ORIGINAL ARTICLE

An evaluation of school health services in Sagamu, Nigeria

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Abstract

Context: School health services (SHS) have been shown to be suboptimal in Nigeria. The paucity of data on the status of SHS in Sagamu makes it even more challenging for instituting corrective action.
Aim: To evaluate SHS in public and private schools in Sagamu.
Settings and Design: This was a cross-sectional study carried out on private and public nursery/primary and secondary schools in Sagamu, Ogun State.
Materials and Methods: A total of 91 schools, randomly selected from 182 available, comprising 53 private nursery/primary schools, 22 public nursery/primary schools, 11 private secondary schools and 5 public secondary schools, were inspected for availability of the components of the SHS and evaluated using the SHS Evaluation Scale (SHSES).
Statistical Analysis Used: Data were analyzed using SPSS version 15.0. Categorical variables were analyzed using Chi-square test. Level of significance was taken to be $P < 0.05$.
Results: Only one (1.1%) school benefited from the services of a school doctor. Essential drugs and materials for first aid services were available in 85 (93.4%) of the schools, while only 26 (28.6%) had a sick bay. Screening tests for disabilities were performed in only 10 (11%) of the schools visited. Although school midday meals were available in all the schools, they were not free. Private secondary schools had the highest percentage of good school health evaluation scores (63.6%), while 96.2% of the private primary schools had poor health service evaluation scores.
Conclusions: SHS are unsatisfactory in Sagamu. It is therefore necessary for all stakeholders in Sagamu schools (private and public) to provide the materials and manpower needed to achieve effective SHS in the area.

Key words: School Health Services, School Health Services Evaluation scale, Health knowledge, Nigeria

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Introduction

School Health Services (SHS) constitute one of the components of the School Health Program (SHP) and deal with the maintenance of the health of school children.[1] Effective SHS facilitate early detection and diagnosis of diseases, whereby prompt intervention ultimately reduces school-age morbidity and mortality. Physicians are pivotal in achieving this; teachers, parents, and the government also have vital roles.

In Nigeria, implementation of the SHS is generally poor.[2] There is gross paucity of data on the status of SHS in Sagamu and environs. This study, therefore, aimed to evaluate SHS in Sagamu and identify some of the factors militating against their effectiveness.

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Materials and Methods

This was a cross-sectional study of private and public nursery, primary and secondary schools in Sagamu town, Ogun State, in the Yoruba cultural region of southwestern

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Nigeria. Ethical clearance was obtained from the Scientific and Ethical Review Committee of the Olabisi Onabanjo University Teaching Hospital, Sagamu; while written permission was obtained from the Zonal Education Office in Sagamu to facilitate field entry.

As at the time of this study, there were 182 nursery/primary and secondary schools in Sagamu. These comprised 106 private nursery/primary, 44 public nursery/primary, 10 public secondary and 22 private secondary schools. The list of all these schools was obtained from the Zonal Education Office as categorized. A systematic sampling (every other school) was then applied to the list in each category. Thus, half of the schools in each group were selected, making up a total of 91 schools.

All the selected schools were visited, during which one of the investigators interacted with the head teachers and teachers of health education and/or health-related subjects in each school. The healthcare services in each school were evaluated using the SHS Evaluation Scale (SHSES),[1] which consists of minimum and maximum acceptable scores of 19 and 45, respectively. Information on the health services available in each school was obtained from the head teacher or the health education teacher using a checklist and marks were awarded accordingly.

Apart from the SHSES, a list of 10 short objective health-related questions was generated in order to evaluate the health knowledge of school teachers. This was considered important in evaluating SHS even though it is not part of the SHSES. This section was completed by teachers on site during the visit to each school. The score of each teacher was categorized as follows: 70-100% = good knowledge; 50-69% = average knowledge; 49% and below = poor knowledge. The scores of all the teachers evaluated in each school were summed up and converted to percentages which represented the score for each school. In addition, a questionnaire containing a list of administrative issues which were considered important to SHS but are not components of the SHSES was also generated and analyzed.

Data were stored in a standard IBM compatible computer and analyzed using the SPSS version 15.0 statistical software. Categorical variables were analyzed using Chi-square test. The differences in observed values were regarded as statistically significant if the *P* value was less than 0.05.

Results

Figure 1 shows the distribution of the schools visited. Private nursery/primary schools accounted for the highest number.

