Health information use for improving health behaviour among secondary school students in East Africa: A Systematic review

Anna Kimaro[1*]
Dr. Philbert Nyinondi[2]
Prof. Wulystan Mtega[3]
Dr. Ronald Tarimo[4]

[1*]anna.kimaro@sua.ac.tz

[1,2,3,4]Department of Informatics and Information Technology, Sokoine University of Agriculture, Morogoro, Tanzania

https://doi.org/10.51867/ajernet.6.4.41

ABSTRACT

This systematic review assesses the use of health information to improve health behaviour among secondary school students in five East African countries: Burundi, Kenya, Rwanda, Tanzania, and Uganda. Using the PRISMA methodology, 50 peer-reviewed articles published between 2000 and 2024 were analysed from a total of 1,873 articles. Most studies (67.34%) were published between 2020 and 2024, with the majority coming from Tanzania (38.77%). Health information sources, such as parents, teachers, and online platforms, are considered credible, with parents and teachers being the most credible. However, inconsistencies, cultural stigmas, and inadequate resources hinder access to these services. Health information has influenced students health-seeking behaviours, with some studies noting improved practices like safe sex and reduced risky behaviour. Educational strategies, in most cases, do not prioritise boys' specific health needs. The review highlights the importance of designing interventions that consider demographic disparities and recommends further research into these influencing factors.

Keywords: East Africa, Health Behaviour, Health Information, Information Access, Secondary School Students

I. INTRODUCTION

Secondary school students are central to their development, where adopting healthy behaviours significantly affects their lifelong wellbeing (World Health Organization [WHO], 2019). Access to accurate health information is vital in shaping their understanding of health issues and influencing their health behaviours (Tengia-Kessy et al., 2016). It is vital to explore the sources, alleged usefulness, and challenges of accessing health information among secondary students to tailor effective health education interventions (WHO, 2019). The health and well-being of secondary school students represent critical social practices for future health decision-making and behaviours. Health education equips adolescents with the knowledge and skills necessary for making knowledgeable health choices, particularly regarding sexual and reproductive health (Ito et al., 2022).

The accessibility of health information is determined by the available sources of information, for students need reliable sources that will provide them with accurate information for their wellbeing; previous studies have shown that students access health information from various sources, including teachers, parents, peers, online platforms, and school health services(Ayubu & Kabeya, 2019; Mureithi et al., 2021). However, the credibility and reliability of these sources require additional investigation to ensure they provide accurate and comprehensive health information (Mutea et al., 2020; Handebo et al., 2021; Boateng et al., 2022; Kalu et al., 2022).

The ideal scenario for secondary school students in East Africa would be easy access to credible, relevant, and effective health information they perceive as applicable (Mavura et al., 2022). This would enable them to make informed decisions about their health, adopt healthier behaviours, and engage with health information in a way that improves their overall wellbeing. With access to consistent and reliable health information, students would be empowered to seek the resources they need and apply them effectively (Chesire et al., 2024).

Despite the availability of health information to secondary school students across East Africa, primarily in Burundi, Kenya, Rwanda, Tanzania, and Uganda, significant challenges persist in accessing, understanding, and utilising this information. Numerous studies (Municipality & Asiimwe, 2023; Mutea et al., 2020; León-himmelstine et al., 2021; Bishoge et al., 2022; Langat et al., 2024) have documented persistent barriers, especially in rural areas. These studies also provide evidence that, despite availability, many students fail to engage with or act on the information due to negative perceptions about its relevance and usefulness.

As a result, students' health-seeking behaviours are often ineffective, and they may not be informed about health information to improve their decision-making or behaviour (Rehnström Loi et al., 2019). The failure to

address students' perception of the usefulness of the information, coupled with the barriers to accessing it, leads to a gap in health knowledge and poor health outcomes. Mbarushimana et al. (2022). This lack of effective engagement with health information hinders the promotion of healthier behaviours and perpetuates adverse health outcomes among students (Panchaud et al., 2019). This systematic review examines existing research on the influence of health information use on improving health behaviours among secondary school students in East Africa.

1.1 Research Questions

i. What is the current state of availability of health information among secondary school students, as reported in existing literature?
ii. What evidence is available regarding the credibility and effectiveness of health information sources used by secondary school students?
iii. According to previous studies, what is the perceived usefulness of health information among secondary school students?
iv. What barriers to accessing health information have been identified in the literature among secondary school students?

II.METHODOLOGY

This systematic review represents a comprehensive effort to investigate the use of health information to improve health behaviours among secondary school students in East African countries, specifically Burundi, Kenya, Rwanda, Tanzania, and Uganda. The study followed a formal, predefined methodology distinct from more conventional literature reviews, enhancing transparency and reproducibility (Pearce & Ford, 2015).

The systematic review adhered to the PRISMA protocol and applied clear eligibility and exclusion criteria to ensure rigour in the review process. This systematic review provides a robust and reliable synthesis of the available evidence (Moher et al., 2009). The selection process was rigorous, transparent, and reproducible, as outlined in Figure 1.

