

# School Health Services in primary schools in Jos, Nigeria

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## Abstract

*Background:* Globally, although school - aged children do not suffer from the high mortality of pre-school children, there exists a high burden of morbidity among them. School Health Services have been designed to appraise, protect and promote the health of the school population to enable them benefit maximally from the school system. We evaluated the status of the school health services in public and private primary schools in Jos. *Materials and Methods:* This was a cross sectional descriptive study. A sampling ratio of 50% of all registered schools was applied to select 20 public and 46 private schools using a stratified random sampling technique. A School Health Evaluation Scale Questionnaire was completed for each school by direct interview and inspection. *Results:* Twenty four (36.4%) schools had health personnel, 2 public and 22 private ( $p = 0.003$ ). Sixty- five (98.5%) schools performed routine inspection of the pupils. Twelve (18.2%) schools requested pre-admission/employment medical examination; these were all private schools. Fifty (75.8%) schools administered first aid to injured /ill children, 8 public and 42 private ( $p = 0.0001$ ). Health records were present in 10(15.1%) schools, one public and 9private ( $p = 0.26$ ). There was no school nutrition programme in any of the schools. Only 21(31.8%) schools, 6 public and 15 private ( $p= 0.83$ ) had been visited by the school health team in the preceding year. *Conclusion:* School Health Services was generally poor in public and private primary schools, although the situation was better in the private schools. Urgent attention should be paid to School Health Services in primary schools in Jos.

## Keywords

School Health Services, Primary Schools, Nigeria

## 1. Introduction

Globally, even though school - aged children do not suffer from the high mortality of pre-school children, there exists a high burden of morbidity among them. Varying in prevalence from one country to another, the health problems in this group of children include infectious diseases, accidents and injuries, nutritional and mental disorders including substance abuse.<sup>1-6</sup>

School Health Services refers to the procedures that are carried out by physicians, nurses, dentists, teachers and other personnel to appraise, protect and promote the health

of school children and school personnel.<sup>7, 8</sup> It includes health appraisals, treatment of common ailments, including the provision of emergency care, supervision of the health of children (normal and handicapped) and personnel, control of communicable diseases, record keeping, and the school nutrition programme. School health Services is therefore an essential component of the School Health Programme.

A historical review shows that the awareness of the need for a health service for school- aged children started quite early and has spread all over the world.<sup>1,9,10</sup> Thus, most countries have initiated some form of School Health

Programme. The state of such programmes, however, varies from country to country, depending on certain characteristics of each country such as level of economic development, educational resources, and disease prevalence.<sup>1</sup> In Nigeria; many authors have observed that generally, the School Health Programme is a neglected aspect of the Health and Education sectors of the country.<sup>10-12</sup> From the review of the programme in Nigeria, it appears that the programme was functional at the onset but then started to decline in the late seventies.<sup>10</sup> This may be due to the economic downturn and political instability in the country in the last three decades.<sup>13</sup> There is paucity of data on evaluation of school health services in Nigeria, especially in the North. The objective of this study was to evaluate the status of the School Health Services in primary schools in Jos, Nigeria.

## 2. Materials and Methods

### 2.1. Study Area

This study was carried out in Jos North Local Government Area (LGA) of Plateau State, Nigeria. Plateau State currently has 17 LGAs including Jos North LGA that is host to both the capital of the State and the Local Government Area. Jos North LGA is a cosmopolitan area which is mainly urban, but with a few rural outskirts. In Plateau State, Nigeria, the School Health Unit has existed since 1961 with the establishment of the school clinic at the Jos Township School in the Jos North Local Government Area (JNLGA) which was given the responsibility of supervising the programme.<sup>14</sup> The Unit was initially managed by the State Ministry of Health but was later transferred to the Primary Health Care division of the Local Government Council in 1990. A Nurse/Midwife heads the clinic.

