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Perceived Access to Healthcare Services Among Learners in Boarding Secondary Schools in Mbarara City, Southwestern Uganda

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PERCEIVED ACCESS TO HEALTHCARE SERVICES AMONG LEARNERS IN BOARDING SECONDARY SCHOOLS IN MBARARA CITY, SOUTHWESTERN UGANDA

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ABSTRACT

Background: Boarding secondary school learners depend on their schools for healthcare because they live away from their families during the school term. Uganda's National School Health Policy has not been fully implemented, and evidence on learners' perceived access to healthcare services in boarding secondary schools remains limited. This study assessed the level of perceived access to healthcare services, the services commonly available, and the factors associated with perceived access among learners in boarding secondary schools in Mbarara City, southwestern Uganda.

Methods: An analytical cross-sectional study, employing quantitative method was conducted in six boarding secondary schools in two divisions of Mbarara City. A total of 270 learners were selected by simple random sampling (45 per school) and interviewed using a structured questionnaire adapted from the Perceived Access to Healthcare Questionnaire (PAHSQ). Perceived access was assessed using a 34-item scale covering six dimensions, with higher scores indicating good perceived access. Data were analyzed using descriptive statistics and binary logistic regression in Stata version 17.

Results: Overall, 169 of 270 learners (62.6%) had good perceived access to healthcare services. However, availability (mean item score 1.82/4) and accommodation (1.82/4) were the lowest-rated dimensions of perceived access. The most commonly available services were medical treatment (68.1%), first aid (67.2%), and health education (62.1%), whereas mental health services (17.1%) and disease screening (20.7%) were least available. Acceptable travel time to the point of care (aOR 3.54, 95% CI: 1.83-6.86) was positively associated with good perceived access, while female learners had lower odds of good perceived access than males (aOR 0.45, 95% CI: 0.23-0.87).

Conclusion: Although most learners reported overall good perceived access to healthcare services, access was largely limited to basic curative care, with important gaps in preventive and specialized services.

INTRODUCTION

Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity", (WHO 1948.) Several factors affect an individual's health and they may sometimes be stated as "determinants of health". They are; socioeconomic status, age, immunity of the body, exposure to drugs, and inequality to mention but a few (Diomidous and Magdalinou, 2020). Growing up at boarding school presents a unique constellation of opportunities and challenges for adolescents who reside at school compared to those attending high school while living at home. (Pavletic et al 2006). Leaners require considerable health care services for optimum health and to be able to pay attention to their studies and improve academic performance (McCalman et al., 2020a). However, even when all secondary school learners need to access health care services while at school, boarding learners need it much more than their counterparts. This is because they spend much of their life away from their family members, parents and guardians. Their lives are entirely dependent on the wellbeing, safety and health of the school, through school staffs, surroundings and administrators, and so does their health (McCalman et al., 2020a).

Access is a dominant concept for measuring the performance of healthcare schemes across the globe (Aday and Andersen, 1974, Levesque et al., 2013). It is extensively explained premised on the availability, affordability, accommodation, awareness, and acceptability of services for greatest health results (Gulliford and Morgan, 2013). According to Gulliford and Morgan, access refers to "the characteristics of factors influencing the entry and use of the healthcare system" (Gulliford and Morgan, 2013). It pronounces the occasions or effortlessness with which people or entities can use superior and effective services to achieve their needs (Aday and Andersen, 1974).

In the bid to increase access to healthcare services (HCS), the Ugandan health Ministry drafted the Uganda national school health policy in 2008 but this largely remained on paper. It is not clear why this has taken so long without approval or why it was not adopted. However, there are other regulations and guidelines that oblige boarding schools to provide or make it easy for their learners to access healthcare services while at school. The Education act of 2008 requires schools to ensure that the health and welfare of learners have to be sufficiently catered for, (MOES, 2008). The guidelines governing operations of boarding schools too require boarding sections to have a sickbay manned by a qualified health worker (MOES, 2014). These regulations go on to specify a first aid kit to provide quick intervention to learners in case of any accidents, and have

a referral system for management of complicated conditions which cannot be managed by school health workers. With less literature about health care services provision in secondary schools, not much is understood about learners' access to health care services, more so in boarding secondary schools in Uganda.

In secondary schools, implementation and provision of health care services is not only an effort of the school but rather a collective effort of teachers, learners, school administrators, district education office, the Government, in this case Government of Uganda (GOU), leaders, parents and other stake holders. In a 2014 study, collective commitment of all stakeholders of education was found to have a significant and positive relationship with how secondary schools were managing safety and health (Sekiwu and Kabanda, 2014).

