EdinBurg Peer-Reviewed Journals and Books Publishers
Journal of Medicine, Nursing and Public Health
Vol. 5||Issue 4||pp 1-16||December||2025
Email: info@edinburgjournals.org||ISSN: 3105-3394

Factors Influencing the Uptake of Sexual and Reproductive Health Services Among Adolescent Girls in Humanitarian Crises: A Case Study of Bor County, South Sudan

Areet A. A. Khang[1*], Lily J. A. Masinde[2], Teresia M. Kyulu[3]
Department of Public Health, Human Nutrition & Dietetics, School of Medicine and Health Sciences, Kenya Methodist University, Kenya
Corresponding email: iamareet@gmail.com

Accepted: 28 October 2025 || Published: 16 December 2025

Abstract

Humanitarian crises in South Sudan, characterized by conflict, displacement, and disrupted health systems, severely limit adolescent girls' access to SRH services. The study employed a mixed-methods design. This study aimed to examine factors influencing the uptake of SRH services among adolescent girls aged 15-19 in Bor County, South Sudan. The target population included adolescent girls aged 15-19, with a sample size of 225 participants selected through purposive sampling. Data was collected via semi-structured questionnaires for quantitative insights and Key Informant Interviews (KIIs) for qualitative perspectives. Quantitative data were analyzed using descriptive statistics (means, standard deviations, and regression analysis) with SPSS Version 25.0, and results were presented in tables, pie charts, and graphs. Qualitative data were analyzed thematically using NVivo software to identify key patterns and themes. The study found that accessibility was the most significant barrier (Beta = 0.311, p = 0.021), with long distances to clinics, poor transportation, and lack of youth-friendly services limiting uptake. Awareness and knowledge (Beta = 0.219, p = 0.032) were constrained by inadequate school-based SRH education. Psychosocial factors (Beta = 0.201, p = 0.001), including stigma and trauma, significantly deterred service utilization. Socio-cultural and economic factors (Beta = 0.156, p = 0.002), such as cultural taboos and poverty, had a notable but lesser impact. This study enriches the literature by providing context-specific insights into SRH service uptake in humanitarian settings, emphasizing the unique challenges faced by adolescent girls in Bor County. It recommends youth-friendly mobile clinics, comprehensive sexuality education, and community-based stigma reduction programs to align with South Sudan's adolescent health policies and global humanitarian SRH standards.

Keywords: *Sexual and Reproductive Health Uptake, Adolescents, Humanitarian Crisis, Sexually Transmitted Infections, Utilization*

How to Cite: Khang, A. A. A., Masinde, L. J. A., & Kyulu, T. M. (2025). Factors Influencing the Uptake of Sexual and Reproductive Health Services Among Adolescent Girls in Humanitarian Crises: A Case Study of Bor County, South Sudan. *Journal of Medicine, Nursing and Public Health, 5*(4), 1-16.

1. Introduction

Sexual and Reproductive Health (SRH) services are essential for ensuring the holistic well-being of adolescent girls, encompassing physical, mental, and social dimensions of health related to the reproductive system (Hadi, 2017). Globally, humanitarian crises marked by armed conflicts, natural disasters, and displacement severely disrupt health systems, exacerbating vulnerabilities and creating significant barriers to SRH service access for adolescent girls (Kepon, 2022). These crises heighten risks of sexual violence, unintended pregnancies, maternal mortality, and sexually transmitted infections (STIs), with adolescent girls facing disproportionate challenges due to their developmental stage and social marginalization (Mason, 2021). The World Health Organization (WHO) estimates that 16 million girls aged 15–19 and two million girls under 15 give birth annually, with Sub-Saharan Africa accounting for nearly one in three adolescent mothers by age 18 (Gayle et al., 2017). Adolescents aged 15–19 are twice as likely to die from pregnancy-related complications compared to older women, and girls aged 10–14 face a fivefold risk, underscoring the urgent need for targeted SRH interventions (Espinoza et al., 2020).

In Sub-Saharan Africa, systemic challenges such as weak healthcare infrastructure, cultural taboos, and economic constraints further limit SRH service uptake (Munyuzangabo et al., 2020). Conflict-affected settings experience a 10% increase in maternal mortality rates compared to non-conflict areas, reflecting the compounded impact of disrupted systems and heightened vulnerabilities (Munyuzangabo et al., 2020). Adolescent girls in these contexts often lack access to comprehensive SRH education, safe spaces, and youth-friendly services, increasing their exposure to gender-based violence, early marriage, and unsafe abortions (Roth et al., 2022). In South Sudan, one of the world's most severe humanitarian crises, constant conflicts, seasonal displacement, and food insecurity exacerbate these challenges, with 1.8 million adolescent girls facing barriers to SRH services, including limited contraceptive availability and cultural acceptability issues (UNFPA, 2020; Natalina, 2023). The maternal mortality ratio in South Sudan stands at 789 per 1,000 live births, with only 4% contraceptive prevalence among women of reproductive age in crisis-affected areas, highlighting the critical gap in SRH service provision (Jolem & Imunu, 2023).

In Bor County, South Sudan, the focus of this study, adolescent girls aged 15–19 navigate a complex interplay of socio-cultural norms, economic hardship, and psychosocial stressors that hinder SRH service uptake (Chowdhury & McKague, 2018). Cultural taboos surrounding sexuality, combined with patriarchal gender roles, often restrict open discussions and limit girls' autonomy in seeking care (Bukuluki et al., 2023). Economic barriers, such as poverty and transportation costs, compound physical inaccessibility, with many healthcare facilities located far from rural communities (Jennings et al., 2019). Moreover, low levels of SRH knowledge, driven by inadequate school-based education and reliance on peers for information, contribute to misinformation and poor decision-making (Woog & Kagsten, 2017). Psychosocial factors, including stigma, fear of judgment, and trauma from conflict or displacement, further deter service utilization, creating a cycle of unmet needs (Fahme et al., 2022).

