

## School Health Services in Sokoto Town, Nigeria

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### Abstract

**Background:** School is often the first contact with an environment away from home and children tend to spend significant number of years learning, growing and developing in such environments. The objectives were to assess the status of school health services in selected public and private primary schools in Sokoto town and to compare the extent of implementation of school health services in both categories of schools.

**Materials and Methods:** A cross-sectional survey of 53 randomly selected public and private primary schools in Sokoto metropolis over a 3 month period using the school health program evaluation scale questionnaire. Data was analyzed using SPSS version 20.

**Results:** Thirty nine (73.6%) public and 14 (26.4) private schools were studied. Majority 41 (77.4%) of the head teachers had minimum of Bachelor's degree. Thirty (56.6%) of the schools had no health personnel. Commonest health appraisal was routine teacher inspection in 41 (77.4%) schools. The main treatment facilities were first aid box 47 (88.7%) and essential drugs 37 (69.8%). Availability of essential drugs was significantly ( $p=0.02$ ) higher in private schools. Care of emergency illness or injury was mainly 45 (84.9%) via first aid treatment with no records kept in 26 (49.1%) of the schools. Method of controlling communicable diseases was mainly 40 (75.5%) by sending children home, and significantly higher ( $p=0.01$ ) in private schools. Only 12 (22.6%) schools provided school meals. 31 (58.5%) schools scored below minimum acceptable score and there was no difference ( $p=0.4$ ) between the scores of the public and private schools.

**Conclusion:** School health services were suboptimal in both categories of schools. There is need to urgently improve health services in schools in Sokoto town.

**Keywords:** School health services; Primary schools; Sokoto; Nigeria.

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### I. Introduction

School Health Services are preventive and curative services provided for the learners and staff within the school setting. The purpose of the School Health Services is to help children at school to achieve the maximum health possible for them to obtain full benefit from their education.<sup>1</sup> It is an essential component of effective school health program as well as achieving "Education for All" (EFA) inclusive of children with special needs.<sup>1</sup> School health services has been described as a coordinated system that ensures a continuum of care from the school to home to community health care provider and back.<sup>2</sup> School aged children constitute a substantial percentage of any community. They are said to constitute 18% of any population.<sup>3</sup>

School is most often the first contact with an environment away from home and children tend to spend significant number of years learning, growing and developing in such environments. It has been observed that participating in educational programmes depends on the health status of children.<sup>4</sup> A healthy and mentally alert child is more likely to attend to school activities as required by the curriculum. The common health problems encountered among school children include infectious diseases, accidents and injuries, nutritional disorders, substance abuse and emotional disturbances.<sup>5</sup> Where properly instituted, school health services were said to have contributed significantly in school based health programs<sup>6-8</sup> The specific services include school health medical examination, school clinics, school meals and food hygiene, control of communicable diseases and play activities.<sup>4</sup> These services however, require inter-sectoral and multidisciplinary approach involving the key Government parastatals, trained teachers, medical personnels, parents and other members of the community.

There is considerable variation in the types and distribution of health services in schools around the globe. This is largely dependent on the goals and objectives of the school health services to be provided per

community. Certain factors such as differences in the health needs of individual communities, the availability of health care personnels, funding, attitude and objectives of the community as well as scope of available resources in the community have been identified as the determinants of the forms of school health services.<sup>10,11</sup> The effectiveness of such services is also highly dependent on the commitment of stake holders towards implementation, continuous monitoring and adequate evaluation strategies. Despite the numerous advantages of school health services, it has been variously reported to be poor in Nigerian schools.<sup>12-15</sup> A National study of the school health system in Nigeria by the Federal Ministries of Health and Education revealed that only 14 % of head teachers indicated that pre-enrolment medical examination was mandatory in their schools.<sup>16</sup>

It is imperative that we optimize the health of the school going children so as to facilitate their opportunity to learn and become productive in life. Sokoto, North-western Nigeria has been identified as one of the educationally disadvantaged states with sub optimal literacy level (20.1% and 47.4% for young females and males respectively).<sup>17</sup> Improving educational status goes hand in hand with that of the health of individuals and by extension, the community. Focusing on the health of children and other health related factors will not only improve school retention, but will facilitate completion of basic education and the zeal by this young minds to contribute to self and national development. This study therefore, assessed the status of school health services in selected public and private primary schools in Sokoto town and compared the extent of implementation of school health services in both categories of schools. The study was to serve as a source of information to enlighten the policy makers and the general public on the state of health care service delivery and health facilities in primary schools in Sokoto, in order for the stakeholders to device ways in which such services could be implemented where lacking, or improved where in existence.