Boarding learners again are exposed to a lot of catastrophes which have a potential to injure them and cause or spread diseases to them (Adria et al., 2016). These catastrophes include fevers from poor malaria prevention measures, food poisoning from poorly cooked and unhygienic foods, falls and fractures from games such as athletics, football; urinary tract infections from poor hygienic latrines, bathrooms, toilets; skin infections from sharing clothes and beddings; respiratory infections from their surroundings, abdominal infections from unhygienic eating habits, sexual reproductive issues, sexually transmitted diseases and also mental health/psychosocial issues such as suicidal attempts which come along with adolescence and school performance demands. (McCalman et al., 2020a).

Ideally, Uganda though it is a resource limited country, it should have the same services in her boarding secondary schools whether public or private (Allensworth et al., 1997). With all the efforts laid down to improve health care services in boarding secondary schools by the government, there are still so many stumbling blocks to effect the policies put forward. Many facilities of care for school children still operate without being registered and licensed making enforcement mechanisms to appear weak and futile because of limited resources and inadequate capacity to carry out, follow up and supervise these facilities (Ddumba-Nyanzi and Li, 2018, McCalman et al., 2020a).

Therefore, with the above inadequacies and loopholes on the schools and the country at large, data on access of Health care services (HCS) by boarding secondary school learners remains scarce. This indirectly affects the learners' and adolescents' health in general.

2. Materials and Methods

2.1 Study Design

This study employed an analytical cross-sectional design using Quantitative method to assess the level of perceived access to healthcare services, most commonly available services and factors associated with perceived access among learners in boarding secondary schools in Mbarara City. The use of both analytical approach and quantitative method enabled a comprehensive assessment of healthcare access by quantifying learners' health experiences and assessing contextual factors associated with perceived access and availability of healthcare services within boarding secondary schools.

2.2 Study site and setting

The study was conducted within Mbarara City in the Western region of Uganda. Mbarara City is one of the major urban centers in Southwestern Uganda and serves as an important educational, commercial, and healthcare hub in the region. Administratively, the city is divided into two divisions: Mbarara City North and Mbarara City South. Mbarara City was selected as the study site because of its high concentration of boarding secondary schools, providing an appropriate setting for assessing access to healthcare services among learners residing within school premises. The study sites were both Government and Private boarding secondary schools in Mbarara City. The City has 51 registered secondary schools, comprising 10 public schools and the rest (41) are private secondary schools, with an estimated student population of approximately 53,200 learners, many of whom are enrolled in boarding sections.

2.4 Study population

The target population comprised all learners enrolled in registered boarding secondary schools, both Government and Private within Mbarara City, Southwestern Uganda.

The study population comprised learners aged 13 and above enrolled in registered boarding secondary schools in Mbarara City, Southwestern Uganda at the time of data collection. These learners were selected because they resided within school premises during the academic term and were therefore directly affected by the, accessibility and availability of healthcare services provided within schools or from nearby healthcare facilities. Official learners list, would be obtained from school authorities to confirm learners' registration status. The accessible

population included all learners in Senior one to senior six from the six selected boarding secondary schools in Mbarara city that were operational and provided consent to participate during the study period. Learners who were not at school for any reason at the time of data collection were forfeited and randomly replaced. The study was done among learners in boarding secondary schools and at a time when they were at school during a running academic term

3.6 Inclusion and Exclusion criteria:

3.6.1 Inclusion criteria

The study included learners who met the following criteria:

- Learners who were enrolled in registered boarding secondary schools in Mbarara City.
- Learners who had spent at least one school term in their current school.
- Learners who were aged 13 years and above.
- Learners who provided assent and whose parents or guardians provided informed consent for participation among those below 18 years of age.

3.6.2 Exclusion criteria

The study excluded:

- Participants who were too ill or medically unfit to participate in or complete the interview process and those who voluntarily decided to withdraw from the interview process

3.8 Sample Size determination

Since the total boarding population in the 6 schools was not known at design stage and at time of sample size determination, the sample size for the quantitative component of the study was determined using Cochrans's formula for infinite population as

Z = standard normal deviation corresponding to a 95% confidence level

(1.96) e^2 = precision error will be taken at 5% which is 0.05

P = estimated Prevalence of health care access in comparable settings (0.7802) (Wei et al, 2019)

n= (3.8416*0.2198*0.7802) / (0.0025) n= 264

The minimum required sample size was therefore approximately 264 learners. To account for possible non-response, a 10% adjustment was added, resulting in an additional 26

participants. Therefore, the final sample size for the quantitative part of the study was 290 learners. However, the response rate was 270 learners.

Sampling procedures

A multistage sampling approach was used to select study participants.