### 2.2. Study Design

This was a cross sectional descriptive study conducted over a period of two months in Jos North LGA of Plateau State in North Central Nigeria and was part of a larger study. *Determination of sample size:* A sampling ratio of 50% of all identified schools was used which gives the largest size for the chosen error margin of 0.05.<sup>15</sup> There were 40 public and 92 private schools. Thus the sampling frame was 132 primary schools and a sampling ratio of 50% gave a sample size of 66 schools.

*Sampling Technique:* A stratified random sampling technique was used in which the primary schools were stratified into public and private. The sampling ratio of 50% was applied to each group to select 20 public and 46 private schools respectively, giving a total of 66 schools for the study. A table of random numbers was used to select the schools studied from the sampling frame.

*Ethical Considerations:* Ethical clearance was obtained from the Human Research Ethics Committee of the Jos University Teaching Hospital. Written permission was

obtained from the Education Authority of Jos North LGA from where a list of all the registered primary schools was obtained. Subsequently, verbal permission was sought from the head teachers of the selected schools.

*Data Collection:* A school health evaluation questionnaire (modified)<sup>16, 17</sup> was completed for each school by direct interview and inspection by five trained researchers. The general administration data was obtained by interviewing the head teacher and inspecting the school records. The section on School Health Services was completed by interviewing the head teacher, health staff/health teacher/ other teachers and inspection of first aid box, health room/clinic and health records. Other information obtained from these interviews included performance of health appraisals, availability of treatment and preventive facilities and referral system. The various components of the school health services were assigned scores based on the school health evaluation scale and the total computed for each school. The total maximum score obtainable was 36 while the minimum acceptable score was 18.

Prior to commencement of the study, the questionnaire was pre-tested in a selected primary school outside the sampled schools to identify possible difficulties in administering the questionnaire. No modification was required and the results of the pretest were not included in the analysis of the results.

### 2.3. Data Analysis

The statistical programme EPI Info 2005 (version 3.3.2) was used to analyze the data. Frequency distribution tables were drawn. Categorical data was reported as proportions and continuous data as means  $\pm$  SD. The student-test was used to compare group means, while Chi square test was used for comparison of frequencies in contingency tables. In all statistical tests of significance, only p-values of less 0.05 were regarded as significant.

## 3. Results

### 3.1. Demographic Characteristics

Sixty-six (20 public and 46 private) primary schools in Jos North LGA were studied. The total pupil population of the schools assessed was 39, 839 with a range of 46 to 4,010 pupils; 61.6% from public schools and 50.8% were girls. The total number of teaching staff was 1,556.

### 3.2. Availability of Health Care Services

Table I shows the range of available School Health Services in the schools. Twenty four schools (36.4%) had a form of health personnel ranging from trained first aiders in 17 (25.8%) schools, qualified nurse in 5 (7.6%), nutritionist in 1(1.5%), and a medical doctor in 1(1.5%). The most commonly performed health appraisal was routine morning inspection reported by 65 (98.5%) schools and pre-admission/ employment medical examination in 12 (18.2%)

schools, all private. Apart from medical examination and referrals, there was no significant difference between public and private schools in the provision of health appraisals.

