point to fill these research gaps by investigating the available evidence on the concurrent effect of the indicators of gender equality and contraception on maternal and under-5 child mortality.

METHODS

Selection of indicators

In 2001, the Economic Commission for Latina America and the Caribbean (ECLAC) published a report on the tools and indicators of gender impact analysis, monitoring and evaluation.[27] The report is the only internationally recognised inventory of available gender-sensitive indicators.[27] To identify the key search terms related to the indicators of gender equality, contraception, and maternal and under-5 child mortality, the indicators from the ECLAC report were grouped into different domains as follows: female education, women's employment and income, participation in leadership and parliament, gender-based violence, contraception, and maternal and under-5 child mortality.

Search strategy and selection criteria

A systematic review using the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) framework was undertaken, and the protocol was registered on PROSPERO (International Prospective Register of Systematic Reviews) (CRD42017070740). Studies were eligible if the authors investigated the three themes: (1) any one of the indicators of gender equality (female education, economic status, employment status, gender-based violence, women in a leadership position or parliament, female life expectancy); (2) contraception; and (3) maternal or child mortality. The study aimed

Table 1 Risk of bias in included studies

Study	Selection	Study design	Confounders	Blinding	Data collection methods	Withdrawals and dropouts	Intervention integrity	Analyses	Global ratings	Final rating
Abir et al, 2014[32]	Low	Low	Low	Low	Low	Low	N/A	Low	Low	Low risk
Emenike et al, 2008[30]	Low	Low	Low	Low	Low	Low	N/A	Low	Low	Low risk
Okenwa et al, 2010[31]	Low	Low	Low	Low	Low	Low	N/A	Low	Low	Low risk

NA, Not Applicable.

to examine the concurrent effect of gender equality and contraception on maternal and child mortality. Since we did not find any articles that examined a combined effect of gender equality and contraception on maternal or child mortality, we selected articles that examined the three themes of study in a single article using the same population sample, and at the same point of time. The three concepts (gender equality, contraception, and mortality) being investigated and analysed in the same article implies that the researchers were aware of the associations, even though the relationships were not being discussed together. Studies were excluded if the results section of the article did not analyse all three themes. Published studies from MEDLINE, Embase, PsycINFO, Cumulative Index to Nursing and Allied Health Literature (CINAHL), and Google Scholar were searched. Apart from the database search, a manual search of the reference lists of the included studies was conducted. The selection was restricted to studies published in English, and from January 2000 to November 2017. MDG (2000–2015) was a time-limited and target-oriented global policy. The period selected for the review included the MDG era. The search was undertaken from 13 April 2017 to 29 June 2017 and updated on 29 November 2017. The keywords and sample search outcome is included in the online supplementary material.

Data analysis

Data screening and extraction was done using Endnote. Two reviewers (TB and SN) independently assessed the search results based on the inclusion and exclusion criteria. The process of article selection was conducted in two stages. During the first stage, the reviewers selected all articles that had at least two themes from the inclusion criteria either in the title or abstract. This method ensured the inclusion of all articles possibly excluded due to misinterpretation of title and abstract. In the second stage, the reviewers excluded articles in which the authors did not analyse the influence of any one of the indicators of gender equality and contraception on maternal or child mortality in the results section on the same population sample at the same point of time. Items mentioned in the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement[28] were used for data extraction and assessing the quality of studies (online supplementary material). Risk of bias was assessed independently by the two reviewers, using the Effective Public Health

Practice Project (EPHPP)[29] quality assessment tool for quantitative studies (table 1). Any disagreement was resolved through joint discussion or via an adjudicator (CC). The PRISMA flow diagram was used to indicate the stages of selection (figure 1).

RESULTS

The systematic search identified 582 articles from bibliographic databases and 43 articles from the manual search. After removing duplicates, 469 articles were screened by title and abstract, and 44 articles selected for full-text reading. Final data extraction and analysis included three articles. Three studies with a total of 54 414 participants met the inclusion criteria. All studies were cross-sectional study designs using Demographic Health Survey (DHS) data from Bangladesh, Nigeria and Kenya (table 2). In one study, researchers analysed the associations of two indicators of gender equality (female education and female working status) and family planning with child mortality, while two studies focused on the association of one indicator of gender equality (IPV) and family planning with infant mortality.[30–32] Evaluation using the STROBE quality assessment tool found that all included studies were of high quality. Considering all parameters identified in the EPHPP tool, the risk of bias was also found to be low for all included studies.