Stage 1: Stratified Sampling

A list of registered boarding secondary schools in Mbarara City was obtained from the relevant city education authorities. The schools were stratified according to the two administrative divisions of Mbarara City (Mbarara City North and Mbarara City South). Three boarding secondary schools were then selected from each division using stratified simple random sampling, by inscribing the name of each school on separate small pieces of paper, folding them and then shook them in a bowl before three papers were picked at random for each division resulting in a total of six selected schools. The schools included Global High School, Gracious Secondary School, Mbarara Allied Secondary School, Mbarara Central Secondary School, Nyakayojo Secondary School, and St. Mary's Girls Vocational Secondary School.

An equal allocation sampling strategy was used to determine the number of participants selected from each school. Each selected school contributed 45 learners, giving a total sample size of 270 learners. This approach ensured equal representation of learners across the participating schools.

Stage 2: Stratified Sampling where each selected school was a stratum

Stage 3: Simple random sampling by the lottery method without replacement

At each selected school, a sampling frame (boarding register) consisting of all eligible boarding learners was obtained from school authorities. Learners were assigned numbers as per official register lists which were inscribed on small pieces of paper, folded and then shook in the bowl before only 45 pieces of papers would be picked obtain sampled participants. Those who would not be found available would be replaced by picking another paper from the bowl. 45 learners were then selected from each school using simple random sampling. Learners who met the eligibility criteria and provided informed consent or assent were included in the study.

Study Variables

Independent variables:

The independent variables included factors hypothesized to influence learners' perceived access to healthcare services. These included socio-demographic characteristics (age, sex, level of

education, and tribe), healthcare service-related factors (availability of services, cost of services, distance to healthcare facilities, waiting time, and staffing), and user-related factors (awareness of available services, attitudes of healthcare providers, personal values, and perceptions regarding healthcare services). The presence of appropriate healthcare structures within schools was also assessed as an independent variable.

Dependent variable

The dependent variable was perceived access to healthcare services among learners in boarding secondary schools. Perceived access was assessed using six dimensions: affordability, availability, appropriateness, acceptability, awareness, and accommodation. A 34-item questionnaire measured on Likert scale was used to measure the dimensions of perceived access. Each item was assigned a psychometric response of Strongly agree, Agree, Neutral, Disagree and strongly disagree, with each yielding a score of 4-0 respectively. Maximum possible score for each dimension would be 4 times the number of items in that dimension and lowest score would be 0. Total Scores from these dimensions were combined to generate an overall perceived access score, which was categorized as either deficient or good perceived access. Participants with scores at or below mean (≤70.3) were categorized as having deficient perceived access, while those with scores above mean (>70.3) were categorized as having good perceived access.

Data Collection tools and procedures

Data were collected using quantitative methods. A pretested researcher-administered questionnaire was used to collect data from learners through face-to-face interviews. The questionnaire consisted of four sections: Section A captured socio-demographic characteristics of participants; Section B assessed the healthcare services available to learners within boarding secondary schools, Section C assessed the fac tors that affect access to health care and Section D assessed learners' access to healthcare services based on the dimensions of affordability, availability, accessibility, acceptability, awareness, and accommodation. The assessment of access to healthcare services was adapted from the Perceived Access to Health Care Questionnaire developed by Hoseini-Esfidarjani et al. (2021). The tool was selected because it assesses multiple dimensions of healthcare access, including affordability, availability, appropriateness, acceptability, awareness, and accommodation (Hoseini-Esfidarjani et al., 2021). The questionnaire was modified by the researcher to reflect the context of boarding secondary schools and was administered directly to learners. Items assessing healthcare access were

measured using a five-point Likert scale ranging from absolutely disagree (0) to absolutely agree (4). The dimensions of healthcare access in the original instrument demonstrated acceptable reliability, with a reported Cronbach's alpha coefficient of 0.78.

Information on healthcare services available within schools was collected by providing participants with a list of commonly provided services, including HIV counselling and testing, vaccination/immunization, health education, disease screening services, nutrition services, menstrual health and hygiene services, mental health services, and medical treatment. Participants were asked to indicate the services available in their respective schools.

Quality Control

Several measures were implemented to ensure the quality and reliability of the study data. Before data collection, 02 research assistants were trained on the study objectives, data collection procedures, ethical considerations, and administration of the study tools. These were both University graduates with Bachelor's Degree in Nursing sciences each with certificate in Good clinical practice/responsible conduct of research. The data collection tools were pretested in 02 boarding secondary schools in Kiruhura District that were not included in the final study. The quantitative questionnaire was pretested among 10 learners from each school to assess clarity, comprehension, relevance, and the appropriateness (both content and face validity) of the questions within the study context. Feedback obtained during pretesting was used to revise and refine the tool before the actual data collection. The training aimed to promote consistency in data collection and minimize interviewer-related errors.

During data collection, completed questionnaires were reviewed daily by the research team for completeness, consistency, and accuracy. Any identified errors or missing information were addressed promptly where possible. Data was handled confidentially, and access was restricted to the research team.

