Association between perceived understanding of health education curriculum and preventive knowledge of infectious diseases among secondary school students in Ikpoba-Okha L.GA, Edo State, Nigeria

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Abstract.

Background/Objectives: the inclusion of Health education school's curriculum provides opportunities for young people to gain knowledge and acquire essential life skills to prevent common infectious diseases. This study aimed to assess the perceived understanding of the content of health education curriculum taught in school on preventive knowledge of common diseases among secondary school students in Ikpoba-Okha Local Government Area, Edo State. **Methods:** The study adopted a descriptive cross sectional research design in a sample size of 374 junior secondary school students who were randomly selected. A self-structured questionnaires validated by experts and tested with split half reliability test with a Cronbach alpha reliability index of 0.89 was used as instrument for data collection. Data collected were analysed using descriptive statistics and hypothesis tested with person product moment correlation coefficient at 0.05 level of significance. **Results and Conclusion:** there was high level of knowledge of common infectious diseases among the students as the mean ratings ranged from 2.79 to 3.38 ±1.67 to 1.92 for general knowledge of common infectious diseases. Significant correlation was found between health education taught and preventive knowledge of common infectious disease (R 0.014; p 0.03); common cold (R 0.16; p 0.03); malaria (R 0.12; p 0.03); skin infection (R 0.22; p 0.03) and gastroenteritis (R 0.33; p 0.03). Good knowledge of common infectious diseases prevention found among the students could be said to be influenced by the health education taught to them in school, however whether this knowledge can be translated into preventive practices need much to be desired in further studies.

Key words: Perceived understanding, Health education curriculum, Preventive knowledge, infectious diseases, Junior secondary school

Introduction

School-based health education helps adolescents acquire functional health knowledge, and strengthens attitudes, beliefs, and practice skills needed to adopt and maintain healthy behaviours throughout their lives [1]. According to Barnekow, the health-promoting school's curriculum provides opportunities for young people to gain knowledge and insight and to acquire essential life skills [2]. Health education is essential for the control of common diseases, especially for school-age children. Acquired learning from Schools plays a critical role in reducing adolescent health risks through the delivery of effective health education. [1] Health education can improve student knowledge on infectious diseases and promote the development of appropriate behaviours toward infectious disease prevention and control. Health promotion is based on health education, which is founded

on health knowledge. [3]

School-children can convey the knowledge and skills that they acquire at school to the community, thus increasing general community awareness and often people the tools they need to lead fulfilling lives, thrive personally, and contribute to their communities.

The World Health Organization (WHO) has characterized well-being instruction "as any blend of learning encounters intended to help people and networks improve their wellbeing by expanding their insight or building up their attitudes" [4] Health education likewise is an instrument that improves wellbeing, especially in developing nations. Health education effectively slows the spread of diseases, and conducting school health education programs not only provides students with proper knowledge and behaviour toward diseases but also benefits the comprehensive development of schools. [3]

More so, most secondary school-age students are Adolescence, meaning the requirement for social mix, pursuit and character improvement is of great importance. However, a few attributes stick out, among others: the enthusiastic and scholarly development, the relational connections and the experience of feeling and sexuality and health related issues, this makes wellbeing training significantly in the existence of students.

Nevertheless, it is through the educational plan and curriculum that points to wellbeing instruction that help accomplished this goal. The Health Education curriculum taught in school is the course of action of what the students' needs the understudies to learn adequate well-being. According to Barnekow et al, curriculum must be relevant at all stages of life, as well as stimulating their creativity, encouraging them to learn and providing them with necessary learning. [5] The wellbeing instruction for junior secondary school as indicated by Universal Basic Education Curriculum features the anticipation of microbes, infections and non-transmittable sicknesses as the significant subject for the lesser auxiliary wellbeing training education program. [6] The Curriculum for Health education highlight the basic control and prevention for common diseases such as normal cold, influenza, meningitis, chickenpox/shingles, measles, yellow fever and HIV and AIDS. It is applied through the school curriculum from primary school as well as by government programs in health centres, in order to educate society to raise awareness about preventive measures and promote a better quality of life, thus preventing the spread of diseases. [7] The assessment of the educational program content is relied upon to bring a positive wellbeing conduct among students and, consequently, assists with lessening the occurrence of openness to diseases. However, the poor state of health of students in the class, especially during school hours became of concern to the researcher. Health education curriculum should provide self-knowledge and reflection on one's own health, as well as the full awareness that something goes wrong, attributing the critical reflection of the subject regarding their habits and preventive measures. [7] One common question that arises is that, whether the content of health education curriculum taught in school have is understood and have a relationship on the knowledge of prevention of common disease among the students need more to be deserved. It is against this background that this study was conducted to ascertain the perceived effect of health education curriculum taught in school on preventive knowledge of common diseases among secondary school students in Benin City metropolis, Edo state.

