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DETERMINING FACTORS INFLUENCING FERTILITY STALLS IN LOW AND MIDDLE-INCOME COUNTRIES: A SYSTEMATIC REVIEW

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ABSTRACT

Purpose: This study investigates the factors driving fertility stall in low and middle-income countries.

Design/Methodology/Approach: A systematic literature search was performed to discover relevant research on fertility stalls. Papers published between 2000 and 2024 were considered. Only 16 of the 2380 papers on fertility stalls in poor countries discovered by the University of Gothenburg Library through prominent databases, including CINAHL, GUPEA, JUNO, Mediearkivet, NE.se, PubMed, and Scopus, met the criteria for this study. Content similarity clustering is implemented through Rayyan software based on their similarity ratings.

Research Limitations: Countries' classifications are subject to change, and the World Bank index is continually updated. For example, a country classified as low and middle-income in 2000 will be classified as high-income in 2024.

Findings: Several factors have been identified as impacting fertility stalls. Fertility stall in low- and middle-income countries was found to be influenced by age at the first union or marriage, women's education, contraceptive use, post-partum infecundity, female labour, fertility preference, family planning initiatives, and child mortality.

Practical Implication: The results will inform governments and reproductive health policymakers on how to combat the factors causing fertility delays, especially in developing countries, and develop strategies to eliminate these factors, thereby achieving universal access to reproductive health.

Social Implication: Addressing fertility bottlenecks requires a comprehensive approach that incorporates cultural and public health initiatives to promote sustainable population management and gender empowerment.

Originality/Value: Little research has been done on the factors that drive fertility stalls in poor countries. The outcomes of this study will contribute to our understanding of the factors causing fertility stalls, thereby increasing access to reproductive health rights.

Keyword: *Decline. fertility stall. Rwanda .transition. women*

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INTRODUCTION

Various studies have defined fertility stalls differently, but the core concept remains consistent. A stall occurs when an ongoing fertility decline is interrupted by a period where fertility levels do not significantly change before the country completes its fertility transition (Bongaarts & Sathar, 2024). Identifying stalling fertility requires two steps. First, there must be criteria to determine whether a fertility transition has started. Second, one must identify what constitutes a break in the fertility decline. For the first step, Schoumaker (2019) suggests that a fertility transition has begun if the Total Fertility Rate (TFR) in a later survey is at least 10% lower than in a previous one or if the TFR in the second survey is lower than the average number of children ever born among women aged 40 to 49 in the first survey. Tesfa et al. (2023) alternatively assume that the Total Fertility Rate (TFR) has decreased, which is a result of contraceptive prevalence among married women.

Several definitions of a fertility stall have been proposed in the literature. The first approach considers a country to be experiencing a stall if the decline in the Total Fertility Rate (TFR) has halted, meaning the TFR in a later survey is at least as high as in the previous one (Sharif & Das, 2024; Schoumaker, 2009). The second definition identifies a stall if the annual reduction in fertility is less than 0.05 children (New Security Beat, 2013), indicating no significant decline between consecutive surveys. The third definition describes a fertility stall as a statistically significant slowdown in the rate of fertility decline (Bongaarts, 2008), which requires data from at least three surveys to assess changes in the pace of fertility reduction across two consecutive periods.

LITERATURE REVIEW

The decline in fertility from high levels typical of natural fertility to near or below replacement levels is a nearly universal trend. This decline began in almost every country during the 19th or 20th century, with only a few exceptions, and by 2010, most countries had completed or nearly completed this fertility transition. The United Nations Population Division projects that global fertility will continue to decrease over the next 40 years. However, the fertility transition will not be completed by 2050 in countries currently classified as "high fertility," most of which are in sub-Saharan Africa. In these regions, the total fertility rate (TFR) is expected to be 2.8 children per woman. In contrast, in other parts of the world, fertility is projected to decline below replacement levels, with a Total Fertility Rate (TFR) of 1.8 by 2050 (UN, 2011). The transition from high fertility (five to eight children per woman) to low fertility (two or fewer children per woman) typically occurs smoothly over approximately 60 years or two generations. However, this process can sometimes occur much faster, taking 15 to 25 years, or much slower, spanning over a century.