## **II. Materials and Methods**

### **Background information of study area:**

The study was conducted in Sokoto metropolis, the Capital of Sokoto State. The metropolitan City of Sokoto lies between latitudes 12°55'02" to 13°10'05" North of the equator and longitudes 05°09'18" to 05°17'24" East of the Greenwich meridian, and covers an area of 60.33 square kilometers (Geography Department UDUS 2012). The town has within it, three senatorial zones (North, South, and East zones). The total population of Sokoto metropolis was 506,241.99 as at year 2006.<sup>18</sup> However, the estimated population of Sokoto metropolis based on a population growth of 3.0% annually was projected at 700,637 for the year 2018. There were 106 (79 public and 27 private) primary schools in the metropolis. Sokoto-North had 33(23 public and 10 private) primary schools, Sokoto- South had 34(26 public and 8 private) primary schools and Wamakko had 39(30 public and 9 private) primary schools. Hausa language is generally spoken, with English as the official language of the State. The state has a number of health facilities within it, most prominent one being UsmanuDanfodiyo University Teaching Hospital Sokoto, a tertiary institution located in the State capital. It serves as a referral Centre for the people of Sokoto, Kebbi and Zamfara States.

**Study design and population:** The study was a cross-sectional survey involving all public and private primary schools in Sokoto metropolis that fulfilled the inclusion criteria.

**Study duration:** The study was conducted between January 2018 and March 2018, covering a period of one academic term.

**Inclusion criteria:** Only schools that were 6 years and above, registered with Sokoto State Universal Basic Education Board and Sokoto State Ministry of Education were recruited into the study.

**Sample size determination:** A sampling ratio of 50% of all identified schools was used, giving the largest size for the chosen error margin of 0.05.<sup>19</sup> The sampling frame was 106 comprising of 79 public and 27 private primary schools. Applying a sampling ratio of 50% gave a sample size of 53 schools.

**Sample size:** 53 primary schools

### **Sampling technique:**

The primary schools were recruited using multistage sampling technique.

Stage 1: All the Local Governments in Sokoto metropolis were stratified into 3 strata based on the three senatorial zones and one local Government Area (LGA) was selected from each of the zones using simple random sampling technique (balloting).

Stage 2: Line listing of all the primary schools in the selected LGAs was done from a list of schools obtained from the Local Government Education Secretariat with stratification into public and private primary schools. Thirty nine public and 14 private schools were selected from the sampling frame by simple random sampling technique (Table of random numbers).

### **Study methodology:**

A modified School Health Programme Evaluation Scale<sup>4</sup> was used to collect information. The scale consists of four parts. The first part contains questions on the demographics of the school, head teacher qualification and health related activities organized by the school. The other parts include relevant questions on school health care services, health instruction and healthful school environment. The section on school health services has items scored based on presence or absence of health care services and facilities within each school, with maximum obtainable score of 45 and minimum acceptable score of 19. Information that were sought included availability of health personnel, health appraisals, treatment facilities available in the schools, care of emergencies and injuries, control measures available for communicable diseases, nutrition services, guidance and counseling services and record keeping. The evaluation scale was completed by interviewing the head teacher or a representative of the head teacher where not available. Marks were allocated to the various items as recommended by the evaluation scale. In addition, the researchers inspected health facilities available within the school premises to verify some of the earlier obtained verbal information. In order to avoid pre-empting the schools and to minimize the occurrence of bias, there were neither familiarization visits nor notification of selected schools before commencement of the study.

#### **Statistical analysis:**

Data analysis was done using Statistical Package for Social Science (SPSS) statistical software (version 22.0). Qualitative variables were presented as frequencies and percentages while quantitative data were presented using mean and standard deviation. Frequency tables were used to illustrate results. Chi square test was used to determine significant associations between qualitative variables and Fischer's exact test was also used where applicable. p -value less than 0.05 was regarded as significant for the statistical analysis.

