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School Health Program: Assessment of School-Based Health Services in Schools in Post-Conflict Northern Uganda

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Abstract

Background

Uganda has a population of 45.9 million people, more than half (50.5%) are school going below 17 years of age according to 2024 census. Children spend 75% of their time in school, hence, likelihood of falling sick while at school. Uganda has a policy guideline for School Health Program since 2008, however, little is known about current states of school-based health services in Gulu City.

Methods

This study aimed at assessing school-based health services in post conflict northern Uganda. A cross-sectional survey of school-based health services in schools in Gulu city was conducted using pretested checklist through inspections and interviews of school leaderships. Data on school demographics, policies, personnel, equipment and infrastructures, school-based health services, and challenges faced by schools in providing these services were collected.

Results

We included 130 of 172 schools in the city, majority were primary 83.8%, mixed sex 96.2%, day 73.8%, and private schools 71.5%. Only 32.3% of schools had dedicated sickbay. Only 6 schools had school health policy document present. Only 26.2%(n = 34) had a school health nurse. Majority of schools didn't have ability to do screenings for common illnesses. Lack of school health worker 69.2%(n = 90), financial constraints 50.0%(n = 65), and lack of compliance by parents 42.3%(n = 55) were the major challenges faced.

Implications for School Health Policy, Practice, and Equity

Need to disseminate information and engage schools and other stakeholders regarding the policies, regular supervision, and prioritization by school management to improve practice of school-based health services.

Conclusions

There is widespread lack of school-based health services in Gulu City with major challenges being, lack of awareness about school health policy, financial constraints, lack of infrastructures and lack of commitment from schools and other stakeholders.

BACKGROUND

Uganda has a young population with over half of the population (50.5%) composing of children aged 17 years and below and these are school going children (1). While at school, children can particularly be affected most from communicable diseases due to their nature of aggregations making them vulnerable to transmissible infections (2, 3). Although parents are the most likely people to note any health problem with a child, they are often too busy commuting for work leaving children to spend 75% of his/her time in school. Therefore, physical, and psychosocial environment where this child lives, grows, socializes, studies, in a healthy manner is of paramount importance.

Due to overcrowding and aggregation, school remains one of the hotspots for spread of infectious diseases (2, 3). When school going children are physically and mentally ill, they miss classes and lack concentrations which, in addition to health complications, impacts on their school performance (4, 5). School health program helps to promote physical and mental health, which are crucial for growth of children and academic performance, an important conduit to their future adulthood (6). Economic and social benefits more especially for girl child and children with disabilities can't be overestimated (7). School Health Program (SHP) is defined by Akani et al as "all aspects of the school program which contribute to the understanding, maintenance and improvement of health of the school population" (8). This program is organized into specific components based on individual country's programming, but grossly at least three key aspects: School-based Health Services (SHS), School Health Instructions/Education (SHI), School Health Environment (SHE) (8, 9).

Historically, School health Program has been recognized formally in Europe more than three centuries ago (10, 11). In Germany, Bavaria offered free school lunch in 1790 AD (8, 11). In 1833, France enacted law putting responsibility for health of school children on schools (8, 11). At the peak of Second World War, in 1944, 4 out of 13 million young adults aged 18 to 37 years in United States

were found unfit(8, 11). In the US, first school Nurse was formally appointed in 1902, Lina Rogers attended to 4 separate schools in New York City and she managed to reduce absenteeism from basic illnesses which led to expansion of recruitment of school Nurse (12).

Northern Uganda is a post-conflict region which is currently the poorest region of Uganda (13). The long period of insurgencies in early 1980s led to school breakdown, breakdown of infrastructure, high school children to staff ration of up to 300 to 1 teacher as compared to national average of 65 to 1, and hence schools could not have additional staff such as school health Nurse when even basic teaching staff were insufficient (14, 15). A number of recovery program including education and health have been in place but these have not leveled up with other regions of Uganda (16, 17).