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A typical example of a smooth fertility transition in Europe is Sweden, where the core of the transition occurred between 1870 and 1930, with the total fertility rate (TFR) dropping from 4.4 to 1.7 children per woman, corresponding to cohorts born between 1840 and 1900. Similar patterns were observed throughout Europe, except in France (Moultrie et al., 2008).

However, in some instances, the fertility transition is not continuous, and extended periods of fertility stalls have been observed. A notable example is Argentina, where fertility declined from 7.0 children per woman in 1895 to 3.2 children per woman in 1947 but then remained at that level for approximately 30 years before gradually moving towards replacement fertility in recent years (Agyei-Mensah, 2007).

Sub-Saharan Africa was the last global region to enter the demographic transition. Birth rates only began to decline in most countries during the 1980s, but these declines have been inconsistent and have stalled at times. Particularly in the late 1990s and early 2000s, some sub-Saharan African countries experienced a plateau in their fertility decline and, in some cases, even a reversal, resulting in increased fertility rates. This so-called stalled African fertility transition has been the subject of much discussion and speculation. The reasons behind the interruption of fertility decline in many sub-Saharan African countries remain a demographic puzzle, as there is little agreement on the causes of these stalls (Coale et al., 1986). Many studies have attempted to connect these fertility stalls to specific factors, such as slower socio-economic development in the affected countries (Van de Wall et al., 1980), the low priority given to family planning programs at the start of the 21st century (Bongaarts, 2006), the impact of HIV/AIDS particularly through its effect on child mortality and other issues related to public and reproductive health. Some researchers have linked the fertility stalls around 2000 to the fact that specific cohorts of women experienced an education stall, possibly related to the adverse effects on education caused by the structural adjustment programs (SAPs) implemented by the Bretton Woods Institutions in the 1980s.

Over several decades, fertility began to decline in every nation. Various academics predict that each country will have a different decline in fertility. Fertility rates decreased steadily in certain countries while remaining constant or rising in others as they underwent a transition. A fertility stall occurs when there is an upswing or stagnation in fertility. A review of various studies reveals that the majority of researchers experienced fertility delays (at TFR 3.2) for longer than 30 years (Pantelides, 1996).

According to traditional demographic transition theory, fertility decline does not cease until replacement-level fertility is achieved. Some developing nations have broken this trend; in the late

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1990s and early 2000s, fertility rates began to stabilise at levels above replacement. Scientists have made an effort to provide plausible explanations for why fertility might plateau at or above replacement levels. Why fertility fluctuates and/or stays consistent over time is still unclear, however.

This study extracts information from the examined literature regarding the factors that contribute to fertility stalls in emerging nations. The results will address knowledge gaps and serve as a foundation for further study on fertility stalls in developing countries, as there is a shortage of pertinent data in this area.

METHODS AND MATERIALS

Systematic reviews of fertility stall publications from 2000 to 2024 were carried out as part of the study. The 24 years were chosen intentionally because they encompassed the period when the decline in fertility in some sub-Saharan African countries levelled out and, in some cases, even saw a turnaround, increasing. The introduction of a new Millennium Development Goal (MDG) target on universal access to reproductive health services is significant. Due to the delay in implementing this goal, diligent work is necessary to rectify the years of neglect that family planning programs in the area have endured. To achieve universal access to reproductive health services, family planning service delivery networks that have collapsed under years of neglect must be rebuilt (Ezeh et al., 2009).

Only a small number of countries significantly met the MGDs, including low- and middle-income countries (Koomson et al., 2021). The nation began implementing the SDGs in 2016 and beyond. To update knowledge and inform stakeholders in the fertility decline sector, particularly in the area of fertility stall in selected countries, 24 years was chosen to capture any changes that may have occurred. Even if the implementation of the SDGs in low-income countries is only halfway complete, proactive lessons from this study are required to provide crucial guidance on closing the gaps.

Including and Amputating Standards

The following criteria were used to determine which papers to review.

- Research scope: Articles concentrating on fertility stall
- The location: Underdeveloped countries.
- Publications Type: The publication focused on documents created during the chosen time frame. Editorials about fertility stalls are included.

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- Language: Publications were evaluated using the English language.