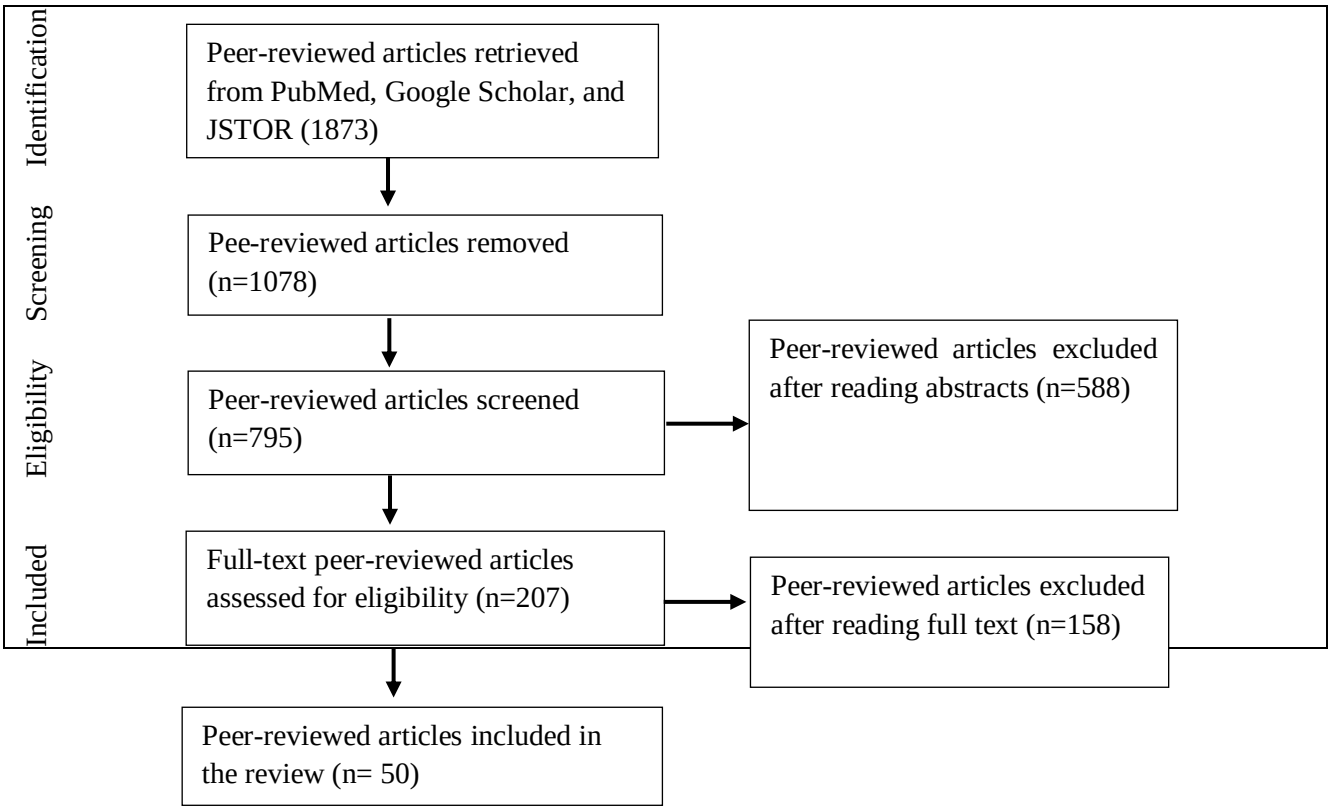

Figure 1
The Flow Chart of the Selection Process of Articles for Systematic Review

2.1 Eligibility Criteria

The study focused exclusively on peer-reviewed journal articles accessed through PubMed, Google Scholar, and JSTOR that use health information to improve health behaviours among secondary school Students in East Africa. The period for inclusion was set between January 1, 2000, and December 31, 2024. The eligibility and exclusion criteria were carefully developed and consistently applied throughout the review.

2.2 Search Strategy, Inclusion and Exclusion Criteria

Search Strategy: A search strategy was developed to identify relevant studies addressing the use of health information and its influence on health behaviours among secondary school students in East Africa. The search involved a combination of keywords, including "health information", "health behaviour", "East Africa and student health", and "secondary school* student* health education". Using truncations and Boolean operators helped broaden the search while maintaining relevance. This strategy enabled the retrieval of a large pool of studies discussing key aspects, including the availability, credibility, usefulness, and accessibility of health information.

Inclusion Criteria: The review included peer-reviewed journal articles that met specific conditions. First, the articles had to be published in English and focus on the selected countries of East Africa: Tanzania, Kenya, Uganda, Rwanda, and Burundi. Second, the selected studies were required to address the health information experiences of secondary school students, particularly in terms of availability, credibility, perceived usefulness, and accessibility. Articles that presented empirical data or offered literature-based insights on how students interact with health information to influence their behaviours were prioritized.

Exclusion Criteria: Studies were excluded if they did not focus directly on secondary school students or their use of health information. Articles published in languages other than English were also excluded, as were studies from countries outside the targeted East African countries. Specifically, research from the Democratic Republic of Congo, Somalia, and South Sudan was excluded due to political instability in these countries, which has contributed to limited access to health information among students.

The search initially identified 1,873 articles. After an initial screening, 207 articles met the eligibility criteria for full-text review. Upon closer examination, 158 studies were excluded based on the predefined inclusion and exclusion criteria. Consequently, the final review included 50 peer-reviewed journal articles suitable for this study.

2.3 Data Extraction Method

Data were extracted using a paper form with five columns; the first column included the author's name and the year of publication. The second column has the title of the articles. The third column has key findings, the fourth column has a geographical location where the articles were published, and the fifth column has the methodology used(Schmidt et al., 2021)(See Tables 1,2,3, 4)

III. FINDINGS & DISCUSSION

3.1 Time Distribution

The findings indicate a steady increase in the number of publications over time, suggesting a growing scholarly interest in the role of health information in influencing health behaviours among secondary school students in East Africa. This growing interest reflects a broader recognition of the critical need to address challenges in adolescent health and access to information. Specifically, Figure 2 shows that 33(66%) of the studies were published between 2020 and 2024. This was followed by 9 (18%) studies published between 2015 and 2019, 5 (10%) between 2010 and 2014, and 3 (6%) between 2005 and 2009.