**Table I.** Summary of School Health Services provided by public and private schools in Jos North LGA

School Health Service	Total No. (%)	Public No (%)	Private No. (%)	Stat $\chi^2$ /F.exact	p
<b>Health personnel:</b>	<b>24(36.4)</b>	<b>2(10)</b>	<b>22(47.8)</b>	<b>8.62</b> (presence vs absence of health personnel)	<b>0.003</b>
Trained first aider	17 (25.8)	1(5.0)	16 (34.7)		
Nutritionist	1 (1.5)	0 (0.0)	1 (2.2)		
Nurse/Midwife	5 (7.6)	1 (5.0)	4(8.7)		
Physician	1 (1.5)	0 (0.0)	1 (2.2)		
<b>Health appraisal:</b>					
Routine inspection	65 (98.5)	19 (95.0)	46 (100.0)	2.34	0.30
Screening	28 (42.4)	7 (35.0)	21 (45.7)	0.65	0.42
Medical Exam.	12 (18.2)	0 (0.0)	12 (26.1)	6.38	0.01
Referrals	35 (53.0)	6 (30.0)	29 (63.0)	6.11	0.01
Supervision	38 (57.6)	14 (70.0)	24 (52.2)	1.81	0.18
<b>Treatment and preventive facilities:</b>					
First aid box	59 (89.4)	17 (85.0)	42(91.3)	0.58	0.43
Health room/Clinic	32(48.5)	3(15.0)	29(63.0)	12.88	0.0003
Immunization	53(80.3)	18(90.0)	35(76.1)	1.71	0.31
<b>Care of emergencies:</b>					
First aid treatment	50(75.8)	8(40.0)	42(91.3)	19.98	0.0001
Treatment recorded	13(19.7)	1(5.0)	12(26.1)	0.90	0.66
Notify parent	58(87.9)	18(90.0)	40(87.0)	0.12	1.00
Transport to clinic	55(83.3)	18(90.0)	37(80.4)	0.92	0.48
Transport home	50(75.8)	15(75.0)	35(76.1)	0.01	1.00
<b>Health records present:</b>	<b>10(15.1)</b>	<b>1(5.0)</b>	<b>9(19.6)</b>	<b>2.30</b>	<b>0.26</b>
<b>Visit by school health team:</b>					
Ever visited	21(31.8)	6(30.0)	15(32.6)	0.04	0.83
≥ 4 visits	2(9.5)	1(16.7)	1(6.7)	0.50	0.50

Thirty- two (48.5%) schools had a health room/clinic. A significantly greater number of private schools had health rooms/clinic compared with public schools ( $p < 0.001$ ). Fifty -nine (89.4%) schools had a first aid box [17 (85.0%) public schools and 42 (91.3%) private ( $p = 0.43$ )]. Out of the 59 schools with first aid boxes, the boxes were empty in 24 schools (14 public and 10 private;  $p = 0.0001$ ). On inspection of those first aid boxes with contents, there was no significant difference in the number of public schools and private schools with analgesics, disinfectants, and cotton wool/plaster (3 versus 32 schools;  $p = 1.0$ ). Only four, 6.8% schools (all private) provided anti- helminthics to their pupils ( $p = 0.31$ ).

Fifty (75.8%) of the schools reported giving some form of first aid treatment to injured /ill children. A significantly greater number of private schools provided first aid treatment than public schools ( $p = 0.0001$ ).

Fifty- three (80.3%) schools offered immunization services to the children during epidemics. The most common vaccine was the meningococcal vaccine. The

number of public and private schools that provided immunization services did not differ significantly ( $p = 0.31$ ).

### 3.3. Nutrition Programme

None of the schools served school meals. Food vendors were screened in only 4 (6.1%) schools (all public).

### 3.4. Availability of School Health Records

Only 10 (15.1%) schools kept health records. The public and private schools did not differ significantly with regard to record keeping ( $\chi^2 = 2.30$ ,  $p = 0.26$ )

### 3.5. Visit by the School Health Team

The visit by the school health team of the LGA to the schools in the preceding year is shown in Table I. Twenty one (31.8%) schools, 6(30%) public and 15(32.6%) private schools had received at least one visit from the LGA school health team in the preceding year ( $p = 0.83$ ). Out of these

21 schools, only 2(9.5%), (1 public and 1 private) had received the required minimum number of 4 visits in a year.<sup>7</sup> ( $p = 0.50$ ). The schools that reported visits by the school health team were those in close proximity to the LGA school clinic. The most frequent visits ( $> 10$ ) were to the township primary school where the school clinic was located.

### 3.6. Total Score for School Health Services

The mean School Health Services score of all the schools studied was  $11.86 \pm 4.99$  with only 8 (12.1%) schools (1 public and 7 private), having the minimum acceptable score of 18. The mean score of the School Health Services for private schools ( $13.22 \pm 4.86$ ) was significantly higher than those of public schools ( $8.75 \pm 3.81$ );  $p < 0.001$ . There was no significant difference between the number public and private schools that had the minimum acceptable score ( $\chi^2=1.37$ ,  $df= 1$ ,  $p = 0.42$ ).

