

Impact of school health clinic on school attendance rate: A prospective interventional study.

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ABSTRACT

Internationally, in spite of the fact that school age children do not suffer from the high mortality of preschool children; there exist significant burden of morbidity among them. The aim of the study was to assess the impact of school health clinic on school attendance rate within Owerri Municipal LGA, Imo State, Nigeria. A cross sectional descriptive study was carried out to assess school health services in 36 government approved primary (12 public and 24 private) schools within Owerri Municipal LGA. Relevant data was obtained from school head teachers using an evaluation scale and direct observation was done where applicable. The responses were scored using the School Health Programme evaluation scale. Thereafter, a prospective (pre-test - post-test) study was carried out in two public primary schools between May to December 2017 (two academic terms). Within the period (September to December 2017) an intervention was carried out which involved the running of school clinics in two selected public primary schools. School attendances were kept during the pre-intervention and intervention periods using a check off list for monitoring daily attendances and reasons for absenteeism. The total absenteeism rate was significantly higher in the intervention period than the pre intervention period ($p= 0.001$). Illness (21.5%) was the commonest reason for absenteeism while fever was the most frequently encountered presenting complaint in the school clinic. Absenteeism due to illness was significantly lower after the introduction of clinic (16.9%) than in the pre intervention period (26.5%).

Keywords: Impact, school health, clinic and school attendance rate.

INTRODUCTION

The school is a place where education and health programmes can have their greatest impact because it reaches them at influential stages of their lives [1,2,3,4,5]. These programmes are of great importance to productivity later in life and also help improve the economy of a nation [6,7]. School health service is an intervention in primary health care. Nwana [6] stated that SHS can be utilized to provide school care, immunization against infectious diseases, prevention and control of locally endemic diseases, provide appropriate treatment of common diseases and provision of essential drugs and supplies [6]. Therefore, since almost every small community in Nigeria has one primary school, it is possible to use these schools as a centre for primary health care delivery [7]. Studies conducted by Bonnel et al in London, United Kingdom and Freudenberg et al in United States of America [8,9] indicate that effective school health service helps to increase school attendance, academic performance, decrease school dropout rates, and

additionally plays a role in identifying children with emotional, behavioural, and mental health problems for proper assessment and appropriate interventions. In most developing countries, the need for school health services are particularly critical because the school children are the survivors of a high childhood mortality rate [10,11,12]. In addition, with the success of child survival programs, the number of children reaching school age are on the increase, thereby making continued care very essential [5,11]. Furthermore, the routine health services (primary health care centres, comprehensive health care centres, and general hospitals in the communities are suboptimal or even non-existent leaving the children at the mercy of expensive private medical care. In Nigeria, regrettably, many authors across the country have observed that the School Health Service is a neglected aspect of the health and education sector [10,12,13,14,15,16,17,18,19,20,21]. However, to the best of my knowledge, there is no documented study on the status of School

Health Services as practiced in primary schools in Imo State, Nigeria. This study was undertaken to compare the various

School Health activities scores of Private and Public Schools within Owerri Municipal, Imo State, Nigeria.

JUSTIFICATION OF STUDY

Over the past few decades, the success of child survival programmes and the expansion of basic education coverage have resulted in a greater number of children reaching school age. A higher proportion of these children attend primary schools. For these children to optimally benefit from the educational system, they need to be physically, mentally and emotionally healthy [1,10]. A functional, effectively managed SHS is widely recognized as an important instrument in enabling children attend school, promote health of pupils, identify and prevent health problems and injuries [1,2].