In Uganda, an evaluation was done to find out the impacts of school health and reading program interventions implemented by United States Agency for International Development (USAID) and Ministry of Education and Sports, found significant improvements in reading and comprehension among early school going primary pupils in those schools where the program was implemented compared to control schools (18).

Uganda has a policy guideline for SHP since 2008. One of the key areas in the policy is school health services such as disease prevention, early treatment and emergency intervention as well as referral to nearby community health units (7). However, little is known about current states of school-based health services especially in post-conflict northern Uganda. Hence, this study was therefore aimed at finding out if secondary and primary schools in northern Uganda have a well-functioning School-based Health service (SHBS) as a component of School Health Program (SHP).

METHODOLOGY

Study Design

This was a cross-sectional study.

Study Participants and sample size

Study participants were headteachers, school health Nurses. Direct inspections of facilities for school health services were conducted.

Using Yamane's formula for a known finite population of Gulu city being 172,

n = N/(1 + N*e2) Where; n=sample size, N=known population size (172), e=margin of error (5%)

$n = 172/\{1 + 172*(0.05)^2\}$

n = 120.3, = 121 schools. Additional 5% (6 schools) was added to account for non-response rate A round total of 130 schools were assessed.

Procedures

Data was collected by trained research assistant supervised by the investigators. The study considered the three sub-regions in northern Uganda as clusters. Acholi sub-region cluster was randomly selected. Gulu city of the sub-region was purposefully considered for the study due to large number of schools concentrated in the city. A systemic sampling of school, whereby two schools sampled consecutively and one skipped (ratio of 2:1) was applied.

Instrumentation

A prepared checklist, adopted from study done by Sanni and colleagues in Nigeria (19), and modified using World Health Organisation assessment,(20), in line with Uganda school health policy (7), was used. In addition, a structured interview questions

were prepared to collect information regarding challenges faced by schools while providing these services. A pilot study was conducted to assess comprehensiveness and completeness of this checklist and interview question.

Data Analysis

Information collected were entered into Microsoft Excel for Windows, and analysed using Statistical Package for the Social Sciences (IBM SPSS statistics 21). Frequency distribution and 2x2 cross-tables were drawn. Chi square test was used in comparison of frequencies in contingency tables. In statistical test of significance, *p-value* of less 0.05 were regarded as significant. For structured interviews, responses were noted, and reported.

RESULTS

School Demographic Characteristics

One hundred and thirty schools (130) out of 172 schools in Gulu city, with total students of 63,84, slightly more boys 52.7% than girls were assessed. Majority of these schools were primary 83.8% (109), mixed sex 96.2% (125), day 73.8% (96), and were private schools 71.5% (93). Table 1. Demographic characteristics of schools.

Presence of dedicated sick-bay for provision of school-based health services

Only 32.3% (42/130) of the total schools assessed had a dedicated sickbay for school-based health services. Majority were schools will boarding section 61.8% (21/34), public schools 45.9% (17/37) and secondary schools 61.9% (13/21). Table 3. School health personnel, equipment and infrastructures. An assessment of the sickbays in schools which had sickbays revealed very good setups in terms of privacy, infection prevention and control and physical structure. Table 2. Assessment of the sickbay.

Assessment of school health policy

Less than half 42.3%(n=55) of the schools had policy on pre-entry medical check-up, only 14.5%(n=19) had policy regarding special needs students, only 6 schools had school health policy document present, however, policy on health and hygiene inspections were present in majority of the schools. Table 2. school health policy.

School health personnel, equipment and infrastructures.

No school had ambulance, one school had Automated external defibrillator (AED), only 26.2%(n=34) had a dedicated school a Nurse, and only 30.8%(n=40) had a school counselor. Only 33.1%(n=43) had medical records. However, about half of the schools had dedicated phone for emergency calls, and 60%(n=78) had at least one school personnel trained on First aid. Table 3. School health Personnel, equipment and infrastructures.