Abir et al pooled data on survival information of 16 722 births from the Bangladesh DHS in 2004, 2007 and 2011.[32] Childhood mortality was examined in four different time periods. The results demonstrated that if the mother was working, there was a 1.35 to 1.90 times increased odds of child mortality compared with nonworking mothers (table 2). Uneducated women and women who had completed only a primary education showed higher odds of child mortality than women who had secondary education (AOR 0.28 to 0.51 for secondary education vs AOR 0.79 to 0.83 for primary education and AOR 1.00 for no education).[32] Abir et al also found that mothers who did not use contraception had an increased risk of child mortality (AOR 0.33, 95% CI 0.27 to 0.40; $p < 0.001$). Emenike et al used 2003 Kenyan DHS data (n=4312), and Okenwa et al analysed the Nigerian DHS data of 2006 (n=33 385) to describe the association of IPV with the reproductive health of women.[30 31] In Emenike et al's study, physical, sexual and emotional violence were found to be significantly associated with an increase in infant mortality (ORs ranging
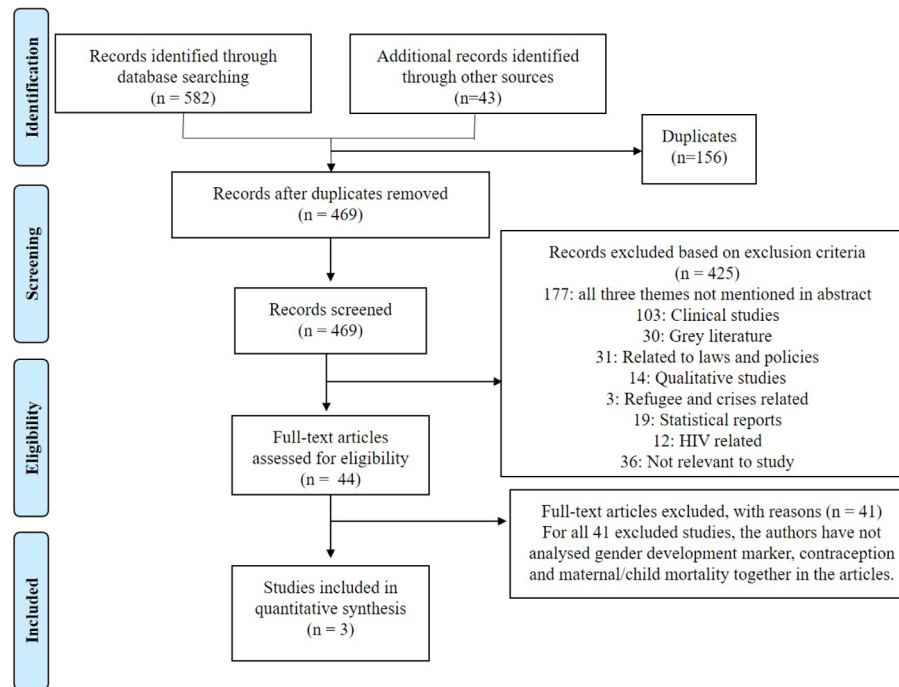
Figure 1 PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) flow diagram.

from 1.250 to 1.652).[30] Similarly, Okenwa et al found that an increase in IPV was associated with higher infant mortality (AOR 0.755 to 0.846).[31] Both the authors reported that IPV was significantly more common in women using modern contraception[30 31] (table 2). The multiple regression method produces an 'adjusted OR' (AOR) that helps in addressing confounding. Abir et al and Okenwa et al reported AORs to present their findings, which indicates that both these studies used appropriate statistical techniques to address confounding.

DISCUSSION
This systematic review identified that indicators of gender equality, such as secondary education of women, mother's working status and IPV, concurrently with contraceptive use had a strong association with under-5 child mortality.[30–32] IPV was higher in women using contraception.[30 31] Surprisingly, only three studies met the inclusion criteria for the study. Given the attention paid at international and national policy levels regarding the need for contraception access, as well as the significance of gender equality in reducing maternal and infant mortality outcomes, this finding was entirely unexpected. Unfortunately, none of the studies that identified maternal mortality as an outcome met the selection criteria.