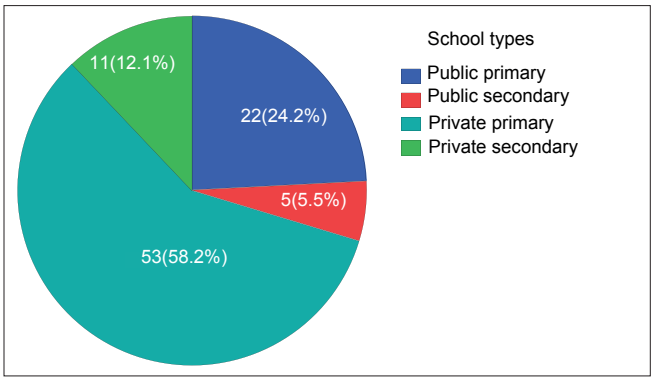

Figure 1: Distribution of the 91 schools visited. The figures represent the actual numbers of each type of school visited, while the figures in brackets represent the percentages of the total number of schools

Head teachers' qualifications; administration and financing of health care

In 58 (63.7%) of the schools, the head teachers had at least a first degree. Only 26 (28.6%) of all the schools had operational school health committees, and where these existed, 13 (14.3%) used to meet quarterly, 6 (6.6%) used to meet weekly; 4 (4.4%) used to meet monthly, 2 (2.2%) used to meet fortnightly and 1 (1.1%) used to meet only once a year. Health inspectors' visits to the schools occurred once a year in 53 (58.2%) schools, while 30 (33%) had never been visited. Seven (7.7%) were visited quarterly, while one (1.1%) was visited monthly. In the preceding session, 33 (36.3%) schools had sent their teachers for seminars/workshops on school health.

Only two (2.2%) schools had any fiscal allocation to SHS from the imprest account of the office of the head teacher. This accounted for 25% of such imprest in one of the schools and only 5% in the other school. The first aid box was maintainedwith funds from the school proprietor's imprest account in 37 (40.7%) schools, while three (3.3%) maintained it from voluntary donations by teachers. The Parent Teachers Association (PTA) was responsible for the maintenance of the first aid box in 25 (27.5%) schools, while 21 (23.1%) maintained it with mandatory levies paid by students.

Only one (1.1%) school benefited from the services of a doctor [Table 1]. There was one (public secondary) school without any attending health personnel at all. Screening tests for disabilities were not a common practice – only 10 (11%) schools recorded any such activity. Also, periodic medical examination for staff and pupils occurred in only five (5.5%) of the schools studied, four of which were primary schools.

None of the schools had ambulance services; sick pupils were conveyed to the nearest hospital in the school bus in most (89%) of the schools visited. The remaining either

Table 1: Health care services in Sagamu schools

Characteristic	Frequency (*n*=91)	%
Health personnel		
None	1	1.1
Health assistant/trained first aider	81	89.0
Health educator/nutritionist	2	2.2
Nurse/midwife/health sister	12	13.2
Doctor	1	1.1
Available treatment facilities		
First aid box	88	96.7
Essential drugs and materials	85	93.4
Health room/sick bay	26	28.6
Care of emergencies		
First aid treatment usually given	82	90.1
Notification of parents immediately	91	100
Transport child to nearest health post	81	89.0
Convey child home after treatment	43	47.3
Nutritional service		
School meals	91	100
Nutrition demonstration classes	9	9.9
School farm	17	18.7

resorted to public transport, or conveyed sick children to the hospital on foot.

In all the schools, control of communicable diseases was achieved by sending the affected child home until recovery. No school arranged for immunization against communicable diseases during epidemics, although health workers from the local government did visit the schools to vaccinate pupils on the National Immunization Days.

Although school midday meals were available in all the schools, they were not free. The meals were mostly provided by food vendors, but in some private schools, they were prepared by the teachers on the school premises.

A total of 59 (64.8%) schools kept no records of SHS at all. Of those that did, 23 (25.3%) kept noncumulative records, while only 8 (8.8%) schools had records which were both cumulative and transferrable.

School health evaluation scale scores and assessment of health knowledge of school teachers

Only 15 (16.6%) of the 91 schools had good scores in School Health Service Evaluation. Taking all schools together, health knowledge of school teachers was adjudged to be good in 24 (26.4%) schools, average in 50 (54.9%), and poor in 17 (18.7%).