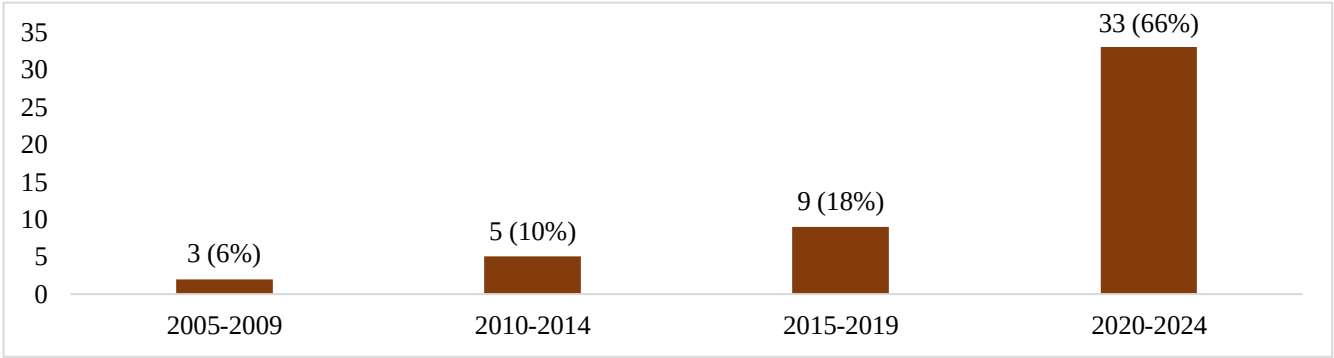

Figure 2
Timeline Distribution of Reviewed Publications

3.2 Geographical Location

The study found that 19 (38%) of the studies on health Information Use for improving health behaviours among secondary school Students in East Africa were conducted in Tanzania (Figure 3). Followed by 15(30%) conducted in Kenya, 11(22%) conducted in Uganda, 3(6%) in Rwanda and 2(4%) in Burundi. This reveals a significant gap between the rates of research on health information access and use in East African countries, which can be used to improve health behaviour. Based on the available studies, this poses a challenge when creating regional health information use and access policies among member states. However, few studies reflecting Burundi and Rwanda could be associated with excluding publication in other languages, such as French, a key language in the two countries.

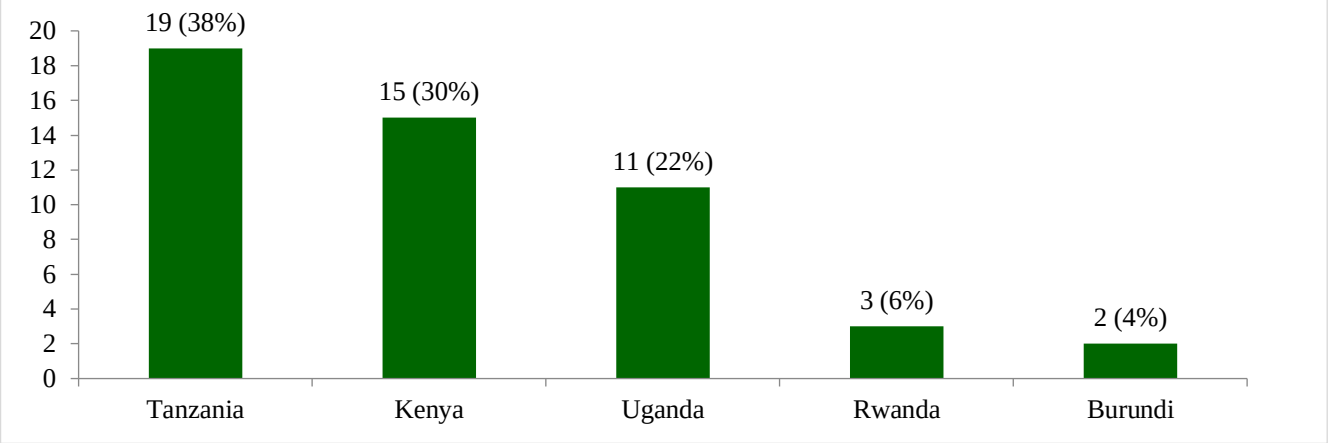

Figure 3
Geographical Distribution of the Reviewed Publication

3.3 Availability of Health Information

The availability of health information to secondary school students in East Africa has been widely reported in existing literature. However, it varies significantly across different contexts and populations (Table 1 in detailed annex).

Table 1
Available Health Information in East Africa

SN	Key Findings on the available information	Authors
1.	General health information related to reproductive health	Adan et al. (2018), Chadwick et al. (2022), Oware et al. (2023), Inwani et al. (2021)
2.	Sexual and reproductive health information	Kamangu & Mbago (2024). Mitchelle et al. (2014), Ndayishimiye et al. (2022), Langat et al. (2024), Dickson (2023), Kemigisha et al., (2019), Ngissa et al.,(2024)
3.	Health information on family planning	Ayubu & Kabeya (2019)
4.	Health information on contraceptive usage	Mkumbo et al. (2009)
5.	Health information on HIV/STIs, condom use, benefits of abstinence, and contraception	Ogolla and Ondia (2019)

Numerous studies highlight that sexual and reproductive health information is the most commonly available type. For instance, Oware et al. (2023) report that sexual health information is accessible to many students across East Africa. Similarly, Adan et al. (2018) document the availability of reproductive health information, indicating that such topics dominate the landscape of adolescent health education. Mitchell et al. (2014). Ayubu and Kabeya (2019), Kamangu & Mbago (2024) further confirm the widespread availability of sexual and reproductive health information in various parts of East Africa. These findings collectively suggest that this domain remains the primary focus of health information accessible to adolescents.

However, despite this general availability, the reach and distribution of health information are not uniform across East Africa. Ito et al. (2022) demonstrate that interactive programs can enhance the presence of health information; however, their implementation is uneven. Bishoge et al. (2022) observe that although students are involved in health-related activities, the actual presence and delivery of structured health programs remain limited

in some settings. Kavana (2021) ascertains this gap in Tanzania, noting the absence of structured sexual health education in the curriculum, which limits the consistent availability of accurate information. Philipo and Ntawigaya (2025) provide additional insights, showing that significant gaps in health information availability persist in many rural secondary schools in East Africa. Their findings highlight a reliance on untrained staff and a lack of basic resources, which restrict students' access to even the most essential health information, including mental health. These studies demonstrate that while health information, especially on sexual and reproductive health, is generally available to secondary school students in East Africa, its distribution and accessibility are inconsistent. Locality, infrastructure, and institutional support continue to shape students' ability to access the health information they need reliably.

