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Factors Associated with Adolescent Pregnancy in Sub-Saharan Africa during the COVID-19 Pandemic: A Review of Socioeconomic Influences and Essential Interventions

Kelly Kons[a], Adriana A. E. Biney[b], and Kristin Sznajder[c]

[a]Penn State College of Medicine, Hershey, PA, USA; [b]Regional Institute for Population Studies, University of Ghana, Legon, Ghana; [c]Department of Public Health Sciences, Penn State College of Medicine, Hershey, PA, USA

ABSTRACT

Objective: A literature review was conducted to analyze the impact of COVID-19 on documented preexisting determinants of adolescent pregnancy in sub-Saharan Africa such as poverty, inequitable gender norms, low access to education, and reproductive health services. *Methods:* The terms "sub-Saharan Africa," "Gender Norms," "Poverty," and "Adolescent Pregnancy" were used to search the literature for preexisting determinants of adolescent pregnancy in academic and grey literature. "COVID-19" was added to investigate the potential consequences of the pandemic. The literature revealed similar experiences in adolescent girls during the Ebola outbreak, which lead to the analysis of government and healthcare official responses to previous epidemics. *Results:* The literature review revealed that the relationship between identified micro (inequitable gender norms, transactional sex, sexual and gender-based violence, early marriage, and menstruation) and macro (poverty, education, and healthcare) factors contributing to adolescent pregnancy were exacerbated by the COVID-19 pandemic. *Conclusion:* Three realistic targets including, expanding and communicating available reproductive health resources, prioritizing the role of women in the economy, and ensuring return to school should be included as part of current COVID-19 mitigation programs. Additionally, these interventions should be incorporated in future public health preparedness plans to reduce the risk of adolescent pregnancy during public health emergencies.

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Introduction

Complications from pregnancy and childbirth at younger ages are the leading cause of death of adolescent girls (age 15–19 years) worldwide. Notably, sub-Saharan African (SSA) countries lead the world in adolescent pregnancy and birth rates (Baker, 2020; Kaneda & Dupuis, 2017; McCleary-Sills et al., 2013; Rosenberg et al., 2015). Many girls in SSA are at a higher risk of adolescent pregnancy due to persistent poverty, male dominant gender roles, early marriage, and low rates of educational attainment (Petroni et al., 2017; Rosenberg et al., 2015). Pregnant adolescents in SSA report higher rates of unsafe abortion, lower educational achievement, and lower levels of empowerment in adulthood that can lead to increased intimate partner and domestic violence (Hindin, 2014; McCleary-Sills et al., 2013). The importance of improving access to reproductive healthcare globally is acknowledged by the World Health Organization (WHO) in "Sustainable Development Goal 3: Health" (2022), which aims to ensure universal access to sexual and reproductive healthcare services, including family planning, information and education, and the integration of reproductive health into national strategies and programs by 2030.

Despite recent worldwide efforts to close gender gaps and advocate for women's empowerment in SSA through improved access to sexual and reproductive healthcare, advanced opportunities for women leadership roles in government agencies, and strengthened laws protecting women from occupational and social discrimination, COVID-19 has halted progress that has been made and has exacerbated historical inequities among adolescent girls (Riley et al., 2020; UN Women, 2016; Yakubu

& Salisu, 2018). The backwards slide is due to COVID-19 mitigation efforts that have ignored the sexual and reproductive health needs of adolescent girls by reducing access to education and closing essential healthcare services, which has worsened the social risk factors and consequences associated with adolescent pregnancy in SSA (Riley et al., 2020; Yakubu & Salisu, 2018). This literature review investigates the effect the COVID-19 pandemic had on known social determinants of adolescent pregnancy in SSA, analyzes the micro and macro factors which were exacerbated by COVID-19, and proposes interventions which can prevent further negative impacts on the health of adolescent girls.