A total of 60 (78.9%) of the 76 schools with poor SHS scores also had low teachers' health knowledge scores, a relationship which was significant. ($\chi^2 = 6.723$, $P = 0.01$).

Comparison between school health services in private and public schools in Sagamu

- School health administration
- Nursery/primary schools

  A total of 22 public and 53 private nursery/primary schools were visited during the study. Of these, 9 (40.9%) public and 18 (34%) private schools operated School Health Committees. This difference was not statistically significant ($\chi^2 = 0.326$; df = 1; $P = 0.568$).

  A total of 35 (66%) private and 10 (45.1%) public schools were visited yearly by health inspectors, while 14 (26.4%) private and 10 (45.1%) public schools had never been visited by any health inspector. These differences were also not significant ($\chi^2 = 5.478$, df = 3, $P = 0.140$).

  A total of 33 (62.3%) private schools maintained their first aid box with imprest allocation from the school proprietor, while 19 (86.1%) public and 1 (1.89%) private school maintained theirs with donations by the PTA.
- Secondary schools

  A total of 5 public and 11 private secondary schools were visited. Only one (20%) public and one (9.1%) private school had a School Health Committee ($P > 0.05$). Three (60%) of the public and five (45.5%) of the private schools were visited yearly by health inspectors. This difference was significant ($\chi^2 = 7.273$, df = 2, $P = 0.026$).

  In four (36.4%), private schools the first aid box was maintained with funds from the school proprietor, while seven private schools (63.6%) maintained theirs with medical fees paid by the students. In all the public schools, funds for the maintenance of first aid boxes were sourced from the PTA.
- School health services
- Primary schools

  Table 2 shows the comparison of SHS in private and public primary schools. Although none of the primary schools benefited from the services of a school doctor, all the public primary schools had first aid boxes and essential drugs and materials. Among 50 (94.3%) private schools which had first aid boxes, 47 (88.7%) had essential drugs and materials.

  Record keeping of health services was significantly better in the public primary schools, where 15 (68.2%) of them kept records compared with 10 (18.9%) private primary schools. This difference was statistically significant ($\chi^2 = 18.963$, df = 3, $P = 0.000$).

  Only nine (12%) primary schools had school farm projects. This was observed in five (9.4%) private primary schools and four (18.2%) public primary schools [Table 2].
- Secondary schools

  Table 3 represents the comparison between the pattern of SHS in private and public secondary schools. While all the schools had first aid boxes with essential drugs

Table 2: Comparison between school health services in private and public primary schools in Sagamu

Parameter	Private (n=53) Yes (%)	Public (n=22) Yes (%)	Chi-square (CC)	P value
Health personnel				
Health assistant/trained first aider	49 (92.5)	20 (90.9)	0.000	1.000
Health educator/nutritionist	1 (1.8)	1 (4.6)	0.000	1.000
Nurse/midwife/health sister	3 (5.7)	4 (18.2)	1.591	0.207
Doctor	0 (0.0)	0 (0.0)	NC	NC
Available treatment facilities				
First aid box	50 (94.3)	22 (100)	0.242	0.623
Essential drugs and materials	47 (88.7)	22 (100)	1.387	0.239
Health room/Sick bay	13 (24.5)	6 (27.3)	0.062	0.804
Care of emergencies				
First aid treatment usually given	47 (88.7)	20 (90.9)	0.000	1.000
Notification of parents immediately	53 (100	22 (100)	NC	NC
Transport child to nearest health post	48 (90.6)	20 (90.9)	0.000	1.000
Nutritional service				
School meals	53 (100)	22 (100)	NC	NC
Nutrition demonstration classes	0.00	0 (0.0)	NC	NC
School farm	5 (9.4)	4 (18)	0.451	0.502

CC=Continuity correction, NC=Not computed

Table 3: Comparison between school health services in private and public secondary schools in Sagamu