The Method of Finding and Choosing the Studies

Popular databases from the University of Gothenburg Library, including CINAHL, GUPEA, JUNO, Mediearkivet, NE.se, PubMed, and Scopus, were used to conduct the systematic review. PubMed was chosen because it contained the papers under investigation, and Rayyan software was utilised to help choose relevant papers. The study employed search terms like "fertility" AND "stall" in all search engines, as well as in low- and middle-income countries. The search scope included peer-reviewed journals and other academic articles from 2000 to 2024.

Data Retrieval

A data extraction form was designed to gather details about the three essential characteristics.

- Paper identification: participant details, study sites, and study citations
- Methodology: Research design, including sample size, sampling strategy, and research type.
- Concept: Methods for researching people whose fertility is declining and stalling

Method of Analysis

The study examined all variables identified in earlier research to determine the factors associated with fertility stalls. Content similarity clustering is implemented through Rayyan software based on their similarity ratings. To examine groups like Nawaji et al. (2024), Caroline et al. (2021), Catherine et al. (2021), Apoorva et al. (2023), Ezeh et al. (2009), Schoumaker. (2019); Bongaarts et al. (2013); Rahman et al. (2021). Using features like "included," "decided," and "undecided," we interactively worked through the Rayyan software's interface to determine which paper to keep.

Methodology for Searching

In order to find pertinent research on fertility stalls, a thorough literature search was conducted. Articles published between 2000 and 2024 were included. Data were sourced from the University of Gothenburg Library via well-known databases, including PubMed, NE.se, CINAHL, GUPEA, JUNO, and Mediearkivet. Regarding compliance with fertility stalls in developing countries, policy guidelines were consulted from various sources, including those run by governments and the World Health Organisation. Using the terms "fertility" and "stall," we looked for pertinent

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literature. Boolean terms (AND; OR) are used to segregate keywords in research. Fertility decline was the search term we used to find relevant studies. Studies in English are included.

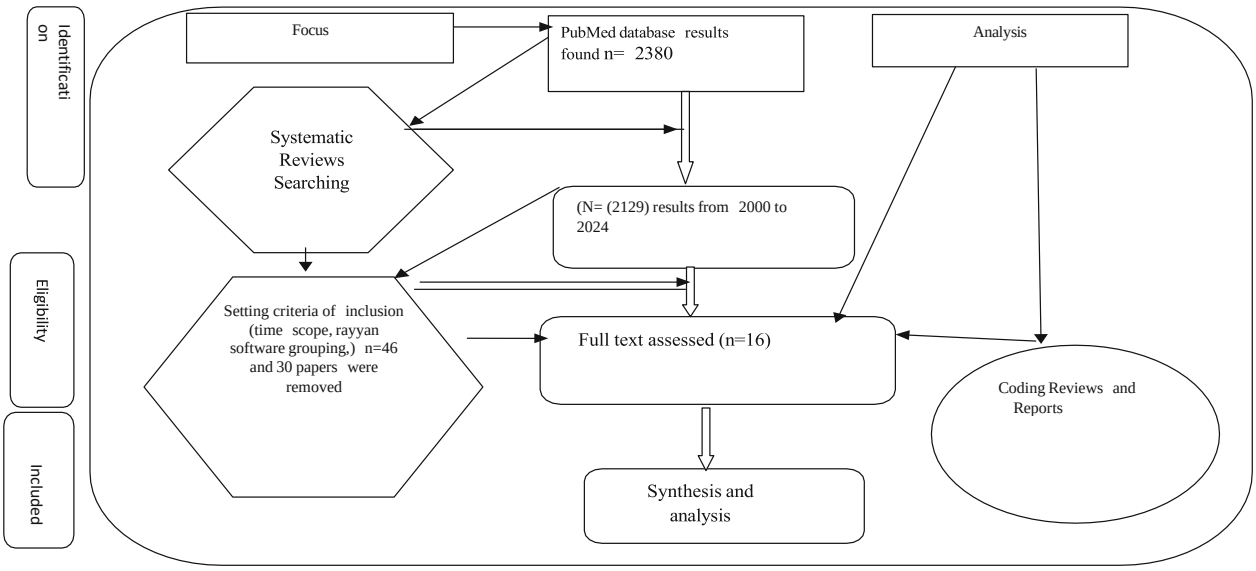

Figure 1: Diagram of the PRISMA process flow for searching and selecting literature

RESULTS

Approximately 2,380 articles from the PubMed database, retrieved from 2000 to 2024, were found through the search. Based on the criteria for the chosen starting year of 2000, there are only 2129 articles left, and only 16 articles remain based on the inclusion criteria, titles, and summaries of all 16 articles that meet the requirements. To comprehend the phenomena of factors associated with fertility stalls, a critical analysis of sixteen papers was conducted. The last sixteen publications from scholarly journals are still accessible, and each of the fifteen articles was a quantitative study.