3.4 Credibility and Effectiveness of Health Information Sources

Credible health information sources play a key role in shaping health behaviours among secondary school students in East Africa. Studies show that the effectiveness of health information is closely linked to the trust students place in those delivering it (Table 2 in the detailed annex).

Table 2

Credibility and Effectiveness of Health Information Sources in East Africa

SN	Key Findings on Health Information Sources	Authors
1	The primary health information sources mainly used are teachers	Ayubu et al. (2019), Kemigisha et al. (2019), Muganyizi (2012), Ngilangwa et al. (2016), Ngissa et al.(2024) Muhwezi et al. (2015), Ito et al. (2022), Ogolla and Ondia (2019).
2	Health information is effectively communicated through media (radio and television)	Adan et al. (2018)
3	Community-based sources and health facilities have a significant influence on the dissemination of health information.	Langat et al. (2024), Ndayishimiye et al. (2020), Kemigisha et al. (2019)
4	Health information is derived from credible sources such as pharmacies and databases.	Holst et al. (2023), Lyimo (2024)
5	Personal networks and mass media play a significant role in facilitating access to health information.	Adan et al. (2018). Mureithi et al. (2021), Inwani et al. (2021)

Teachers, parents, and community members are consistently identified as credible sources. Kemigisha et al., (2019) reported that these sources provide accurate and relatable health messages through the school curriculum. Their interventions led to positive changes in students' health knowledge and behaviours.

Students used various sources, including parents, teachers, adults, computers, and the Internet. Most students preferred teachers and parents over other sources. Students who relied solely on these groups formed the largest single-source users, emphasizing the effectiveness of parents in delivering credible health messages. Their study found that parents significantly influenced students' adoption of positive health behaviours. Muhwezi et al. (2015) reported that teachers were the primary source of reproductive health information, noting that many teachers lacked proper training, which led to inconsistent information delivery. This was also highly contributed to by the poor skills of many teachers.

Tengia-Kessy et al. (2016) supported the role of teachers but also observed that students still lacked knowledge of specific health topics, despite having access to health information from readily available teachers. Ayubu and Kabeya (2019) confirmed that teachers are trusted. However, students sometimes fail to grasp what is taught, lack skills to listen and acquire information, and the limited time teachers spend supporting their students in health matters remains a significant problem. Mbarushimana et al. (2022) investigated the diversity of sources related to sexual and reproductive health in Rwanda. While teachers were key health informants, they noted the limited scope and effectiveness of sexuality education programs in Rwandan secondary schools. Chesire et al. (2024) implemented an intervention that encouraged students to think critically about health choices. Their results stressed the importance of teacher training in making health education impactful; the less the training, the less the skills and the less the positive impact of health education. Embleton et al. (2023) also reported that pharmacies and drug stores were significant sources of contraceptive information. However, they found that knowledge did not always translate into actual contraceptive use. This provides a clear indication that the accumulation of knowledge does not guarantee its practical application.

Ogolla and Ondia (2019) also confirmed that teachers are a primary source of health information for students, providing more health information than other available sources, such as health experts. Håkansson et al. (2024)revealed that students preferred school-based teaching, online tools, social media, and trusted community

members. These were seen as more engaging and relevant to their needs, as they provide features that support visualisation, interaction, and access to more comprehensive information from various parts of the world. Holst et al. (2023) presented a different view. They argued that community health databases could offer credible and reliable information, especially if integrated into student learning systems. This case has been proven in rural parts of Tanzania through the usage of community health info spots in providing health information in Migoli and Izazi.

Seidu et al. (2022) highlighted the role of radio and television. These mass media platforms effectively disseminate health messages to young people in Kenya on various health topics crucial to youth, such as reproductive health information. Inwani et al. (2021) found mobile phone applications to be valuable tools for their purposes. They offered private and accessible information on sexual and reproductive health. Adan et al. (2018) reported that peers and the media were the most preferred sources of health information for many students.

These findings from reviewed studies provide strong evidence that the credibility of health information sources directly affects how secondary school students in East Africa respond to health messages. Trusted sources, such as teachers, parents, and community members, are often cited as effective channels for delivering health education. However, teacher training gaps, curriculum implementation inconsistencies, and the limited interactive or student-centred approach weaken their effectiveness. Similarly, while digital tools such as mobile apps and social media are gaining popularity, disparities in access and digital literacy limit their reach among rural or underserved populations.

3.5 Perceived Usefulness of Health Information

The perceived usefulness of health information is crucial in determining whether students actively apply the information they receive to their lives (Table 3 in the detailed annex).

Table 3

Perceived Usefulness of Health Information

SN	Key Findings on Usefulness of Health Information	Authors
1	Information contributes to improved critical thinking about health and healthier lifestyles, including aspects such as sexual health.	Chesire et al. (2024)
2	Health information reduces sexual risk behaviours and promotes safer sexual practices.	Ogolla and Ondia (2019), Singh et al. (2021), Mkumbo et al. (2009)
3	Awareness and understanding of sexual and reproductive health information positively influence safe sexual behaviours.	Mwageni (2006), Mitchelle et al. (2014), Apondi et al. (2021), Mwanga et al. (2008)
4	Access to reproductive health information helps prevent early pregnancies and promotes adherence to health services.	Mwangosi et al. (2002), Apondi et al. (2021), Mureithi et al. (2021)
5	Practical application of sexual and reproductive health information leads to behaviour change.	Ngissa et al. (2024). Lyimo et al. (2024), Nkata et al. (2019)

Perceived usefulness is a pivotal factor influencing whether students apply the health information they receive. Although students may receive adequate health education, their ability to internalize and utilize this information effectively varies. For instance, findings from Apondi et al. (2021) indicated that with general awareness about HIV/AIDS, many students engaged in seeking health information on preventive and transmission measures. In contrast, a study by Bishoge et al. (2022) demonstrated students' knowledge of health issues in relation to active environmental health behaviour. The findings from Lyimo et al. (2024) reflected a similar sentiment, indicating that increased awareness of health issues led to healthier choices when students perceived the information as relevant and valuable. A similar perspective was taken by Singh et al. (2021)and Chesire et al. (2024) on the perceived usefulness of health information, whereby the health information received was valuable for students in improving their sexual behaviour. The same perspective was reported on students' awareness of sexual and reproductive health information matters, which was good and positively affected their understanding of safe sexual behaviours (Mwageni, 2006; Mkumbo et al., 2009). Ninsiima et al. (2020) also reported that the implementation of sex education significantly improved the knowledge and health behaviours of young people, particularly in the province of Gitega in Burundi.