Despite global recognition of adolescent girls' vulnerabilities in humanitarian settings, there remains a significant knowledge gap regarding the specific SRH challenges they face in South

Sudan, particularly in Bor County (Chowdhury & McKague, 2018). Existing studies often focus on other regions or broader populations, overlooking the unique socio-cultural and crisis-driven dynamics of this context (Barot, 2017; Soeiro et al., 2023). The lack of comprehensive, context-specific evidence hampers the development of targeted interventions to address adolescent girls' SRH needs, leaving them at heightened risk of adverse health outcomes (Tazinya et al., 2023). Furthermore, the voices and resilience strategies of adolescent girls in Bor County are underrepresented in the literature, necessitating participatory research to amplify their perspectives (Arnott et al., 2022).

This study investigated the factors influencing the uptake of SRH services among adolescent girls in Bor County, South Sudan, with a focus on socio-cultural and economic factors, accessibility, awareness and knowledge, and psychosocial influences. By exploring these barriers and facilitators, the research aims to provide actionable insights for designing culturally sensitive, youth-friendly interventions that enhance SRH service utilization. The findings will contribute to the broader discourse on humanitarian health responses, promoting the well-being, empowerment, and resilience of adolescent girls in one of the world's most challenging crisis settings.

1.1 Problem Statement

Sexual and reproductive health services represent a fundamental aspect of adolescent health care, yet adolescent girls in humanitarian crises face pronounced challenges in accessing and utilizing these vital services (Barot, 2017). Humanitarian crises, characterized by armed conflict, natural disasters, and displacement, exacerbate vulnerabilities and disrupt health systems, compounding the barriers to SRH services for adolescent girls (Jennings et al., 2019). Moreover, approximately 200 million women and girls worldwide undergo female circumcision, and there are about 33,000 child marriages each day.

In these contexts, adolescent girls encounter heightened risks of sexual violence, unintended pregnancies, maternal mortality, and STIs, underscoring the urgent need for targeted interventions to safeguard their SRH rights (Fahme et al., 2022). Despite widespread recognition of the vulnerabilities faced by adolescent girls in humanitarian crises, a significant gap persists in understanding the specific SRH challenges they encounter in South Sudan (Chowdhury & McKague, 2018). Limited access to SRH information, services, and safe spaces, such as Women and Girls Friendly Spaces (WGFS) and One-stop centers, compounded by socio-cultural barriers, underscores the urgent need for an in-depth investigation into the needs and challenges of adolescent girls in this context. There is a dearth of substantial evidence on the SRH needs and challenges of adolescent girls in South Sudan that reflects their own perspectives, highlighting a critical gap in knowledge and understanding.

2. Literature Review

2.1 Theoretical Review

This study is anchored on Andersen's Behavioral Model of Health Services Utilization. Ronald Andersen developed the model in the 1960s and later expanded. Andersen's Behavioral Model of Health Services Utilization is a widely adopted framework for analyzing the determinants of healthcare service use (Andersen & Newman, 2005). This model was selected for its ability to systematically examine the conditions that facilitate or impede access to SRH services,

which are critical for adolescent girls in humanitarian settings. The model categorizes factors influencing healthcare utilization into three primary dynamics: predisposing characteristics, enabling factors, and need-based factors. Predisposing characteristics include demographic and social factors, such as age, gender, education, and cultural norms, that shape an individual's propensity to seek care. Enabling factors encompass resources and structural conditions, including income, access to healthcare facilities, and transportation availability, which either facilitate or hinder service utilization. Need-based factors reflect perceived or clinically evaluated health needs, such as the urgency of addressing SRH issues like contraception or STI prevention (Wolinsky, 1988).

In the context of this study, Andersen's model provides a structured approach to explore how adolescent girls in Bor County access SRH services amidst humanitarian crises. Predisposing characteristics, such as cultural taboos surrounding sexuality and patriarchal gender norms, may discourage girls from seeking SRH care (Chowdhury & McKague, 2018). Enabling factors, including the distance to healthcare facilities, availability of youth-friendly services, and economic constraints, are critical in a crisis-affected region like Bor County, where infrastructure is limited (Jennings et al., 2019). Need-based factors, such as awareness of SRH risks (e.g., unintended pregnancies or STIs) and psychosocial barriers like trauma or stigma, shape girls' perceived need for services (Fahme et al., 2022). The model's focus on equitable access aligns with the study's aim to identify strategies to enhance SRH service uptake, addressing systemic and contextual barriers in a humanitarian setting.

2.2 Empirical Review

This empirical review synthesizes findings from peer-reviewed studies and reports, focusing on barriers and facilitators to SRH service utilization in crisis-affected settings, with particular relevance to adolescent girls aged 15–19 in Bor County, South Sudan. The analysis draws on global and regional literature, highlighting gaps in understanding the unique challenges faced by adolescent girls in humanitarian contexts like South Sudan.