Nawaj et al. (2024) conducted a study titled "Determinants of Fertility Stall in India: A State Level Analysis, 1992-93 to 2019-21." According to the overall model used, the likelihood of a fertility stall increased in states by 39% for low-income households, 48% for working women, 61% for U-five mortality from the socioeconomic factor group, 21% for son preference from reproductive

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preference, 61% for unmet family planning needs, and 57% for exposure to family planning in the media compared to the states that have made progress in these areas (Nawaj et al., 2024).

In addition to the common factors, women who gave birth to their first child at age 18 or older during the mid-transitional stall had a 29% lower chance of giving birth to a third child than those who gave birth before the age of 15. This information was found in a study conducted by Rahman titled "Factors Influencing Progression to a Larger Family in Mid- and Late-Transitional Fertility Stalls" in Bangladesh. The likelihood of having a third or fourth child during this delay was considerably lower for the women without unmet FP needs than for those who did. The likelihood of a third birth is 40% higher for unemployed women than for those who are employed. A substantial rise in late-transitional stall was observed in the relationship between urban versus rural residency and having a third child, aside from these other variables. Rural women are 80% more likely than urban women to give birth to a third child during these short periods (Rahman, 2018).

According to research findings published in 2009 by Ezeh et al., "Stall in fertility decline in Eastern African countries: regional analysis of patterns, determinants and implications," four factors—changes in the proportion of women who support family planning, adolescent fertility, the ideal number of children, and the proportion of women in unions—have a significant impact on the likelihood of stalled fertility decline at the regional level in the four Eastern African countries under study. If the optimum number of children, teenage childbearing, and the proportion of women in unions grow, there is a greater chance that fertility may stagnate. Regarding the rise in unintended pregnancies and unmet needs, a similar pattern is seen, although the findings are not statistically significant. On the other hand, if more women support family planning, the chance of stalling is diminished. The likelihood of a stopped fertility fall is also correlated with positive changes in the percentage of women who live in urban areas, have a secondary or higher education, work in a profession, and use contraception more frequently. These results are intuitive, both practically and theoretically, but they lack statistical significance (Ezeh et al., 2009).

The results of the investigation into "The Causes of Stalling Fertility Transitions" reveal that Fertility trends in seven countries —Bangladesh, Colombia, Dominican Republic, Ghana, Kenya, Peru, and Turkey —stalled in the 1990s during the transition period, according to an analysis of data from numerous DHS surveys. The fertility rate in each of these countries peaked in the 1950s at over six births per woman and then declined to less than five in the early to mid-1990s before stabilising. In Kenya, the birth rate was 4.7 births per woman, whereas in Turkey, it was 2.5 births per woman. An examination of patterns in the factors influencing fertility showed a systematic pattern of levelling off or almost levelling in several factors, such as the usage of contraceptives,

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the number of desired births and the need for contraception. Except for the Dominican Republic, the stalled countries had very modest improvements in program effort scores during the late 1990s, with no appreciable increases in unintended pregnancies or the unmet demand for contraception. The results indicate that there was no significant decline in the availability of contraceptives during the stall. Nevertheless, given the high rates of unintended pregnancies and unmet demand, it would be preferable to increase access to family planning techniques. The presence of a stall was not shown to be significantly correlated with changes in socioeconomic development. However, in all but one of the stalling countries, fertility was low at the start of the stall in relation to development levels (Bongaarts, 2005).