When it comes to health information which is helpful in the population, setbacks exist in the process; different studies pinpointed some gaps in health information for secondary school students; a study by Kamangu & Mbago (2024) found that while adolescents reported understanding key health topics, gaps in critical areas such as family planning remained. This was echoed in the work of Kavana (2021), which suggested a pressing need for targeted sexual and reproductive health education that resonates with adolescents' lives. The findings also highlight the perceived usefulness of accessing sexual and reproductive health education among marginalized youth in

Tanzania(Ngilangwa et al., 2016; Nkata et al., 2019; Ngissa et al., 2024; Mwangosi et al., 2002) emphasized the same urge that health information is reaching the secondary school students, but some information remains irrelevant, and the lack of ability and skills to internalize the information remains a problem. The discussion above shows that some studies in Tanzania indicate a lack of usefulness in health information, while most studies demonstrate its usefulness.

3.6 Barriers to Accessing Health Information

Several barriers continue to obstruct health information accessibility for secondary school students (Table 4 in the detailed annex).

Table 4

Barriers to Accessing Health Information

SN	Key Findings	Authors
1	Structural and interpersonal obstacles hinder access to health information	Embleton et al. (2023), Mbarushimana et al. (2022),
2	Cultural taboos, social norms, and stigma significantly restrict access to sexual and reproductive health information.	Mbarushimana et al. (2022), Oware et al. (2023), Adan et al. (2018), Rehnström Loi et al., (2019), Mureithi et al. (2021)
3	Lack of training among educators and limited educational resources impede the effective delivery of health information.	Ogolla and Ondia (2019), Ninsiima et al.,(2019), Mambo et al.,(2021)
4	Economic factors, distance to healthcare facilities, and a lack of confidentiality all affect health-seeking behaviour.	Mambo et al. (2021), Muhwezi et al. (2015), Mutea et al. (2020)
5	Inadequate policy implementation and rigid cultural beliefs hinder access to sexuality education.	Sidze et al. (2017), Ngissa et al. (2024), Kavana (2021)

Things such as stigma, culture, taboos and geographical disparities have been mentioned as the most significant barriers that students face in accessing health information in East Africa (Sidze et al., 2017). Structural barriers, such as being out of school and needing permission to access information, as well as interpersonal barriers, such as being unable to ask for help when needed, were significant obstacles to SRH service utilization (Mwanga et al., 2008; Mbarushimana et al., 2022; Embleton et al., 2023).

Cultural stigmas surrounding sexual health education often lead to students' reluctance to seek information openly (Langat et al., 2024; Rehnström Loi et al., 2019). Muhwezi et al. (2015) also reported on challenges in accessing sexual health information because students perceived fathers to be strict, intimidating, unapproachable and unavailable for discussing matters related to sex and the fear of social judgment and confusion over sensitive topics such as contraceptive use can discourage students from utilizing available resources. Not only that, but also cultural sensitivities hinder open discussions about mental health, limited resources available for effective program delivery and resistance to change from educators, parents, and the broader community(Chadwick et al., 2022).

Poor infrastructure severely limits access to credible health information in many rural areas. A study by Mureithi et al., (2021) corroborated this, noting that economic challenges and cultural norms significantly restrict youth access to reproductive health information, particularly in Kenya. Similarly, Kenya has been reported to have challenges in policies that support comprehensive sex education. There is support for sex education from the Kenyan government. However, education sector policies have largely promoted an abstinence-only approach, resulting in a lack of comprehensiveness in the range of topics offered in curricula (Sidze et al., 2017). Following the discussion on policy constraints in access to health information, other countries can modify the policies to support access to health information, such as the governmental policies in Tanzania, which surround health education and also play an essential role, as noted by Mavura et al. (2022) where funding constraints often lead to poorly implemented health education curricula, resulting in limited engagement from both educators and students. Langat et al. (2024) further emphasized that stigma associated with discussing sexual health hinders adolescents from seeking information or assistance, leading to a lack of knowledge about available services.

The cross-cultural differences and institutional barriers are also critical; students from different socioeconomic backgrounds may experience varying degrees of access to health information, which affects the uniformity of educational outcomes across different schools (Oware et al., 2023). The findings from Ndayishimiye et al. (2020) and Seidu et al.(2022) underscore the challenges young people face in accessing sexual and reproductive health information due to inadequate resources and cultural norms that discourage open discussions. In particular, geographical discrepancies, socioeconomic status, and a lack of trained personnel complicate the education landscape and limit access to vital health information (Ogolla & Ondia, 2019; Kamangu & Mbago, 2024).

Another barrier to accessing health information was the lockdown during the coronavirus pandemic (Mambo et al., 2021). Apart from cultural, geographical, and pandemic limitations to access information, there is a lack of credible sources of health information. Despite the availability of various sources of health information, challenges exist that hinder the full implementation of these sources in the dissemination of health information. In Uganda, Ninsiima et al. (2020) identified other challenges to the credibility and effectiveness of existing information sources, including a lack of capacity, inadequate financial commitment, and poor coordination among relevant sources. Additionally, a study by Apondi et al. (2021) highlighted the challenge of a lack of coordination between the Ministry of Health and the Ministry of Education, which could compromise the credibility and effectiveness of information sources. Chadwick et al. (2022) reported a lack of credible and effective sources of reproductive health information. This calls for ensuring that there are enough effective and credible sources of health information and making a conducive environment for them to play their roles of disseminating health information because they are crucial in shaping students' attitudes and behaviours regarding sensitive health issues such as HIV prevention, substance abuse, and reproductive health choices through the information they carry Mavura et al. (2022).In light of these barriers, there is an urgent need for policy interventions to enhance access to health information. For instance, integrating technology into health education, such as utilizing mobile phones and social media platforms, could provide alternative avenues for disseminating accurate health information. This approach can help mitigate the stigma associated with discussing sexual health openly, as suggested by Inwani et al. (2021), who highlighted the potential of mobile applications to improve adolescents' access to confidential sexual and reproductive health information.