In Owerri, Imo State, school age children are usually seen in hospitals. For instance, an unpublished data from Federal Medical Centre (FMC) Owerri, observes that close to 25 school age children are seen each day in the clinics. This translates to about 40% of the patients seen per day in the Children Out-Patient Department [CHOP]. They

spend substantial time waiting to be seen in the congested CHOP for minor illnesses which ordinarily would have been taken care of in their schools if there were functional school clinics thereby averting school absenteeism. In spite of the importance of functional School Health Services, scholarly studies have documented its poor status in different parts of Nigeria [10,17,18,19,20,21]. There is dearth of information on the status of SHS as practised in primary schools within Owerri Municipal of Imo State. However, the few studies [22,23,24] carried out in Imo State were in secondary schools. Additionally, to the best of the researcher's knowledge there is no previous prospective study on impact assessment of school health clinic on school attendance in Owerri, Imo State. Therefore, this study aimed at Comparing the various School Health activities scores of Private and Public Schools within Owerri Municipal, Imo State, Nigeria.

MATERIALS AND METHODS

THE STUDY AREA

This study was conducted in public and private primary schools in Owerri Municipal Local Government Area [LGA]. Owerri is the capital of Imo State in the South Eastern part of Nigeria. Owerri has three LGA namely Owerri West, Owerri North and Owerri Municipal. Imo State has a population of 3.93 million while Owerri Municipal has population of 125,337. Owerri is mostly inhabited by civil

servants with traders, other businessmen and various categories of artisans. There are 2 tertiary institutions located within the study area, the Imo State University and Alvan Ikoku Federal College of Education. It also has a tertiary health facility, the Federal Medical Centre Owerri, two primary health care centres, many private clinics and a lot of patent medicine shops.

STUDY DESIGN

The study was a cross sectional descriptive study for assessment of School Health Services and a prospective pretest-posttest

study to determine the effect of school health clinic on school attendance.

SELECTION OF STUDY POPULATION (SAMPLING METHOD)

Multi stage sampling method was used to select the schools for the assessment of SHS. The list of approved public and

private schools in Owerri municipal LGA obtained from Imo State Ministry of Education was used as the sampling frame.

STAGE 1: (Stratification into public and private schools)

There are 48 Government approved primary schools in Owerri Municipal LGA, 16 public and 32 private schools which represents a 1:2 ratio by proportionate allocation. 12 schools were chosen from

public schools and 24 schools from private schools which also represent 1:2 ratios giving a total of 36 schools that were studied.

STAGE 2: (Stratification into areas in Owerri Municipal)

The schools within the Local Government were stratified into 5 areas.

- TransEgbu Area - 0 public and 3 private schools
- World bank/New Owerri Area - 2 public and 8 private schools
- Ikenegbu/Aladinma Area - 3 public and 9 private schools
- Orlu Road Area - 2 public and 4 private schools

- Douglas Area

- 9 public and 8 private schools.

STAGE 3: (Selection of number of schools studied in an area)

The total number of schools studied in an area was selected based on the ratio of schools in the areas using simple proportions as follows.

FOR PUBLIC SCHOOLS

$\frac{\text{Total No of Selected Public Schools}}{\text{Total No of Public Schools}} \times \text{No of schools in an area}$

FOR PRIVATE SCHOOLS

$\frac{\text{Total No of Selected Private Schools}}{\text{Total No of Private Schools}} \times \text{No of schools in an area}$

NOTE: Total No of private Schools - 32
 Total No of selected private Schools - 24
 Total No of public Schools - 16
 Total No of selected public Schools - 12

	Public : Private		Public : Private
TransEgbu Area	0 : 3		0 : 2
World bank/New Owerri Area	2 : 8		2 : 6
Ikenegbu/Aladinma Area	3 : 9		2 : 7
Orlu Area	2 : 4	⇒	2 : 3
Douglas Area	9 : 8		6 : 6

Therefore, public schools were selected in a ratio of 0:2:2:2:6 making a total of 12 schools while private schools were in a ratio of 2:6:7:3:6 with a total of 24 schools. STAGE 4: The schools that were selected in each area to make up the total sample for that area was done using simple random

sampling. The names of the schools in an area were written on pieces of papers, folded and put in a non-transparent bag. Thereafter, the number of schools selected in an area was picked by an independent person to eliminate bias.