In a study titled "The Proximate Determinants of Fertility Stalling in Jordan 2002-2009," according to Al-Masarwah (2013), the proximate causes of Jordan's fertility rate stagnation between 2002 and 2009 were investigated using data from the Jordan Demographic and Health Survey. The results showed that while the majority of this increase occurred in less effective conventional techniques, the rise in the prevalence of contraception was not sufficient to counteract the rise in the proportion of married people. The lengthening of postpartum insusceptibility, polygamy, sterility, and the age distribution of women did not influence Jordan's fertility levels. Additionally, the study examined the socioeconomic disparities in fertility and their primary causes. It concluded with recommendations for actions that Jordan could take to meet its future demographic objectives (*Al-Masarwah, 2013)*.

Except for the effect of contraception, the function of other proximate determinants in determining fertility stalls appears to be silent, according to a study on "stalls in Zimbabwe fertility" done by Nzimande et al. in 2018. Additionally, the study shows how variations in fertility preferences affect fertility delays (Nzimande et al., 2018).

According to the research findings of Westoff and Cross (2006), fertility rates have stagnated nationwide. They observed that women with no education showed a more noticeable stall, and women with at least a secondary education level had a slight decrease in fertility. Women in the younger age cohorts and those with low levels of education saw a standstill in the prevalence of contraceptives, whereas women who had engaged in sexual activity in the four weeks before the survey reported using contraceptives at higher rates. The reported drop in the percentage of women who did not desire more children in urban and rural regions, all provinces, ethnic groupings, and among women with less than secondary education may also be responsible for the slowdown in the prevalence of contraceptives. This represented a significant divergence from the trend of rising numbers of women expressing a desire to stop having children since 1997. The results suggest that

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Kenya's reproductive preferences may have reversed due in part to an increase in child mortality. This suggests that mothers who had lost a child were more inclined to have another one in order to offset the high rate of child fatalities (Westoff & Cross, 2006).

A study on "Age at marriage and modernisation in sub-Saharan Africa" was carried out in the region by Garenne (2004). It has been discovered that a woman's likelihood of becoming pregnant rises with her age at her first marriage or union. Urbanisation, polygyny, and religion are factors linked to lower marriageable age, while education and income are linked to higher marriageable age. In Africa, the average age at marriage has gone up. Lower fertility has been a result of it, particularly in metropolitan areas. Regarding halted fertility, some studies indicate that the age at marriage dropped during such times, but other studies do not support this finding. For example, in Algeria and Tunisia, the age of marriage declined concurrently with the decline in fertility. On the other hand, in Benin, Cameroon, Guinea, Malawi, Mozambique, Nigeria, Uganda, and Zambia, as well as in Egypt, Kenya, Madagascar, Rwanda, Namibia, or Tanzania, TFR and age at marriage increased in tandem. Although this may appear contradictory, it suggests that other proximate influences offset the projected decrease in fertility resulting from marrying at an older age. Actually, in most countries, such as Ghana and Zimbabwe in Eastern Africa, marriage has not caused fertility to halt as it has remained stable at the pre-stall level. Since premarital fertility is prevalent in sub-Saharan Africa, the correlation between marriage and fertility is likewise weak, in contrast to other emerging regions (Garenne, 2004).

The results of a study by Klu et al. (2023) discovered that Ghana was among the initial countries to be recognised as facing a stall in the shift in fertility. Between 1998 and 2014, the study found that fertility remained stable at approximately four children per woman. Fertility stalls were more likely to occur among women between the ages of 30-39 and 40-49, with just a primary education, living in low- and middle-class homes, and taking contraception. Nonetheless, stalled fertility was less common in women who had one to four children, had no formal education, were married or not, belonged to traditional, Islamic, or Christian faiths, were sexually active or not, and were married or unmarried. Demographic, social, and proximal factors are the causes of the fertility transition stall. To ensure that women's fertility rates continue to drop, these factors should be taken into account (Klu et al., 2023).