## 4. Discussion

The objective of the current study was to evaluate the status of the school health services in Jos North LGA. Overall, school health services in Jos North LGA were generally poor with only 8 (12.1%) schools attaining the minimum acceptable score. Furthermore, the school health services in the private schools were generally better than in the public schools. In this study, only 24 (36%) schools had any form of health personnel and only one school (1.5%) benefitted from the services of a physician. This is similar to the situation in Sagamu in Western Nigeria<sup>18</sup> where only one (1.1%) school benefitted from the services of a physician. Similarly, only 7.6% of schools in the current study had a school nurse. This figure is similar to 31 nurses out of 830 (3.7%) primary schools in Akwa Ibom State and 19 nurses of 942 (2%) primary schools in Cross River's State.<sup>19</sup> Furthermore, only 26% of schools in our study had someone trained in first aid. This is however better than that reported by Akani<sup>20</sup> from Obio- Akpor LGA of Rivers state in South Nigeria where only 7% had trained first aid personnel. This difference may be due to the fact that Akani's study involved only public schools which were located in a rural area. The figures from these studies are, however, worse than that reported by Oduntan<sup>2</sup> in the seventies where 62% of the schools in Ibadan had trained first aid personnel. This may be a reflection of the deterioration in the School Health Programme in the last three decades as noted by some authors.<sup>1,10-12</sup> This deterioration may be due to the economic depression and political instability during the period.<sup>13</sup> Ideally, everyone on the school staff should be able to administer basic first aid. However, as a minimum standard, at least three persons trained in first aid should be available at all times in the school.<sup>21</sup> The schools in this study did not meet this requirement. The situation can be addressed by making it compulsory for all schools to send members of staff on training in first aid. Also, it should be made a prerequisite

for the registration of new schools. The poor involvement of health personnel, especially physicians/paediatricians in the School Health Services in Jos North LGA deprives the programme of their relevant expertise. The School Health Committee of the American Academy of Pediatrics<sup>22</sup> stressed the need for the involvement of paediatricians as major stakeholders in child health, in the School Health Programme.

The most commonly performed health appraisal in this study was routine inspection by the teachers in 99%, a figure close to the 100% reported by some authors.<sup>20,23</sup> Ejifughu<sup>24</sup> in a study in Enugu had noted that teacher inspection was the most common appraisal that teachers were aware of. This practice of routine inspection is commendable and should be maintained, as it could curb the spread of diseases such as scabies and fungal skin infections, amongst others. The performance of the other health appraisals was, however, low but the situation was generally better in the private schools. This is similar to other reports from other parts of the country.<sup>20,23</sup> The performance of health appraisals can help to detect health problems early, and also decrease the transmission of communicable diseases.

Treatment facilities available in this study included health room/clinic in 48% of the schools. Different authors in other parts of the country quoted varying figures; 31.6% by Ofovwe<sup>25</sup> in Edo State, 27% in Sagamu<sup>18</sup>, 1% in Cross Rivers State<sup>19</sup>, and 3.6% of primary schools in Akwa Ibom State<sup>19</sup> with a sick bay. In addition, 89% of the schools in this study had a first aid box. The fact that 89% of the schools in this study had a first aid box is commendable. However, 41% of them were empty at the time of the study. The findings in our study are better than those reported by Akani<sup>20</sup> in Rivers State where only 39% of the schools had first aid boxes, of which 63% were empty. Our findings are also better than those of Ochor<sup>11</sup> in the Eastern Nigeria where only 37% of the schools had first aid boxes, most of which were empty. In contrast, essential materials for first aid were available in 93% of schools in Sagamu<sup>18</sup>. The findings in the current study though better than some of the reports, is still unsatisfactory because the school has the responsibility for giving immediate care in case of injury/accident or sudden illness. This can only be done where the facilities are available, with someone trained to use them. The reason given for the empty boxes was that when the consumables were used up, they were not replaced. A mechanism whereby the first aid box can be replenished either by contributions from the PTA, the government, or payment of token fees, would therefore be welcome.