Methods

The research team gathered literature published in English from 2009 to 2021 and used variations of search terms: "sub-Saharan Africa," "Gender Norms," "Poverty," and "Adolescent Pregnancy" to search the literature for preexisting determinants of adolescent pregnancy. We then added the search term "COVID-19" and included articles from 2020 to 2021 to investigate the potential consequences of the pandemic. Academic literature was identified using the PubMed and Google Scholar databases. The Google search engine, the Demographic and Health Surveys website, and websites of multilateral organizations (e.g., the United Nations Children's Fund and the World Health Organization) were searched to identify gray literature. Literature cited within relevant manuscripts and reports were also reviewed, which revealed analogous outcomes experienced by adolescent girls during the Ebola outbreak, igniting the analysis of government and healthcare officials responses to previous epidemics. We included literature from SSA that focused on social determinants of adolescent pregnancy among adolescent girls and young women. We excluded literature from high-income countries, literature written in a language other than English, studies that focused on women past reproductive age, and those that did not relate to social determinants of adolescent pregnancy. This review enabled us to successfully identify risk factors for adolescent pregnancy prevalent in SSA, explore the impact of COVID-19 on historical disparities, and advocate for policy change to protect adolescent girls' reproductive health during future crises.

COVID-19 exacerbations of social determinants of adolescent pregnancy in SSA

The combination of poverty, low educational attainment, and low access to health services reinforce individual, economic, and societal contributions to adolescent pregnancy in SSA (Decker et al., 2016; Yakubu & Salisu, 2018). The COVID-19 pandemic has exacerbated these socioeconomic determinants of adolescent pregnancy in SSA, increasing rates of adolescent pregnancy throughout the region (Cousins, 2020). COVID-19 has worsened poverty and restricted access to education, which has increased the risk of sexual and gender-based violence (SGBV) in SSA (Cousins, 2020). The economic consequences of the pandemic paired with low access to health services and educational disruption have put adolescent girls at an extremely high risk of falling into patterns of early marriage and pregnancy (Yakubu & Salisu, 2018). The increased vulnerability of adolescent girls was highlighted during the Ebola outbreak, yet there were no preventative measures in place to avoid repeated history (Onyango et al., 2019). The health, economic, and societal disparities that disproportionally affect girls and worsened during COVID-19 have contributed to higher rates of adolescent pregnancy and school dropout. These disparities are outlined in the discussion below.

Figure 1 serves as a visual aid to understand the intersecting relationship between the micro and macro factors contributing to high rates of adolescent pregnancy in SSA and the impact of COVID-19 on already established risk factors. A "+" indicates a positive correlation and a "–" indicates an inverse relationship. Poverty has a positive correlation with transactional sex (i.e., the practice of trading sex for money or goods) and early marriage (Cowan & Pettifor, 2009). Poverty restricts education, menstrual hygiene, and access to healthcare, all of which reduce the risk of adolescent pregnancy (Ahinkorah et al., 2019). Transactional sex and early marriage directly contribute to adolescent pregnancy, and