According to Shapiro et al. (2008), the use of contraceptives is the proximal driver that has drawn the most excellent attention from academics looking into the stalls for three key reasons. First, one of the main tools for limiting and spacing out births is contraception. Additionally, they aid in the prevention of sexually transmitted diseases (STDs). Third, the prevalence of contraception is

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another factor taken into account when evaluating a nation during a demographic shift. Nevertheless, the research only reveals contradictory data regarding the link between fertility stalls and contraception. As one might anticipate, decreased fertility periods have been linked to rising contraceptive use in numerous countries, including Botswana, Eswatini, Ethiopia, Malawi, Namibia, South Africa, Uganda, and Zimbabwe. Contraceptive use levels off or declines around the period of fertility stalls, which helps to explain stalls in some countries, including Cameroon, the Democratic Republic of the Congo, Ghana, Kenya, Mozambique, Namibia, Niger, Nigeria, Rwanda, Tunisia, Uganda, and Zimbabwe. However, variations in the usage of contraceptives do not always explain variations in fertility. Fertility stopped in certain countries at the same time that the prevalence of contraceptives increased (Shapiro et al., 2008).

The influence of ideal family size and proximate variables on fertility stalling in capital cities of sub-Saharan Africa was studied in a study done in these cities (Shoemaker et al., 2020). It was discovered that the average length of postpartum abstinence and amenorrhea, which are dependent on the length of treatment, are summarised by the duration of postpartum infecundability or insusceptibility. In the past, sub-Saharan Africa has been distinguished from other emerging regions by lengthier durations of postpartum insusceptibility. This has led to longer birth intervals, which have a significant negative impact on fertility. For example, postpartum infecundability's ability to restrict reproduction has already played a role in the decline in fertility in countries such as Benin, Burkina Faso, Ghana, Madagascar, Mali, Namibia, Niger, Rwanda, Senegal, Tanzania, Zimbabwe, Côte d'Ivoire, Ethiopia, and Malawi. Alternatively, the only proximate predictor with no conflicting evidence regarding fertility stalls is postpartum insusceptibility. At the national level, Cameroon, Guinea, Kenya, Malawi, Mozambique, Nigeria, Uganda, Zambia, D.R. Congo, Ghana, Egypt, Namibia, and Zimbabwe all had reversals in the reduction in fertility and shorter periods of susceptibility. The single most significant factor contributing to sub-Saharan African capital cities' fertility stall, according to subnational research, is the decline in postpartum infecundability. Reduced postpartum susceptibility is predicted to result in more delays if a significant rise does not follow in contraceptive use effectiveness (Schoumaker et al., 2020).

Research has not only examined proximate causes but also fertility preferences (Machiyama et al., 2019). Africa has historically been seen as a pronatalist continent, and African women continue to express a desire for large families, which is partially a reflection of cultural norms (Lowe et al., 2022). For example, ideal family sizes are still large in Nigeria because the country values fertility and believes that young people should care for their elderly relatives. Furthermore, having children becomes the primary goal of reproductive control for a large proportion of African women. The majority of births in sub-Saharan Africa are said to be wanted, and the ideal family size has

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remained steady at four children overall in recent years. High preferred family size will probably prevent fertility from declining quickly because African women tend to convert their fertility desires into birth outcomes. In this sense, in Algeria and Tunisia, periods of stagnation are associated with either increasing or stagnating desired fertility (Machiyama et al., 2019).

Kabede et al. (2019) discovered that the consequences of raising educational standards or raising their calibre might have the longest-lasting influence on society. The advantages of improved education and how it promotes growth and wellbeing are demonstrated in the literature. The first is that since women with higher levels of education tend to have lower fertility rates, they may contribute to its reduction. Reducing the intended family size reduces desired fertility as well as unwanted fertility through higher usage of contraceptives. Additionally, by postponing marriage, having children, and engaging in sexual activity, education lowers fertility. Regarding this, comparison research in 18, 24, 25, and 28. The correlation between declining fertility and higher levels of education for women is evident in several countries, including Benin, Eswatini, Ghana, Namibia, Rwanda, Uganda, South Africa, and Zambia, according to analyses of these trends. Fertility stalls have been demonstrated to follow periods of non-increasing schooling in several countries, including Zambia, the Gambia, Mali, Mozambique, Kenya, Tanzania, and the Democratic Republic of the Congo. On the other hand, countries where there is no indication of an education stall tend to have fewer fertility stalls. Conversely, it was discovered that although it does not entirely explain stalling, women with lower levels of education would anticipate reduced fertility. However, in countries where fertility and education are high, such as Algeria, Egypt, and Tunisia, no supporting data has been found. High rates of unemployment among the best-educated women in Egypt were correlated with rising fertility rates. However, inconsistent results are found in Ghana and Zimbabwe, where some studies attribute educational extensions to education while others do not (Kabede et al., 2019).