Materials and methods

Research Design

The researchers adopted a descriptive cross-sectional study design among public junior secondary school students in Ikpoba-Okha Local Government Area, Edo State. There are 21 public junior secondary schools in the area of study with 5,670 students (Source: Ministry of Education, Edo Sate 2022)

Sample and Sampling Technique

The sample size for the study was three hundred and seventy-four (374) junior secondary school students drawn from seven (7) public junior secondary schools in Ikpoba-Okha Local Government Area, Edo State, using the simple random sampling. To determine the sample size, Taro Yamane (1967) formula was used. the formula $n = \frac{N}{1+N(d)^2}$

where n = sample size,

N = population size and

d = the level of precision (assumed to be 0.05 at 95% confidence level at 0.05).

The population for the study consisted of5670 students.

$$n = \frac{5670}{1 + 5670(0.05)^2}$$

therefore, n = 374

Sample size = 374, which was 6.58% of the total Population of the study

Simple random sampling technique was then used to select the participants into the study using balloting after gathering the students together in a hall in each of the school. The number of students allocated to each school where then balloted. This was done throughout the schools until all the school selected for the study were exhausted.

Research Instrument

The research instrument was a self-structured questionnaire, designed based on the content of health education curriculum and in line with the objective of the study. The instrument was made up of two sections: A and B and C . Section "A" contained items on demographic data. Section "B" contained 6 items on how well they understood the health education taught to them in school designed on a four-point Likert scale on a response format of Very High (VH) =4 points, High (H) = 3 points, Low (L) = 2 points and Very Low (VL) = 1 point to elicit information perceived influence of health education curriculum on the preventive knowledge of common diseases. *Mean response of >2.5 is good understanding of the content taught, <2.5 poor understanding of the content taught.* Section "C" contained 24 items on preventive knowledge of common diseases designed on a four-point Likert scale on a response format of Very High (VH) =4 points, High (H) = 3 points, Low (L) = 2 points and Very Low (VL) = 1 point. *Mean response of >2.5 is good preventive knowledge of common diseases, <2.5 poor preventive knowledge of common diseases*

Validity/reliability of the Instrument

To ensure validity of the instrument, face and content validity was used. The questionnaire was vetted by three experts, one each in measurement and evaluation, educational psychology and health education. Their comments were collated and integrated into the final draft of the instrument. . The reliability of the instrument was ascertained by administering forty (40) copies of the instrument to forty (40) students that were not part of the sample for the study and the data generated were analysed using the Cronbach Alpha to estimate the internal consistency of the instrument. This yielded a coefficient of 0.81 for section B and 0.79 for section C which indicated that the instrument was good and could be used to elicit the responses of the respondents.

Method of Data Collection

The questionnaire was administered on the students by the researcher with help of research assistants who are teachers in the various schools after due permission from the principal. The instrument was explained to the class teachers of the classes used for the study. All copies of the administered instrument were retrieved immediately upon completion by the students to avoid misplacement or mutilation.

Method of Data Analysis

The descriptive statistics of Mean, standard deviations and percentage were used to answer the six research questions. While the hypotheses were tested using the Pearson Product Moment Correlation (PPMC) statistics to ascertain the significant relationship between understanding of the content of curriculum on health education

and preventive knowledge of common diseases among secondary school students at 0.05 alpha level of significance.

Results

Table 1 clearly showed the gender of respondents 98 (26.4%) of the respondents were male students while 273 (73.6%) were females. As regards the age range of the respondents, from Table 1, 197 (53.1%) were between the ages of 10 – 11 years, 141 (38.0%) were between the ages of 12 – 13 years while 33 (8.9%) of the respondents were between 14 – 19 years. With regards to the class of the respondents, 131 (35.3%) were JSS I students, 117 (31.5%) were JSS II students while 123 (33.2%) were JSS III students

Table 2 show that the respondents had good understanding of the content of the health education curriculum taught to them in the various school with an overall mean score of 2.924.