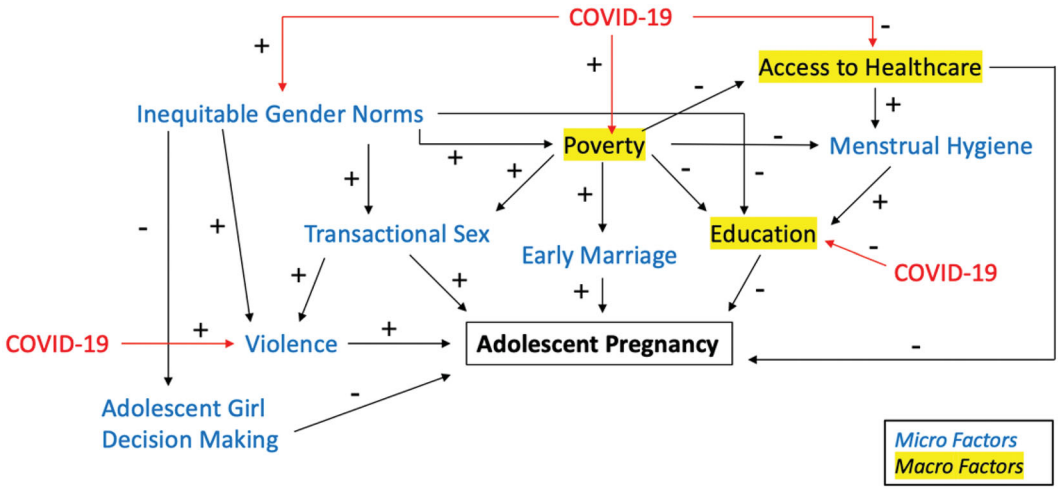

Figure 1. Conceptual framework.

transactional sex increases the risk of violence, which is also positively associated with adolescent pregnancy (Govender et al., 2020; Onyango et al., 2019). Inequitable gender norms that create a hierarchy in which men traditionally have more power than women contribute to poverty, inhibit decision making and education, while contributing to violence and exploitation (McCleary-Sills et al., 2013). Increasing adolescent girl's decision making and education reduces adolescent pregnancy (Ahinkorah et al., 2019; Subrahmanyam, 2016). COVID-19 has worsened poverty and reduced access to both healthcare and education, ultimately increasing adolescent pregnancy (Onyango et al., 2019; Watt, 2020).

Micro factors

Inequitable gender norms

The United Nations Population Fund (UNFPA) anticipates 7 million unintended pregnancies worldwide as a result of COVID-19, a majority of which will be among adolescent girls in SSA (Cousins, 2020). These data highlight deeply rooted gender inequities that have failed to protect adolescent girls during the COVID-19 pandemic. Despite evidence that educating girls can prevent early marriages and pregnancy, investing more in educational resources for boys encourages the idea of a secure well-being for women without education (Ara & Malik, 2012; Kalamar et al., 2016). In SSA countries with limited educational and financial resources, societies may see less value in educating girls compared with boys (Subrahmanyam, 2016). Adolescent girls in poor SSA families are expected to prioritize household activities to allow their caregivers to work outside the home (Subrahmanyam, 2016). While this maximizes opportunity for household income, it fosters gender inequities by placing a lower value on education for girls. For example, in 2010 in Tanzania, only 60.6% of girls in low-income families were enrolled in school, and only 2.6% of girls reached secondary education or higher (Subrahmanyam, 2016). While the COVID-19 pandemic impeded education for 90% of the world's students, adolescent girls in SSA have additional challenges similar to those experienced in the Ebola crisis which prevented them from returning to school (Watt, 2020). Once deemed safe by infectious disease specialists, many students in 2014 failed to reenroll in schools as a result of devastating financial, emotional, and physical consequences of the deadly Ebola virus (Watt, 2020). Additionally, many pregnant adolescent girls were unable to return to school once they re-opened due to discriminatory bans on pregnant women in countries such as Sierra Leone (Watt, 2020).

Gendered social norms and cultural sexual scripting have historically undermined the health and wellbeing of adolescents and young adults (Levy et al., 2020; Rutagumirwa & Bailey, 2018). The lack of decision-making capacity and power in the daily lives of women heightens traditional patterns of early marriage, pregnancy, and school dropout (Subrahmanyam, 2016). Adolescent girls

