

Stakeholders' Perceptions on Effectiveness of Contraceptives Access and Use in Enhancing Gender Equity in Access to Education.

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Abstract

Gender inequity in access to education remain a major challenge in Rumonge District, raising question about the effectiveness of contraceptive access and use in promoting gender equity. This study examined stakeholders' perceptions on effectiveness of contraceptive access and use in enhancing gender equity in access to education. Using a Convergent Parallel Mixed Methods Approach, data were collected through surveys with students and interviews with headteachers and key informants. This study was guided by the health belief model and liberal theory which explain how contraceptive access and use influences learners' enrollment, retention, and progression in education. Findings indicated that access to contraceptives plays an important role in promoting gender equity in education, where about 65.7% noted that it supports higher enrollment, better retention, and improved academic progress for girls. In addition, headteachers agreed that contraceptive education has helped to reduce teenage pregnancy and school dropout rates. They linked wider access to increased girls' enrolment (52.8%-58.3%) and higher completion rates up to 49.6% between 2018 and 2022. However, Key informants likewise recognized that contraceptive access supports girls' continued schooling, and they pointed out several barriers, including stigma, religious beliefs, and limited resources. These factors restrict how effectively schools can implement contraceptive programs. Stronger policy support, continuous community sensitization, and improved teacher capacity are necessary to enhance the effectiveness of contraceptive access in improving girls' education.

Key words: *Contraceptive access and use, gender equity, reproductive health policy, stakeholders' perceptions, education access.*

Introduction

Education is a basic human right and critical for individual growth and the psychosocial and economic development of the community (United Nations Educational, Scientific and Cultural Organization, [UNESCO], 2017). Education is important in promoting and eliminating inequity and disparity human transcendence and growth as well as that of the individual and the state (Shavkinidnova and Suyunova, 2023). In the era of globalization, the advantages of education are even greater as it facilitates the growth and improvement of the economy (Upadhyay, 2022). However, issues of funding and financing of education are likely to suffocate the attainment of this right and equity of opportunity (Sebu, 2023). The transformative impact of education sought globally, economic development, social mobility, and progress towards the sustainable development goals are all benefits for societies and individuals (Emruli and Tairi, 2023).

The need for access to reliable contraceptive services is paramount. Skilled contraceptive services allow women to effectively manage family planning which, Ali and Tran (2022) has far-reaching effects on economic advancement, education, and the health of mothers and their children. However, there remains enormous unmet need for contraceptives. As of 2019, more than 218 million women under reproductive age did not have access to contraceptives which exposed them to the risks of unplanned pregnancies, unsafe abortions, and even maternal deaths. Without access to reliable contraceptives, unintended deaths and

pregnancies are bound to exist. What is more, this neglect is focused on underdeveloped and developing regions which are most in need of contraceptive access.

Teenage pregnancy contributes to global public health and social problems with approximately 21 million girls aged 15 to 19 becoming pregnant every year, according to (UNFPA, 2021). Intergenerational poverty, lower levels of education, and increased maternal and child mortality perpetuate the problems associated with teenage pregnancy (Nations *et al.*, 2012; UNESCO *et al.*, 2020). The main cause of death for teenage girls across the globe is due to their own sexual behaviors (George *et al.*, 2020). Every year, around 10 million unplanned pregnancies occur in among adolescents under the age of 19 in low- and middle-income countries (LMICs), resulting in an estimated 17,000 fatalities from complications during pregnancy or childbirth (Gillespie *et al.*, 2022). In the study done by UNESCO (2020) noted that boys in sub-Saharan Africa often face structural and socio-economic barriers that limit consistent school attendance and completion. Similarly, (Zuze & Beku, 2019) argued that boys' education is undermined by early labor demands and limited policy emphasis compared to girls. On the other hand, Chandra-Mouli *et al.* (2015) indicates that retention and dropout rates are improved when both genders are addressed, which represents a gap in current policy focus. (Arezki *et al.*, 2021) further posits that efficiency indicators are improved in interventions targeting youths.

Contraception and sexually transmitted disease (STD) promotional and preventive education was integrated early into Burundi's primary and secondary health education programs as part of its teenage pregnancy prevention program further enhanced through legal, health, educational, and community involvement and adopting multilayer strategies. Besides mainstreamed contraception and sexuality education, the program includes STD and unplanned pregnancy prevention campaigns, fostering youth involvement through sexual health advocacy clubs, and outreach at community health campaigns. However, the persistent educational and poverties inequalities in the country underpinned by a marry before 18 culture, child labor, and economic hardships stall attainment of educational milestones (Nibaruta *et al.*, 2022).