Data Management and Analysis

Completed questionnaires were entered into Microsoft Excel using a predefined codebook in which numerical codes were assigned to each response option. The dataset was subsequently imported into Stata version 17 (StataCorp, College Station, TX, USA) for data cleaning and analysis. Categorical variables were summarized using frequencies and percentages, while continuous variables were summarized using means and standard deviations.

Perceived access to healthcare services was measured using a 34-item adapted perceived access scale covering six dimensions: appropriateness, availability, acceptability, affordability, accommodation, and awareness. Each item was scored on a five-point Likert scale ranging from 0 (absolutely disagree) to 4 (absolutely agree), resulting in a total possible score ranging from 0 to 136. Based on the study protocol, participants with total scores at or below 70.3 were categorized as having good perceived access, while those scoring above 70.3 were categorized as having deficient perceived access. This cut off was based on literature, were there are no standard cut off for perceived access to health care services that are documented. In such cases, we determined the cut off by dichotomizing the outcome based on mean perceived access (Tadesse et al 2022). The internal consistency of the adapted scale was assessed using Cronbach's alpha. Dimension-specific scores were calculated as the mean item score within each dimension to allow comparison across dimensions with different numbers of items. The healthcare services available to learners and challenges experienced when seeking healthcare were assessed using multiple-response questions. Responses were summarized using frequencies and proportions of learners reporting each service or challenge.

Factors associated with good perceived access to healthcare services were assessed using binary logistic regression. Bivariate analysis was first conducted to determine the association between individual independent variables and healthcare access. Variables for Multivariate logistic regression were selected based on both statistical significance at bivariate analyses ($p<0.2$) and biological and social plausibility from literature. Variables such as age, sex, travel time, and presence of sick bay, were considered a priori cofounders and retained in the model regardless of statistical significance based on previous studies (Wei et al 2019). Results from logistic regression analysis were presented as crude and adjusted odds ratios with corresponding 95% confidence intervals. Model calibration was assessed using the Hosmer-Lemeshow goodness-of-fit test. Statistical significance was determined at a two-sided p-value of less than 0.05.

CHAPTER FOUR: RESULTS

4.1 Sociodemographic characteristics of the study participants

A total of 270 learners from six boarding secondary schools in Mbarara City participated in this study, with 45 learners enrolled from each school. Most participants were female (166/270, 61.5%) and the mean age was 17.2 ±1.9 years, with 168 of 270 learners (62.2%) aged below 18

years. Nearly three quarters of the learners were in O-level (196/266, 73.7%), and the majority were of Anglican religion (107/270, 39.6%) (***Table 1***).

Table 1: Sociodemographic characteristics of learners in boarding secondary schools in Mbarara City, southwestern Uganda (N = 270)

Characteristic	*Frequency (n)*	*Percent (%)*
Sex		
Male	104	38.5
Female	166	61.5
Age group		
13-17 years	168	62.2
18 years and above	102	37.8
Level of education (n = 266)		
O-level	196	73.7
A-level	70	26.3
Religion		
Catholic	68	25.2
Anglican	107	39.6
Muslim	32	11.9
Seventh-day Adventist (SDA)	6	2.2
Born again	48	17.8
Other	9	3.3
Tribe		
Munyankole/Mukiga	187	69.3
Munyarwanda/Mufumbira	24	8.9
Munyoro/Mutoro	9	3.3
Muganda/Musoga	29	10.7
Other	21	7.8
Length of stay in boarding section		
Less than 3 terms	207	76.7
3 terms or more	63	23.3

4.2 Healthcare-seeking practices and the school health service environment

When feeling unwell, just over half of the learners reported visiting the school clinic (147/270, 54.4%), while 54 of 270 (20.0%) asked for permission to go home and 15 (5.6%) did nothing. Most learners reported the presence of a clinic in or near their school (229/270, 84.8%), a nurse or doctor responsible for their health needs (191/270, 70.7%), and medicines or medical supplies (186/266, 69.9%). However, only 108 of 270 learners (40.0%) reported accessing care every time they needed it, and 84 of 268 (31.3%) rated the quality of the health services in their school as

poor. Eighty-five learners (85/270, 31.5%) paid directly for medical care at school, and among these, more than half reported that the cost was not affordable (53/85, 62.4%) (***Table 2***).