School health services

Few schools were found to be able to screen for infections 29.2% (n=38), screen and treat sexually transmitted infections (STI) 21.5%(n=28), assess basic clinical vitals such as temperatures 31.5%(n=41). The ability to do vision and hearing screening, nutritional assessment, monitor population with chronic illnesses, and evaluate students with special needs were very low among schools at 3.8%(n=5), 3.1%(n=4), 20%(n=26), and 10.8%(n=14) respectively. However, significant number of schools had essential medicines 56.9%(n=74), and contacts of nearest health facilities for emergencies 75.4%(n=98). Table 4. School-based health services.

Challenges faced by schools in implementing school-based health services

Lack of school Nurse was the most frequently mentioned challenge 69.2%(n=90), followed by financial constraints 50.0%(n=65), and lack of compliance by parents 42.3%(n=55). Only one school was able to admit lack of commitment from school administration as one of the challenges. Table 5. Challenges faced by schools in implementing school-based health services.

Relationship between levels of schools and school proprietorships, and school-based health services.

Chi square tests were done to examine relationship between level of school (primary vs secondary), school proprietorship (public vs private), and school health services, policy and personnel and infrastructures. We hypothesized that there is no difference between level of schools and school proprietorship in terms of school-based health services provided.

Levels of school (Primary vs secondary) and school health services

There were significant differences between level of schools (primary vs secondary) and; presence of sickbay, school health personnel, sports tutors, policy on pre-entry medical examinations, and ability to do basic screening for infectious diseases, all indicating secondary schools more associated with presence of these services than primary schools. Table 4. School-based health services.

School proprietorship (public vs private) and school health services

The study also found significant differences between school proprietorship (public vs private) and; presence of dedicated sickbay, personnel trained on first aid, and regular health and hygiene inspection done, all indicating public schools more associated with presence of these services than private schools. Table 4. School-based health services.

DISCUSIONS

The aim of this study was to assess the status of school-based health services in Gulu city, northern Uganda. This study assessed 75.5% (130/172) of the primary and secondary schools in the city, with overall school population composing of 47.3% girls and 52.7% boys. The study had 100% respond rate from selected schools, making it generalizable to the whole context of the city and other urban areas of northern Uganda.

School Health Personnel, Equipment and Infrastructures.

Only 32.3% of the schools had a sickbay, mainly in public (45.9%), secondary (61.9%) and in boarding schools (61.8%). Ministry of education of Uganda has a guideline which stipulates clearly that all boarding schools should have a dedicated room for sickbay and health personnel (21). Although the study found almost two-third of the boarding schools having sickbay, this is mainly in public schools probably due to available premises and enforcement by government and indicating the need to inspect and enforce private schools to abide by this guideline. The differences between public and private schools could be that private schools aim at profit maximisation through minimizing operational costs including investing in infrastructure. There is hardly any study found on the presence of sickbay in Uganda and East Africa, however, one survey done of secondary schools in Tanzania found almost nothing related to school-based health service was present, including presence of sickbay.(22) This finding is more or less consistent with the findings in other African countries, for example, in Nigeria many study found mixed results: Ugun state in Nigeria where assessment of public and private primary schools found 37% private and 14.4% public schools found to have sickbay (23), survey among secondary schools found 23.8% of the schools had sickbay, and similarly (24), a survey by Bisi-Onyemaechi found only 6 out of 33 primary schools in Enugu state had a dedicated sickbay (25). The overall lack of dedicated sickbay in Uganda and Africa could be attributed to lack of strict supervision of schools by government to ensure implementation of the policy but more importantly, limited resources availability in schools. In Uganda, even class rooms in some schools are either in debilitated state or even not enough and one would wonder how can a dedicated sickroom be prioritized in such situation (26).