Reproductive health policy in Burundi

Having partnered with several international organizations i.e. UNFPA and WHO; Burundi's reproductive health policy strives to reduce gender inequity and limit teenage pregnancies (Hammond and Moretti, 2023; UNICEF, 2022), and to build society with the means to respond proactively to the intersection of health and education (Chola *et al.*, 2023; MENRS, 2021) as a public health priority. Covering the Menyumenyeshe Programme that emphasizes contraception education, policy adherents since the late 2000s have embraced active skillful policy advocacy that aims to create an environment supportive of the healthy development of adolescents (UNPF, 2023).

Such policy initiatives have been criticized for offering youth-friendly contraceptive services, post-abortion care, adolescent health counseling, and health education (Sindayigaya, 2023). The policy aimed at adolescent sexual and reproductive health sought to reduce teenage pregnancies, with the most prominent being the enhancement of youth-friendly health services provided at health centers and the integration of sexual and reproductive health education within the broader educational system.

Reproductive health policy and access to education

Reproductive health policies are useful for addressing the educational challenges faced by young people, especially young women. Scholars also recognize the importance of aligning reproductive health policies with educational programs in the pursuit of gender equity (Gillespie *et al.*, 2022; Irene, 2023). Effective policies provide adolescents with access to counseling, contraceptive services, and comprehensive sexuality education, thereby reducing the school dropout rate associated with teenage pregnancies. Such policies create a supportive environment in which all adolescents, regardless of gender, can participate in productive school activities.

Laine (2018) emphasizes the importance of youth reproductive health policies that include educational components on reproductive rights. Similarly, Mbizvo *et al.* (2023) argued that policies combining easy access to reproductive health services and school-based programs significantly reduce teenage pregnancy, which, in turn, facilitates educational attainment for women. The cases of Ninsiima *et al.* (2021) also highlight the contribution of gender equity policies that promote supportive school environments through empowered adolescents' responsible decision-making.

Systemic challenges are documented as frustrations in policy implementation in Burundi, as in many other low- and middle-income countries, due to persistent and unresolved problems of misallocated resources, lack of administrative capacity, sociocultural opposition, and ineffective evaluation and monitoring systems (Eze *et al.*, 2023; MENRS, 2021). Given the importance of these challenges in determining the effectiveness of policy outcomes, it is crucial to analyze certain components of reproductive health policies, including counseling, contraceptive availability and use, and sex education, to assess how they operationalize issues of educational access and gender equity.

Contraceptive Access and Use, and Enhancing Gender Equity in access to education

The provision of contraceptives is often perceived as a way to achieve gender equality and to enhance attaining higher levels of education. Having access to contraceptives has been linked as a factor to decreased school drop outs due to unintended pregnancies (Mbilinyi & Moshiri, 2020). Gillespie *et al.* (2022) indicated that contraceptive use allows girls to postpone childbirth which, in turn improves their likelihood of completing secondary education. Shukla *et al.* (2017) pointed out that contraceptive services enable young women to move towards personal goal(s) and such as education, career, and empowerment, which is also associated with the prevention of early pregnancies. On the other hand, Nzokirishaka and Itua (2018) pointed out that in Burundi, the use of contraceptives is the subject of myths and cultural taboos. The research conducted Ali & Tran (2022) demonstrated that economic empowerment, educational advancement, and improvements in maternal health care benefits that arise from having universal access to contraceptives. There is also the issue of inequity in education that can be improved by addressing the lack of contraceptive use in rural and highly conservative regions.

The use of modern contraceptive methods has been proven to improve the educational attainment of women and girls (Stevenson *et al.*, 2021). Contraceptive use policies are designed to decrease adolescent school dropout rates which are associated with unintended pregnancies. Many authors have shown that the provision of education and the provision of contraceptives as control mechanism of reproduction, as well as the ability to control teenage pregnancies, rates and reasons for dropping out of school, has significant impact on the ability of girls to pursue education (Lahiri & Jha, 2022). Similarly, with regard to girls, there cannot be gender equity in education in the absence of modern reproductive healthcare facilities (Martin, 2022).

In the case of Republic of Burundi, inadequate and lack of reproductive health information and services has a toll on teenage pregnancies, early marriages and education (Nibaruta *et al.*, 2022; Nzokirishaka & Itua, 2018). Despite the initiatives by government and partners, including the campaign ‘Zero Pregnancies at School’, persistent gaps in contraceptive supply stigma, and contraceptive restrictions still serve as a barrier (MENRS, 2021). Cultural and religious beliefs often frame contraception as a taboo topic, with many communities viewing contraceptive use as a sign of weakened moral discipline, a perception highlighted by (Nzokirishaka & Itua, 2018). Such stigmatization restricts open discussion and access to contraceptives, which, in turn, increases the likelihood of unprotected sexual activity. As (Lahiri & Jha, 2022) noted that these persistent barriers significantly hinder adolescents’ ability to stay in school, complete their education, and avoid early motherhood.

