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The Status of School Health Services: A Comparative Study of Primary Schools in a Developing Country

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Abstract **Background-** The school health service is an important aspect of health delivery systems necessary to monitor the health of school children in other to keep them healthy and optimize their learning. **Aims-** This cross-sectional and descriptive study tried to ascertain the status of the school health services in 56 randomly selected schools using the school health programme evaluation scale. It also compared the extent of implementation of school health services in both private and public primary schools in Nnewi North Local Government Area (LGA) of Anambra state, Nigeria. **Results-** School health service is existent in the Nnewi North LGA but its implementation is suboptimal in both private and public schools. Significantly more private schools had treatment facilities within school premises (P=0.001), although routine screening of school pupils was done by more public schools (P=0.001). Overall, private schools had a significantly higher mean score (13.6±4.3 vs. 8.8±2.5) in criteria assessing school health services compared to public schools (P=0.001). **Conclusion**- School health service activities are present in Nnewi North LGA but implementation is suboptimal in both private and public schools. Effective policy with good monitoring and evaluation is imperative in ensuring adequate and optimal implementation of school health services in primary schools in Nnewi.

Keywords: *school health service, public schools, private schools, Nnewi North, Nigeria*

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1. Introduction

Many school children face significant health challenges resulting from familial, environmental or risk-taking behaviours. These health risks are often interrelated and may share common underlying determinants which may adversely affect the child's ability to learn. Thus the need for comprehensive health services in schools. The school health service is one of the fundamental components of the School Health Programme. It is described as a coordinated system that ensures a continuum of care from the school to home to community health care provider and back. [1] The primary use of the school health service is to support students' health in order to achieve educational successes and to provide comprehensive health services in schools for students who ordinarily would not have access to health care. Screening activities and first aid are the basic components of school health services. However, as a result of the increasing incidence of emerging and re-emerging diseases, other components have been added. These include immunizations, individualized healthcare plans, emergency care, medication administration, specialized health care procedures, and provision of health education and counseling to students depending on state and local mandates and resources. The World Health Organization (WHO) and other experts in the field have emphasized the role schools play in the health and educational wellbeing of students. According to WHO, schools must strive to improve the health of school personnel, families and community members as well as pupils; and work with community leaders to help them understand how the community contributes to, or undermines, health and education [2]. Several studies have reported the positive association between effective school health services and academic performance of students globally. [3,4,5] This study therefore assessed the status and implementation of school health services in primary schools in the Nnewi North local government area of Anambra state. It also compared the implementation of the various elements of school health services in private and public primary schools within the LGA.

2. Methodology

2.1. Study Area

This study was conducted in Nnewi North Local Government Area (NNLGA), one of the 21 local government areas in Anambra State over a 6 months period. Nnewi North LGA consists of Nnewi, an urban town and rural

villages at its periphery, with varying distances of 50 to 150 meter from the city center. It is the 2nd largest city in Anambra State and has an estimated population of 391,227 according to the 2007 national census with a surface area of 2,789km^2, giving a population density of about 140/km^2. It is a fast growing town, often referred to as the industrial and commercial hub of south-Eastern Nigeria. Its people are predominantly Igbo and mainly Christains. [6] A number of health facilities are located in the city and notable among them is the Nnamdi Azikiwe University Teaching Hospital, which serves as a referral center for patients from within and outside the state [7].

2.2. Study Design and Sampling Technique

This was a descriptive cross-sectional and comparative study of public and private primary schools in Nnewi North LGA. The study used a sampling ratio of 50% to enlist 56 schools out of the 110 primary schools. [8] A multi-stage sampling technique was used in selecting the schools. In the first stage, the schools were stratified into two categories i.e. public and private schools based on ownership. In each category, a sampling ratio of 50% was applied to obtain the number of schools to be enrolled for the study. In the second stage the schools visited in each category were chosen from a list of schools obtained from the educational authority in the local government area. A simple random selection technique using balloting was used to select 33 private and 23 public schools from the sampling frame of 65 private and 45 public schools respectively. Only primary schools that had operated for greater than six years and also registered with the State Primary School Education Board were included for this study.

2.3. Data Collection

A pretested modified School Health Programme Evaluation scale [9] was used in data collection. The validated scale consists of 4 parts that includes school health services, school health instruction, healthy school environment and community participation. The scale also included a section for some information on the school such as school location, school population, school foundation age, and other school health related activity. The section on school health services had items scored based on presence of services and/or health facilities within each school. The maximum obtainable and minimum acceptable scores were 30 and 15 respectively. The evaluation scale was completed by interviewing the head teacher and/or health staff and inspection of various health facilities within the each school by the researchers. Other information obtained from the evaluation included health appraisals, treatment facilities available, availability of basic drugs and emergency/referral system present within the school health facilities. These elements of the school health services were allocated scores based on the school health evaluation scale and the total score calculated for each school. In order to minimize bias, none of the schools was notified prior to the visit.