3.6.1 Knowledge Gap/ Policy Implication of the Study

Despite extensive research on various aspects of health information among secondary school students in Tanzania, significant knowledge gaps remain: Demographic Variability: The current literature lacks comprehensive studies that analyze how demographic factors (such as age, socioeconomic status, and urban versus rural settings) affect students' health information needs and access to needed health information. Further research is needed to understand how these demographic variables impact students' health outcomes and the utilization of healthcare resources. There is a gap in students' perceptions of the effectiveness of different sources and channels for disseminating health information among secondary schools. Addressing these knowledge gaps through targeted research could lead to more effective health education strategies and interventions, ultimately fostering improved health behaviours among secondary school students in Tanzania and similar contexts.

IV. CONCLUSION & RECOMMENDATION

4.1 Conclusion

In conclusion, this systematic review highlights the crucial role of health information in influencing health behaviours among secondary school students in East Africa, particularly in Tanzania, Rwanda, Burundi, Kenya, and Uganda. Despite some progress, significant barriers persist, including cultural stigmas, limited access to reliable information sources, and variable perceptions of the usefulness of health information. Addressing these gaps through targeted research and tailored health education strategies will be crucial for promoting informed health choices, ultimately enhancing the health outcomes of adolescents in the region. Investigating the factors that influence health information needs, sources, and accessibility is necessary for effective health information dissemination.

4.2 Recommendations

The study recommends mixed-methods studies that explore the influence of demographic factors such as age and socioeconomic status on the health information needs and access of secondary school students in Tanzania. Investigation of how secondary school students perceive the effectiveness of various sources and channels (e.g., social media, school programs, peer discussions). The exploration of the factors that impact how secondary school students access health information. In addition, the study recommends a comparative study on health information access and use among East African member states, taking into consideration social and economic differences among member states to determine the role of gender, culture, and religion in shaping health information access and use, and health information seeking behaviour among secondary school students.

REFERENCES

Adan, F. I., Githae, M. N., & Githae, C. A. M. N. (2018). Factors influencing access to reproductive health information services among young aged 15–24 in Garissa Municipality, Kenya. *International Journal of Contemporary Research and Review, 9*(08), 20537–20574.

Apondi, E., Wachira, J., Ayikukwei, R., Kafu, C., Onyango, J., Omollo, M., Genberg, B., Nyandiko, W., & Braitstein, P. (2021). Barriers to ART adherence among school students living with HIV in Kenya. *African Journal of AIDS Research, 20*(3), 232–237. https://doi.org/10.2989/16085906.2021.1979606

Ayubu, A. E., & Kabeya, L. D. (2019). Knowledge, attitudes, and use of family planning methods among female secondary school students in Tanzania. *Research Square*, 1–13. https://doi.org/10.21203/rs.2.13447/v1

Bishoge, O. K., Aremu, A. K., Ajayi, D. D., & Mfinanga, S. (2022). Awareness and knowledge of environmental health among secondary school students from Mtwara town in Tanzania. *Frontiers in Public Health, 20*(3), 1–15. https://doi.org/10.55131/jphd/2022/200301

Boateng, S., Baah, A., Boakye-Ansah, D., & Aboagye, B. (2022). Senior high school students' knowledge and attitudes toward information on their health in the Kumasi Metropolis. *Frontiers in Public Health, 9*(1), 1–11. https://doi.org/10.3389/fpubh.2021.752195

Chadwick, H., Baumann, A., Ogba, P., Banfield, L., & DiLiberto, D. D. (2022). Exploring adolescent engagement in sexual and reproductive health research in Kenya, Rwanda, Tanzania, and Uganda: A scoping review. *PLOS Global Public Health, 2*(10), 1–13. https://doi.org/10.1371/journal.pgph.0000208

Chesire, F., Mugisha, M., Ssenyonga, R., Rose, C. J., Nsangi, A., Kaseje, M., Sewankambo, N. K., Oxman, M., Rosenbaum, S. E., Moberg, J., Dahlgren, A., Lewin, S., Venkateswaran, M., Papadopoulou, E., & Oxman, A. D. (2024). Effects of the informed health choices secondary school intervention after 1 year: A prospective meta-analysis using individual participant data. *Trials, 25*(1), 2. https://doi.org/10.1186/s13063-024-08577-w

Dickson, M. (2023). Factors influencing utilization of reproductive health service among adolescents aged 12–19 years in Mbarara Municipality schools publications. *Newport International Journal of Research in Medical Sciences, 3*(1), 2.

Embleton, L., Braitstein, P., Di Ruggiero, E., Oduor, C., & Wado, Y. D. (2023). Sexual and reproductive health service utilization among adolescent girls in Kenya: A cross-sectional analysis. *PLOS Global Public Health, 3*(2), 1–14. https://doi.org/10.1371/journal.pgph.0001508

Håkansson, M., Mamo, R. A., Parwani, H. B., Otieno, B., & Makenzius, M. (2024). Unmet needs for comprehensive sexuality education: A qualitative study among secondary school students in Western Kenya. *American Journal of Sexuality Education, 19*(1), 42–57. https://doi.org/10.1080/15546128.2023.2189194

Handebo, S., Adugna, A., Kassie, A., & Shitu, K. (2021). Determinants of COVID-19-related knowledge and preventive behaviours among students in reopened secondary sectional study schools: Cross-sectional study. *Newport International Journal of Research in Medical Sciences, 3*(1), 1–10. https://doi.org/10.1136/bmjopen-2021-050189

Holst, C., Tschirhart, N., Ngowi, B., Noll, J., & Winkler, A. S. (2023). Utilizing community InfoSpots for health education: Perspectives and experiences in Migoli. *Health Promotion International, 38*(4), 1–11.