One important study, done in the Colorado Family Planning Initiative, shows that providing contraceptives at low or no cost attended to the health needs of women while allowing to complete high school, thereby sustaining graduation rates, while minimizing dropouts, proving contraceptive access and education correlation (Stevenson *et al.*, 2021). The case is supported by additional evidence showing that the discontinuation of subsidized family planning services increases the rate of teen births, which school discontinuation has a strong correlation with (Packham, 2017). In the same way, Yeatman *et al.* (2022) found that increasing contraceptive access increased the likelihood of women completing secondary school.

The evidence is clear that without contraceptives, gender equity is non-existent because women would have no fertility control, and shed pounds of all education equity. This is done by preventive contraceptive services, which helps to bridge the gap in educational attainment due to adolescent pregnancy which is a major component of school dropout for girls. Moreover, Packham (2017) investigated the consequences of the reduction of “Texas Family Planning” funding and found that within four years, adolescent birth rates increased by almost 3.4%, with the greatest impacts two to three years after the funding cuts, analyzed using a difference-in-differences technique. The study concluded that unintended pregnancies are likely to increase

due to limited access to contraceptives, which adversely affects the ability of girls to pursue schooling, thereby achieving gender equity in education.

Perceptions of stakeholders greatly affect contraceptive usage. (Silumbwe *et al.*, 2018) and (Gbagbo & Ameyaw, 2023) found that system-level impediments, provider attitudes, and community norms affect access. Understanding these beliefs is essential for establishing successful and acceptable contraceptive uptake techniques, especially for underprivileged communities. Barriers within health systems and service delivery significantly hinder access to contraceptives. Prevalent obstacles encompass stock-outs, restricted technique alternatives, considerable distances to facilities, poor infrastructure, and inadequately qualified personnel (Silumbwe *et al.*, 2018). Providers indicate deficiencies in competence, particularly on long-acting reversible contraceptives, excessive workloads, and insufficient time for counselling, which constrains method selection and diminishes uptake (Hassan *et al.*, 2024). Overcoming these obstacles necessitates investments in supply chains, personnel, and continuous professional growth.

The knowledge, attitudes, and behaviours of providers substantially affect access to contraception. Providers' own convictions, clinical assessments, and perceived societal standards influence the techniques and information presented to clients (Silumbwe *et al.*, 2018). This is particularly apparent for teenagers and nulliparous women, as healthcare professionals frequently restrict access owing to safety apprehensions or societal norms (Okeke *et al.*, 2022). Overcoming these obstacles necessitates both technical training and mentorship that is attuned to values, aimed at altering foundational attitudes and guaranteeing fair service delivery ((Hassan *et al.*, 2024)

Sociocultural and religious norms significantly impact access to contraception. Community leaders, faith-based individuals, and family members influence acceptability through moral convictions, rumours concerning side effects, and fertility aspirations, frequently engendering stigma that deters women and adolescents from utilising treatments (Gbagbo & Ameyaw, 2023; Silumbwe *et al.*, 2018). Involving community and religious leaders, encouraging male participation, and facilitating community debates are advised to enhance acceptance and diminish resistance (Gbagbo & Ameyaw, 2023).

Adolescents have specific obstacles, since stakeholders recognise their susceptibility to unwanted pregnancy yet frequently resist them independent access to contraception (Okeke *et al.*, 2022). This ambivalence results in restricted policies, uneven adolescent-friendly services, and possible violations of confidentiality, hence eroding confidence and ongoing utilisation (Jonas *et al.*, 2020). Recommendations encompass confidentiality measures, training for providers in adolescent health, and community involvement to reconcile protective standards with teenagers' access requirements.

Despite significant qualitative and mixed-methods research, there is no longitudinal data on how attitudes change following interventions like community dialogues or provider training, and comparison research across socio-political contexts are uncommon, lowering generalizability (Silumbwe *et al.*, 2018). Transgender and gender-expansive people, refugees, and other disadvantaged groups are understudied, as are stakeholder power relations, which affect policy and resource allocation.

Theoretical framework

This study's findings, interpreted through the Health Belief Model (HBM) and Classical Liberal Theory, showed that contraceptive access and use influences gender equity through both behavioural and structural pathways. Students' positive perceptions reflect key HBM constructs such as perceived susceptibility, perceived benefits, reduced barriers, and strengthened self-efficacy demonstrating contraceptives as a critical "cue to action" that motivates better educational choices. Classical Liberal Theory further explained how contraceptives promoted equal opportunity by addressing gender-specific barriers affecting girls while revealing emerging disadvantages for boys, reflected in their lower completion and higher repetition rates. Implementation challenges, including limited trained counsellors, irregular services, and inadequate facilities, restrict schools' ability to provide consistent behavioural support and fair learning environments.