in these situations experience limited decision-making capabilities regarding their sexual and reproductive health (Ahinkorah et al., 2019). Furthermore, access to reproductive health services is restricted by cost, lack of formal education, and ingrained sociocultural perceptions of males as sexually dominant in heterosexual relationships (Ahinkorah et al., 2019). Evidence shows that women who make their own reproductive health decisions are less likely to experience an unintended pregnancy (Ahinkorah et al., 2019). Conversely, those who are expected to seek their partners' approval on reproductive health matters may have less control over their own fertility (Ahinkorah et al., 2019). Research has shown that a patriarchal hierarchy has allowed men to enact dominance over their women counterparts, whether or not consent is involved (Sikweyiya et al., 2020). Men aggressively pursue sexual relations with women so often that these actions have become normalized, leaving women to fear the consequences if they were to resist the sexual advances (McCleary-Sills et al., 2013). Additionally, men in SSA control the use of condoms in sexual relationships and attribute resistance to condomless sex to mistrust and infidelity (Duby et al., 2021). South African women report agreeing to condomless sex because they fear rejection and relationship conflict (Duby et al., 2021). Despite widespread availability of condoms in SSA, these gendered motivations result in suboptimal condom use among adolescents, which contributes to adolescent pregnancy. The normalization of inequitable gender norms and unwanted sexual advances has had a negative impact on women's empowerment. These cultural sexual scripts which include male dominance over women prevent women from advocating for control of their bodies and ultimately increase rates of adolescent pregnancy (McCleary-Sills et al., 2013, Rutagumirwa & Bailey, 2018).

Transactional sex

Poverty and gender inequity increases the likelihood of adolescent girls participating in transactional sex as a means to provide for themselves and/or their families (Cowan & Pettifor, 2009). Transactional sex contributes to adolescent pregnancy, specifically unplanned pregnancy, and exposes women to violence and a greater risk of contracting sexually transmitted infections including HIV (Cowan & Pettifor, 2009; McCleary-Sills et al., 2013). During the Ebola outbreak, many girls who lost parents or male partners were forced into transactional sex to pay for food and housing and adolescent pregnancy increased 65% (Onyango et al., 2019). The Ebola epidemic proved that without proper precautions, adolescent girls are at an increased risk of engaging in transactional sex during pandemic mitigation efforts which have been repeated during the COVID-19 pandemic.

Sexual and gender based violence

Research studies in Malawi have found girls who are victims of SGBV experience higher rates of forced sex and unintended pregnancy (Kaphagawani & Kalipeni, 2017). Despite knowledge of the dramatic increase of teenage pregnancies and sexual assaults in SSA during Ebola, there have been no known preventative measures established to ensure girls are not faced with these health disparities during COVID-19 or the next pandemic. Women reported increased violence brought on by reduced employment and disrupted social support due to economic stressors and COVID-19 lockdowns (Govender et al., 2020). The COVID-19 pandemic exacerbated the barriers to healthcare for survivors of SGBV (Johnson et al., 2020). Despite increases in reported violence, the pandemic has interrupted medical care, psychological support, and access to shelters (Johnson et al., 2020). After the first few months of lockdown, the patient population who sought care for SGBV in Eastern and Southern Africa was predominately girls below the age of 16 (Govender et al., 2020). Unfortunately, this same trend was also seen during the Ebola outbreak lockdowns (Onyango et al., 2019). The United Nations International Children's Emergency Fund (UNICEF) documented that 401 of the first 450 rape cases in Liberia during the Ebola outbreak occurred to girls between the ages of 0 and 17 (Onyango et al., 2019). Based on this information, the rise in SGBV and teenage pregnancy cannot be unexpected. These reports emphasize a failure of public health to protect adolescent girls during the COVID-19 pandemic

after the Ebola outbreak exposed them as a vulnerable population. Non-governmental organizations (NGOs) and humanitarian programs should be proactive in their actions to protect young girls. The Ebola outbreak proved that delayed availability of these resources resulted in sexual violence, rape, and increased adolescent pregnancy rates in West Africa (Onyango et al., 2019). In addition to the necessary physical safety measures in the setting of a rapidly spreading virus, government and public health officials cannot neglect addressing the immediate physical and secondary psychosocial impacts, especially for adolescent girls. In addition to the impacts of low education and adolescent pregnancy, the survivors of the Ebola outbreak struggle with anxiety, depression, insomnia, and post-traumatic stress, all of which have the potential to be mimicked as a result of the COVID-19 pandemic (Lötsch et al., 2017).