None of the schools in this study served school meals, but children were allowed to bring their food from home or buy from food vendors, especially in public schools. Unfortunately, these vendors and their wares were screened in only 6% of the schools. The situation was similar in Obio- Akpor LGA of Rivers State, where Akani<sup>20</sup> reported that no primary school served meals. However, unlike in

our study and that of Akani, in Ochor's study,<sup>11</sup> 13% of the schools provided meals.

Also, in Sagamu<sup>18</sup>, mid- day meals were reported to be available in all the schools however they were not free. The provision of school meals can help address the problem of under nutrition among school- aged children in the country.<sup>1,4</sup> Also, it will ensure that children have something to eat, a factor which can result in improved attention at school, as it has been reported that many children go to school without taking breakfast.<sup>26</sup> In addition, it will ensure that children receive food of high nutritional value, especially in public schools. Problems facing the introduction of school meals in the country include those of finance, personnel, logistics, family preference and ethnic and religious differences. Nigeria has adopted the school feeding service to be implemented through the Home-Grown School Feeding and Health Programme (HGSFHP) which was launched in September, 2005.<sup>27,28</sup> This is however yet to be implemented in most States. All stakeholders should be committed to this project.

Although there was a school health team in Jos North LGA, the team had only visited 21(31.8%) of the schools in the preceding year, and only 3% had received the minimum number of 4 visits.<sup>7</sup> The schools that reported visits were those in close proximity to the school clinic. The figure obtained in this study is a little better than that reported by Fajewonyomi<sup>12</sup> in Ile-Ife, where only 15% of the schools were visited by the school health team in the preceding year. The situation appears to be better in India, another developing country; where a study reported that 73% of the schools had received at least 4 visits in the preceding year.<sup>29</sup> The reasons given for the lack of visits in our study included lack of transportation and finance. These problems can only be overcome if there is political and financial commitment; as the school health team is responsible for supervising the programme and ensuring that the schools comply with set standards.

Although only 5% of public and 15% of private schools attained the minimum acceptable score of School Health Services, the mean score for private schools was significantly higher than that for public schools. The private schools had a greater number of trained first aiders a factor that is associated with a good School Health Services. Furthermore, being private agencies, the commitment of the proprietors may also be higher, with a greater provision of funds for the running of the school. Possible solutions include first aid training for school personnel, involvement of other health staff (eg. school nurse, community paediatricians, etc) and also increased political and financial commitment to the programme.

The trend of better School Health Services in private than public schools has also been documented by other authors in Nigeria<sup>18,23,25</sup> and also in other developing countries such as India.<sup>29</sup> In contrast, the reverse situation occurs in developed countries like the USA, where public schools are more likely to offer health services than private schools.<sup>30</sup> This raises the question of the political

commitment of leaders in developing countries to this aspect of health care especially in the public sector. The poor state of School Health Services in this study is unacceptable, considering the high morbidity in school-aged children in the country, and the presence of defects that may prevent them from benefiting maximally from their education.<sup>2,4-6</sup> Urgent steps need to be taken to address the situation.

This study is not without limitations. The fact that parents and pupils being end users of the School Health Services were not involved in the study may limit the interpretation of the findings of this study. The health status of the pupils and the impact on their families and communities would have been complimentary to the assessment of the state of the school services as done in this study; but this was limited by availability of resources. Also some of the information was based on recall, although this was usually corroborated. In spite of these limitations however, the findings of our study have implications for planning of public health programmes in primary schools in Jos North LGA and will also serve as a baseline for subsequent evaluations.

In conclusion, the School Health Services was generally poor, both in public and private primary schools in Jos North LGA, although the situation was better in the private schools. We therefore wish to recommend that urgent attention should be paid to the running of the School Health Services in primary schools in Jos North LGA, particularly the public schools. All primary schools should train at least one of their staff in first aid. This should be made a policy of the Ministry of Education and a pre-requisite for registration. In addition, health personnel in general and paediatricians in particular, should be more involved in the running of the School Health Services at all levels including planning, implementation, supervision and evaluation. Furthermore, the school health team of the LGA should be reactivated and empowered to perform their function.

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