2.4. Measures

Activities related to school health service delivery in schools were assessed based on the presence of the following components:

1. *Health personnel*- This was categorized as none, trained first aider, auxiliary nurses, trained nurses and medical doctors. Scores were awarded based on the type of health personnel present in school clinic or sick bay as follows; 0 where there is no school health personnel, 1 for trained first aider, 2 for auxiliary nurse, 4 and 5 for a qualified nurse and a medical doctor respectively.
2. *Health appraisal*- The various health checks done by school authorities on pupils were also assessed. The following health appraisal activities were assessed in this study and presence of each was awarded one point. They included (a) Routine inspection by teachers and/or health inspector (b) Routine screening test to detect growth detect/handicapping illness, (c) Referral facilities to health centre/hospital, (d) Supervision of health of handicapped children, (e) Appropriate health record kept on children health status, (f) Food handler/seller screened regularly.
3. *The treatment facilities* within the school were inspected and one point given for the presence of each of the following; (a) First aid box, (b) Health room/sick bay, (c) presence of immunization activities (d) Counseling & supportive service availability for social/disabled pupils and (e) Regular de-worming exercise
4. *Drug and material availability in school clinic or sick bay*- One point was awarded for the availability of any of the following items in school clinic and/or first aid box. (a) Analgesic, (b) Vitamins, (c) Anti-malarials, (d) Scabicides, (e) Anti-helminthics, (f) Anti-fungal, (g) Hematinics, (k) ORS sachets, (i) Disinfectant and (j) First-aid accessories such as Cotton wool, plaster, bandages, etc
5. *Emergency care services*- The emergency care services offered by the school to sick pupils were also assessed and one point given for each of the following activities; (a) First-aid given, (b) Treatment given recorded, (c) Child transported to nearest health post and (d) Immediate notification of parents and/or guardians.

These components of school health service were allocated scores based on the school health evaluation scale and the total score calculated for each school. The maximum obtainable score was 30 and minimum acceptable score indicative of optimal implementation of school health service was 15.

2.5. Data Analysis

Data obtained was analyzed using the statistical package SPSS version 19. The total score for each school was collated and the means and standard deviations for both public and private schools computed. Student t-test was used to compare the means while relationship between categorical data was determined using chi-square and Fischer's exact test. Statistical significance was set at $p < 0.05$.

2.6. Ethical Clearance and Permission

Written permission was obtained from the State Primary School Education Board through the Nnewi North L.G.A Education Authority. Approval was obtained from the Nnamdi Azikiwe University Teaching Hospital

Ethical Committee. Informed consent was also obtained from the head and other teachers before interviews were conducted.

3. Results

3.1. Characteristics of Schools Surveyed

Of the 56 schools surveyed, 33(58.9%) were private and 23(41.1%) were public schools. Table 1 shows the summary characteristics of schools enlisted for this study. Private and public schools differed significantly in school location, school foundation age and school population.

Table 1. Characteristics of surveyed schools

School characteristics	School Type		χ^2 (*P*)
	Private n (%)	Public n (%)	
School location	**N=33**	**N=23**	
Rural	4(12.1)	11(47.8)	7.1**(0.008)**
Urban	29(87.9)	12(52.2)	
School Population	**N=33**	**N=23**	
Less than 500	27(87.9)	9(39.1)	10.1**(0.001)**
500 or more	6(18.2)	14(60.9)	
School age	**N=33**	**N=23**	
Less than 10	8(24.2)	0(0)	38.8**(0.001)**
10 or more	25(75.8)	23(100)	
School Staff	**N=395**	**N=698**	
Teaching	331(83.7)	576(82.5)	0.21(0.687)
Non teaching	64(16.2)	122(17.5)	
School health related activity	**N=48**	**N=36**	
Functional PTA	31(64.6)	20(55.6)	3.1(0.214)
Trained first aider	11(22.9)	14(38.9)	
School health committees	6(12.5)	2(5.6)	

3.2. School Health Service

3.2.1. Availability of Health Personnel

Forty-six of the 56 schools visited had at least one health personnel. Among these, trained first- aiders were present in 11(45.8%) private and 14(63.6%) public schools. Eight private (33.3%) and 2(9.1%) public schools had auxiliary nurses while trained nurses were present in 4(16.7%) private and 6(27.2%) public schools. Only one (4.2%) private school had a Medical Doctor as its health personnel.