2.2.1 Socio-Cultural and Economic Factors

Socio-cultural norms and economic constraints significantly influence SRH service uptake among adolescent girls. Adefalu and Ayodele (2019) of 388 undergraduates in Ogun State, Nigeria, found that socio-cultural factors, such as religious practices (61.4% influence) and peer/parental influence (64.2% and 65.2%, respectively), shaped service utilization. Economic barriers, including perceived high service costs (53.1%), further restricted access. Although conducted in a stable setting, these findings suggest that cultural taboos and economic limitations, prevalent in humanitarian crises, may similarly deter adolescent girls in Bor County from seeking SRH care.

In Ghana, Abdulai et al. (2020) explored contraceptive use among 448 women aged 15–49 in Tamale Metropolis, revealing that higher education (4.4 times greater likelihood of use) and joint decision-making (2.1 times greater likelihood) facilitated uptake, while unemployment and cultural opposition hindered it. This underscores the role of education and gender norms, which are often disrupted in humanitarian settings like South Sudan, where patriarchal structures limit girls' autonomy (Chowdhury & McKague, 2018). Roth et al. (2022) further noted that stigma and discrimination in Nigeria and Uganda deter adolescents from accessing

SRH services due to fear of judgment, a dynamic likely exacerbated in Bor County by cultural taboos surrounding adolescent sexuality (Bukuluki et al., 2023).

In Kenya, Mochache et al. (2020) conducted a qualitative study with five focus group discussions (FGDs) and 15 in-depth interviews (IDIs) in Kwale County, finding that religious beliefs, socio-cultural norms, and gender stereotypes significantly reduced maternal health service utilization. Similarly, Owoko (2023) surveyed 385 adolescent girls in Homa Bay County, identifying stigma, misconceptions, and economic barriers like service costs as key impediments to contraceptive use. These studies highlight the pervasive influence of socio-cultural norms and economic constraints, which are intensified in humanitarian crises due to disrupted social structures and poverty (UNFPA, 2020). However, the literature lacks specific insights into how these factors interact with the unique conditions of conflict and displacement in South Sudan, indicating a need for context-specific research.

2.2.2 Accessibility Factors

Accessibility is a critical determinant of SRH service uptake, particularly in crisis-affected regions with limited infrastructure. Khan et al. (2024) analyzed survey data from 20,127 women in Bangladesh, finding that better-managed healthcare facilities with higher readiness scores increased antenatal care utilization (44% attended four or more visits). This suggests that facility availability and quality are pivotal, yet in Bor County, conflict and displacement likely exacerbate logistical barriers, such as long distances to clinics and poor transportation (Jennings et al., 2019).

In Rwanda, Ndayishimiye et al. (2020) surveyed 159 SRH providers across six urban health facilities, reporting that while 94.3% of facilities provided SRH information, only 51.6% offered affordable services, and accessibility was limited for products like female condoms. Religious and familial influences further restricted adolescents' access, a pattern relevant to Bor County, where cultural norms may compound logistical challenges. Mutea et al. (2020) conducted a qualitative study with 113 participants in Kisumu and Kakamega counties, Kenya, identifying long distances, high costs, and negative provider attitudes as major barriers to adolescent SRH access. These findings align with the challenges in South Sudan, where rural areas like Bor County face inadequate healthcare infrastructure and transportation difficulties (Soeiro et al., 2023).

Ooms et al. (2020) assessed 985 health facilities across Kenya, Tanzania, Uganda, and Zambia, finding that SRH commodity availability was below 50% in all sectors, with frequent stock-outs (e.g., 12 days per month in Zambia's public sector) and affordability issues. In South Sudan, similar supply chain disruptions likely hinder consistent SRH service delivery, particularly for contraceptives (Bukuluki et al., 2023). While these studies highlight logistical and systemic barriers, they lack in-depth exploration of how conflict-specific challenges, such as insecurity or displacement, uniquely affect adolescent girls' access in humanitarian settings like Bor County.

2.2.3 Awareness and Knowledge

The level of awareness and knowledge significantly influences SRH service uptake, particularly in contexts with disrupted educational systems. Kyilleh et al. (2018) conducted a qualitative study in West Gonja District, Ghana, with 80 adolescents, finding that limited SRH

knowledge, primarily sourced from peers, led to misinformation and poor health choices. This is relevant to Bor County, where school disruptions and cultural taboos limit formal SRH education (Lobolia et al., 2024). Ndayishimiye et al. (2020) surveyed 121 adolescents in Rwanda, noting that while 86.4% were aware of HIV testing, only 34.7% utilized SRH services, with low awareness among those with primary education (62.5% unaware). This suggests that educational attainment, often compromised in humanitarian crises, is a key determinant of SRH uptake.

Fekene et al. (2020) surveyed 669 women in Ethiopia, finding that only 26.8% had good knowledge of preconception care, and 14.5% accessed services, highlighting the need for targeted education. In Kenya, Owoko (2023) reported high contraceptive awareness (97.6%) among 385 adolescent girls in Homa Bay County, driven by teachers, peers, and media, yet policy awareness remained low, indicating gaps in comprehensive education. Lobolia et al. (2024) found that only 15.58% of 337 adolescents in Turkana South Sub-County, Kenya, recognized available SRH services, with referrals from trusted sources enhancing uptake. In Bor County, reliance on peers and media, coupled with limited school-based education, likely results in similar knowledge gaps, necessitating culturally sensitive educational interventions (Meyer et al., 2022).