Early marriage

Inequitable gender norms and values give men familial authority, decision-making power, and control of resources (Levy et al., 2020; Subrahmanyam, 2016). Adolescent girls from poorer households in SSA are two and a half times more likely to be married at younger ages compared with girls from wealthier households (Subrahmanyam, 2016). Despite laws protecting girls from child marriage, parents in Rwanda have informally married their daughters to profit on the tradition of receiving payment from the groom's family (Cressey et al., 2020). As the economy deteriorates secondary to COVID-19, girls are at a higher risk of being forced into marriage for financial gain, predicting an additional 13 million child marriages between 2020 and 2030 (Murewanhema, 2020). Once married, girls face societal pressures to prove fertility, contributing to the strong association between marriage and childbearing (Cressey et al., 2020). Additionally, the role of a woman in society is centered on household and motherhood responsibilities (Subrahmanyam, 2016). In Dire Diwa, Ethiopia, 83% of girls aged over 15 who are unmarried are enrolled in school, compared to 20% of girls the same age who are married (Jones et al., 2021). Consequently, pregnant adolescents are more likely to drop out of school due to social stigma, increased financial stressors, and health related absences (Baker, 2020; Subrahmanyam, 2016). The lower educational achievement of adolescents who become pregnant has been institutionalized in Liberia and Sierra Leone, where there are laws that restrict pregnant adolescents from attending school (Onyango et al., 2019).

Menstruation

While poverty is a root cause of absenteeism and poor school performance in developing countries, there are sex-specific barriers that contribute to the unequal levels of educational achievement between girls and boys (Shahidul & Zehadul Karim, 2015). Studies have shown a significant decline in girls' educational attainment as schooling progresses due to gender inequities, economic disparities, menstruation, and pregnancy (Subrahmanyam, 2016). Post-menarchal girls in developing countries face additional health barriers to education, indirectly increasing pregnancy through decreasing school enrollment. In Uganda, nearly two-thirds of girls miss school at least once a month due to menstruation (Kuhlmann et al., 2017). Barriers to menstrual hygiene in resource-poor countries include inadequate water and sanitation resources at school and lack of access to sanitation products (Kuhlmann et al., 2017). Additionally, girls in Kenya have reported trading sex for money to purchase sanitary pads, highlighting the economic challenges associated with menstrual hygiene (Kuhlmann et al., 2017). Unfortunately, the disparity in health education prevents girls from learning how to appropriately care for themselves during menstruation. In a 2013 study, only 51% of girls in Northeastern Ethiopia had knowledge of the appropriate use and disposal of sanitation products for menstruation (Tegegne & Sisay, 2014). The lack of knowledge and resources, in addition to embarrassment surrounding menstruation drives adolescent girls in SSA toward absenteeism, drop out, early marriage, and pregnancy (Baker, 2020). COVID-19 created a shortage in the supply of menstrual products, which subsequently increased the price of these essential sanitation items, increasing barriers for

adolescent girls living in poverty (Odey et al., 2021). Additionally, the widespread lockdowns due to COVID-19 mitigation efforts restricted access to clean water and proper product disposal for many menstruating girls (Odey et al., 2021). In some parts of Nigeria these challenges forced girls to resort to unhygienic means of period control and seek out transactional sex to purchase the necessary menstrual hygiene products (Odey et al., 2021).

Macro factors

Poverty

The socioeconomic effects of the COVID-19 pandemic disproportionately impacted countries in SSA with inadequate resources to combat the pandemic's social, economic, and medical consequences. Forced government lockdowns triggered economic turmoil across the globe as seen in SSA countries (UNICEF, 2020). For example, the Ghanaian workforce experienced significant rates of unemployment and work suspension during the COVID-19 pandemic (UNICEF, 2020). The steep reduction in household income contributed to the increase in child labor as a survival tactic for families during the pandemic (UNICEF, 2020). The economic effects of COVID-19 make girls in SSA especially vulnerable, when the allocation of scarce resources and decision-making capacity is determined solely by men (Levy et al., 2020).