Materials and Methods

Statement of Ethical Approval

The materials and procedures of this study were approved by the Egerton University institutional scientific and Ethics review committee with approval number EUISERC/APP/417/2025, and the approval from Ministry of National Education, and scientific Research in Burundi with Ref No: 610/CAB/7046/2025. All participants provided informed consent, and confidentiality was strictly maintained throughout the study.

Study Site

The study was conducted in Rumonge District, Rumonge Province, southwestern Burundi. Rumonge District, established in 2015, covers an area of 1,079 km² and had a population of approximately 352,026 people as of 2008 (MENRS, 2021). The district comprises five administrative communes Rumonge, Burambi, Buyengero, Bugarama, and Muhuta and hosts nine post-fundamental secondary schools. Its diverse social, cultural, and economic characteristics, coupled with high rates of teenage pregnancy, early marriage, and school dropout, make it an ideal setting for examining the effectiveness of contraceptive access and use in enhancing gender equity in access to education.

Target Population and Sample

The study population included students aged 13–19 years enrolled in secondary schools, headteachers, and key informants (teachers and reproductive health instructors). Seven secondary schools were purposively selected to ensure representation across socio-economic contexts, rural–urban areas, and varying levels of contraceptive access and use program implementation. Using Krejcie and Morgan’s table, a sample of 346 students was drawn through stratified random, proportionate, and purposive sampling. Additionally, headteachers and key informants (Reproductive Health Instructors and teachers) were purposively selected for interviews.

Data Collection Instruments

Data were collected using structured questionnaires for students, interviews were conducted with headteachers and key informants, and focus group discussions (FGDs) with 56 students (8 per school, with gender-specific). Secondary school records (2018–2024) on enrollment, retention, and completion were also extracted to complement primary data.

Results

Demographic characterization

Table 1 presented the return rates of the instruments used to collect data during the study where heateachers’ guide participated fully on 100%, students’ questionnaires were represented by 96.8%, the focus group discussion 80.3% and for key informants represented by 66.6% as shown in the table below.

Table 1 Return Rates of the Instruments used to Collect Data during the Study

Instrument	Administered/invited for interview/ discussion	Returned in interview/discussion	Return rate in %
Students’ questionnaire	346	335	96.8
Focus group discussion guide	56	45	80.3
Key informants	21	14	66.6
Head teachers’ interview guide	7	7	100.00

Table 2 represented the students’ characteristics participated in the study

Table 2 revealed that majority of the students who participated in the study were females (55.8%) while the males were the minority (44.2%). The results also showed that nearly half (48.6%) of the respondents were aged between 17 to 19 years while the rest were in the 13 to 14 (25.7%) and 15 to 16 (25.7%) years age. With regard to class, more than half (54.3%) of the respondents were in Grade 13 while the others were in grades 11 (21.2%), 12 (19.4%) and 14 (5.1%) respectively.

Table 2 Students’ Characteristics (*n* = 335)

Scale	Characteristics	Frequency	Percentage
Gender	Male	148	44.2
	Female	187	55.8

Age	13 to 14 years	86	25.7
	15 to 16 years	86	25.7
	17 to 19 years	163	48.6
Level	Grade 11	71	21.2
	Grade 12	65	19.4
	Grade 13	182	54.3
	Grade 14	12	5.1

Table 3 represented the characteristics of key informants participated in interview

Majority of the Head-Teachers represented by 100% while key informants (reproductive health instructors and teachers) were represented by 66.7%. Nearly three quarters represented by 71.4% of the key informants were male while the rest were females represented by 28.6%. With regard to age, majority of respondents (headteachers and key informants) represented by 57.1% were in the 36 to 40 years age group while remaining portion were aged between 41 to 50 represented by 23.8% and the range of 26 to 35 years of them represented by 19.0%. These results show that nearly a half of the respondents from interviews conducted represented by 47.6% had been in their current positions for between 1 to 10 years. The others had been in those positions for 11 to 20 and 21 to 30 years represented by 38.1% and 14.3% respectively. Analysis of the bio-data of these respondents showed that majority represented by 71.8% were males while the rest with 28.6% were females.