2.2.4 Psychosocial Factors

Psychosocial factors, including stigma, trauma, and mental health challenges, significantly deter SRH service uptake. Van Heerden et al. (2017) surveyed 500 young women in South Africa, finding that psychosocial stressors like financial insecurity and intimate partner violence reduced SRH service utilization due to competing survival priorities. In humanitarian settings like Bor County, where displacement and conflict are prevalent, such stressors are likely intensified (Desrosiers et al., 2020). Musindo et al. (2023) reviewed 27 interventions in sub-Saharan Africa, noting that psychosocial challenges, such as sexual abuse and negative cultural norms, were major barriers to SRH and HIV care, emphasizing the need for integrated mental health support.

Habumuremyi and Zenawi (2022) conducted qualitative interviews in Ethiopia, identifying low self-esteem, embarrassment, and societal expectations as barriers to SRH service uptake among youth. In Tanzania, Wamoyi et al. (2024) used a mixed-methods approach, finding that stigma, fear of judgment, and cultural beliefs deterred adolescents from seeking SRH services, with girls particularly affected by fear of social sanctions. These findings are highly relevant to Bor County, where conflict-related trauma, stigma, and fear of judgment likely exacerbate reluctance to access SRH services (Fahme et al., 2022).

3. Methodology

A mixed-methods cross-sectional design was used to integrate both quantitative and qualitative data collection methods. The study was conducted in two sites within Bor County, South Sudan. The target population comprised adolescent girls aged 15–19 residing in Bor County, who had potential access to SRH services, and key informants, including healthcare providers, NGO representatives, community leaders, and policymakers involved in SRH service delivery. The Slovin's formula, was used as outlined by Sarmah and Hazarika (2012), at a 95% confidence level and a margin of error of 0.05 to calculate the sample size as shown below.

$n = Z^2 p\ q/d^2$

Where;

- n = the desired sample size (The target population is > 10,000).
- Z = is the standard normal deviate at the required confidence level.

p = is the proportion or estimated prevalence. The prevalence is 21%

- q = 1-0.21=0.79
- d = 0.05 precision/ the level of statistical significance
- Z = Assuming 95% confidence interval Z = 1.96

n= (1.96*1.96) *(0.21*0.79)/0.05*0.05)

= 255 respondents.

Thus, the study targeted a sample size of 255 adolescent girls.

Purposive sampling technique was used for selecting a sample from the population that targeted adolescent girls aged 15-19 years living in humanitarian settings.

Data semi-structured questionnaire for quantitative data and Key Informant Interviews (KIIs) for qualitative data. The questionnaires were administered to adolescent girls attending community centers, schools, or health facilities in Bor County, who completed them independently or with assistance if needed, ensuring accessibility for those with limited literacy. The response rate was achieved at 84.5%, with 347 out of 410 participants completing the data collection process, including 337 adolescent girls and all 10 key informants**.**

Quantitative data were coded and entered into the Statistical Package for the Social Sciences (SPSS Version 25.0) for analysis. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize participant characteristics and responses, presented in tables. Inferential statistics, specifically multivariate regression analysis, were employed to examine the relationships between the dependent variable and independent variables. The regression model used was:

$Y = \beta 0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$

Where:

Y = SRH service uptake (dependent variable), X_1= Socio-cultural and economic factors, X_2= Accessibility factors, X_3 =Awareness and knowledge, X_4= Psychosocial factors,

$\beta 0$ = Constant,

$\beta 1, \beta 2, \beta 3, \beta 4$ = Slope coefficients,

ε = Error term, normally distributed with a mean of zero.

Qualitative data from open-ended questionnaire responses and KIIs were analyzed using thematic analysis with NVivo software. Responses were transcribed, coded, and categorized into themes. This approach identified patterns and provided contextual depth to the quantitative findings, ensuring a comprehensive understanding of the factors influencing SRH service uptake among adolescent girls in Bor County.

4. Results and Discussion

4.1 Demographic Characteristics of the Study Population

The study investigated the uptake of SRH services among adolescent girls in Bor County, focusing on socio-cultural and economic factors, accessibility factors, level of awareness and knowledge, psychosocial factors, and overall SRH service utilization. A robust response rate of 77.6% (198 out of 255 targeted participants) was achieved, deemed excellent per Mugenda and Mugenda (2003), facilitated by a community-based data collection approach. Demographic findings showed that most respondents were aged 19 (31.8%), with 37.4% having primary education, 83.8% living with both parents, 65.2% of the respondents' parents were not employed, and had no predetermined means of income, and 52.5% were not enrolled in school, highlighting diverse socio-economic vulnerabilities. Additionally, 84.4% reported access to healthcare facilities in over 15km walk, despite the recommendation from the Ministry of Health of within 10km to 15km walk.

Table 1: Demographic Characteristics of the Study Population

Characteristics	% (n)
Age	
19 years	31.8% (63)
16 years	22.2% (44)
17 years	18.2% (36)
Other ages (15, 18, etc.)	27.8% (55)
Education Level	
Primary education	37.4% (74)
Secondary education	26.3% (52)
Higher education	25.3% (50)
No formal education	11.1% (22)
Living Arrangement	
Living with both parents	83.8% (166)
Orphaned	8.6% (17)
Other arrangements (e.g., single parent, relatives)	7.6% (15)
Household Income	
Parents without a monthly salary	65.2% (129)
Parents with a monthly salary from the government payroll	34.8% (69)
School Enrollment	
Not enrolled in school	52.5% (104)
Enrolled in school	47.5% (94)
Access to Healthcare Facilities	
Reported access	84.4% (167)
No reported access	15.6% (31)