Table 3a showed the mean rating of perceived influence of health education taught in school on level of preventive knowledge of common diseases such as common cold and malaria. It shows the mean ratings that ranged from 2.79 to 3.38 while the corresponding standard deviation values ranged from 1.67 to 1.92 for general knowledge, mean ratings that ranged from 3.46 to 4.38, while the corresponding standard deviation values ranged from 1.01 to 1.57 for preventive knowledge of malaria. mean ratings that range from 3.50 to 4.41 while the corresponding standard deviation values ranged from 1.10 to 1.48. for common cold. This was an indication that the students had a high level of preventive knowledge of common diseases based on health education taught in school (curriculum) while the standard deviation values were indications that respondents' opinions were very close.

Table 3b is a continuation of showed the mean rating of perceived effect of health education taught in school on level of preventive knowledge of common diseases such as worm infestation, skin infection and gastroenteritis. It shows that the mean ratings ranged from 2.45 to 3.59 while the corresponding standard deviation values ranged from 1.36 to 1.87 for preventive knowledge of skin infections. mean ratings that ranged from 3.58 to 4.10 while the corresponding standard deviation values ranged from 1.00 to 1.34. for preventive knowledge of worm infestation. Mean ratings ranged from 3.25 to 3.98 while the corresponding standard deviation values ranged from 1.10 to 1.48 for preventive knowledge of gastroenteritis **(**diarrhoea). This was an indication that the students had a high level of preventive knowledge based on health education curriculum while the standard deviation values were indications that respondents' opinions were very close.

Table 3 showed that there was a low positive relationship (0.14) between health education taught in school (curriculum) and preventive knowledge of malaria. The coefficient of determination (r^2) associated with the correlation coefficient of 0.14 was 0.02. The coefficient of determination (r) indicate that health education curriculum had significant influence with preventive knowledge of malaria and the relationship was statistically significant at $p = 0.03$. There was low positive relationship (0.16) between health education curriculum and preventive knowledge of common cold. The coefficient of determination (r^2) associated with the correlation coefficient of 0.16 was 0.02. The coefficient of determination (R) indicates that health education curriculum had significant influence with preventive knowledge of common cold and the relationship was statistically significant at $p=0.04$. there was a low positive relationship (0.12) between health education curriculum and preventive knowledge of worm infestation. The coefficient of determination (r^2) associated with the correlation coefficient of 0.12 was 0.017. The coefficient of determination (R) indicates

that health education curriculum had significant influence with preventive knowledge of worm infestation and the relationship was statistically significant at p=0.014, there was a low positive relationship (0.22) between health education curriculum and preventive knowledge of skin infection. The coefficient of determination (r^2) associated with the correlation coefficient of 0.22 was 0.04. The coefficient of determination (R) indicates that health education curriculum had significant influence with preventive knowledge of skin infection and the relationship was statistically significant at p=0.046. It was therefore, concluded that there was a significant relationship between health education curriculum and the preventive knowledge of common diseases among the respondents.

Discussion

Findings from this study have shown that the students have good knowledge of common diseases prevention based on health education taught in school (curriculum) and the standard deviation values indicates that respondents' opinions were very close.

This means that health education has a huge effect on the preventive knowledge of the students. This finding agrees with that of Oluyemi [8] whose findings showed that there was high knowledge of malaria prevention among the secondary school students. Similarly, McCann-Sanford et al, who carried out a study to determine the knowledge of upper respiratory tract infection among school children in two different schools based on their socioeconomic status and their attendance rate in health education class. The result showed that students from both schools appeared to have a good general knowledge of cause, treatment and prevention of upper respiratory tract infection. [9] Also, Abidfaheem, who aimed to assess the effect of structured teaching program on knowledge regarding prevention of worm infestation among school students found that there was significant relationship between the structured teaching programme and the score on prevention of worm infestation among school students based on the result of pretest-posttest assessment. [10] Thus, the structured teaching programme was effective among school children in improving knowledge regarding the prevention of worm infestation.