Table 3 Characteristics of the Key Informants (n = 21)

Scale	Characteristics	Frequency	Percentage
Designation	Head Teachers	7	100
	Key Informants (Reproductive health instructor + Teachers)	14	66.7
Gender	Male	15	71.4
	Female	6	28.6
Age	26 to 35 years	4	19.0
	36 to 40 years	12	57.1
	41 to 50 years	5	23.8
Number of years in current position	1 to 10 years	10	47.6
	11 to 20 years	8	38.1
	21 to 30 years	3	14.3

Internal Efficiency Indicators by Gender (2018–2022)

Perceptions on gender equity in access to education were examined by first establishing the internal efficiency status of the study area using key indicators such as enrolment rate, completion rate, repetition rate, dropout rate, and disaggregated by gender from 2018–2022 as four cohorts. The flow below presents a gender-based assessment of these indicators, showing variations in enrolment, completion, repetition, and dropouts between boys and girls.

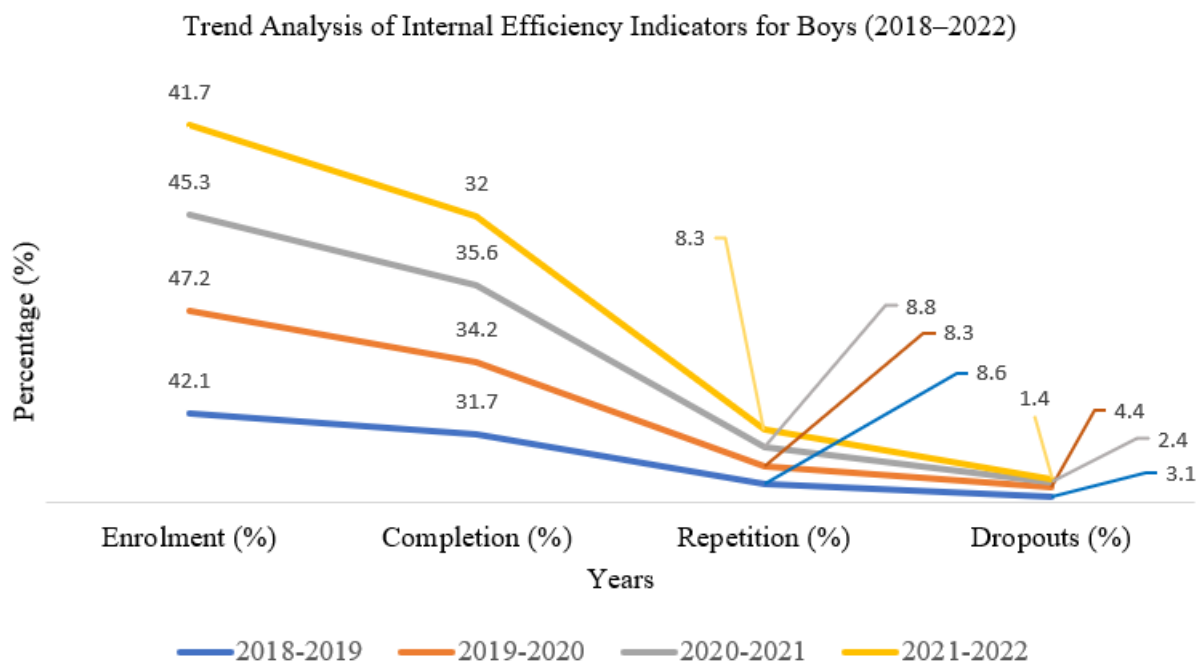


Figure 1 *Trend Analysis of Internal Efficiency Indicators for Boys (2018–2022)*

Figure 1 showed the enrollment metrics for boys in Rumonge District, captured between 2018 and 2022, indicate a perplexing level of retention and availability for education, demonstrated by enrollment peaks of 47.2% in 2019 and subsequent drops to 41.7% in 2022. Dropout rates were notably high in 2019 at 4.4% and later at 1.4% in 2022, showing some improvement although indicating that there is still a long way to go in reducing school dropout rates. However, what remains concerning for this region are the rather low completion rates, which ranged from 31.7% to 35.6% within the period, in addition to repetition rates which floated between 8% and 9%.