4.1 Socio-Cultural and Economic Factors

The study found that cultural taboos significantly hinder SRH service uptake, with respondents strongly agreeing (mean = 4.227, 83.9% A + SA) that taboos make it difficult to discuss sexual health, aligning with Bukuluki et al. (2023). Gender roles also posed barriers, with strong agreement (mean = 4.152, 83.3% A + SA) that community norms restrict girls' access compared to boys, supported by Achen et al. (2021). Language barriers at clinics were notable (mean = 3.940, 77.2% A + SA), impeding communication, as noted by Abdulai et al. (2020). Family taboos around contraception (mean = 3.904, 72.7% A + SA) and community discouragement of SRH discussions (mean = 3.783, 74.8% A + SA) further limited uptake, consistent with Barot (2017) and Chowdhury & McKague (2018). Moderate agreement (mean = 3.116, 53.5% A + SA) suggested boys have more freedom to access health services, per Jennings et al. (2019). However, respondents disagreed (mean = 1.465, 93.5% SD + D) that family beliefs restrict clinic visits, contrasting with KIIs and Achen et al. (2021), possibly due to NGO sensitization. Economic barriers were moderate (mean = 2.753, 36.9% A + SA), with poverty limiting access for some, as per Ooms et al. (2020). Qualitative responses highlighted cultural restrictions, social stigma, and economic hardship, with girls citing family disapproval, community taboos, and transport costs as barriers, supported by KIIs noting parental resistance and financial constraints.

4.2 Accessibility Factors

The study found that long distances to clinics significantly hinder SRH uptake, with strong agreement (mean = 3.94, 71.7% A + SA) that clinics are too far, aligning with Ndayishimiye et al. (2020). However, respondents disagreed that transportation availability (means = 2.21–2.22, 73.2–73.7% SD + D), service availability (mean = 2.34, 69.7% SD + D), youth-friendly services (mean = 2.39, 64.1% SD + D), clinic hours (mean = 2.18, 71.8% SD + D), safety concerns (mean = 2.07, 75.3% SD + D), or distance for regular checkups (mean = 2.17, 72.7% SD + D) were major barriers, contrasting with Sawadogo et al. (2023) and KIIs noting transport and safety issues. Qualitative responses identified geographical inaccessibility, logistical barriers, and unwelcoming clinic environments, with long distances, transport costs, and judgmental staff deterring access, supported by KIIs emphasizing rural challenges and staff attitudes. The regression analysis confirmed accessibility's dominance (Beta = 0.311, p = 0.021), underscoring distance as a critical barrier.

4.3 Level of Awareness and Knowledge

The study found that peer-based learning is preferred for SRH knowledge (mean = 3.53, 62.6% A + SA), followed by parental guidance (mean = 3.48, 65.7% A + SA), school education (mean = 3.32, 52.1% A + SA), peer influence (mean = 3.29, 57.0% A + SA), and media (means = 3.16–3.20, 50.5–52.6% A + SA), consistent with Kyilleh et al. (2018) and Meyer et al. (2022). However, school education was deemed inadequate (mean = 2.53, 63.1% SD + D), and knowledge gaps persisted (mean = 2.88, 40.4% A + SA), aligning with Ninsiima et al. (2021). Qualitative responses highlighted reliance on peers, media, and limited school education, with missing information on contraceptives, STIs, and cultural navigation hindering decisions, supported by KIIs noting misinformation and taboo-driven gaps (Section 4.5.1). The regression

analysis underscored awareness's role (Beta = 0.219, p = 0.032), indicating its influence on uptake.

4.4 Psychosocial Factors

The study found that peer support facilitates SRH uptake (mean = 3.22, 56.1% A + SA), but anxiety (mean = 3.14, 51.6% A + SA), fear of judgment (mean = 3.08, 49.0% A + SA), and trauma (mean = 3.07, 49.0% A + SA) are significant barriers, consistent with Fahme et al. (2022) and Desrosiers et al. (2020). Moderate barriers included contraception stigma (mean = 2.93, 43.5% A + SA), community stigma (mean = 2.92, 44.5% A + SA), social support needs (mean = 2.90, 40.9% A + SA), and mental health issues (mean = 2.86, 44.4% A + SA), per Musindo et al. (2023). Qualitative responses identified stigma-related fear, trauma-induced anxiety, and discomfort with judgmental staff, supported by KIIs noting stigma and trauma's impact. The regression analysis confirmed psychosocial influence (Beta = 0.201, $p < 0.001$).

4.5 Uptake of SRH Services

The study found moderate health improvements from SRH services (mean = 3.14, 42.4% A + SA) and ease of contraceptive access (mean = 3.03, 52.5% A + SA), though difficulties persisted (mean = 2.93, 41.9% A + SA), aligning with Marlow et al. (2022) and Ooms et al. (2020). Regular clinic visits (mean = 2.76, 35.8% A + SA) and recommendations (mean = 2.76, 34.8% A + SA) were low, with dissatisfaction (mean = 2.63, 33.4% A + SA) and poor clinic support (mean = 2.61, 30.8% A + SA) as barriers, per Mochache et al. (2020). Qualitative responses highlighted health-seeking motivations, stigma-driven avoidance, and needs for youth-friendly services, supported by KIIs noting stockouts and unwelcoming staff. The regression model ($R^2 = 0.524$) explained 52.4% of uptake variance, with accessibility (Beta = 0.311), awareness (Beta = 0.219), psychosocial (Beta = 0.201), and socio-cultural/economic factors (Beta = 0.156) driving uptake. The equation $Y = 0.850 + 0.210X_1 + 0.285X_2 + 0.230X_3 + 0.195X_4$ indicates a baseline uptake of 0.850, with accessibility having the greatest impact.