Findings from the study also show that the respondents have a good knowledge of common cold prevention. Common cold (Influenza) is another major risk factor harming human health and often leads to outbreaks or epidemics in different countries annually [11], and among all groups of people worldwide, the primary, middle, and high school students form a special group. They are at the stage of body growth, characterized by tender immune function and low ability to resist infections [12, 14], and their campus environment features high population density, close contact, and frequent communication, outbreaks and epidemics [15, 16]. The outbreak and epidemic of common diseases in schools threaten the health and quality of life of students. Moreover, such an event will disrupt the school's teaching order, affect the happiness of the students' families, and damage the stability and harmony of society [14, 17]. Health education curriculum is therefore an important strategy adopted by many schools in many countries. Health education is a planning, organizational, and systematic social education activity that enables individuals to consciously adopt healthy behaviour and lifestyles to eliminate or mitigate the risk factors that affect health, prevent diseases, promote health, and improve the life quality of social activities [18]. Health education promotes the health awareness of students, improves their knowledge of common disease and directs their attention to common disease prevention, thereby ameliorating their behaviour toward common diseases.

Further supporting the findings of the present study, is Yue et al. [19] who examined the influence of face-to-face health education on the knowledge of

mumps in primary school students and demonstrated that health education was suitable for the needs of primary school students to prevent and control of mumps and significantly improved their knowledge level on mumps. Jee et al, found that the scores of knowledge and attitudes of primary school students tended to improve after their exposure to TB prevention health education [20]. Similarly, Juniarti et al, Zhang et al, and Mohammadi et al, proved the health education could improve the knowledge, attitude, and behaviour toward TB and other RID among adolescents and school students. [21, 22, 23] All these studies confirmed the positive association between health education curriculum and preventive knowledge and behaviour among school students with regards to common disease [22, 24]. However, the perceived effect may be affected by many factors, such as age, gender, educational level, and so on, which off course is not the focus of the current study therefore, the results and conclusions may not be completely attributed to health education curriculum.

To further valid these findings, testing the association between the understating of health education curriculum and preventive knowledge of common diseases using Pearson Product Moment Correlation Coefficient showed that there was a positive relationship between health education curriculum taught in school and preventive knowledge of common diseases such as malaria, common cold, skin infection, worm infestation ($p<0.05$) with the coefficient of determination (r) indicates that health education curriculum had significant association on the preventive knowledge of common diseases among the respondents. Similar findings were also reported by Kotb et al, in Saudi Arabia, Wang and Fang, and Wang et al, in China. [25,26]

Conclusion

In conclusion the good knowledge of common infectious diseases prevention found among students could be have been associated to their understanding of the content of health education curriculum taught to them in school. However, whether this good knowledge can translate into good preventive practices among the respondents need much to be desired with further studies.

Limitation of the study

One major limitation of this study was that the study did not examine other factors such as sociodemographic characteristics experiential or intuitive factors that could have also influence the respondents' preventive knowledge of common diseases. The study relied on the health education curriculum content taught to the students in their various as at the time of the study without administering any further curriculum or module on health education on which this assessment where made as the aimed of the study was not interventional which could have required such**.**

Table 1: Respondents' Personal Information

Variable	Frequency	Percentage
Gender		
Male	98	26.4
Female	273	73.6
Total	371	100
Age Range		
10 – 11 years	197	53.1
12 – 13 years	141	38.0
14 - 19 years	33	8.9
Total	371	100
Class		
JSS I	131	35.3
JSS II	117	31.5
JSS III	123	33.2
Total	371	100

Table 2: Mean responses on how well the content of health education curriculum taught was understood among the respondents

Selected Health education curriculum items	$\bar{x}$	S.D	Remarks
Health Education Curriculum content taught on malaria	3.21	0.675	Good
Health Education Curriculum content taught on Common Cold	3.08	0.714	Good
Health Education Curriculum content taught on Worm Infestation	2.78	0.334	Good
Health Education Curriculum content taught on skin infection	2.67	0.969	Good
Health Education Curriculum content taught on gastroenteritis	2.88	0.989	Good
Grand mean	2.924	0.736	Good

Mean response of >2.5 is good understanding of the content taught, <2.5 poor understanding of the content taught

Table 3a: Mean Responses of Respondents on perceived understanding of Health Education curriculum taught in school on Preventive Knowledge of Common Diseases

