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Knowledge and Perceptions of Asthma in a Nigerian High School

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Abstract

Asthma is a serious global health problem that affects people of all backgrounds and ages with morbidity and mortality higher among older school-age children and early adolescents which causes have been attributed to inadequate knowledge and the wrong perceptions about asthma. The study assessed the level of knowledge and perceptions of asthma; investigated the association of certain demographic characteristics with the level of asthma knowledge and perceptions and determined the correlation between the asthma knowledge and perceptions among secondary school students of Ambassadors College, Ile-Ife, Nigeria. It is a cross- sectional study which used a pre-tested 71- item, purpose designed, self- administered questionnaires to collect information on knowledge and perceptions of the respondents on asthma. Data were collated and analyzed based on descriptive and inferential study design. The result showed that the majority of the respondents had intermediate level of asthma knowledge (68.5%, 285). It also showed that majority of the respondents 63.7% (265) have intermediate level of asthma perceptions. In addition, the result showed significant association between asthma knowledge score and age; and class of the respondents ($p < 0.05$). It also showed a significant association between asthma perceptions scores and age; and class of the students ($p < 0.05$). The results also showed significant correlation between asthma knowledge and perceptions scores of the students ($p < 0.05$). It was, therefore, concluded that the secondary school students of Ambassadors College, Ile-Ife, Nigeria have intermediate asthma knowledge and perceptions levels.

Keywords*: Asthma, knowledge, perceptions.*

Introduction

It is now estimated that over 300 million people of all ages, and all ethnic backgrounds, suffer from asthma and the burden of this disease to governments, health care systems, families, and patients is increasing worldwide (Maspero et al, 2013; Vos et al, 2013). It is estimated that the number of people suffering from asthma will grow by more than 100 million worldwide by 2025 (WHO, 2007). This increasing trend is expected due to rise in atopic sensitizations, allergic conditions, and changing patterns of environmental triggers (associated with environmental smoking exposure in children, population growth, and urbanization) in Africa over the last two decades (Braman, 2006).

Asthma is the most common chronic disorder of school- age children and youth, with an increasing prevalence all around the world (Duksal et al, 2014). Current estimates suggest that the prevalence of asthma in children and young adolescents is substantial and stable in high-income countries but increasing in developing countries, which hitherto, had low prevalence (Pearce et al, 2007; Addo-Yobo et al, 2007; Asher et al, 2006). The public health concerns surrounding this childhood health issue include the potential of adverse outcomes, such as the need for acute medical interventions, hospitalization, and mortality in addition to experiencing limitations, school absences or missed work days (CDC, 2012).

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Some studies related to the prevalence of asthma in Nigeria among children showed that it has increased from 10.7% to about 20% between 1999 and 2014 (Asher et al, 2014). Recent population studies conducted by various investigators across Nigeria estimate the prevalence of asthma to range from 5.12- 18.6% (Obaseki et al, 2014; Oluwole et al, 2013; Awotedu et al, 2012). The prevalence of asthma among 13-14 year old in a study in Nigeria was 7.5% (95% CI 6.0 to 9.2%) and 8% (95% CI 6.0- 10.4%) in the rural and urban communities respectively (Oluwole et al, 2013).

Asthma is a major health problem among adolescents with studies identifying substantial under-diagnosis, poor acceptance of diagnosis, poor compliance to treatment and poor understanding of asthma management among this population (Oluwole et al, 2017; Musa et al, 2014). The complications of asthma could be influenced by poor knowledge, poor use of inhaler technique, non-compliance and negative attitude toward the illness, those that have the illness and the drugs (Oluwole et al, 2017; Marsden et al, 2016; Anwar et al, 2008). Poor understanding of the disease can result in under-utilisation of available health services and reduced adherence to medication (Ponieman et al, 2009; Zaman et al, 2006). Ultimately this leads to poorly controlled asthma and negatively impacts quality of life (Marsden et al, 2016).The treatment of asthma and maximum asthma control are impacted by patient knowledge, level of education, behavioural changes, adherence to management regimes, physician experience and confidence, and the availability of health care services (Ober, 2005; Masoli et al., 2004).

The goal in treatment of asthma is to enable sufferers to live an unrestricted life that is free of symptoms (British Thoracic Society, 2016). The elements of such management include appropriate anti-inflammatory and bronchodilator medication, education of care givers about the disease, home monitoring and a self- management plan, for example allergen control and attention to psychosocial obstacles to treatment (British Thoracic Society, 2016). It has been suggested that education of health care providers and the public is a vital element of the response to the challenge posed by asthma in Africa (Braman, 2006; Ndiaye et al, 2004).