#### **Ethical consideration:**

Ethical approval for the study was obtained from the Health Research Ethics Committee of UsmanuDanfodiyo University Teaching Hospital Sokoto, before the commencement of the study. Approval to conduct the study was obtained from the Sokoto State Universal Basic Education Board and the State Ministry of Education. Data obtained was treated with utmost confidentiality.

### **III. Result**

#### **Demographics of the Schools**

Thirty nine (73.6%) public and 14(26.4) private primary schools were studied. Forty one (77.4%) of the schools were more than 10 years of age. The total population of pupils and staff of the schools was 69,680 comprising of 66,609 pupils, 2,507 teaching and 564 non-teaching staff. Majority 41(77.4%) of the head teachers had minimum of Bachelor's degree with no statistically significant difference ( $p=0.30$ ) in the qualification of head teachers in both categories of schools. School health committee was available in 29(54.7%) schools, 42(79.2%) and 18(34%) schools had a functional Parents Teachers Association (PTA) and a trained first-aider respectively. Pupils were often engaged in extracurricular activities in various forms in 42(79.2%) of the schools. (Table I).

#### **School Healthcare Personnel and treatment facility**

Thirty (56.6%) of the schools had no health personnel. The commonest health personnel was a trained first- aider in 18(34%) schools. None of the schools engaged the services of a medical doctor. The most commonly performed health appraisal was routine teacher inspection in 41(77.4%) schools, with the least appraisal being periodic medical examination in 2(3.8%) schools. The main treatment facilities were first aid box 47(88.7%) and essential drugs and materials 37(69.8%) ranging from analgesics, anti-malarials, anti-helminths, antibiotics, iodine, plaster, cotton wool to bandage. Availability of essential drugs was significantly ( $p=0.02$ ) higher in private schools compared to public schools. Guidance and counseling services were provided by 44(83%) of the schools. (Table II).

#### **Care of emergency illness, injury, and control of communicable diseases**

Care of emergency illness or injury was mainly 45(84.9%) via first aid treatment. Thirty four (64.2%) of the schools transported affected pupils to the nearest health facility. In terms of control of communicable diseases, 46(86.8%) of the schools had one form of control activity or the other, with the commonest being conveyance of children back home in 40(75.5%) and significantly higher ( $p=0.01$ ) in private schools. Only 5(9.4%) of the schools had facility for isolating pupils with features of communicable disease, pending further care. Immunization services were arranged and provided to pupils during outbreaks in 23(43.4%) schools surveyed. Vaccines provided were mainly meningococcal vaccines. Records of treatment given or healthcare decision made was not kept in almost half (49.1%) of the schools. (Table II). Neither of the schools requested for pre entry medical screening nor had records of pre -school entry medical reports.

### **Nutrition services**

Only 12(22.6%) primary schools provided free mid-day school meals, out of which 9(75.0%) were public schools. Majority (81.1%) of the schools had no school farm. Nutritional demonstration classes took place in 14 (26.4%) of the schools. Two (3.8%) schools provided nutritional supplements on regular basis. Screening of food vendors took place in none (0.0%) of the schools.

### **Cumulative score for school health services**

The scores ranged from 8-29 with mean (SD) score for all schools of 17.2 ( $\pm$ 5.9). There was no significant difference ( $p=0.1$ ) between the mean scores of the public schools and those of the private schools. Thirty one (58.5%) schools comprising of 24 public and seven private primary schools scored below the minimum acceptable score of 19, while 22(41.5%) schools (15 public and seven private primary schools) scored 19 and above. There was no significant difference ( $p=0.3$ ) between the number of public and private schools that had the minimum acceptable score.

## **IV. Discussion**

This study has shown that school health services is in existence in primary schools in the study area but more than half (58.5%) of the schools performed below the minimum acceptable score of 19. This implies that the services are unlikely to be as effective as would have been required to impact positively on the health of the pupils. The finding of majority of schools obtaining below the minimum score in this study is consistent with reports from other studies in Nigeria.<sup>12-15</sup> however, contrary to the other studies<sup>13,15,20</sup> in which private schools performed better than public schools, this study documented no significant differences in the provision of school health services between both categories of schools. Although it is often expected that private schools should fare better in terms of funds, some of such schools in socio-economically disadvantaged areas like the study location<sup>17</sup> could be overwhelmed with increasing number of pupils with parents being unable to meet up with on-time payment of required fees, thereby impacting negatively on the provision of basic services including health services. The outlook is such that, more needs to be done by all stakeholders in the education, health and other relevant sectors to ensure effective school health services.