Table 2: Healthcare-seeking practices and the school health service environment reported among learners in boarding secondary schools in Mbarara City (N = 270)

Characteristic	*Frequency (n)*	*Percent (%)*
Action taken when feeling unwell		
Visit the school clinic	147	54.4
Ask for permission to go home	54	20.0
Tell the health teacher/administrator	49	18.2
Nothing	15	5.6
Other	5	1.9
Travel time to point of medical care		
Less than 5 minutes	134	49.6
6-15 minutes	71	26.3
16-30 minutes	20	7.4
More than 30 minutes	45	16.7
Service environment		
Travel time acceptable (n = 267)	192	71.9
Clinic in or near the school	229	84.8
Nurse/doctor responsible for health needs	191	70.7
Medicines/medical supplies available (n = 266)	186	69.9
Frequency of accessing care when needed		
Every time	108	40.0
Quite often	25	9.3
Once in a while	109	40.4
Not at all	28	10.4
Perceived quality of school health services (n = 268)		
Excellent	42	15.7
Fair	142	53.0
Poor	84	31.3
Payment for care		
Pays directly for medical care	85	31.5
Cost not affordable (among payers, n = 85)	53	62.4

4.3 Perceived level of access to healthcare services

The 34-item perceived access scale demonstrated excellent internal consistency (Cronbach's alpha = 0.93). The mean perceived access score was 70.3 (SD 24.8; 95% CI: 67.4-73.3) out of a possible 136, with a median of 70.5 (IQR 55-83). Across the six dimensions of perceived access,

availability (mean item score 1.82, SD 0.99) and accommodation (1.82, SD 0.93) had the lowest scores, while awareness (2.21, SD 0.87) and appropriateness (2.19, SD 0.98) had the highest scores. The proportion of learners with good perceived access differed significantly across the six schools, ranging from 53.3% to 84.4% (p = 0.004) (***Table 3***). Overall, 169 of 270 learners (62.6%; 95% CI: 65.3-76.4) had good perceived access to healthcare services while 101 (37.4%) had deficient perceived access (***Figure 1***).

Figure 1: Perceived level of access to healthcare services by learners

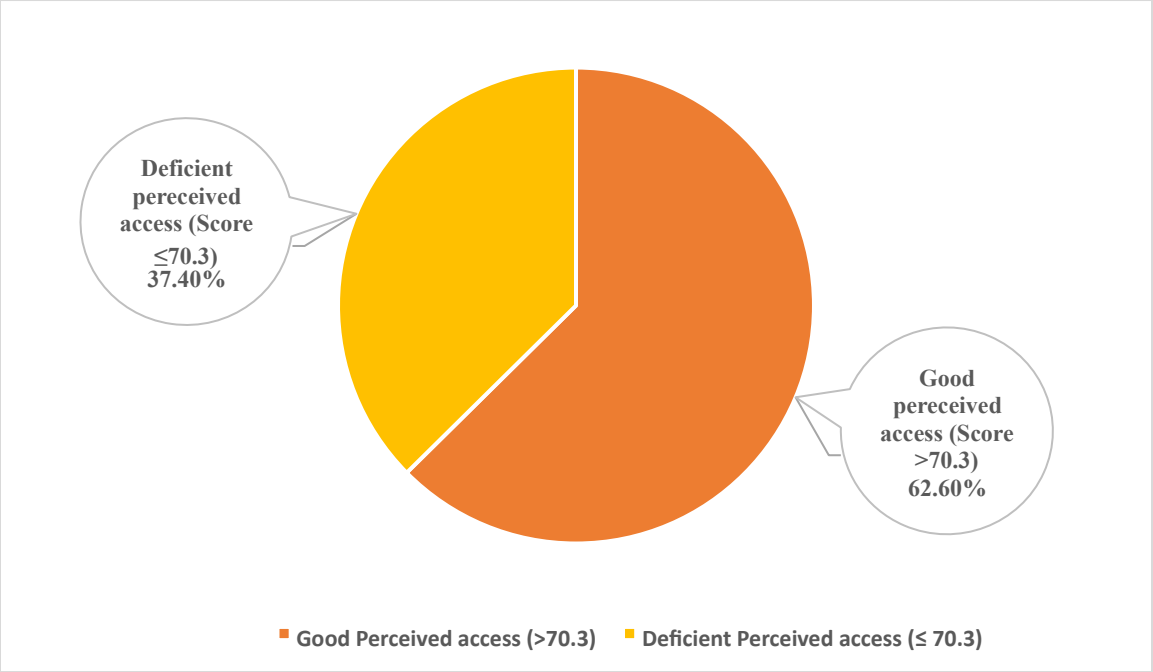


Table 3: Dimensions of perceived access to healthcare services among learners in boarding secondary schools in Mbarara City (N = 270)

Measure	*Estimate*	*95% CI / IQR*
Dimension scores, mean item score (SD), range 0-4		
Awareness	2.21 (0.87)	
Appropriateness	2.19 (0.98)	
Acceptability	2.11 (0.87)	
Affordability	2.11 (0.89)	
Availability	1.82 (0.99)	
Accommodation	1.82 (0.93)	

Key: IQR, interquartile range; SD, standard deviation.