Education

When SSA was declared Ebola-free, there were worldwide attempts to restore access to basic healthcare, return adolescents to school, and provide social protection to those impacted by the virus (Onyango et al., 2019). However, failed implementation of these plans in SSA made adolescent girls even more vulnerable during a second public health crisis. Lower levels of income and education are risk factors of adolescent pregnancy in SSA that are significantly exacerbated in the setting of a global pandemic. Lessons from the Ebola crisis of 2014 indicate that widespread school closures would disproportionately affect girls of reproductive age and lead to increased rates of transactional sex, SGBV, forced marriage, and ultimately adolescent pregnancy (Cousins, 2020). Despite this prior knowledge, countries in SSA experienced increased adolescent pregnancy (UNICEF, 2021). For example, Ghana had a nine-fold increase in adolescent pregnancy in the first three months of the COVID-19 pandemic that can be attributed to school closure (UNESCO, 2020). School enrollment in SSA is associated with decreased rates of adolescent pregnancy, largely due to the structured and supervised environment of the education system, which reduces opportunities for sexual activity and offers education on sexual health (Yakubu & Salisu, 2018). Adolescent girls who conceived during their enrollment in school were more likely to become pregnant during holidays compared with during times in which school was in session (Rosenberg et al., 2015). These data highlight the importance of adolescent school enrollment in preventing pregnancy and explain the negative impact of school closures during the COVID-19 pandemic.

Remote learning was impossible for many SSA residents, specifically those in rural areas, due to internet connectivity challenges, lack of access to basic learning materials, and low caregiver engagement (UNICEF, 2020). Ghana's re-opening of schools at the beginning of January 2021 resulted in just 65.2% of students reenrolling, most commonly due to lack of motivation, fear of contracting COVID-19, or financial burdens secondary to the pandemic (UNICEF, 2020). However, girls were disproportionally impacted more than boys. In Ethiopia, for example, 20.8% of adolescent girls did not participate in any form of learning during school closures, a significantly higher proportion compared to 9.1% of adolescent boys (Jones et al., 2021). Without policies in place to encourage a return to school, adolescent girls are at risk of permanent school dropout and subsequently higher rates of adolescent pregnancy.

Healthcare

After the gap in sexual and reproductive health resources were highlighted during the Ebola outbreak, West African public health officials advocated for health centers to be universally labeled as essential services (Onyango et al., 2019). In March of 2020, the WHO issued guidance for maintaining essential health services during the disease outbreak, including services related to reproductive health (Cousins, 2020; Shikuku

et al., 2020). However, at the onset of the COVID-19 pandemic, adolescent girls in many countries lost access to both sexual and reproductive health centers and SGBV treatment facilities, as they were not deemed "essential" services (Cousins, 2020). In August of 2020, researchers predicted seven million unintended pregnancies would result from the COVID-19 pandemic (Cousins, 2020). In addition to low access to healthcare, the COVID-19 pandemic disrupted the manufacturing and distribution of contraceptive methods, preventing 47 million people in 114 low-income countries from using contraceptives (Fawole & Dagunduro, 2014). Mobile clinic staff workers in the Democratic Republic of Congo (DRC) observed an increase in the number of pregnant girls seeking prenatal consultation services between March and October of 2020. Specifically, there was a 74% increase in the number of teenagers in the eastern region of the DRC seeking family planning services during this time (ReliefWeb, 2020). Local health officials believe this to be secondary to restricted access to contraception and sexual education in conjunction with the closure of schools that provided an environmental protection for girls (ReliefWeb, 2020). Without interventions, the COVID-19 pandemic will continue to worsen the unstable sexual and reproductive health infrastructure for adolescent girls in SSA that contributes to unintended pregnancy. Future research to understand the unintended sexual, mental, and physical health effects of COVID-19 is essential to implement appropriate solutions which address these consequences and prevent recurrence.