This study found 26.2% (34/130) and 30.8% (40/130) of the schools had school Nurse and school counsellor respectively. However, almost all schools had senior woman teacher and sports teacher, 99.2(129/130) and 97.7% (127/130) respectively. Probably because roles such as sports teacher and senior woman teacher is given to the already existing teaching staff rather than completely different professions to be recruited. However, at least 60% (78/130) of the schools had at least personnel who was trained on first aid most of which were found in public schools 75.7% compared to private ones 53.8%, consistent with findings by Opiro et al, where they found first aid training among lay personnel including teachers with more than half trained, 53% (27). This finding shows that fewer schools had healthcare workers compared to a global survey where 55.9% (59/102) countries had schools with healthcare personnel (28). The difference is probably due to the fact that global surveys included more developed countries that have resources to fully implement school health program, including schools employing dedicated school healthcare workers.

A survey of prevalence of malnutrition in Kumi district in Uganda found 8.7% of school children stunted and underweight (29), to prevent complication and improve overall health of those children, early detection and referral by a dedicated school health

personnel is important, which is widely lacking among schools in Gulu City. In Kenya, assessment of availability and effectiveness of school health services found lack of enough Nurses as one of the reasons for unsatisfactory service provision (30). In another survey in Meru County in Kenya found that majority of public secondary schools lacked a sickbay and even in those where its available, they were poorly equipped compounded by lack of healthcare professionals and poor infrastructures, which were attributed to by lack of funding (31). The lack of school health personnel, equipment, and infrastructures is widely spread in other African countries, example in Nigeria, a survey of 149 primary schools found only 5(3.4%) of the schools had school health personnel and nearly half (49.5%) of schools first aid boxes were empty (32).

School Health Policy

Despite Uganda having school health policy and guidelines on operating schools (7, 21), this study found few schools implementing and having local specific policies on school health program. Less than half 42.3% (n = 55) of the schools had policy on pre-entry medical check-up, only 14.5% (n = 19) had policy regarding special needs students, only 6 schools had school health policy document present. This is consistent with an experience in the implementation of school-based nutrition program in Wakiso district in Ugandan by Emergency Nutrition Network (ENN), whereby, limited understanding of school health policy in rural schools was one of the main challenges faced (33). In northern Tanzania, lack of clarity about official guidelines was one of the challenges identified (34). In a multi-country survey done in five sub-Saharan African countries, thought didn't include Uganda, found only 9 out of 79 schools had school health policy (35). Policies are important guidelines to improvement of school health program and especially if its formulation involves all levels of stakeholders, however, policy alone may not directly translate to its implementation as seen in one of the lessons learned in Kenya comprehensive school health policy pilot implementation (36). A country may have a school health policy, but this must be circulated to school stakeholders in order to bring clarity for effective implementation to be achieved which seems to be an issue in most schools in Gulu City.

School-Based Health Services.

Only 29.2% (n = 38) were found to be able to screen for infections, screen and treat STI 21.5%(n = 28), monitor and assess basic clinical vitals 31.5%(n = 41). The ability to do vision and hearing screening, nutritional assessment, monitor chronic illnesses, and evaluate students with special needs were only at 3.8%(n = 5), 3.1%(n = 4), 20%(n = 26), and 10.8%(n = 14) respectively. However, significant number of schools had essential medicines 56.9%(n = 74), consumables 43.1%(n = 56), and contacts of nearest health facilities for emergencies 75.4%(n = 98). Table 4. School-based health services. Published studies on school health services in Uganda couldn't be found, however, a multi-country study in sub-Saharan Africa found only 3 out of 79 schools had screening services such as vision, hearing and nutritional screening and 11 schools were able to counsel and refer students and staff for further medical services (35), which is consistent with our findings. This could possibly be linked to widespread lack of school health personnel who have skills needed to do these services as discovered in this study. Some of these school health services could be supported by outreach program from health service providers, however, most of these programs in Uganda are done as part of broader community health program, mainly focussed on mass immunisation, deworming, sexual and reproductive health, and mental health with less of other clinical services such as screening for infectious diseases, visual and hearing screening, and other medical services could be offered (37, 38).