4.4 Healthcare services available and challenges faced by learners

The healthcare services most reported as available were medical treatment (184/270, 68.1%), first aid (180/268, 67.2%) and health education (167/269, 62.1%). Preventive and specialized services were the least available, with disease screening reported by 56 of 270 learners (20.7%) and mental health services by only 46 of 269 (17.1%). The most frequently reported challenges when seeking care were rudeness of the teacher, nurse or doctor (126/270, 46.7%) and lack of medicines or drugs (121/270, 44.8%), followed by lack of privacy at the clinic (99/270, 36.7%) (***Table 4***).

Table 4: Healthcare services reported to be available and challenges faced when seeking care among learners in boarding secondary schools in Mbarara City.

Characteristic	*Frequency (n)*	*Percent (%)*
Healthcare services available		
Medical treatment	184	68.1
First aid services (n = 268)	180	67.2
Health education (n = 269)	167	62.1
Menstrual health and hygiene services	103	38.1
Vaccination/immunization	101	37.4
Nutrition services	84	31.1
HIV counselling and testing (n = 267)	62	23.2
Disease screening services	56	20.7
Mental health services (n = 269)	46	17.1
Other services	13	4.8

Challenges faced when seeking care		
Teacher/nurse/doctor is rude	126	46.7
No medicines or drugs	121	44.8
No privacy at the clinic	99	36.7
No time to visit the clinic (n = 269)	85	31.6
No clinic in school or nearby (n = 269)	59	21.9
No confidentiality	58	21.5
Clinic/health Centre is far (n = 269)	44	16.4
Other challenges	34	12.6

4.5 Factors associated with perceived access to healthcare services

In bivariate analysis, sex, the presence of a clinic in or near the school, availability of a nurse or doctor, availability of medicines, acceptability of the travel time and shorter travel time to the point of care were significantly associated with good perceived access to healthcare services. In the multivariable model, only sex and acceptability of the travel time remained independently associated with good access. Female learners had 55% lower odds of good access than male learners (aOR 0.45, 95% CI: 0.23-0.87, p = 0.018), while learners who found the travel time to the point of care acceptable had more than three times the odds of good perceived access compared with those who did not (aOR 3.54, 95% CI: 1.83-6.86, p < 0.001). The model showed adequate calibration (Hosmer-Lemeshow $\chi^2(8) = 6.38$, p = 0.605). (***Table 5***).

Table 5: Bivariate and multivariable logistic regression of factors associated with good perceived access to healthcare services among learners in boarding secondary schools in Mbarara City

Characteristic	*Good access, n (%)*	*Crude OR (95% CI)*	*P*	*Adjusted OR (95% CI)*	*P*
Sex*					
Male	86 (82.7)	1.00		1.00	
Female	106 (63.9)	0.37 (0.20-0.67)	0.001	0.45 (0.23-0.87)	**0.018**
Age group					
13-17 years	119 (70.8)	1.00		-	
18 years and above	73 (71.6)	1.04 (0.60-1.79)	0.897	-	
Level of education					
O-level	137 (69.9)	1.00		-	
A-level	53 (75.7)	1.34 (0.72-2.51)	0.356	-	
Religion*					
Catholic	55 (80.9)	1.00		1.00	
Anglican	74 (69.2)	0.53 (0.26-1.10)	0.089	0.62 (0.28-1.38)	0.241

Muslim	22 (68.8)	0.52 (0.20-1.36)	0.182	0.79 (0.27-2.30)	0.663
Born again	33 (68.8)	0.52 (0.22-1.23)	0.136	0.64 (0.25-1.64)	0.348
SDA/Other	8 (53.3)	0.27 (0.08-0.88)	0.030	0.28 (0.08-1.07)	0.062
Length of stay in boarding*					
Less than 3 terms	143 (69.1)	1.00	1.00		
3 terms or more	49 (77.8)	1.57 (0.81-3.04)	0.185	1.20 (0.57-2.51)	0.637
Clinic in or near the school*					
No	19 (46.3)	1.00		1.00	
Yes	173 (75.6)	3.58 (1.81-7.09)	<0.001	1.45 (0.61-3.43)	0.398
Nurse/doctor available*					
No	43 (54.4)	1.00		1.00	
Yes	149 (78.0)	2.97 (1.70-5.20)	<0.001	1.76 (0.86-3.59)	0.123
Medicines/supplies available*					
No	48 (60.0)	1.00		1.00	
Yes	141 (75.8)	2.09 (1.19-3.65)	0.010	1.03 (0.50-2.15)	0.930
Pays directly for care*					
No	137 (74.1)	1.00		1.00	
Yes	55 (64.7)	0.64 (0.37-1.12)	0.117	0.92 (0.47-1.80)	0.796
Travel time acceptable*					
No	34 (45.3)	1.00		1.00	
Yes	155 (80.7)	5.05 (2.83-9.01)	<0.001	3.54 (1.83-6.86)	**<0.001**

*Key: *variables considered for multivariable model; CI, confidence interval; Model LR $\chi^2(11) = 47.81$, $p < 0.001$; Hosmer-Lemeshow $\chi^2(8) = 6.38$, $p = 0.605$*

CHAPTER FIVE: DISCUSSION

This study assessed perceived access to healthcare services among learners in boarding secondary schools in Mbarara City, southwestern Uganda. Overall, 62.6% of learners had good perceived access to healthcare services, although notable gaps were observed across specific dimensions of access, particularly availability and accommodation. The most commonly available services were medical treatment, first aid, and health education, while preventive and specialized services, including disease screening and mental health services, were less frequently available.