Findings of one study indicated that mother's education was an influential factor in predicting the status of child health.[32] The researchers highlighted that this association was significant when the mother had completed secondary education. Similar research has revealed that countries with higher female education rates have lower maternal and neonatal mortality.[33 34] Children of secondary-educated mothers experience

the lowest probability of child mortality rates in comparison to women with primary or no education, even after controlling for the other socioeconomic factors.[35] Education policies should expand their focus to encompass secondary education, rather than concentrating on programmes to move populations from illiteracy to primary education. Investments in women's education are essential in improving child health.[36] Education increases awareness about self-care, responsibility as well as knowledge about health and lifestyle behaviours and also encourages health-care service utilisation for acute conditions.[13] Desai et al indicated a strong relationship between maternal education and infant mortality, child age-to-height ratio and children's immunisation status.[37] Educated women are more likely to engage in health-promoting behaviour for the child, such as immunisation, which reduces the likelihood of communicable diseases that are prevalent in childhood.[37]

Abir et al identified a negative association between mothers' working status and child mortality.[32] Research findings of another study of female estate workers from Sri Lanka and working women from Pakistan and Thailand highlighted a significant increase in the risk of child mortality.[34] Researchers have linked the poor nutritional status of children to mothers who are working.[38] Working women can have the added responsibility of completing tasks such as caregiving, cooking and other household chores, that could reduce breastfeeding initiation or continuation, and thereby influence child survival.[39] Conversely, Klasen et al reported that the paid and unpaid work of women contributes to the economic and development dynamics of the whole country.[40] The main limitation in Abir

Table 2 Study characteristics

Study, country	Objective	Participants (dataset)	Variables (relevant for this review)	Study methods	Results	Results summary
Abir et al (2014) Bangladesh[32]	Identify factors associated with mortality in children under 5 years of age	Survival information from Bangladesh DHS (2004–2011) of 16 722 singleton live-born infants of the most recent birth of mother within 3 years before the mother being interviewed	1. Maternal marital status 2. Religion 3. Mother's age 4. Mother's age at child's birth 5. Maternal highest level of education 6. Paternal highest level of education 7. Wealth index 8. Neonatal mortality 9. Post-neonatal mortality 10. Infant mortality 11. Child mortality 12. Under 5 mortality	The study used pooled analysis of 2004, 2007 and 2011 Bangladesh DHS with an average response rate of 98%. The researchers used multilevel modelling, which took into account the effect of clustering to better estimate the level of association of the study factors with the outcome	Mother's working status OR for working/ non-working status for each type of mortality: 1.35, 95% CI 1.01 to 1.80, p=0.041 for neonatal mortality; 1.90, 95% CI 1.32 to 2.74, p=0.001 for postnatal mortality; 1.60, 95% CI 1.26 to 2.01, p<0.001 for infant mortality; 1.67, 95% CI 1.34 to 2.08, p<0.001 for under 5 mortality. Maternal highest education: AOR for No education/primary/secondary for each type of mortality: 1.00/0.79, 95% CI 0.59 to 1.04, p=0.096/0.51, 95% CI 0.32 to 0.83, p=0.007 for neonatal mortality; 1.00/0.81, 95% CI 0.54 to 1.46, p=0.280/0.28, 95% CI 0.10 to 0.78, p=0.015 for post-neonatal mortality; 1.00/0.80, 95% CI 0.63 to 1.02, p=0.069/0.45, 95% CI 0.29 to 0.70, p<0.001 for infant mortality; 1.00/0.83, 95% CI 0.66 to 1.04, p=0.104/0.41, 95% CI 0.26 to 0.63, p<0.001 for under 5 mortallity. Contraceptive use: OR for no/yes use of contraception for each type of mortality: 1.00/0.30, 95% CI 0.23 to 0.39, p<0.001 for neonatal mortality; 1.00/0.49, 95% CI 0.35 to 0.70, p<0.001 for post-neonatal mortality; 1.00/0.35, 95% CI 0.28 to 0.43, p<0.001 for infant mortality; 1.00/0.22, 95% CI 0.11 to 0.42, p<0.001 for child mortality, 1.00/0.33, 95% CI 0.27 to 0.40, p<0.001 for under 5 mortality	Maternal working status increases the risk of neonatal to under 5 mortality. Secondary education of mother significantly reduces the risk of neonatal to under 5 mortality. Contraceptive use significantly decreases the risk of neonatal to under 5 mortality