In other African countries such as Nigeria, in one zone, a survey of accessibility and utilization of school health services found only 20% of schools were providing any form of school health services (39). Similarly, a survey of primary schools in Kebbi state Nigeria found only 48 (32.2%) had medical records, only 30(20.1%) carry out pre-entry health screening, few of the school staff had first aid training and more than one-third of the schools, 56(37.6%) had collaborations with health service provider for emergencies (32). School health services is generally lacking in northern Uganda and Africa at large.

Challenges Faced by Schools in Implementing School-based Health Services

Lack of school health worker such as a Nurse was the most frequently mentioned by schools 69.2%(n = 90), followed by financial constraints in equipping and stocking sickbay 50.0%(n = 65), and lack of compliance by parents 42.3%(n = 55). Only one school were able to admit that lack of commitment from school administration and staffs were the challenges for not implementing school health services. There are limited published information regarding assessment of challenges in Uganda, however, in a similar setting such as Tanzania and Kenya, similar challenges of resource constraints, lack of school capacity in terms of staffing, lack of

coordination amongst various stakeholders were identified (36, 40). In Namibia, as survey of stakeholders' perspectives on challenges in implementing school health program found similar findings; shortage of staff including school Nurse, inadequate resources, lack of monitoring and evaluation (41). Similar findings in Ghana, south Africa, and Nigeria (42–44). Policies can be there but implementations become an issue especially due to inadequate committed resources and efforts put to ensure policy is translated into practice. Even in developing countries in other continents such as Asia, for example, in Nepal, lack of resources, lack of coordination amongst stakeholders, and limited trainings on the program were found as the main challenges being faced in implementing school health program (45).

Even in developed countries like in Canada, some of the most common barriers found in a systematic review of studies in Canada on school health program were lack of adequate founding and inadequate staff capacity, consistent to our findings (46). This simply means that even in a relatively well-resourced settings, if policy makers and those in resource allocations don't prioritize, it is less likely that full implementation of school health program can be achieved. This requires coordinated advocacy not only from school proprietors, but from all stakeholders including parents. Since this study was limited to challenges faced by schools, a well-designed survey should be conducted to understand the perspectives of other stakeholders such as parents, district education officials, and ministry of education, on what they believe could be barriers, in order to find solutions that work well for the settings. For examples, school parents could agree to make contributions on top of usual school fees to cater for school health services if they believe indeed resources are limited for schools to implement the policy. In Kenya, assessment of implementation of comprehensive school health program found that involvement of stakeholders enhances program ownership and sustainability but still monitoring and evaluation is needed. The study also showed that even when all stakeholders are involved in a participatory policy making, implementation still needs adequate resources (36). In Enugu east state, Nigeria, some of the reasons cited for not implementing school health services were; lack of awareness, being expensive, not being in the curriculum and some schools said it was not necessary (47). This necessitates a kind of training and awareness creation in schools to understand the how health of students affect performance and hence the need for school health program implementation.

Relationship between levels of schools and school proprietorships, and school-based health services.

This study found statistically significant difference differences between level of schools (primary vs secondary) and; presence of a dedicated sickbay, presence of school health personnel, presence of sports tutors, policy on pre-entry medical examinations, and ability to do basic screening for infectious diseases, all indicating secondary schools more associated with presence of these services. Possible explanation for this is could be due to the fact that secondary schools somehow attract more funding from government as well as locally generated school fees from parents providing resources for these services and in addition, majority of secondary schools have boarding sections which could require minimum school-based health services to respond to emergencies.