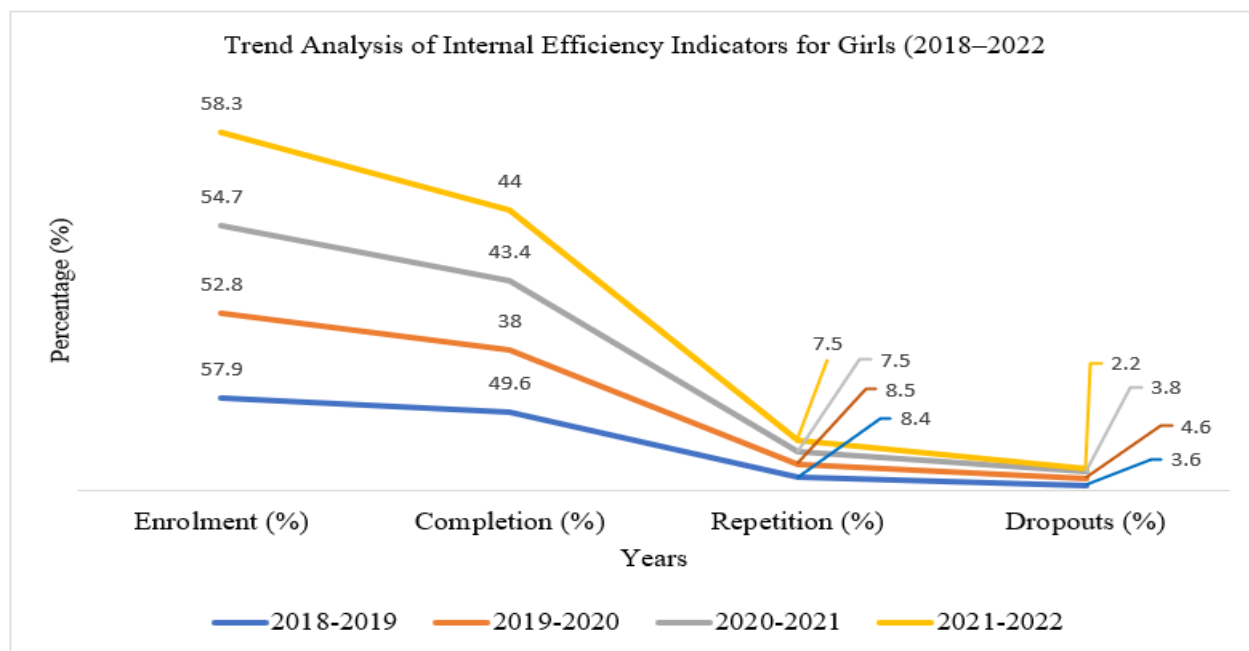


Figure 2 *Trend Analysis of Internal Efficiency Indicators for Girls (2018–2022)*

Figure 2 showed that girls, comparatively to boys, exhibited more favorable trends in enrollment rates, with rates between 52.8% and 58.3% of the total school population and a peak enrollment in 2021–2022. Similarly, the rate of dropout exhibited a decline from 4.6% in 2019–2020 to 2.2% in 2021–2022, with

improved and added benefits of retention. The retention rate, even though a decline in 2018–2019, fluctuated with 49.6% to a low of 38.0% in 2019–2020 and a slight increase to 44.0% in 2021–2022, suggesting that progress was unsuccessful on sustained retention rates. The repetition rate of variation of 7–8% suggests a lack of efficiency on the overall picture, even if showing progress in the students.

Students' Response to items on perceptions of Effectiveness of contraceptive access and use in enhancing Gender Equity

The students' perceptions on effectiveness of contraceptive access and use in enhancing gender equity in access to education was determined through tallying. A respondent's perception was categorized as positive when he/she agreed with majority of the 8 items that were used to measure their perspectives, negative when they disagreed, and neutral when nowhere to stand on any of the statement.

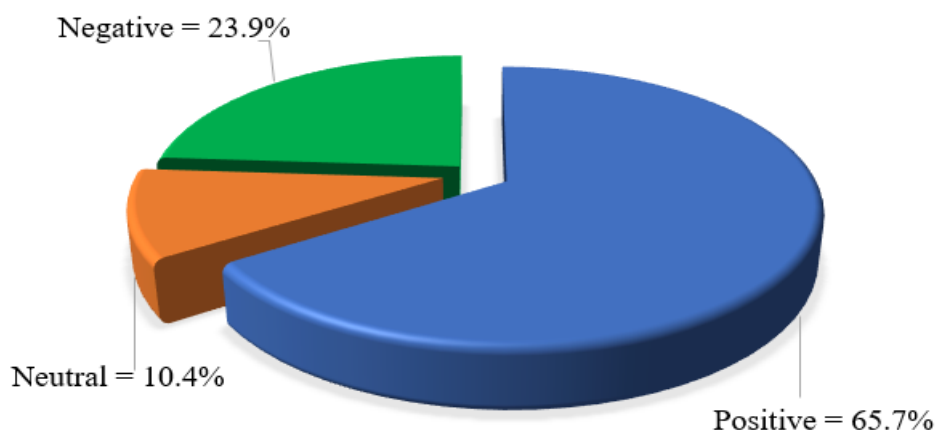


Figure 3: *Perceptions on Effectiveness of Access and Use of Contraceptives in Enhancing Gender Equity in Access to Education (n = 335)*

These results revealed that majority represented by 65.7% of the students had positive perceptions while the others had negative perceptions represented by 23.9% and neutral (10.4%) views. This is an indication that access and use of contraceptives were believed to boost students' enrollment, class attendance, progression and transition, irrespective of gender.