Perceived access to healthcare services among boarding secondary school learners

This study found that nearly two-thirds of learners had good perceived access to healthcare services, although availability and accommodation were the lowest scored dimensions. This is comparable to recent study findings in Gulu city were only 61.8% had reported presence of a sickbay in boarding schools, (Opiro et al 2026). But this is much lower than that reported among Indigenous Australian boarding learners, of whom 81% had visited a doctor in the previous year and more than 90% were satisfied with the services used (McCalman et al., 2020). However, direct comparison is limited because the two studies measured perceived access differently. Comparable estimates of perceived access among school populations in sub-Saharan Africa are scarce, as most studies in the region have assessed service provision rather than learners' perceived access (Kuponiyi et al., 2016). The relatively fair level of perceived access observed in this study could be attributed to the urban setting of Mbarara City. Most learners reported a clinic within or near the school, and half could reach a point of care within five minutes. These conditions are unlikely to be the same in rural boarding schools, (Oladeji 2024). However, the low scores in the availability and accommodation dimensions suggest that what learners accessed readily was a narrow range of basic services rather than comprehensive care. This is because the scale measures learners' experience of reaching and using the services their schools offer, not the adequacy of those services (Levesque et al., 2013). These findings suggest that the presence of a clinic or health worker should not be equated with adequate access. Healthcare access also depends on the availability and accommodation of appropriate services that adequately respond to users' needs (Diop et al., 2023). Assessments of school health services should therefore examine the range and organization of services available to learners.

Availability of healthcare services in boarding secondary schools

This study found that the services reported to be available to learners were predominantly basic curative services, particularly medical treatment, first aid and health education, while disease screening, HIV counselling and testing, and mental health services were least available. These findings contrast with the MOES requirement to for schools to have psychosocial support services in place (MOES 2008). These findings are consistent with reports from the sub–Saharan Africa. In Western Nigeria, the practice of school health services in primary schools was poor, with nearly half of schools lacking any health personnel or trained first aider (Kuponiyi et al., 2016). In Kenyan boarding schools, dedicated programs were required to address stigma, gaps in sexual and reproductive health education and weak linkage between schools and health facilities for adolescents living with HIV (Kose et al., 2021). By contrast, secondary schools in Borno State, Nigeria were reported to provide immunization and preventive services among their principal services (Ngohi et al., 2018), suggesting considerable variability across African settings. In high-income settings however, boarding schools provide on-site nursing, counselling and comprehensive care (Pavletic et al., 2016). Australian boarding schools report high service utilization, although stronger integration with community health providers was suboptimal (McCalman et al., 2020).

The predominance of curative services in this study is explained by the conditions described by the key informants. No school reported a dedicated budget for learner health, staffing was thin and sometimes non-clinical, and no informant could identify a governing policy framework. Under these conditions, schools respond to visible illnesses and defer services that require sustained investment or linkage with the health sector. This means that the services most needed during adolescence, including early identification of mental health problems, screening and reproductive health care, are the very services learners cannot obtain. Opportunities for early intervention are therefore missed. Strengthening school health services in Uganda should prioritize expanding preventive and promotive services alongside curative care, in line with the WHO Global Standards for health-promoting schools (World Health Organization, 2021). This would enable boarding schools to function as settings for adolescent health rather than primarily as first-aid centers.

Factors associated with perceived access to healthcare services

In this study, learners who found the travel time to the point of care acceptable were more likely to have good perceived access to healthcare services compared to those who did not. This is consistent with findings from a study among boarding secondary school students in Kano Nigeria whose clinics were located < than 30mininutes walk reported good access, (Suberu et al 2019). This too resonates with a study among boarding learners in Australia, where learners were not accessing efficient healthcare services largely because of the distance between their accommodation and points of care (McCalman et al., 2020). This means that travel time being a proxy for distance is a universal cofounder for healthcare access. This could be because reaching care in good time is a distinct requirement from the services being available at all (Levesque et al., 2013).