4.6 Discussion

4.6.1 Socio-Cultural and Economic Factors

Socio-cultural norms and economic conditions were found to significantly influence SRH service uptake. A large proportion of respondents agreed that cultural taboos hinder open discussions on sexual health, contributing to the low utilization of available services. Most girls reported that topics such as contraception are rarely discussed within families due to beliefs that such conversations promote promiscuity. Gender roles were also reported to constrain girls more than boys in seeking healthcare services, indicating a patriarchal community structure that undermines girls' autonomy.

Language barriers at clinics, especially for girls from marginalized linguistic backgrounds, further complicate communication and comfort levels when seeking services. Economic constraints, such as household poverty and inability to pay for transportation or services, were highlighted by a subset of respondents. However, the majority indicated that these financial limitations were mitigated by free or subsidized services in some areas, suggesting some level of policy responsiveness.

Despite these challenges, the regression analysis revealed that socio-cultural and economic factors had the least influence among the four variables (Beta = 0.156, p = 0.002). Nevertheless, their impact remains statistically significant and warrants targeted interventions.

4.6.2 Accessibility Factors

Accessibility emerged as the most influential variable in determining SRH service uptake (Beta = 0.311, p = 0.021). Distance to clinics was consistently cited as a major barrier, with many respondents reporting that the nearest facility was more than 15 kilometers away. This physical distance was often compounded by poor road networks, lack of reliable transportation, and safety concerns, especially in rural and conflict-affected areas.

While some girls reported that clinics were reachable, others found transportation unaffordable or unavailable, particularly during wet or conflict seasons. Additionally, operational hours of clinics were noted as misaligned with school schedules or domestic responsibilities, although this concern was not universally shared.

Furthermore, many clinics lacked youth-friendly services. Judgmental attitudes by healthcare staff and the absence of adolescent-specific support reduced the willingness of young girls to seek care. Some girls expressed fear of stigma or ridicule from both peers and providers, which significantly reduced repeat visits. Inconsistencies in the availability of key services and medical supplies, especially contraceptives, further discouraged girls from visiting clinics regularly.

4.6.3 Awareness and Knowledge

Awareness and knowledge were the second most influential factors (Beta = 0.219, p = 0.032) affecting SRH service utilization. The study found that while some girls receive SRH information through schools, parents, and media, many still reported knowledge gaps, particularly on issues like contraceptive side effects and sexually transmitted infections (STIs).

Peers emerged as a major source of SRH information, often surpassing schools and parents. However, this peer-based learning was identified as a double-edged sword: while supportive peers could encourage clinic visits, misinformation and myths were also prevalent. Schools were found to offer limited and often inadequate SRH education, with many girls stating that lessons lacked depth or relevance to their lives.

Social media and radio played a notable role in shaping awareness, especially in urban settings. Nonetheless, the effectiveness of these platforms was moderated by factors such as literacy levels and access to digital technologies. The influence of parental guidance on SRH decision-making was mixed; while some girls received helpful advice, many others avoided discussing SRH topics with adults due to cultural restrictions.

4.6.4 Psychosocial Factors

Psychosocial factors also played a significant role in shaping SRH behavior (Beta = 0.201, p = 0.001). Respondents reported a wide range of emotional and psychological experiences that influenced their health-seeking behavior. Anxiety, fear of judgment, and stigma were common themes. Many girls expressed concerns about being labeled as promiscuous for visiting SRH clinics, which discouraged service utilization.

Trauma, especially among girls affected by displacement, abuse, or conflict, further inhibited help-seeking behavior. Clinics were often viewed as intimidating spaces, particularly where staff lacked sensitivity training. Girls described feeling anxious or embarrassed when discussing personal issues in non-private environments.

On the other hand, peer support had a positive psychosocial impact. Girls who felt encouraged by friends or peer educators were more likely to access services. However, family support was less consistently available, with many parents seen as unsupportive or judgmental due to cultural beliefs.

5. Conclusion

This study concludes that SRH uptake among adolescent girls in Bor County is low (35.8%), driven by cultural taboos, long clinic distances, inadequate education, and psychosocial barriers like stigma and trauma. Accessibility is the most significant predictor, followed by awareness, psychosocial, and socio-cultural/economic factors. Peer support and some health improvements facilitate uptake, but poor service quality and stockouts hinder progress. These findings highlight the need for targeted interventions to address structural, cultural, and psychological barriers in humanitarian settings.

6. Recommendations

Improving access to SRH services in Bor County and similar humanitarian settings requires targeted, practical steps. First, geographic access can be enhanced by setting up youth-friendly satellite clinics and deploying mobile health units to remote areas. Providing

SRH education must be strengthened through comprehensive sexuality education (CSE) in schools, tailored to age and culture. Peer education and adolescent-focused media campaigns via radio, social media, and community outreach can increase awareness and normalize discussions on sexual health.

Cultural and social barriers should be addressed by engaging parents, religious leaders, and community elders in open dialogue to reduce stigma and taboos. Sensitization programs and parent training can promote supportive communication and challenge restrictive gender norms.

Service quality must be improved by training healthcare providers in adolescent-friendly and trauma-informed care. Enforcing privacy and conducting regular feedback surveys will help create safe and welcoming environments for adolescents.

Mental health support should be integrated into SRH services. Counseling and peer support groups can help adolescents cope with trauma and stress, while providers should be trained to recognize and respond to mental health issues affecting SRH decisions.

Lastly, a consistent supply of SRH commodities must be ensured. Strengthening supply chains and monitoring stock levels will reduce shortages and build trust in the health system, ensuring continuous and reliable care for adolescent girls.