The devastating economic and social consequences of the COVID-19 pandemic could have been predicted based on trends from the Ebola crisis of 2014 (Cousins, 2020). Historical gender norms in SSA that support male-dominated society and limit the decision-making of women prevent adolescent girls from attaining equitable education and opportunities (Sikweyiya et al., 2020). COVID-19 magnified economic disparities in SSA and forced girls into isolation where they risked child labor, early marriage, and sexual violence. Reproductive health and family planning services were considered non-essential and closed upon the emergence of COVID-19 (Cousins, 2020). The unstable foundation of adolescent sexual health services in conjugation with the uncertainty of the pandemic increased the risk of adolescent pregnancy (ReliefWeb, 2020). The impact of COVID-19 on adolescent girls adds substantial evidence to growing research advocating that sexual health is a human right essential to general wellbeing (Sladden et al., 2021).

Recommendations for policy change

The discrepancy between concrete evidence of poor health infrastructure during the Ebola outbreak and the challenges SSA adolescent girls are facing in the setting of the COVID-19 pandemic highlights a gap in advocacy and public health interventions to improve upon these inequities. Epidemiologists, scientists, healthcare workers, and government officials are working diligently to eradicate COVID-19 by improving diagnostic tools and prioritizing vaccine distribution (The African Academy of Science, 2020). However, the detailed research and development priorities fail to address populations at an increased risk of long-term consequences, such as adolescent girls. In an attempt to highlight these inequities and prevent future generations of adolescent girls from this neglect, the authors have identified three actionable interventions that aim to reduce the risk of adolescent pregnancy in future public health crises.

Identify sexual and reproductive health resources and communicate their scope of service and availability to adolescent girls and their families

Poverty, low rates of education, and gender inequities experienced by adolescent girls in SSA have contributed to high rates of unintended teenage pregnancy during the COVID-19 pandemic. The closing of sexual and reproductive health facilities further restricted access to reproductive health care when they should be deemed essential services (Riley et al., 2020). The WHO Regional Office for Africa has emphasized prioritizing gaps in research to address early adolescent marriage and improve contraception and family planning (Ali et al., 2018). However, over the past two decades, only 38% of adolescent girls in SSA had

access to family planning with modern methods (Melesse et al., 2020). Medical professionals should explore the implementation of telehealth services to ensure adequate care for adolescent girls. Smart phone utilization in SSA is rapidly growing, with telephone densities as high as 94.5% in certain regions (Otu et al., 2021). In contrast to challenges with remote learning, which may rely more heavily on synchronous learning and real-time internet connectivity for both students and educators, mobile health services have been successfully used to provide sexual and reproductive health services in Nigeria such as antiretroviral adherence, prevention of sexually transmitted infections, and perinatal and postnatal care (Otu et al., 2021). Furthermore, an exploratory study in Kenya emphasized the potential for mobile phone technology to improve access to sexual and reproductive health for adolescents, which may be especially useful during crises such as COVID-19 (Macharia et al., 2021). It is essential that government health officials readjust their priorities so that adolescent sexual and reproductive health receives more attention during public health crises, such as the COVID-19 and Ebola epidemics (Ali et al., 2018). To prevent a detrimental setback like this in the future, health officials need to advocate for the implementation of adolescent health interventions and sexual health education into the school curriculum, which can reduce challenges with health literacy, especially regarding menstruation and contraception (Ali et al., 2018).