Female learners were less likely to have good perceived access to healthcare services compared to male learners. This study did not collect data that would directly explain this difference. However, it could be because of lack of privacy and confidentiality at the point of care, which were among the challenges most frequently reported by learners as well as school administrators. These concerns disproportionately affect adolescent girls seeking care for menstrual, reproductive or sexual health needs (Corley et al., 2022). Menstrual health support has previously been linked to school absenteeism among adolescent girls in Uganda (Miiro et al., 2018). Therefore, services that are insensitive to the needs of female learners carry consequences beyond health alone.

These findings suggest that improving access requires attention to the pathway to care rather than the presence of facilities alone. Shortening referral pathways and formalizing links between schools and nearby health facilities may improve access more than adding infrastructure. Additionally, school health services should be organized to provide private and confidential care

Health system constraints affecting delivery of school healthcare services

Nearly half of the learners cited lack of medicines as a challenge when seeking care, and availability was the lowest scored dimension of appropriateness. In Masaka District, 95% of schools had no health personnel and 92% had no sickbay (Musa et al., 2026). This could be because school health services in low-resource settings are rarely supported by a reliable supply chain or the infrastructure required to sustain them.

The consequence is that costs are transferred to learners and their families at the point of illness, which is precisely when they are least able to absorb them. The absence of dedicated financing plausibly explains the medicine stock-outs, the inadequate sickbays and the thin staffing that participants described. It also explains why schools concentrate on managing simple ailments and refer everything else. The Uganda Education Act requires that the physical, health and moral welfare of learners be adequately provided for as a condition of registering a school (MOES, 2008; MOES, 2014). However, no financing mechanism accompanies this obligation placed on schools.

Conclusions

This study found that most learners in boarding secondary schools in Mbarara City had overall good perceived access to healthcare services. However, this access was largely limited to first aid and basic curative care. Preventive and specialized services such as mental health care, disease screening, and laboratory services were largely unavailable. The findings also demonstrated that important dimensions of access, particularly service availability and accommodation, remained suboptimal despite the presence of school clinics or health personnel in many schools.

Female learners were less likely than male learners to report good perceived access to healthcare services, while learners who perceived travel time to care as acceptable were more likely to have good perceived access.

Overall, the findings indicate that improving access to health care for boarding secondary school learners requires strengthening the comprehensiveness of school health services rather than relying primarily on first aid and referral. This will depend on sustainable financing, clear policy guidance, and expansion of preventive, promotive and adolescent-responsive health services.

Recommendations

1. The MOES, in collaboration with the MOH, should develop and implement clear national standards for school health services in secondary schools. These standards should define the minimum package of health care services to be provided, including preventive, promotive, curative, mental health and referral services, together with mechanisms for supervision and quality assurance.
2. School owners and administrators should strengthen school health services by allocating adequate resources for learners' health care. Priority should be: a reliable supply of essential

medicines, improving sickbay infrastructure, employing appropriately trained health personnel, and expanding preventive services such as health education, mental health support and routine health screening.

3. Schools should strengthen collaboration with nearby health facilities to improve referral systems and ensure continuity of care for learners requiring services beyond the capacity of school clinics. Schools should also establish clear procedures for early identification of illness, timely referral and management of chronic conditions among learners.

4. The Mbarara City education and health authorities should assess the range and organization of health services during routine school inspections, rather than only the presence of a sickbay or health worker. They should also support linkage between schools and nearby health facilities and monitor the availability of essential medicines and qualified health personnel in school clinics.

5. Future studies should evaluate the effectiveness of comprehensive school health programs in improving health care access and health outcomes among boarding secondary school learners

Abbreviations

MOH – Ministry of Health
MOES – Ministry of Education and Sports
DHO - District Health Officer
MUST – Mbarara University of Science and Technology
REC – Research Ethics Committee
SSA - Sub-Saharan Africa
WHO - World Health Organization

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Author contributions

ND, JK, DA, EN, AM and JK participated in conceptualization and proposal development. ND, DA, and EN participated in data collection. ND, JK, AM, DA, EN and JK participated in data analysis and manuscript development. JK reviewed the final manuscript.

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Data availability

The data are available upon request and with the permission of the first author and the corresponding authors.

Declarations

Ethics approval and consent to participate

Ethical approval for the study was obtained from the MUST Research Ethics Committee (REC) (MUST-2025-561). Administrative permission was obtained from the Mbarara City Education authorities and the Directors or Head teachers of the participating boarding secondary schools.

Before data collection, written informed consent was obtained from participants aged 18 years and above. For participants under 18 years, written parental or guardian informed consent was obtained, and the learners provided assent before participating in the study. Participation was voluntary, and participants were informed of their right to decline participation or withdraw from the study at any time without any consequences.

All methods were carried out in accordance with the research guidelines and regulations as stipulated by the research ethics committee of Mbarara University of science and Technology, Mbarara City Education authorities and schools.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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