FOR THE INTERVENTIONAL STUDY

A purposive sample of two (2) public schools was used. The population for the study consist of all the pupils in those selected schools.

Criteria for selection

- Both schools were public schools
- Selected from two different areas
- Without pre-existing school clinic
- The schools have school population of not less than 400 pupils

ETHICAL CONSIDERATIONS

Ethical approval for this study was obtained from the Ethics and Research Committee of the Federal Medical Centre, Owerri. Approval to study the government owned (public) and private schools was obtained from the Executive Chairman Imo State Universal Basic Education Board (IMSUBEB) and State Ministry of Education. Approval to run the school clinics in two public schools was also obtained from

IMSUBEB. Written consent was obtained from the two head teachers where the school clinics were ran and the parents/guardians of the pupils in the selected public schools where the intervention was undertaken. Assent was equally obtained from the school children to examine and treat.

RESEARCH INSTRUMENT

Two study instruments were used and these are (a) School Health Programme Evaluation Scale developed by Akani¹ and

(b) The Check Off list for monitoring school attendance.

(a) The School Health Evaluation Scale:

The evaluation scale was administered to each head teacher or his/ her representative. The respondents were properly educated on the objectives and

relevance of the assessment to gain their confidence. The scale is weighted and has 5 parts which include sections for data on School administration, the 3 main

components of SHP [SHS, School health Instruction, healthful school environment] and collation of scores. For the purpose of this study, the use of the evaluation scale was limited to School Health Services, section A. The section A has 8 parts comprising Health personnel, Health Appraisal, Treatment facilities within the school, Care of emergency illness/injury, Control of communicable diseases, Record keeping, Nutrition services and Guidance and Counselling services. The Health Personnel was graded with maximum score of 10 and minimum of 0. Health Appraisal, Treatment Facilities and Care of Emergency Illness were itemised and each scored 1 with a maximum score of 5.

(b) Check Off List for monitoring school attendance:

The check off list was distributed on weekly basis to all the class teachers and the attendances marked per week. A total of 12 attendance sheets per class in each school per term were distributed. Each attendance sheet contained the record for one (1) week. Data collected by using this instrument include: The class; week; year; date; month; number of pupils in the class; the serial number of pupils in the

Graded scoring was done for Control of Communicable Diseases with maximum score of 8 while minimum was 0. Record keeping was not graded. Maximum score was 3. This was because it is expected that a school performs only one of the three forms of record keeping. Guidance and Counselling Services scored either 1[with teachers] or 2[with parents]. The score for Nutritional services was graded and maximum score was 7. An extra [+1] score was given for schools that gave nutritional supplement. The cumulative score for SHS after adding up all the scores was a maximum of 45 and the minimum acceptable value was 19.

rows; names of all the pupils in a class written serially as they appeared on the class register; attendance for every day of the week (Monday - Friday) against which was marked present (P) or absent (A) in school for each pupil and the reasons for absenteeism in the last column. At the end of each list, there was a summary for the week.

THE INTERVENTION

The period of study was two academic terms (6 months). A term is made up of twelve (12) weeks. Two schools were selected (Uzzi Primary School and World Bank Primary School) and the study was carried out simultaneously in both schools. The intervention was situating a school based health clinic in those two selected public schools (Picture 1). First twelve weeks (one term) which was the third term of the 2016/2017 academic session between May-July 2017 was the pre intervention period and the next term which was the first term of the 2017/2018 academic session between September-December 2017 was the period of intervention in each of the schools. Before commencement of the study, having obtained approval from State Education Board and written consent from both head teachers, the researcher held meetings with the teachers in both schools to inform them of the study and equally appealed for their assistance and cooperation during the two terms.