Inwani, I., Nduati, R., Carrion, C., & Macharia, P. (2021). An exploratory study of current sources of adolescent sexual and reproductive health information in Kenya and their limitations: Are mobile phone technologies the answer? *African Journal of Reproductive Health, 33*(3), 357–370. https://doi.org/10.1080/19317611.2021.1918311

Ito, K., Madeni, F. E., & Shimpuku, Y. (2022). Secondary school students' and peer educators' perceptions of adolescent education in rural Tanzania: A qualitative study. *Reproductive Health, 19*(1), 1–14. https://doi.org/10.1186/s12978-022-01418-6

Kalu, N. U., Igwe, U. O., Okorie, N. C., Okewumi, T. M., & Dahiru, U. (2022). Information-seeking behaviour, access to health information, and personal hygiene practices among secondary school students in Ohafia. *Tin-City Journal of Library, Archival and Information Science, 11*(1 & 2), 2022. http://www.tjolais.com/index.php/tjolais/article/view/90

Kamangu, A. A., & Mbago, M. C. Y. (2024). Provision of sexual health education in secondary schools: A multidisciplinary lens of stakeholders in southern highlands, Tanzania. *Heliyon, 10*(9), e30846. https://doi.org/10.1016/j.heliyon.2024.e30846

Kavana, N. (2021). Sexually transmitted infections among secondary school students. *Journal of Health Medicine and Nursing, 1*, 20–27.

Kemigisha, E., Bruce, K., Ivanova, O., Leye, E., Coene, G., Ruzaaza, G. N., Ninsiima, A. B., Mlahagwa, W., Nyakato, V. N., & Michielsen, K. (2019). Evaluation of a school-based comprehensive sexuality

education program among very young adolescents in rural Uganda. *BMC Public Health, 19*(1), 1–11. https://doi.org/10.1186/s12889-019-7805-y

Langat, E. C., Mohiddin, A., Kidere, F., Omar, A., Akuno, J., Naanyu, V., & Temmerman, M. (2024). Challenges and opportunities for improving access to adolescent and youth sexual and reproductive health services and information in the coastal counties of Kenya: A qualitative study. *BMC Public Health, 24*(1), 1–11. https://doi.org/10.1186/s12889-024-17999-9

León-Himmelstine, C., Samman, E., Kyungu, E., et al. (2021). Mental health and psychosocial well-being among adolescents in Tanzania: Findings from a mixed-methods baseline study. *ODI Report*. London: ODI. https://odi.org/en/publications/mental-health-and-psychosocialwell-being-among-adolescents-in-tanzania-baseline

Lyimo, A. A., Guo, J., Mushy, S. E., & Mwilike, B. E. (2024). Use of contraceptives and associated factors among male adolescents in rural secondary schools, Coast Region, Tanzania: A school-based cross-sectional study. *Contraception and Reproductive Medicine, 9*(1), 1–11. https://doi.org/10.1186/s40834-024-00268-w

Mambo, S. B., Sikakulya, F. K., Ssebuufu, R., Mulumba, Y., Wasswa, H., Adomi Mbina, S., Rusatira, J. C., Bhondoekhan, F., Kamyuka, L. K., Akib, S. O., Kirimuhuzya, C., Nakawesi, J., & Kyamanywa, P. (2021). Challenges in access and utilization of sexual and reproductive health services among youth during the COVID-19 pandemic lockdown in Uganda: An online cross-sectional survey. *Frontiers in Reproductive Health, 3*, 1–10. https://doi.org/10.3389/frph.2021.705609

Mavura, R. A., Nyaki, A. Y., Leyaro, B. J., Mamseri, R., George, J., Ngocho, J. S., & Mboya, I. B. (2022). Prevalence of substance use and associated factors among secondary school adolescents in Kilimanjaro region, northern Tanzania. *PLoS ONE, 17*(9), 1–15. https://doi.org/10.1371/journal.pone.0274102

Mbarushimana, V., Conco, D. N., & Goldstein, S. (2022). "Such conversations are not had in the families": A qualitative study of the determinants of young adolescents' access to sexual and reproductive health and rights information in Rwanda. *BMC Public Health, 22*(1), 1–14. https://doi.org/10.1186/s12889-022-14256-9

Mitchell, K. J., Ybarra, M. L., Korchmaros, J. D., & Kosciw, J. G. (2014). Accessing sexual health information online: Use, motivations and consequences for youth with different sexual orientations. *Health Education Research, 29*(1), 147–157. https://doi.org/10.1093/her/cyt071

Mkumbo, K., Schaalma, H., Kaaya, S., Leerlooijer, J., Mbwambo, J., & Kilonzo, G. A. D. (2009). The application of intervention mapping in developing and implementing school-based sexuality and HIV/AIDS education in a developing country context: The case of Tanzania. *Scandinavian Journal of Public Health, 37*(suppl 2), 28–36. https://doi.org/10.1177/1403494808091345

Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., & Group, T. P. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *PLoS Medicine, 6*(7), e1000097. https://doi.org/10.1371/journal.pmed.1000097

Muhwezi, W. W., Katahoire, A. R., Banura, C., Mugooda, H., Kwesiga, D., Bastien, S., & Klepp, K. (2015). Perceptions and experiences of adolescents, parents and school administrators regarding adolescent-parent communication on sexual and reproductive health issues in urban and rural Uganda. *Reproductive Health, 12*(1), 1–16. https://doi.org/10.1186/s12978-015-0099-3

Municipality, B., & Asiimwe, R. (2023). Health education and students' academic welfare. *Journal of Research, Innovation and Implication in Education (JRIIE), 7*(4), 117–129.

Mureithi, P. M., Otieno, S., & Njoroge, W. (2021). Relationship between access to reproductive health information and risky sexual behaviour among secondary school adolescents in Kiambu County, Kenya. *Journal of Health Medicine and Nursing, 6*(1), 14–39.