Discussion

From the findings of Table 1, the results indicated that the instruments return rate were high given that they ranged between 66.6% and 100.0%. In every study, low response rates and participant disinterest are common, and even more so in surveys (Holtom *et al.*, 2022). Response rates remained high and above the target due to several factors the researcher implemented to ensure the study did not suffer from low return rates. These factors included building rapport with participants, collaborating with staff, and making multiple visits when necessary. The data collected during the survey was deemed adequate for analysis as the instrument return rates was above the 60.0% recommended by Wu *et al.* (2022).

The table 2 from the findings revealed that majority of the students who participated in the study were females (55.8%) while the males were the minority (44.2%). The results suggest gender bias in access to education in favour of the girls. These results contradict those of studies carried out in Africa and Asia by Andiema (2021); Holloway and Kirby (2020) ; and Petrosino *et al.* (2012) which showed that the number of males enrolled in schools was higher than that of females. The observed high access to education by females could be due to gender mainstreaming programs which tend to emphasis the girl-child's participation in education such as Millennium Development Goal (MDG) number three which is concerned with women education and empowerment (Sage, 2022). It could also be due to policies and legislation enacted by the government which promote the girl child's education like the reproductive health policy in Burundi (Schwarz *et al.*, 2022). Furthermore, initiatives such as the "Zero pregnancies at school" campaign in Burundi demonstrate intentional policy interventions that increase girls' school attendance and retention, thereby reducing the possibility of bias and showing that the higher female participation is a result of policy effectiveness rather than sample distortion (MENRS, 2021b; UNICEF, 2022).

Table 3 from the results also showed that nearly half (48.6%) of the respondents were aged between 17 to 19 years while the rest were in the 13 to 14 (25.7%) and 15 to 16 (25.7%) years age brackets. These results

imply that there were hardly any under or over aged students in the schools which participated in the study. Institute of National Statistics of Burundi (INSBU, 2023), generally, the age of secondary school students in most education systems range between 13 and 18 years. With regard to class, more than half (54.3%) of the respondents were in Grade 13 while the others were in grades 11 (21.2%), 12 (19.4%) and 14 (5.1%) respectively.

The demographic analysis of key informants revealed that the majority were reproductive health educators, hence enhancing the relevance of their insights to this study, as they directly interact with students regarding reproductive health matters. The predominance of male participants (71.4%) signifies prevalent gender disparities in school leadership and teaching personnel in Burundi, potentially affecting the formulation of reproductive health initiatives (UNICEF, 2022). The age distribution, which is mostly between 36 and 40 years old, shows that most of the key informants who answered were in the middle of their careers and had a lot of professional experience, which makes their answers more reliable. Most of them had also been in their jobs for between 1 and 10 years, which means they had up-to-date and useful knowledge on how health and education policies were being put into action.

Form figure 1 and 2; the findings of this study revealed distinct gendered patterns in school participation and internal efficiency indicators in Rumonge District between 2018 and 2022. These patterns suggest significant inefficiencies that impede boys' sustained progression through the education system. Comparable studies have reported similar structural and socioeconomic challenges affecting male learners across sub-Saharan Africa. For instance, (UNESCO, 2020) emphasized that persistent inequalities in school enrollment and completion are linked to broader systemic barriers. Likewise, (Zuze & Beku, 2019) noted that boys' early entry into the labor market and the prioritization of girl-focused policies can inadvertently disadvantage male learners.

In contrast, the indicators for girls show more favorable trajectories, marked by higher enrollment rates and reduced dropout rates over the same period. The overall trend indicated relatively better educational continuity for girls than for boys. These outcomes aligned with existing evidence that gender-responsive policies particularly those addressing menstrual and reproductive health contribute to improved attendance and participation among girls. (UNESCO, 2020) similarly reports that targeted interventions enhance school engagement for girls across the region, while (Sommer et al., 2015) highlighted how addressing menstrual hygiene barriers substantially improves girls' educational participation. However, although girls in Rumonge appear to benefit more from existing reproductive health and education initiatives, the persistent repetition rates (7%–8%) indicated that improvements in access do not necessarily translate into higher efficiency across all indicators.

When comparing both genders, the data clearly showed that girls consistently outperform boys in enrollment and completion. Although both groups recorded declining dropout rates suggesting improved retention the persistent inefficiencies affecting boys indicate that current reproductive health and education interventions are disproportionately benefiting girls. This pattern resonates with (Chandra-Mouli et al., 2015)'s observation that program effectiveness increases when both boys and girls are equitably targeted. The situation in Rumonge therefore underscores the need for more inclusive and gender-responsive educational strategies that address the unique barriers facing boys, without undermining the gains made for girls.