In the pre intervention period only daily attendance records using the check off list for school attendance in all the classes (primary 1-6) were obtained in both selected primary schools concurrently. The record was taken to obtain baseline

pupils' attendance, absenteeism and the reason for absenteeism. The check off list was shared to all the class teachers in both schools at the beginning of every school week. All the class teachers assisted in keeping the records. The researcher or research assistants visit the schools on alternate days to move round the classes and ensure the attendance and reason for absenteeism were properly documented. At the end of each school week, the attendance record sheets were retrieved from all class teachers. The intervention which spanned from September to December 2017 involved situating a school health clinic in the two selected public schools. During this period, the recording of the daily attendance using the check off list as in the pre intervention period was continued. However, the week prior to the end of the pre intervention term, pupils were informed during the morning assembly of the researcher's mission in their schools the next term and they were encouraged to inform their parents. In the first week of resumption (the intervention term), the researcher met with the teachers and pupils again during morning assembly to inform them of the school clinic and the consent forms were shared for all the parents/guardians of the pupils. This was

repeated in various classes in case of those absent during assembly to be sure that all the pupils got the information. During the intervention, the room, seats and desks for the clinics were provided by the school head teachers. However, medical materials (First aid box with wound dressing materials, Examination couch, Nebulizer) and drugs (such as Antibiotics, Analgesics, Antimalarial, ORS, Haematinics, Anthelminthic, Antifungals) were provided free by the researcher to pupils and staff who attended the clinic.

The clinic ran two days per school (Monday to Thursday) in each school week by the researcher or research assistants between 9am-12.30pm. However, Friday was not for full clinic in any of the school but set aside to visit any of the two schools in case of any emergency. Days for clinics differed in each school to allow the researcher or the research assistant run clinics in the two centres. Uzzi Primary School clinic days were Mondays and Wednesdays while World Bank Primary School clinic days were Tuesdays and Thursdays. Two residents and a post National Youth Service Corp doctors assisted the researcher in running the clinics to ensure the clinics are run regularly. Any member of the school

community who became ill visited the school clinic. Each patient was duly examined and a record of the name of pupil, sex, class, presenting complaint and treatment given were obtained. However, the provision of care in the clinic covered only common acute childhood illnesses using the Integrated Management of Childhood Illnesses (IMCI) algorithm. Information about the outcome of the child's visit and the drugs being given was communicated to the class teacher and to the parent/guardian through a note that had the researcher's phone number to aid the parents easily get more clarifications if need be. Any illness which could not be taken care of in the school clinic was duly referred to Federal Medical Centre, Owerri for appropriate specialist care. As part of sustainability after the project, the cooperation of the State Ministry of Health was sought through a request/appeal for a possible deployment of a School Health Nurse to ensure the clinics remain viable. However, despite several promises made by the State Ministry of Health to post health personnel to these schools for continuity of these clinics, as at the time of completion of this project, there is no positive response.

STUDY PROCEDURE

Training of Research Assistants

Two resident doctors and a post National Youth Service Corps doctor were recruited and trained as research assistants. They underwent four hour training per day for two days at the seminar room, Department of Paediatrics, Federal Medical Centre, Owerri one week prior to the field work. The training was carried out by the researcher on administration of School Health Service Evaluation Scale and Check

Off list to monitor school attendance, running of the school clinic and records of relevant information. The research assistants helped in carrying out the research throughout the study period. Their assistance helped in regular data collection and equally allowed the researcher discharge her duties at her training centre.

Pilot Study

A pilot study was conducted one week prior to commencement of the project using one primary school in Trans Egbu area that is not amongst the 36 selected

schools. The objective was to check the quality of the information that was obtained and modifications made where necessary to make the questions clearer.