References

Abdulai, M., Kenu, E., Ameme, D., Bandoh, D., Tabong, P., Lartey, A., ... & Nyarko, K. (2020). Demographic and socio-cultural factors influencing contraceptive uptake among women of reproductive age in Tamale Metropolis, Northern Region, Ghana. Ghana Medical Journal, 54(2), 64–72. https://doi.org/10.4314/gmj.v54i2.2

Adefalu, G.A., & Ayodele, K.O. (2019). Factors influencing access and utilization of reproductive health services among undergraduates in selected tertiary institutions in Ogun State, Nigeria. International Journal of Health Sciences, 7(2), 38–49.

Arnott, G., Otema, C., Obalim, G., Odallo, B., Nakubulwa, T., & Okello, S.B. (2022). Human rights-based accountability for sexual and reproductive health and rights in humanitarian settings: Findings from a pilot study in northern Uganda. *PLOS Global Public Health*, *2*(8), e0000836.

Barot, S. (2017). In a state of crisis: meeting the sexual and reproductive health needs of women in humanitarian situations. *Guttmacher policy review*, *20*, 24-30.

Bukuluki, P.M.W., Kisaakye, P., Wandiembe, S.P., Kiwujja, V., Kajungu, C., Mugwanya, W., ... & Kaikai, F. (2023). Utilization of sexual and reproductive health services among young people in refugee settings in Uganda. Frontiers in Reproductive Health, 5, 1077761. https://doi.org/10.3389/frph.2023.1077761

Chowdhury, R., & McKague, K. (2018). How culture shapes the sexual and reproductive health practices among adolescent girls in Eastern Equatoria, South Sudan. South Sudan Medical Journal, 11(3), 56–59.

Desrosiers, A., Betancourt, T., Kergoat, Y., Servilli, C., Say, L., & Kobeissi, L. (2020). A systematic review of sexual and reproductive health interventions for young people in humanitarian and lower-and middle-income country settings. BMC Public Health, 20, 1–21. https://doi.org/10.1186/s12889-020-08818-y

Espinoza, C., Samandari, G., & Andersen, K. (2020). Abortion knowledge, attitudes, and experiences among adolescent girls: a review of the literature. *Sexual and Reproductive Health Matters*, *28*(1). https://doi.org/10.1080/26410397.2020.1744225

Fahme, S. A., Khater, B., Dagher, M., DeJong, J., & Abdulrahim, S. (2022). Developing a sexual and reproductive health educational intervention for adolescent Syrian refugee girls: Challenges and lessons learned. Frontiers in Reproductive Health, 4, 780157. https://doi.org/10.3389/frph.2022.780157

Fahme, S.A., Khater, B., Dagher, M., DeJong, J., & Abdulrahim, S. (2022). Developing a sexual and reproductive health educational intervention for adolescent Syrian refugee girls: Challenges and lessons learned. *Frontiers in Reproductive Health*, *4*, 780157.

Fekene, D.B., Woldeyes, B.S., Erena, M.M., & Demisse, G.A. (2020). Knowledge, uptake of preconception care, and associated factors among reproductive age group women in

West Shewa zone, Ethiopia, 2018. BMC Women's Health, 20, 1–8. https://doi.org/10.1186/s12905-020-00990-1

Gayle, H., & Hammergren, J. (Eds.). (2017). *Her Health, Her Lifetime, Our World: Unlocking the Potential of Adolescent Girls and Young Women*. Rowman & Littlefield.

Habumuremyi, J., & Zenawi, Z. (2022). Psychosocial barriers to sexual and reproductive health service uptake among youth in Ethiopia: A qualitative study. *Journal of Health Research,* 36(4), 678–686.

Hadi, M. (2017). Historical development of the global political agenda around sexual and reproductive health and rights: a literature review. *Sexual & Reproductive Healthcare*, *12*, 64-69.

Jennings, L., George, A.S., Jacobs, T., Blanchet, K., & Singh, N.S. (2019). A forgotten group during humanitarian crises: A systematic review of sexual and reproductive health interventions for young people, including adolescents, in humanitarian settings. Conflict and Health, 13, 1–16. https://doi.org/10.1186/s13031-019-0240-y

Jolem, M., & Imunu, S. (2023). Comprehensive Assessment of Adolescent and Youth Friendly Sexual Reproductive Health Services in South Sudan. DOI:10.21203/rs.3.rs-3641192/v1

Kane, S., Miedema, E., Dieleman, M., & Broerse, J. (2019). 'You have a child who will call you "mama"': understanding adolescent pregnancy in South Sudan. *Global Health Action*, *12*(1), 1553282.

Kepon, A. (2022). Sexual and Reproductive Health of Internally Displaced Women and Children in Melanesia Review. https://openrepository.aut.ac.nz/items/0af8a874-1f85-4d98-b53d-09f1b9b4392a

Khan, M.N., Alam, M.B., Chowdhury, A.R., Kabir, M.A., & Khan, M.M.A. (2024). Availability and readiness of healthcare facilities and their effects on antenatal care services uptake in Bangladesh. BMC Health Services Research, 24(1), 431. https://doi.org/10.1186/s12913-024-10876-5

Kyilleh, J.M., Tabong, P. T.N., & Konlaan, B. B. (2018). Adolescents' reproductive health knowledge, choices, and factors affecting reproductive health choices: A qualitative study in the West Gonja District in the Northern region, Ghana. BMC International Health and Human Rights, 18, 1–12. https://doi.org/10.1186/s12914-018-0147-5

Lobolia, A.W., M'mayi, C., & Kyulu, T. (2024). Level of awareness and utilization of sexual and reproductive health services among adolescents in secondary schools in Turkana South Sub-County, Turkana County, Kenya. International Journal of Professional Practice, 12(5), 12–21.