Continued

Table 2 Continued

Study, country	Objective	Participants (dataset)	Variables (relevant for this review)	Study methods	Results	Results summary
Emenike et al (2008) Kenya[30]	Describe the association of IPV on the reproductive health of women	All women 15–49 years of age residents or visitors at the time of the survey were eligible for participation. Only women ever (currently or formerly) married/ having a partner and who responded to the domestic violence module (n=4312) were included from Kenya DHS 2003	1. Family planning method 2. Terminated pregnancy 3. Infant mortality 4. Number of births ever 5. Intimate partner violence	Cross-tabulation was used to study the association between the dependent and independent variables, and significant levels were tested using χ^2 test. Because age may be associated with both reproductive health and IPV, age-adjusted associations between IPV and reproductive health indicators were calculated using logistic regression analyses	Physical IPV/family planning OR 1.236, 95% CI 1.086 to 1.406, p<0.01; Physical IPV/infant mortality OR 1.652, 95% CI 1.432 to 1.906, p<0.01 Emotional IPV/family planning OR 1.419, 95% CI 1.221 to 1.560, p<0.01; Emotional IPV/infant mortality OR 1.483, 95% CI 1.226 to 1.736, p<0.01; Sexual IPV/family planning OR 1.684, 95% CI 1.390 to 2.040, p<0.01; Sexual IPV/ infant mortality OR 1.250, 95% CI 1.029 to 1.520, p<0.01	Use of family planning methods and infant mortality was significantly associated with physical/emotional or sexual violence. The results also suggest a strong association between the use of family planning methods and increased vulnerability to IPV
Okenwa et al (2010) Nigeria[31]	Examine the association of IPV on reproductive health outcomes	33 385 women aged 15–49 years, including permanent residents of the households or visitors present in the households on the night before the survey, were included from Nigerian DHS 2008	1. Abortion 2. Contraceptive use 3. Pregnancy wish 4. Exposure to physical IPV 5. Exposure to mental IPV 6. Exposure to sexual IPV 7. Education 8. Religion 9. Place of residence 10. Region	The χ^2 test was used to test for associations between IPV and the independent variables in the univariate analyses. The independent association between IPV exposure and the dependent variables (after control for potential confounding) was determined using logistic regression. Direction and magnitude of the associations were expressed as adjusted OR (AOR)	Physical IPV/contraceptive use No vs Yes AOR 0.792, 95% CI 0.687 to 0.912, p=0.001; Physical IPV/infant mortality OR 0.846, 95% CI 0.771 to 0.928; p=0.000; Emotional IPV/contraceptive use No vs Yes AOR 0.852, 95% CI 0.743 to 0.977, p=0.022; Emotional IPV/infant mortality OR 0.755, 95% CI 0.699 to 0.819, p=0.000; Sexual IPV/contraceptive use No vs Yes OR 0.952, 95% CI 0.708 to 1.282, p=0.748; Sexual IPV/infant mortality OR 0.798, 95% CI 0.670 to 0.951, p=0.011	Contraceptive use was significantly associated with physical and emotional violence (p value for sexual violence was insignificant). Physical, emotional and sexual IPV was significantly associated with infant mortality

AOR, Adjusted Odds Ratio; CI, Confidence Interval; DHS, Demographic and Health Survey; IPV, intimate partner violence; OR, Odds ratio.

et al's study was the analysis of only one variable of the mother's working status. Underlying factors, such as the type of work, availability of childcare services and family's support towards women's employment, need to be investigated before establishing the negative association of women's working status with child mortality. A holistic and comprehensive definition of work status is also required that include share of paid and unpaid employment, working status of partner/husband, type of employment (formal or informal), labour force participation, women in leadership roles and income share. Considering the mother's working status alone does not show an association with child mortality, emphasising the need to include gender equality concept as a whole—the example above provides a context to this vital statement. Under the ecological framework, the dynamics and associations of working women's support at family and societal levels determine the outcome of child health, and women's working status alone cannot be considered as a sole factor.

Emenike *et al* and Okenwa *et al* have suggested that physical, sexual and emotional IPV lead to increased odds of child mortality.[30 31] An estimated 30% of women globally experience physical or sexual violence, which is a conservative figure due to underreporting.[41] IPV is not restricted to lower and middle income countries, as in high-income countries the prevalence rate is approximately 25%.[41] Non-partner sexual violence is also higher in high income countries (12.6%), compared with the world average of 7.2%.[41] Apart from physical and mental trauma, gender-based violence adversely affects women's reproductive health.[42] Violence during the antenatal period increases the risk of pre-term births, decreased birth weights and neonatal death.[42] It negatively impacts post-partum breastfeeding practices which can decrease the nutritional and immune status of the child, consequently increasing the risk of mortality.[42] Gender-based violence is rarely included as an indicator or marker of gender inequality. Reporting issues and availability of data further restricts its inclusion in global policies of gender equality. Analysis of two included studies has indicated that IPV was prevalent in women using contraception.[30 31] Stephenson *et al* indicated that women who experience domestic violence are less likely to adopt contraception and more likely to experience unintended pregnancies.[43] Research in other countries such as Uganda and India have also indicated that contraceptive use itself can lead to violence, and there is a clear relationship between a woman's experience of violence and her ability to achieve her fertility intentions.[43] Reproductive coercion affects contraception choices, pregnancy objectives and even the outcomes of pregnancies.[12] These findings indicate that even though family planning policies are implemented in several countries globally, the high rate of IPV is a substantial challenge to improving contraception utilisation.