The study also found significant differences between school proprietorship (public vs private) and; presence of dedicated sickbay, presence of personnel trained on first aid, and regular health and hygiene inspection done, all indicating public schools more associated with presence of these services than private schools. This finding is in contrast with a survey done in western Nigeria where private schools showed a statistically significant association with these services compared to public schools (48). Possible explanation of this difference is that private schools in Uganda could be running on the premises of profit making, this means trying as much as possible to reduce operational costs and, hence, school health services could be looked at as extra expenses. In addition, our study found lower regular supervision from stakeholders including officials from district education and health officers where we found public schools (100%) more supervised than private schools (57.0%) in terms of health and hygiene further offering plausible explanations why public schools had more of these services compared to private.

Despite reports on evaluation of school health and nutrition showing good progress between year 2000 and 20015 in 25 sub-Saharan African countries, which included Uganda (49), it seems the progress has plateaued or even declined due to some of the challenges faced as found in this study, making generally low levels of school-based health services being practiced in Gulu city and likely country wide.

Implications for school Health Policy, Practice, and Equity

These findings indicate widespread lack of school-based health services being practiced right from infrastructures, policy, personnel, more especially in primary and private schools mainly stemming from lack of awareness and clarity from national school health policy. Government needs to consider refining the policy and disseminating it to all stakeholders, consider equity in terms of

budgeting. Schools need to engage parents who are the funders of schools, need for regular joined supervision of practices by district education and health officials.

Study Limitations

Some school staff could have responded to a question trying to portraying a better or worse situation than what is actually on the ground. Mitigation: although some of the responses could not be verified by physical assessments, majority of the responses were verified by physically inspecting and ticking checklist hence mitigating this biasness, making the findings of this study valid.

CONCLUSIONS AND RECOMMENDATIONS

There is widespread lack of school-based health services in terms of Policy, infrastructures, and school health personnel, in Gulu City, northern Uganda. Major challenges are lack of awareness of existence of national school health policy, lack of enforcement of the policy, lack of school health personnel and infrastructure, all of which are stemming from financial constraints and lack of commitment from schools and other stakeholders. Further assessments of rural schools as well as perspective of other stakeholders on school-based health services is recommended. Advocacy and sensitization of schools and stakeholders regarding the policy and enforcement of implementation is recommended.

Abbreviations

SHP
School Health Program
SBHS
School–based Health Services
SHE
School Health Environment
MOH
Ministry of Health
DHO
District Health Officer
DEO
District Education Officer
UNCST
Uganda National Council of Science and Technology
AD
After Death of Jesus
USAID
United States Agency for International Development
SPSS
Statistical Package for the Social Sciences
COVID
19–Coronavirus–19

Declarations

Ethical Approvals and consent to participate

The investigators have been committed in upholding strong ethical principles from the design of this research to implementation. Respect of a person, voluntary participation, informed consent, privacy and confidentiality and anonymity, autonomy, minimizing harm with utmost honesty, integrity and transparency throughout the whole processes.

Approval from Research Ethic Committee was obtained from Lacor Hospital Ethic Committee, approval number: **LACOR-2025-2125.** Permissions was also sought from District Health Officers (DHO) and District Education Officers (DEO) of the study districts. Voluntary consent was obtained from each participant. Headteachers and School Healthcare personnel signed informed consent

before participation. They were free to decline from participating in the study and to withdraw at any time during the interview process with no consequences.

Consent for publication

Consent for publication of information was included in the overall consent form signed to participate in the study. No individual person's data in any form was obtained.

Data availability

Raw data available with the author and can be provided on request

Competing interests

The authors declare no conflict of interest in this study.

Fundings

No funding was sought or obtained for this study

Authors contributions

Keneth OPIRO – conception of research idea, proposal development, data collection, analysis, and writing of this manuscript.

Shallon ATUHAIRE – conception of the idea, approval of proposal, writing of the manuscript

Musa DAHIRU – supervising whole process from conception of research idea, proposal development, data collection, analysis, to writing of this manuscript.

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Tables

Table 1 to 5 are available in the Supplementary Files section.

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