According to Garenne (2008) female labour raises the opportunity cost of becoming a parent. In Africa, women are typically the ones responsible for raising the children, and they should divide their time between employment and child-rearing. Therefore, there is a negative correlation between female labour and fertility. The technique involves having fewer children than desired in exchange for increased involvement in work. For example, Namibia's declining fertility in the early 2000s was partly due to an increase in the number of women entering the labour force. Despite an increase since the 2000s, female labour force participation in Africa remains the lowest in the world. In comparison to 48% and 63% of women in South and Southeast Asia, respectively, and 63% of women in Latin America, just about 16% of African women are employed today. Although not shown in the data, a significant portion of female employment in Africa is in informal

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employment or agriculture. Therefore, this lower figure should be interpreted with caution. This is why women who have experienced prolonged unemployment may decide to reevaluate the number of children they want. The high unemployment rate among women over 25 in Egypt has been a contributing factor to the rise in fertility. Moreover, around the time of halted fertility in Nigeria and Rwanda, fewer women were employed than previously. On the other hand, rises in female labour were noted in Ghana, Madagascar, Kenya, Tanzania, Uganda, and Zimbabwe during the years of stalls (Garenne, 2008)

Under-five mortality in Africa has decreased from 180 per 1,000 in 1990 to 78 per 1,000 in 2018, according to a study by Shapiro et al. (2017). The 1990s also witnessed a consistent decline in infant mortality. Although it is currently approximately 54 babies per thousand live births, it remains over four times higher than in the other two regions. The demographic transition theory posits that a significant contributing factor to the decline in fertility is the decline in mortality, particularly among children. The decrease in under-five mortality in sub-Saharan Africa accounts for thirty to thirty-five percent of the overall decline in fertility in 31 countries, including in urban and rural settings. Studies in Ghana and Benin demonstrate significant drops in fertility following drops in under-five mortality. Additionally, fertility stalls were observed in Ghana, Kenya, and Zimbabwe, concurrent with a levelling off of under-five mortality. Conversely, in Cameroon, Chad, Congo, and the Democratic Republic of the Congo, newborn and child death rates decreased while fertility stagnated (Shapiro et al. (2017).

Casterline and Agyei-Mensah (2017) disclosed that African governments concentrated their efforts on the HIV pandemic, and financial limitations forced them to give some projects, such as family planning (FP) programmes, lower priority than others. Increased demand for contraception overall, increased supply of contraceptives, and decreased unmet need are the goals of family planning initiatives. Therefore, it would be possible to reduce both desired and unwanted fertility in order to reduce fertility. Fertility stalls have traditionally been linked to a lack of structured FP programs in Africa since these programs are typically seen as inadequate and of low quality. In contrast to Kenya, where there were shortages of contraceptive supply while fertility was stalling, no connection was discovered between the FP programs and the stalls in the particular situation of Ghana. Notably, one instance where the stopped era was acknowledged as potentially fictitious was Ghana. There is little evidence connecting family planning program spending to fertility decreases in Africa, even though robust FP programs lower fertility, particularly in pre-transitional countries. For instance, the D.R. Congo is the only country where we have evidence of rising fertility and the absence of a national family planning (FP) program (Casterline & Agyei-Mensah, 2017).

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DISCUSSION

This is, to the best of our knowledge, the first scoping review to focus on fertility delays in developing countries. In terms of the factors that influence fertility in poor and middle-income countries. Several factors have been recognised as contributing to fertility stall. The relatively strong and consistent demand for children appears to be a crucial component in stalling, whether at the national or urban level. As previously noted, African societies have special pronatalist characteristics (Casterline et al., 2017). For example, in some countries, the preference for a son, fear of contraceptive side effects, and the perceived low cost of childrearing are important impediments to acceptance of the two-child family (El-Zeini, 2008).

Existing research suggests that fertility stalls are, to some part, stalls in desired fertility and that failure to reach the optimal number of children has led to stalls. Unless fertility preferences fall significantly, stalls are likely to remain, and new stalls will arise. Understanding fertility stalls should, therefore, prioritise analysing the causes behind halting fertility desires, whether they are cultural, economic, or societal.