In this study, majority (56.6%) of the schools had no health personnel to attend to their health needs and more worrisome is the fact that only 2 (3.8%) of the schools had a trained nurse with none of the schools enjoying the services of a medical doctor. Healthcare service delivery is to some extent, dependent on the expertise of the health personnel involved. The quality of service is therefore, likely to be highly compromised in the absence of a qualified personnel either offering healthcare service directly or supervising the lower cadre health professionals accordingly. The finding of inadequate number and quality of health personnel in this study is similar to reports from other studies<sup>12-14,22</sup>. This could be as a result of a deteriorating health workforce in Nigeria both in quantity and quality,<sup>22, 23</sup> and the inability of schools to engage the services of the needed health personnel because of the cost implication.<sup>24</sup>

Routine teacher inspection was the most commonly performed health appraisal (77.4%) in this study. Although it is considered the least requirement and the finding appears lower than reports from other parts of Nigeria,<sup>13,14, 20</sup> this practice can be considered useful enough to lead to early detection of poor personal hygiene and common apparent health conditions that can be contagious like skin infestations, flu like illnesses and many others. As in other reports, periodic medical examination and other health appraisals were substantially low in this study. The implication is that, a significant number of pupils with inapparent health problems or at risk of such may remain undetected. This may subsequently reflect negatively in their ability to grow and develop normally. Concerning the treatment facility in this study, 30.2% of the schools had a health room or dispensary, a finding similar to reports from studies conducted in Edo and Sagamu, Nigeria.<sup>12, 15</sup> First aid boxes were readily available in 88.7% of schools. However, only 69.8% were stocked with essential drugs and materials. The finding is comparable to a report from Jos, Nigeria<sup>13</sup> where 89% of the schools had first aid boxes but 41% of them were empty, but lower than the report from Sagamu, Nigeria<sup>12</sup> where 93% of the first aid boxes had essential drugs.

Care of emergency illness or injury was mainly 84.9% via first aid treatment in this study. However, the essential drugs and materials for treatment were more readily available in the private schools than in the public primary schools. Reason being that the pupils in the private primary schools were made to pay a token for health purpose as part of their school fees. Even though the private schools experienced delays in payment of fees from some parents, they were still better off than the public schools were lack of funds for procurement to re-stock the boxes from non-regular supply by the government was said to be the main reason for the empty first aid boxes. Regardless of the category of school, all pupils are by right entitled to basic health care services<sup>25</sup> such as can be needed in their course of school instruction. They are prone to illnesses, injuries and accidents in

schools<sup>5</sup> and on the minimum, be availed of first aid treatment by a trained personnel in a health room in the school as further action is being awaited.

Control of communicable disease was achieved by most (75.5%) of the schools through the conveyance of the affected child home in order to limit spread. This finding is comparable to the report by Oyinlade *et al* in Sagamu, South-West Nigeria.<sup>12</sup> The practice of sending pupils home was however, criticized as it was said to stand 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 was recommended as a better approach.<sup>12</sup> Immunization as a means of control of communicable disease was offered by 43.3% of all the schools. Although this finding is higher than the 21.4% reported by Osuorahet *al*<sup>14</sup> in Nnewi, South- East Nigeria, the coverage is still not satisfactory when one considers the documented benefits and low cost effectiveness of immunization.<sup>26</sup>