Results of all included studies specify that increased contraceptive use was associated with a significant decrease in child mortality. Ahmed *et al* estimated that in 172 countries, the availability and use of contraception had averted thousands of maternal and child deaths.[6] Family planning policies are essential to achieve development.[11 44] Apart from gains in development, abstinence and contraception use are the only methods to avoid unintended pregnancies or to prevent illegal abortions and to prevent sexually transmitted diseases. Global reports indicated that countries with the highest fertility rates also had the highest trends of maternal and child deaths.[45] Family planning not only reduces maternal and child mortality by improving their reproductive health decisions, but empowers women to actively participate in the socioeconomic development of a country.[8]

The right to choose contraception for either birth spacing or family completion is essential for promoting health and development.[46] Adhering to the global commitments of women's rights can help to overcome the challenges of access to reproductive health services.[47] Reproductive health rights such as the legalisation of abortion and access to modern family planning methods remain a global challenge, not just in low and middle countries, but also in several high income countries such as the USA, Australia, UK and other European nations.[48–51] In Europe, conscientious objection is a significant hurdle in accessing abortion services.[52] The conscientious objection occurs when healthcare providers refuse to provide services like abortion and contraception since they are against their religious or moral beliefs. In Italy, 70% of gynaecologists refuse to perform induced abortions.[52] This practice exists in other European nations such as Poland, Portugal, the Slovak Republic and the UK, whereas in Austria there are very few abortion service providers in the entire country.[52]

The systematic review identified the methodological gaps in the literature on gender equality. More than 300 gender-sensitive variables are currently reported by different organisations and used either for designing policies or for monitoring and evaluation of development programmes or to design a gender development index.[27] There are inconsistencies and inadequacies in the variables used to measure each of the indicators of gender equality, making it difficult to analyse their impact using meta-analysis. It was also challenging to interpret the findings of studies that analysed very few variables related to each indicator of gender equality. The study also identified that rarely researchers had addressed the gender equality issues among vulnerable and marginalised groups. Further research is needed to address these gaps in knowledge.

Notably, the reviewers could not find any articles that evaluated the impact of gender equality and contraception together on maternal mortality, even though maternal mortality has had the most attention

from researchers and funding agencies during the past two decades. Maternal health was a dedicated goal in the MDGs. The reasons for this gap in literature might be due to the under-reporting of maternal deaths, or the complexity of analysing the broad determinants of maternal mortality, such as factors related to poor health governance, weak health infrastructure, untrained workforce and unavailability of health facilities.

Although several gaps in the literature were identified in the systematic review, it has several strengths. It is the first study to use a gender equality lens to investigate the concurrent effect of contraception as well as gender equality on maternal and child mortality. This systematic review is in striking contrast to the reductionist approach used in the literature about gender equality and its effect on health outcomes. The study attempted to show how there is a concurrent effect of two inter-connected theories, gender equality and family planning on maternal and child mortality. A comprehensive look at the existing gender-sensitive indicators of gender equality helped to strengthen the methodology. Only three studies served as the basis of the systematic review, which could be a limitation of the study. However, the systematic review serves as a vital bridge to future work in this field, and several such studies are needed to connect the overarching theories of gender equality and contraception with maternal and child mortality.

Enduring disparities in methodologies, inconsistency in variables used to measure gender equality, and gaps in the literature underpin the mounting support for targeted reforms. Gender equality should be given a priority in all development policies and related research. The indicators used to measure gender equality should be consistent, uniform, quantifiable and representative of real gender equality, and understanding of their relationship to poor maternal and infant outcomes are required. A women's rights approach towards family planning policies will ensure sustainable change in population dynamics. IPV should be given careful consideration while implementing interventions related to family planning. In conclusion, this systematic review argues that gender equality and contraception are both inter-dependent and equally vital in reducing maternal and under-5 child mortality. Addressing gender equality in the core of every policy will hasten the attainments of SDGs-2030 targets and can produce sustainable health outcomes in the future.

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