Data collection

An interview of the respective school head teachers in all the thirty six schools was done by the researcher. The interview was done face to face and the responses filled on the spot into the school health service evaluation scale. The researcher also carried out direct observation of the different components of the SHS where necessary with clarifications sought from the respondents where applicable. Information about school attendance and reason for absenteeism was gathered from

each class pre and during intervention using the check off list to monitor school attendance. The study check off list on school attendance was distributed weekly to all class teachers to record attendance/absenteeism and reason for absenteeism every day for all classes for a period of two school terms (twenty four weeks). Meanwhile, the class teachers' cooperation was sought to keep records of all reasons for absenteeism every day from the commencement of this study. The reason

for absenteeism was obtained by asking the pupil directly the reason for his/her absence the previous school day. The pupils who were absent up to three consecutive days in a week, the researcher contacted the parents/caregivers on phone or went for home visits. However, during the research period, the researcher visited

twelve homes. The pupils whom the researcher did not meet anybody in their homes or those children who were not visited due to nonspecific addresses, the reasons for their absenteeism were obtained when they eventually returned back to school.

DATA ANALYSIS

Data obtained was coded and analysed using the Statistical Package for Social Sciences [SPSS] version 20. The results were presented in prose and tables. Mean, median, mode and standard deviation were calculated for continuous variables. Proportions were calculated for categorical variables. Student test was used to compare difference in mean score between

public and private schools while chi square was used to test for association between categorical variables. Wilcoxon test was used to compare frequency of absenteeism before commencement of school health clinic and during the intervention. The level of significance was set at p value <0.05.

RESULTS

SCHOOL ADMINISTRATIVE DATA

Thirty six (36) Government recognized private and public schools were assessed.

The ratio was 2:1 giving 24 private and 12 public schools.

Distribution of pupils in the schools

There were a total of 15,269 pupils comprising 7341 males and 7928 females with a male pupil to female pupil ratio of 1:1.07.

Staff distribution of schools

There was a total of 1108 staff in all the schools. This comprises 923 teaching staff (312 public and 611 private) and 185

non-teaching staff (5 public and 180 private).

IMPACT OF SCHOOL HEALTH CLINIC ON SCHOOL ATTENDANCE

Descriptive summary of school absenteeism during the pre-intervention and intervention period are displayed in table 1 below. In the pre intervention period the mean number of days absent

was 5.02 days which was lower than the intervention mean absence of 5.62 days. The difference in their absenteeism rate was statistically significant (Wilcoxon test -5.447 and p value = 0.001).

Table 1: School attendance in the pre-intervention and the intervention period.

Variables	Min		Max		Mean±SD		Median		Mode	
	PIP*	IP [†]	PIP	IP	PIP	IP	PIP	IP	PIP	IP
Total days absent	0	0	52	55	5.02±9.31	5.62±8.39	2.00	3.00	0	3
Days absent due to illness	0	0	20	10	0.84±1.60	0.60±1.14	0.00	0.00	0	0
Days absent due to other reasons	0	0	50	55	4.15±9.03	4.89±8.11	1.00	3.00	0	0

*PIP = Pre-intervention period

[†]IP = Intervention period

DISCUSSION

In this study, the overall mean duration of absenteeism during the intervention period was significantly higher than the pre intervention period. The reason for the higher absenteeism rate in the intervention period could be due to the monkey pox scare that occurred exceptionally in the

intervention period [23,24,25]. This health scare which occurred for one week during the intervention period made parents pull their children from school. The finding in this study is at variance with reports by Bannick *et al* [26] in Netherlands and Cura⁶⁰ in New York. Study by Bannick *et al* [26]

showed no statistical difference in attendance between the intervention group that received short term (2 months) consultation with a school nurse and the control group that received care-as-usual with a class teacher; while findings by Cura⁶⁰ showed that students not enrolled in School Based Health Clinic had higher rate

of absenteeism when compared to students enrolled in School Based Health Clinic. The reason for the difference in outcome in this present study may be due to the unusual health scare observed during the period school clinic was introduced.

CONCLUSION

Illness related absenteeism reduced significantly following

introduction of the school health clinic.

RECOMMENDATION

There is need for continuous public health enlightenment by the government to

prevent spread of rumours that will affect school attendance.

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