Although a strong desire for children is most likely a major driver of delays, the significance of family planning programs and interventions should not be overlooked. Fertility stalls occurred in several countries (for example, Kenya) during a period when investments in family planning programs were slowing, and contraceptive shortages led to the stall. Even if unwanted fertility is lower than desired fertility, it is still a concern. Furthermore, if demand for children declines, ensuring the fertility transition will undoubtedly depend on improving family planning programmes. Although the use of contraception has increased over time, so has unmet demand. High fertility is caused by high planned family size, high unmet need hurdles to accessing contraception, and inadequate methods to halt reproduction. (Casterline & Agyei-Mensah, 2017)

African governments have the tools to change contraceptive demand patterns by implementing family planning (FP) programmes. Improved access to and expanded use of modern methods of contraception, boosting supply as soon as necessary, encouraging use even while breastfeeding, and bringing in new users of contraceptives would reduce unmet needs and avoid plateauing in demand for contraceptives. (Askew et al., 2017).

Child mortality, HIV/AIDS, wealth fluctuations, female employment, and female education have all been investigated to varied degrees in the hunt for causes of stalling. Overall, the evidence is mixed and differs by country. Even if increases in socioeconomic variables have been shown to

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reduce fertility decrease, reversing one of them does not always result in a fertility stall. While educational stalls have been linked to fertility stalls, this is only part of the story. Deteriorating economic situations do not always lead to increased fertility. Stalls and reversals in child mortality trends may not always cause or explain fertility stalls. Overall, stagnation is more likely to occur as a result of the interaction of various variables rather than the action of any single variable.

To answer our research topic, we conducted a comprehensive literature search to find relevant papers on "fertility stalls". Data were gathered from the University of Gothenburg Library using prominent databases, including CINAHL, GUPEA, JUNO, Mediearkivet, NE.se, PubMed, and Scopus. Relevant material was searched using the following keywords: fertility and stall. In research, Boolean phrases are used to separate keywords (AND, OR). We searched for eligible studies using the terms fertility decline and fertility transition. The World Bank index is continually revised, and national classifications are subject to change. For example, a country classified as having low and moderate income in 2000 is now classified as having high income in 2024. Due to this limitation, it is essential to investigate these countries, whose categories have been changing constantly.

CONCLUSION

Fertility stall in low- and middle-income countries was found to be influenced by age at the first union or marriage, women's education, contraceptive use, post-partum infecundity, female labour, fertility preference, family planning initiatives, and child mortality. The causes of fertility stalls cannot be generalised to every instance. There is no universal rule for explaining the stalls in different countries. Mixed evidence on the determinants of fertility and the causes that may influence it implies that the analysis should be done on an individual basis.

This research on fertility stalls in developing countries has important practical and societal consequences. On a practical level, restoring family planning programs is critical for addressing unmet contraceptive requirements, as stalls are frequently caused by limited investment and contraceptive shortages. Improving access to modern contraception, addressing worries about side effects, and encouraging use, even during breastfeeding, can all help to break the cycle of stagnation. Social and cultural factors such as pronatalist views, son preference, and affordable perceived childrearing costs all play an important role in maintaining high fertility rates. While socioeconomic growth, such as greater female education and employment, is vital, addressing

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fertility bottlenecks requires a comprehensive approach that incorporates cultural, economic, and public health initiatives to promote sustainable population management and gender empowerment.

The novelty of this study lies in its being the first exploratory assessment to exclusively investigate fertility delays in developing countries, providing a thorough examination of the factors contributing to fertility halts. Unlike prior research, which concentrated on discrete causes, this analysis emphasises the interplay of cultural, economic, and sociological factors, such as strong pronatalist views, son preference, contraceptive concerns, and low perceived childrearing costs, as significant drivers of fertility stagnation. Furthermore, it emphasises the role of family planning program investments and unmet contraceptive requirements in worsening stalling, providing a comprehensive view of how these forces interact. This study demonstrates the need for customised, complex interventions to address fertility delays. It provides a platform for future research to better understand and minimise this phenomenon in varied socioeconomic circumstances.

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