Provide economic resources to adolescent girls at risk of engaging in transactional sex, early marriage, and school drop out

The economic impacts of COVID-19 disproportionately impact women due to the fact that 92% of women in Africa work in the informal sector as petty traders, street vendors, small-scale farmers, etc, and mostly without social safety nets such as job security or benefits (Parsitau, 2021). Households living in extreme poverty will likely experience deeper and longer-lasting financial consequences of the pandemic, which impact women's empowerment by driving adolescent girls toward early marriage and transactional sex for financial reasons (Byanyima & Kende-Robb, 2021; Cousins, 2020). Local government officials should prioritize creating economic and educational opportunities to prevent adolescent girls from being trapped in exploitive situations to meet their basic health needs. Economic interventions related to cash transfers, payment of school fees and supplies have been effective in preventing child marriage and reducing unintended pregnancies among the youth (Hindin et al., 2016; Kalamar et al., 2016). To combat engagement in transactional sex, there needs to be improved communication between educational and health leaders and the adolescents at risk of becoming involved in transactional sex to empower and educate adolescent girls (Fawole & Dagunduro, 2014). To protect vulnerable girls and families, social policies that combat the economic disparities must be gender inclusive. Investing in the protection of girls during pandemics will promote equity and women's empowerment and ultimately reduce the risk of adolescent pregnancy.

Increase access to e-learning and plan for the return of adolescents to school

In the majority of countries across SSA, less than a quarter of the population has internet access (Dreesen et al., 2020). Additionally, some adolescents experience learning difficulties due to inadequate learning resources and a lack of engagement from teachers and caregivers (UNICEF, 2020). This multifactorial educational disparity contributes to school dropout and unplanned pregnancy. In addition to investing in remote connectivity, UNICEF has launched an effort to expand e-learning beyond the internet, using television and radio as means to reach children without internet access (Dreesen et al., 2020). Additionally, schools should invest in helping teachers learn effective remote communication so that students stay engaged and motivated. As schools across SSA continue to reopen, progress tracking of educational needs for women and girls should be implemented with a focus on those on especially vulnerable populations, which includes all adolescent girls living in poverty, with a special focus on those with additional barriers to education such as early marriage and pregnancy. After the rise in teenage pregnancy during Ebola, the Sierra Leone government established an education program which gave

over 14,500 adolescent girls who had become pregnant during the epidemic free access to classes and resources ultimately preventing dropout among pregnant adolescent girls who are not allowed in the public school system (Mason, 2016). Most teenage mothers want to return to school but are limited by poverty and societal norms (Oketch et al., 2021). In Uganda, adolescent mothers are making appeals to local government requesting aid to support their basic needs (Oketch et al., 2021). However, many girls are unable to receive protection as a vulnerable population because their parents neglect to report child marriages and pregnancies (Oketch et al., 2021). Both in Uganda and throughout SSA, social welfare officials must advocate for victims of child marriage and teenage pregnancy and help alleviate the barriers that prevent girls from returning to school. Finally, education policy makers need to ensure education is not compromised in the event of another public health crisis.

Implications and conclusion

The Ebola outbreak identified adolescent girls living in poverty as an extremely vulnerable population when the school closures, economic disparities, and SGBV propagated higher rates of pregnancy. These negative outcomes are being repeated during the COVID-19 pandemic. Resources should be urgently reallocated to sexual and reproductive educational and health facilities in SSA to prevent further inequities, address the reproductive health needs of adolescent girls, and provide adolescent girls the opportunity for long-term health, empowerment, and achievement.

Abbreviations

SSA	Sub-Saharan Africa
WHO	World Health Organization
COVID-19	Novel coronavirus 2019
DRC	Democratic Republic of Congo
SGBV	Sexual and gender-based violence
UNFPA	United Nations Population Fund
NGOs	Non-governmental organizations
UNICEF	United Nations International Children's Emergency Fund

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ORCID

Adriana A. E. Biney http://orcid.org/0000-0002-7188-0135
Kristin Sznajder http://orcid.org/0000-0002-9680-4497

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