Mutea, L., Odhiambo, S., Kadiri, F., Michielsen, 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), 1–17. https://doi.org/10.1371/journal.pone.0241985

Mwageni, E. (2006). The role of sexual reproductive health education in adolescents: Sexual behaviours in secondary schools in Morogoro Municipality, Tanzania. *African Journal of Reproductive Health, 10*(2), 228–242.

Mwanga, J. R., Jensen, B. B., Magnussen, P., & Aagaard-Hansen, J. (2008). School children as health change agents in Magu, Tanzania: A feasibility study. *Health Promotion International, 23*(1), 16–23. https://doi.org/10.1093/heapro/dam037

Mwangosi, I. E. A. T., Mwakatobe, K. M., & Astrom, A. N. K. (2002). Sources of oral health information and teaching materials for primary school teachers in Rungwe District, Tanzania. *International Dental Journal, 52*(6), 469–474. https://doi.org/10.1111/j.1875-595X.2002.tb00644.x

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), 1–11. https://doi.org/10.1186/s12913-020-05556-0

Ngilangwa, D. P., Mkuwa, S., & Meremo, A. (2016). Accessibility to sexual and reproductive health and rights education among marginalized youth in selected districts of Tanzania. *Pan African Medical Journal, 25*(2), 1–7. https://doi.org/10.11604/pamj.supp.2016.25.2.10922

Ngissa, S., Sanga, E., Nsanya, M. K., Kweka, B., & Malindisa, E. (2024). Curriculum-based sexual and reproductive health education: Revealing its relevance for risky sexual behaviours among secondary school students in Mwanza, Tanzania. *Reproductive Health, 21*(1), 1–10. https://doi.org/10.1186/s12978-024-01798-x

Ninsiima, A. B., Coene, G., Michielsen, K., Najjuka, S., Kemigisha, E., Ruzaaza, G. N., Nyakato, V. N., & Leye, E. (2020). Institutional and contextual obstacles to the implementation of sexuality education policy in Uganda. *Sex Education, 20*(1), 17–32. https://doi.org/10.1080/14681811.2019.1609437

Nkata, H., Teixeira, R., & Barros, H. (2019). A scoping review on sexual and reproductive health behaviours among Tanzanian adolescents. *Public Health Reviews, 40*, 1–15.

Ogolla, M. A., & Ondia, M. (2019). Assessment of the implementation of comprehensive sexuality education in Kenya. *African Journal of Reproductive Health, 23*(2), 110–120. https://doi.org/10.29063/ajrh2019/v23i2.11

Oware, P. M., De Angeles, K. J. C., Ntinyari, W., Langat, N., Mboya, B., Ekström, A. M., & Kågesten, A. E. (2023). "I wouldn't believe her at first"—A qualitative study of young people's sexual consent perceptions and negotiation in Nairobi informal settlements. *Journal of Interpersonal Violence, 38*(21–22), 11520–11544. https://doi.org/10.1177/08862605231185301

Panchaud, C., Keogh, S. C., Stillman, M., Awusabo-Asare, K., Motta, A., Sidze, E., & Monzón, A. S. (2019). Towards comprehensive sexuality education: A comparative analysis of the policy environment surrounding school-based sexuality education in Ghana, Peru, Kenya and Guatemala. *Sex Education, 19*(3), 277–296. https://doi.org/10.1080/14681811.2018.1533460

Pearce, L. B. T., & Ford, J. D. (2015). Systematic review approaches for climate change adaptation research. *Regional Environmental Change, 15*, 755–769. https://doi.org/10.1007/s10113-014-0708-7

Philipo, R., & Ntawigaya, N. J. (2025). Assessing the provision of healthcare services and their effects in rural secondary schools in Tanzania. *East African Journal of Education Studies, 8*(1), 146–158. https://doi.org/10.37284/eajes.8.1.2579

Rehnström Loi, U., Otieno, B., Oguttu, M., Gemzell-Danielsson, K., Klingberg-Allvin, M., Faxelid, E., & Makenzius, M. (2019). Abortion and contraceptive use stigma: A cross-sectional study of attitudes and beliefs in secondary school students in western Kenya. *Sexual and Reproductive Health Matters, 27*(3), 1–10. https://doi.org/10.1080/26410397.2019.1652028

Schmidt, L., Olorisade, B. K., McGuinness, L. A., Thomas, J., & Higgins, J. P. T. (2021). Data extraction methods for systematic review (semi)automation: A living systematic review. *F1000Research, 10*, 1–31. https://doi.org/10.12688/f1000research.51117.1

Seidu, A. A., Ameyaw, E. K., Ahinkorah, B. O., Baatiema, L., Dery, S., Ankomah, A., & Ganle, J. K. (2022). Sexual and reproductive health education and its association with ever use of contraception: A cross-sectional study among women in urban slums, Accra. *Reproductive Health, 19*(1), 1–10. https://doi.org/10.1186/s12978-021-01322-5

Sidze, E. M., Stillman, M., Keogh, S., Mulupi, S., Egesa, C. P., Mutua, M., Muga, W., Bankole, A., & Izugbara, C. O. (2017). From paper to practice: Sexuality education policies and their implementation in Kenya. *African Population and Health Research Center*.

Singh, A., Both, R., & Philpott, A. (2021). 'I tell them that sex is sweet at the right time'–A qualitative review of 'pleasure gaps and opportunities' in sexuality education programmes in Ghana and Kenya. *Global Public Health, 16*(5), 788–800. https://doi.org/10.1080/17441692.2020.1809691

Tengia-Kessy, A., & Health, H. K.-E. A. J. of P. (2016). Levels of knowledge and sources of information on sexually transmitted infections among secondary school youth in Dar es Salaam, Tanzania. *East African Journal of Public Health, 3*(2), 19–22. http://www.bioline.org.br/abstract?lp06011

Westeneng, J., Reis, R., & Berckmoes, L. H. (2020). *The effectiveness of sexual and reproductive health education in Burundi: Policy brief*. Dutch Research Council (NWO).

WHO. (2019). *Report of an adolescent health services barriers assessment (AHSBA) in the United Republic of Tanzania, with a focus on disadvantaged adolescents*. World Health Organization.