Parameter	Private (n=11) Yes (%)	Public (n=5) Yes (%)	Chi-square (LR applied)	P value
Health personnel				
Health assistant/trained first aider	10 (90.9)	2 (40)	4.563	0.023
Health educator/nutritionist	11 (100)	5 (100)	NC	NC
Nurse/midwife/health sister	2 (18.2)	3 (60)	2.714	0.099
Doctor	1 (9.09)	0 (0)	0.779	0.377
Available treatment facilities				
First aid box	11 (100)	5 (100)	NC	NC
Essential drugs and materials	11 (100)	5 (100)	NC	NC
Health room/dispensary/sick bay	5 (45.5)	2 (40)	0.0042	0.838
Telephone services	11 (100)	5 (100)	NC	NC
Care of emergencies				
First aid treatment usually given	11 (100)	5 (100)	NC	NC
Notification of parents immediately	11 (100)	5 (100)	NC	NC
Transport child to nearest health post	11 (100)	5 (100)	NC	NC
Convey child home after treatment	0 (0)	0 (0)	NC	NC
Nutritional services				
School meals	11 (100)	5 (100)	NC	NC
Nutrition demonstration classes	8 (72.7)	1 (20)	4.035	0.045

NC=Not computed

and materials, the only one which benefitted from the services of a school doctor was a private one.

Health service record keeping was poor in both private and public schools. No records were available at all in six (54.5%) private and three (60%) public schools. Only three (27.3%) private schools had cumulative and transferrable records, while in the two public schools with any at all, the records were neither cumulative nor transferrable.

Figure 2 shows the percentages of the schools with good or bad healthcare service scores. Private secondary schools had the highest percentage of good scores, while private primary schools had the highest percentage of poor scores.

Discussion

SHS are helpful in providing data for monitoring, evaluating, and improving child survival strategies.[3] The present study showed that SHS in most schools in Sagamu leave much to be desired. Very few schools enjoyed the services of nurses; only one could boast of the services of a doctor. The number,

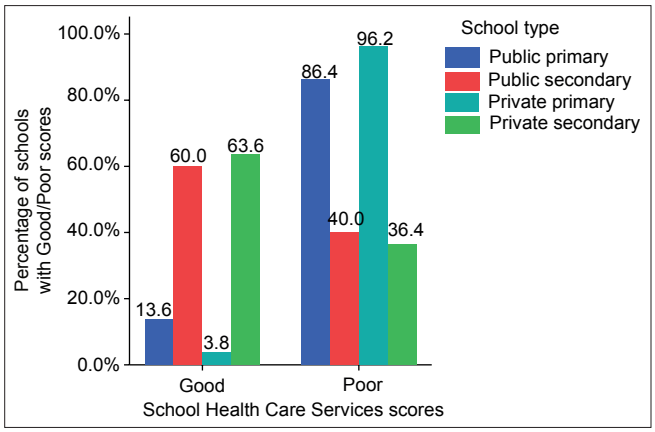

Figure 2: Percentage of schools with good or bad health service scores. Private secondary schools had the highest percentage of good scores, while private primary schools had the highest percentage of poor scores

cadre, and quality of health personnel are bound to affect the quality of healthcare.

Screening tests for disabilities and periodic medical examination of staff and pupils were not commonly practiced. Such facilities would normally enhance the quality of SHS, as exemplified by Umar *et al.*[4] who, while conducting school-based screening tests among primary school children in Sokoto, found a high incidence of visual impairment and associated abnormalities of the eye.

This study observed that on the whole, public schools fared better than private schools in terms of operating School Health Committees and being visited by health inspectors. The differences, however, did not reach significance except at secondary school level. This might be a reflection of a perceived better control of government over public schools, probably because health inspectors are employed by the government. It is, however, necessary for government to be involved in the regular inspection of all schools in order to ensure the maintenance of minimum health standards.

That all the secondary schools in this study had well-equipped first aid boxes reflects a much better situation than that reported by Nwachukwu[5] in a school health survey in Imo State, where only 62% of secondary schools had first aid boxes. Well-equipped first aid boxes were also found in all the public and in most, but not all private primary schools studied. Although the figures obtained are higher than the 39% reported by Akani[6] in a SHP survey of primary schools in Obio/Akpor Local Government, Rivers State, it is desirable that *all* children, whether in private or public schools, should have access to first aid facilities.

Less than a third of all the schools visited had a health room or sick bay, even worse than the 40% reported by Nwachukwu.[5] Health rooms are meant for observation of children who take ill during school hours. Their availability is an essential component of SHS and should not be undermined, as school children are prone to accidental injuries and may also suffer attacks of sudden illness while in school.[5] The non-availability of a health room or sick bay or at least of functional first aid boxes, negates the principle of taking adequate care of the health of students while they are in school.[5]

Transport facilities were also inadequate. A school bus (where it exists) is not the ideal mode of transporting a critically ill child to the nearest health facility. Delays in instituting prompt medical intervention and attendant worsening or complication of illness would most certainly accompany conveyance by public transport or on foot, leading to dire consequences.