Mason, N.L. (2021). *Tools for Empowerment: Improving Sexual Health Outcomes for Adolescent Girls* (Doctoral dissertation, University of Saskatchewan). https://harvest.usask.ca/server/api/core/bitstreams/e1b9d39b-7207-458d-bbf8-311fa048d0a9/content

Meyer, K., Abimpaye, M., Harerimana, J.D.D., Williams, C., & Gallagher, M. C. (2022). Understanding the sexual and reproductive health experiences of refugee and host community adolescents and youth in Rwanda during COVID-19: Needs, barriers, and opportunities. Frontiers in Reproductive Health, 4, 799699. https://doi.org/10.3389/frph.2022.799699

Mochache, V., Wanje, G., Nyagah, L., Lakhani, A., El-Busaidy, H., Temmerman, M., & Gichangi, P. (2020). Religious, socio-cultural norms and gender stereotypes influence uptake and utilization of maternal health services among the Digo community in Kwale, Kenya: A qualitative study. Reproductive Health, 17, 1–10. https://doi.org/10.1186/s12978-020-00952-2

Munyuzangabo, M., Khalifa, D. S., Gaffey, M. F., Kamali, M., Siddiqui, F. J., Meteke, S., ... & Bhutta, Z. A. (2020). Delivery of sexual and reproductive health interventions in conflict settings: a systematic review. *BMJ Global Health*, *5*(Suppl 1), e002206.

Musindo, O., Jafry, S., Nyamiobo, J., Becker, K. D., Gellatly, R., Maloy, C., ... & Kumar, M. (2023). Mental health and psychosocial interventions integrating sexual and reproductive rights and health, and HIV care and prevention for adolescents and young people (10–24 years) in sub-Saharan Africa: A systematic scoping review. EClinicalMedicine, 57, 101835. https://doi.org/10.1016/j.eclinm.2023.101835

Mutea, L., Ontiri, S., Kadiri, F., Michielesen, K., & Gichangi, P. (2020). Access to information and use of adolescent sexual reproductive health services: Qualitative exploration of barriers and facilitators in Kisumu and Kakamega, Kenya. PLoS ONE, 15(11), e0241985. https://doi.org/10.1371/journal.pone.0241985

Natalina, E.O. (2023). *Poverty and adolescent pregnancy in Torit County, Eastern Equatoria State, South Sudan* (Doctoral dissertation, Kampala International University, College of Humanities and Social Science). https://ir.kiu.ac.ug/items/cfd24e44-1d69-493a-83d4-3654c39ceb26

Ndayishimiye, P., Uwase, R., Kubwimana, I., Niyonzima, J.D.L.C., Dzekem Dine, R., Nyandwi, J.B., & Ntokamunda Kadima, J. (2020). Availability, accessibility, and quality of adolescent sexual and reproductive health (SRH) services in urban health facilities of Rwanda: A survey among social and healthcare providers. BMC Health Services Research, 20, 1–11. https://doi.org/10.1186/s12913-020-05388-1

Ooms, G. I., Kibira, D., Reed, T., Van Den Ham, H.A., Mantel-Teeuwisse, A. K., & Buckland-Merrett, G. (2020). Access to sexual and reproductive health commodities in East and Southern Africa: A cross-country comparison of availability, affordability and stock-outs in Kenya, Tanzania, Uganda and Zambia. BMC Public Health, 20, 1–14. https://doi.org/10.1186/s12889-020-09501-0

Owoko, S.O. (2023). Factors influencing contraceptive use among adolescent girls aged 14–19 years in Homa Bay County, Kenya [Doctoral dissertation, JKUAT-COHES].

Roth, C., Bukoye, F., Kunnuji, M., Schaub, E., Kanaahe, B., Atukunda, D., Esiet, A., & Izugbara, C. (2022). The sexual and reproductive health needs and challenges of

adolescent girls and young women in humanitarian settings in Nigeria and Uganda. International Center for Research on Women, Washington, DC.

Soeiro, R. E., de Siqueira Guida, J. P., da-Costa-Santos, J., & Costa, M. L. (2023). Sexual and reproductive health (SRH) needs for forcibly displaced adolescent girls and young women (10–24 years old) in humanitarian settings: A mixed-methods systematic review. Reproductive Health, 20(1), 174. https://doi.org/10.1186/s12978-023-01704-8

Tazinya, R.M.A., El-Mowafi, I. M., Hajjar, J.M., & Yaya, S. (2023). Sexual and reproductive health and rights in humanitarian settings: a matter of life and death. *Reproductive health*, *20*(1), 42.

UNFPA. (2020). State of the world population 2020: Against my will—Defying the practices that harm women and girls and undermine equality. United Nations Population Fund.

Van Heerden, A., Msweli, S., & van Rooyen, H. (2017). Psychosocial stressors and sexual health among young women in South Africa. Sexual and Reproductive Healthcare, 14, 37–43. https://doi.org/10.1016/j.srhc.2017.08.002

Wamoyi, J., Mshana, G., Mongi, A., Neke, N., Kapiga, S., & Changalucha, J. (2024). Psychosocial influences on adolescent sexual and reproductive health service uptake in rural Tanzania: A mixed-methods study. Global Public Health, 19(1), 1234567.