In this study, free mid- day school meals were provided by 22.6% of schools, majority of which were public schools. This is in contrast with studies from Sagamu and Jos, Nigeria, where none of the schools provided free school meals but pupils were allowed to either bring meals from home or purchase from school vendors.<sup>12,13</sup> The trend of school meals in the present study could be attributed to efforts by the Sokoto State Government to implement the school feeding program in some schools in the state.<sup>27</sup> However, more needs to be done in terms of provision of free school meals because majority of the pupils still do not have access to it. The national school meal policy that was launched in 2005 was to be implemented through the home-grown school feeding and health program but implementation in most states in Nigeria was poor.<sup>1</sup> Re-introduced in 2016, the program was part of the social investment program to tackle poverty, hunger, and improve health and education of the children.<sup>28</sup> The policy if widely practiced would've ensured at least one balanced diet per pupil, with the potential of combating malnutrition, increasing pupil enrollment in school, school retention and attendance, thereby improving the learning outcome of these pupils as well as ensuring school completion.<sup>28</sup> Neither of the schools in this study organized routine medical screening of food vendors nor screening of food preparation areas. Additionally, none of the schools requested for certificate of fitness from the vendors thus compromising the safety and standard of feeds that are bought and consumed by the pupils.

## V. Conclusion

It can be concluded from this study that school health services is suboptimal in the study location. Although more than half of the schools surveyed had a school health committee, the functionality of such committees did not reflect in the quality and effectiveness of the existing school health services in the study area. These committees can still be empowered with the necessary requirements to make health services in the schools more robust. More commitment is required by the heads of the schools, teachers, parents, government and other stake holders in the provision of adequate manpower, infrastructure, materials and supportive supervision. The health of the school going child is of utmost priority if nation building is to be successfully achieved.

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**Table I: Demographic characteristics of the Public and Private Schools.**

School Characteristics	Frequency (%)
<b>School type</b>	
Public	39(73.6)
Private	14(26.4)
<b>School Age</b>	
6-10 years	12(22.6)
> 10 years	41(77.4)
<b>School population</b>	
Male pupils	37,092(53.2)
Female pupils	29,517(42.4)
Teaching staff	2507(3.6)
Non-teaching staff	564(0.8)
<b>Health related activities</b>	
School health committee	
Yes	29(54.7)
No	24(45.3)
Functional PTA	
Yes	42(79.2)
No	11(20.8)
Extracurricular activities	
Yes	42(79.2)
No	11(20.8)

**Table II: Health Service Provision by the Public and Private Primary Schools**

Health service	Total No. (%)	Public school No. (%)	Private school No. (%)	Test statistics $X^2$ / Fischer's	p-value
<b>Health personnel</b>					
None	30(56.6)	22(56.4)	08(57.1)	0.12	0.49
Trained First aider	18(34.0)	15(38.5)	03(21.4)	1.33	0.20
Nutritionist	03(5.6)	01(2.6)	02(14.3)	2.65	0.16
Nurse/Midwife	02(3.8)	01(2.6)	01(7.1)	0.59	0.46
Medical Doctor	00(0.0)	00(0.0)	00(0.0)	-	-
<b>Health appraisals</b>					
Routine inspection	41(77.4)	28(71.8)	13(92.9)	2.60	0.10
Screening for Defects	05(9.4)	02(5.1)	03(21.4)	0.52	0.39
Periodic Examination	02(3.8)	01(2.6)	01(7.1)	0.59	0.46
Referrals	27(50.9)	21(53.8)	06(42.9)	0.49	0.37
Health supervision	12(22.6)	09(23.1)	03(21.4)	0.02	0.60
<b>Treatment facilities</b>					
First aid box	47(88.7)	33(84.6)	14(100)	2.43	0.14
Essential Drugs	37(69.8)	24(61.5)	13(92.9)	4.79	0.02
Health room/ Sick bay	16(30.2)	11(28.2)	05(35.7)	0.27	0.42
Ambulance	10(18.9)	05(12.8)	05(35.7)	3.52	0.07
Telephone	12(22.6)	05(12.8)	07(50.0)	8.13	0.01
<b>Care of emergency</b>					
First aid treatment	45(84.9)	31(79.5)	14(100)	3.38	0.06
Treatment record	21(39.6)	15(38.5)	06(42.9)	0.08	0.50
Parents notified	40(75.5)	27(69.2)	13(92.9)	3.10	0.07
Transport to hospital	34(64.2)	22(56.4)	12(85.7)	3.84	0.04
Conveyance Home	33(62.3)	21(53.8)	12(85.7)	4.45	0.03
<b>Record keeping</b>	27(50.9)	20(51.3)	07(50.0)	3.85	0.27

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