In all the schools, control of communicable diseases was effected by sending the affected child home until recovery. Whereas such a measure might prevent the spread of communicable diseases among the children while in school, it stands the risk of spreading such infections to the community. Referral of the affected individuals to hospitals for proper medical attention, and subsequent barring from school until medically certified as fully recovered would have been a better approach.

Record keeping was generally poor in the schools studied, possibly due to ignorance of the importance by those saddled with the responsibility. Adequate record keeping is essential for effective epidemiological survey and healthcare service evaluation. Health service records can also be used to monitor the trend of medical conditions like sickle cell anaemia, epilepsy, and asthma among others. They are also useful in determining when to refer an individual for further medical evaluation or specialist care. They may also assist in future planning for the healthcare of the school populace.

In the present study, not many schools had school farm projects. The main reason for lack of farm projects was shortage of land, as most of the schools were situated in residential areas. School farms expose pupils to basic agricultural principles employed in cultivating many food crops found in their local environment. They also stimulate children's curiosity in learning the nutritional values of food crops, encouraging them to develop interest in their diet. Children in schools without farm projects would, therefore, be denied such privilege.

Nutrition demonstration classes were conducted in only 9.9% of the schools in Sagamu, all of which were secondary schools. It was noted that such classes only held in schools where home economics was taught as a subject. Since food and nutrition is an aspect of home economics, teaching home economics in schools as a subject should enhance

pupils' knowledge of nutrition. Eventually, these pupils would grow up later in life into adults who are able to utilize this knowledge in taking decisions to provide balanced diets for their families.

Poor nutritional status affects children's ability to learn. Research reveals several hypotheses about how breakfast affects children's cognition, behaviour, and school performance.[7,8] Children may not attend school at all due to the inability to purchase food to eat at school, or insufficient food resources at home to provide sufficient energy to walk long distances to school.[7] Although midday meals were provided in most schools visited, they were not free, thus denying access to pupils who could not afford them. A midday meal is an important instrument for combating classroom hunger and for promoting better learning.[9] The government of India operates a successful midday meal scheme.[9-11] Ajani[12] has also documented the beneficial effect of the school feeding program on school attendance in Lagos State, advocating that the program be extended to all the states and all primary school classes in Nigeria so as to increase attendance of school age children and improve enrolment of children in schools. Ujiro and Idehen[13] similarly noted the benefits of the midday meal toward achieving the millennium development goals.

It is, therefore, desirable that at least one compulsory meal be made available to school children during school hours. This could be provided free of charge or highly subsidised by the local government in public schools. In private schools, the fee could be incorporated into the tuition fees.

While 53% of schools with good SHS scores also had high teachers' health knowledge scores, the majority (79%) of schools with poor SHS scores had low teachers' health knowledge scores. This implies that good teachers' health knowledge is likely to enhance SHS, while poor health knowledge of teachers would negatively affect SHS.

Conclusions and Recommendations

SHS in Sagamu are inadequate. There is a need to strengthen them in order to optimise the health of school children in the locality. Private and government schools were not appreciably different in the quality of their SHS. In order to improve them, health care professionals should assume their leadership role in the SHP through involvement of the Ministry of Health.

This study has shown that teachers' knowledge scores correlate positively with SHS scores. In order to improve the School Health program therefore, it is recommended that measures be taken by all schools to improve the health knowledge of their teachers.

All pupils should undergo preliminary medical examinations on admission to schools so as to facilitate early detection of diseases or disabilities and to institute prompt medical intervention as appropriate. Regular doctors' visits to schools to perform periodic medical examination of staff and pupils and to aid in the conduction of screening tests for early detection of handicaps and disabilities, would be ideal. Even in the absence of doctors visiting, provision of a sick bay/health room and ensuring at least one regular source of potable water within each school premises would augur well for SHS in Sagamu.

It is desirable that at least one compulsory meal be made available to school children during school hours. The importance of the Local Government Authority in this regard cannot be gainsaid; it should be possible to provide free school midday meals in public schools to enable every child have at least one balanced meal daily at school. Private schools should also be encouraged to provide midday meals, even if a small amount of money has to be incorporated into the school fees. Institution of the above measures may improve the SHS in Sagamu.

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