Table 2. Health services offered in surveyed schools

Health services parameters	School type		Total	χ^2 (*P*)
	Private N=33 n(%)	Public N=23 n(%)	n(%)	
Health appraisal				
Routine inspection	33(100)	23(100)	56(100)	0.00(1.00)
Routine screening	1(3.0)	6(26.1)	7(12.5)	**6.59(0.01)**
Referral to hospital	24(72.7)	15(65.2)	39(69.9)	0.36(0.58)
Handicap supervision	3(9.1)	2(8.7)	5(5.8)	0.03(0.96)
Health records	4(12.1)	0(0.0)	4(7.1)	3.01(0.08)
Treatment facilities				
First-aid box	29(87.8)	10(43.5)	39(69.9)	**7.46(0.01)**
Sick bay	28(84.5)	11(47.8)	39(69.9)	**8.79(0.01)**
Immunization	9(27.2)	3(13.0)	12(21.4)	0.89(0.34)
Counseling and support for disable	1(3.0)	0(0.0)	1(1.8)	0.03(0.90)
Drug availability				
Analgesic	13(39.4)	1(4.4)	14(25.0)	**7.11(0.007)**
Anti-malaria	2(6.1)	0(0.0)	2(3.6)	0.22(0.640)
Disinfectant	29(87.8)	10(44.0)	39(69.6)	**12.64(0.00)**
Cotton wool, plasters, bandages etc	31(93.9)	19(82.6)	50(89.3)	1.82(0.177)
Emergency care				
First-aid	8(24.2)	6(4.4)	14(25.0)	0.03(0.88)
Treatment recorded	4(12.1)	0(0.0)	4(7.1)	1.45(0.23)
Transport for referrals	24(72.8)	15(44.0)	39(69.6)	0.36(0.58)
Notification of parents	33(100)	23(82.6)	56(100)	0.00(1.00)

3.2.2. Health Appraisal

All the head teachers reported that routine inspection was conducted in the morning as part of morning assembly and at the beginning of each academic term. Only one private school (3%) and six public schools (26.1%) routinely carried out screening exercises for health problems and disabilities before admission into the school. Referral to hospital was in practice in 24(72.7%) private schools and 15 (65.2%) public schools. Health records of pupil were kept in only 4 (12.1%) of the 33 private schools and in none of the public schools. A significant difference was found only in respect to routine health screening (p=0.010) (Table 2).

3.2.3. Treatment Facilities within Schools

A greater number of private than public schools had first-aid boxes (87.8% vs. 43.5%; p=0.01) and sick bays (84.5% vs. 47.8%; p=0.01). Nine (27.2%) private and 3(13.0%) public schools participated in provision of immunization services. Only one private (3%) school and none of the public schools engaged in counseling services for disabled children (Table 2).

3.2.4. Drug Available in Sick-bay / First-aid Box

The first-aid box was empty in 2(6.1%) private and 9(39.1%) public schools. Items seen in the boxes included analgesics in 13(39.4%) private and 1(4.4%) public school; anti-malaria drugs in 2(6.1%) private and no public schools; disinfectant in 29(87.8%) private and 10(44.0%) public schools; and accessories like cotton wool, plaster and bandages in 31(93.9) private and 19(82.6) public schools. None of the schools surveyed had all essential materials needed in first-aid boxes

3.2.5. Emergency Care Given

All the schools surveyed notify parents when their children take ill during school hours. Eight (24.2%) private and 6(26.1%) public schools gave first aid to sick children during illness. Of the eight private schools, 4(50.0%) and none of the public schools keep record of treatment given. Any child who took acutely ill during school hours or whose parent failed to come on time to pick them up was usually transferred to a health facility by school management in 24(72.8%) private and 15(65.2%) public schools.

3.2.6. Total Score for School Health Service Evaluation

Twenty (66%) of the 33 private school and all 23 public schools scored below the minimum acceptable score (15) for adequate school health service implementation. Only 13 (34%) private schools compared to no public school scored the minimum acceptable marks in items assessed in school health services (13% vs. 0%). The mean score in school health services in private vs. public schools was 13.6± 4.3 vs. 8.8± 2.5 (P=0.001).

4. Discussion

The study has shown that elements of school health services exist in private and public schools surveyed. Although status of school health services was on the average suboptimal, there was better implementation in private compared to public schools. This was also reflected in the scores for school health services where on the average, private schools had a significantly higher score than public schools. One could infer that private schools being more profit oriented and catering mostly for children from the upper socio-economic class, have better health facilities in order to reassure parents about the safety of their children and attract enough students to remain competitive. This is hardly the case in public school where patronage is not usually an issue; on the contrary public schools are usually overwhelmed by high numbers of pupils seeking admission, with reduced attention to the provision of health facilities. Inadequate state funding and misappropriation of budgetary allocations to educational infrastructure in the state may also contribute to this imbalance in health service provision between private and public schools. Maira and Gur in India [10] similarly reported the absence of school health services in 49% public vs. 13% private schools surveyed. This disparity was also attributed to poor funding of education by the State. In another study in Northern Nigeria [11], it was also reported that school health service activities in private school were significantly better executed than in public schools. The author attributed this finding to better commitment of proprietors and greater provision of funds to running of their schools [11].

In conclusion, health of pupils can affect the cognitive, sensory and connectedness of a child to education. [12] Poor student health invariably leads to low self-esteem, absenteeism and high dropout rates. This dearth of adequate health facilities in public schools is disturbing as countries in Africa are still striving to attain the MDG 4 while the sustainable development goals are billed for introduction at the end of 2015. Urgent steps need to be taken to address this situation through collaborative efforts by government, educational leaders and other stakeholders in health and education. In addition, the role of appropriate allocation and distribution of scare resources in order to address critical health issues affecting children and adolescents in the state cannot be overemphasized.

Declaration

This work is part of a dissertation research work with four parts, two of which have the same methodology with this current manuscript and are currently in press with other journals.

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