S/N	Items for general	$\bar{x}$	SD	Decision
1	Avoid over populated environment.	2.98	1.78	Good
2	Proper personal hygiene can help prevent common diseases.	3.25	1.68	Good
3	Consumption of healthy meals can help prevent common diseases.	2.79	1.92	Good
4	Close interpersonal contact with infected person does not protect one from common diseases.	3.38	1.67	Good
	Grand Mean	3.10	1.762	Good
	Items for malaria			
5.	Malaria can be prevented with the use of insect repellent creams to avoid mosquito bite.	3.46	1.57	Good
6.	Malaria can be prevented by clearing bushes within the school environment.	3.89	1.47	Good
7.	Sleeping under mosquito treated nets especially at night helps to prevents Malaria.	4.38	1.01	Good
8.	Wearing long clothing when you are outside at night helps to prevent Malaria.	3.60	1.22	Good
	Grand Mean	3.83	**1.317**	Good
	Items for common cold			
9.	Adequate rest can help prevent common cold.	3.89	1.25	Good
10.	Frequent washing of hands with soap and water can help prevent common cold.	3.82	1.31	Good
11.	Avoiding personal contact with infected persons can help prevent common cold.	4.41	1.10	Good
12.	Consumption of fruits and vegetables can protect one from common cold.	3.50	1.48	Good
	Grand Mean	3.90	1.285	Good

Mean response of >2.5 is good preventive knowledge , <2.5 poor preventive knowledge of common diseases

Table 3b: Mean Responses of Respondents on perceived effect of Health Education taught in school on Preventive Knowledge of Common Diseases

S/N	Items for worm infestation	$\bar{x}$	SD	Remark
1.	Avoid eating raw or undercooked meals helps prevent worm infestation.	3.58	1.29	Good
2.	Regular hand washing prevents worm infestation.	4.10	1.00	Good
3.	Proper sanitation of the environment can help prevent worm infestation.	3.98	1.42	Good
4.	Avoid playing in contaminated soil can help prevent worm infestation.	3.97	1.34	Good
	Grand Mean	3.90	1.262	Good
	Items for skin infections			
5.	Avoiding Sharing personal items like towels do not help prevent skin infections.	3.50	1.48	Good
6.	Bathing regularly with soap and water can help prevent skin infection.	3.59	1.36	Good
7.	Eating healthy meals can help prevent skin infection.	2.45	1.87	Poor
8.	Avoid contact with people who have skin infection can protect one from having it.	2.89	1.52	Good
	Grand Mean	3.10	1.557	Good
	Items for gastroenteritis			
9.	Regular hand washing after using the toilet helps to prevent gastroenteritis	3.10	1.28	Good
10.	Proper washing of fruits and vegetables before consumption help to prevent gastroenteritis	3.98	1.42	Good
11.	Cooking and Serving meals with clean utensil help to prevent gastroenteritis	3.97	1.34	Good
12.	Avoiding contact with infected person help to prevent gastroenteritis	3.25	1.20	Good
	Grand Mean	3.57	1.310	Good

Mean response of >2.5 is good preventive knowledge , <2.5 poor preventive knowledge of common diseases

Table 4: Pearson Product Moment Correlation Coefficient of Relationship between perceived understanding of Health Education Curriculum contents taught and the Preventive Knowledge of common diseases

n=371

	$\bar{x}$	**S.D**	**R**	**r^2**	**p-value**
Health Education Curriculum content taught on Malaria	3.21	0.675			
			0.14	0.02	0.03
Preventive Knowledge of Malaria	3.83	**1.317**			
	$\bar{x}$	S.D	R	r^2	p-value
Health Education Curriculum content taught on Common Cold	3.08	0.714			
			0.16	0.02	0.04
Preventive Knowledge of Common Cold	3.90	1.285			
	$\bar{x}$	SD	R	r^2	p-value
Health Education Curriculum content taught on Worm Infestation	2.78	0.334			
			0.12	0.017	0.014
Preventive Knowledge of Worm Infestation	3.90	1.262			
	$\bar{x}$	S.D	R	r^2	p-value
Health Education Curriculum content taught on Skin Infection	2.67	0.969			
			0.22	0.04	0.046
Preventive Knowledge of Skin Infection	3.90	1.285			
	$\bar{x}$	S.D	R	r^2	p-value
Health Education Curriculum content taught on gastroenteritis	2.88	0.989			
			0.33	0.156	0.024
Preventive Knowledge of gastroenteritis	3.57	1.310			

r^2 = coefficient of determination

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