The findings of this study demonstrate that stakeholders perceive contraceptive access and use as a significant factor in promoting gender equity in access to education. Headteachers consistently reported that their schools provide contraceptive education and, in some cases, access to contraceptives, highlighting the role of these interventions in reducing early pregnancies, improving school retention, and enhancing completion rates. These observations align with Stevenson *et al.* (2021), who documented that expanded access to contraceptives positively influences school retention and completion. However, headteachers also identified multiple barriers that constrain the effectiveness of contraceptive education, including restrictive cultural and religious norms, concerns that provision may encourage sexual activity, and insufficient teacher training and confidence. Such findings resonate with Chola *et al.* (2023), who noted that weak institutional capacity often undermines reproductive health policy implementation. Furthermore, the stigma associated with discussing contraceptives, as observed by the principals, supports the assertion of Ninsiima *et al.* (2021) that adolescents are less likely to engage with reproductive health education in unsupportive or stigmatized environments.

Key informants provided complementary insights, indicating that while small-group discussions with students were generally effective, responses varied. Approximately 71.4% of informants reported positive engagement, whereas 28.6% noted reluctance due to cultural discomfort or shyness. This variability reflects WHO's (2018) emphasis that sexuality education is highly influenced by the cultural context. Informants also identified access-related challenges, including limited contraceptive supply, insufficient information, and social barriers such as cultural and religious opposition and fear of judgement by peers, teachers, or parents. These findings echoed observations by François-Régis *et al.* (2023) and Sindayigaya (2023), who documented that social and cultural pressures continue to restrict adolescents' access to youth-friendly reproductive health services in Burundi. The informants' perceptions regarding educational outcomes were largely positive: 71.4% indicated that contraceptive access contributed to improved attendance, progression, and reduced dropout rates, particularly for female students. Nevertheless, a minority (28.6%) expressed skepticism, suggesting that contraceptive access may encourage irresponsible behaviour among some students.

Students' own perspectives revealed that the provision of contraceptive education remains limited, with 88.1% reporting they rarely receive such instruction. When provided, topics included types, availability, usage, and potential side effects of contraceptives, as well as the promotion of abstinence as a protective measure. Students' responses indicated an overall positive perception of contraceptive access and use in enhancing educational outcomes, suggesting that these interventions are believed to support enrollment, attendance, progression, and transition regardless of gender. However, the infrequent delivery of contraceptive education, coupled with persisting stigma and misconceptions about side effects, limits the full potential impact on attendance and dropout prevention.

Taken together, these findings underscore a nuanced understanding of contraceptive interventions in schools. Stakeholders recognize their importance for promoting gender equity and educational attainment, yet implementation is constrained by social norms, institutional capacity, and student receptivity. These results aligned with broader evidence that comprehensive sexuality education and contraceptive access can improve educational outcomes, particularly for girls, but require supportive policies, culturally sensitive approaches, and adequately trained educators to be fully effective (Stevenson *et al.*, 2021; Ninsiima *et al.*, 2021; Chola *et al.*, 2023). The study highlighted the need for integrated strategies that combine provision of contraceptives with education, community engagement, and stigma reduction to maximize benefits for gender equity in education.

Conclusion

The study concluded that contraceptive access and use play an important role in promoting gender equity in education in Rumonge District, with stakeholders consistently linking these interventions to reduced early pregnancies, improved attendance, and higher completion rates, particularly for girls. High instrument return rates ensured reliable data, and demographic patterns reflected the influence of national gender-responsive policies that have strengthened girls' participation in schooling. However, the effectiveness of contraceptive education remains limited by cultural and religious norms, stigma, inadequate teacher training, and irregular provision of information and services, while boys continued to face greater educational inefficiencies despite overall improvements. Students reported minimal exposure to contraceptive education, indicating gaps in implementation that reduce the potential impact on retention and dropout prevention. Overall, while reproductive health initiatives have contributed to improved educational outcomes, especially for girls, achieving sustained gender equity will require stronger institutional capacity, culturally sensitive programming, and inclusive strategies that address barriers affecting both boys and girls.

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Author's Contribution

This study was carried out under the full responsibility of the authors. The conception and design of the study were all conducted by Anicet Bucumi, Noah Murumba Kiveu, and Johnson Changeiywo. Data collection was performed by Anicet Bucumi. Data analysis, writing, proofreading, and publication

procedures of the manuscript were handled by Anicet Bucumi, Noah Murumba Kiveu, Johnson Changeiywo.

Conflict of interest

The authors state that they have no personal, professional, or financial conflicts of interest.

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