Significance of study

There are limited research findings to determine perceptions and knowledge of asthma among secondary school students in Nigeria. This study is, therefore, directed to investigate the knowledge and perceptions of asthma among secondary school students of Ambassadors College, Ile-Ife, South-West, Nigeria as a case sample. It will also determine the association of certain demographic characteristics of the students with their asthma knowledge and perceptions and to determine whether there is correlation between their asthma knowledge and perceptions. The outcome of the study could also be helpful in determining the predictors of knowledge and perceptions of asthma among the secondary school students in the study area. Finally, the findings from this study could serve as baseline for further studies.

Statement of problem

Asthma is a major health problem among adolescents with studies identifying substantial under-diagnosis, poor acceptance of diagnosis, poor compliance to treatment and poor understanding of asthma management among this population. These have been attributed to inadequate knowledge and the wrong perceptions about asthma. Asthma have been found to continue to be a serious public health problem and is increasingly becoming widespread in the developing world with most asthma related deaths occurring in low and lower-middle income countries including Sub-Saharan Africa. This morbidity and mortality is higher among older school-age children and early adolescents than other age groups across the lifespan. Knowledge, attitudes, and beliefs are recognized as being major determinants of health behaviour. Improved understanding of perceptions, local belief and behaviour regarding asthma of this target group are crucial if public health programmes are to prove sustainable. Moreover, to the best of our knowledge, limited studies focused on young students have been found in the literature and formal studies conducted concerning knowledge and perceptions of asthma among secondary school students in Ile- Ife, Nigeria is sparse. Therefore, this study is aimed at assessing knowledge and perceptions of asthma of these secondary school students, investigate the association between their asthma knowledge and perceptions and certain socio-demographic characteristics of these students and determine whether there is correlation between their asthma knowledge and perceptions.

Research questions

The major research questions for this study include the followings:

1. Do secondary school students of Ambassadors College, Ile- Ife know about asthma?
2. Do secondary school students of Ambassadors College, Ile- Ife have good perceptions of asthma?
3. Is there any association between asthma knowledge level of these students and their socio-demographic characteristics?
4. Is there any association between asthma perceptions level of these students and their socio-demographic characteristics?
5. Is there any correlation between asthma knowledge and perceptions of the secondary school students of Ambassadors College, Ile- Ife?

Research objectives

1. Assess the level of knowledge of asthma among secondary school students of Ambassadors College, Ile- Ife.
2. Assess the level of perceptions of asthma among secondary school students of Ambassadors College, Ile- Ife.
3. Determine the association between asthma knowledge level and socio-demographic characteristics of secondary school students of Ambassadors College, Ile- Ife.
4. Determine the association between asthma perceptions level and socio-demographic characteristics of secondary school students of Ambassadors College, Ile- Ife.
5. Determine the correlation between asthma knowledge and perceptions of secondary school students of Ambassadors College, Ile- Ife.

Literature review

Asthma is now becoming a serious global public health concern. Asthma causes an estimated 340,000 deaths annually (GINA, 2014). In addition, the World Health Organization estimates that around 15 million disability-adjusted life years (DALYs) are lost annually through this disease (GINA, 2010). An analysis of the burden of asthma in the US estimated the annual costs per patient at $ 1907 and the total national medical expenditure at $ 18 billion (Sullivan et al, 2011). An estimate of the costs of asthma in children in 25 EU countries has been published in 2005 (Accordini et al, 2013). The total costs of asthma for the 25 countries of the European Union are estimated at € 3 billion. The use of wheeze as definition of asthma leads to considerable higher costs of € 5.2 billion (ERS, 2003).

The highest asthma rates have been reported in affluent countries, such as the United Kingdom, New Zealand, and Australia, whereas the lowest rates have been reported in India and Indonesia (Lai et al, 2009). Asthma is a major health problem among adolescents and they are defined by the World Health Organization as young people between the age of 10 and 19 years of age (Oluwole et al, 2017). Self-reported prevalence in Western Europe centres among adolescents for current wheeze, asthma ever, severe asthma, and symptoms of severe asthma without asthma ever was 14.3%, 15.8%, 6.2% and 15.2% respectively (Lai et al, 2009). The prevalence of lifetime wheeze, wheeze during the past 12 months and physician-diagnosed asthma was 25.3%, 18.5% and 19.6%, respectively among 16-18 years old secondary school students in Saudi Arabia using ISAAC questionnaire (Al Ghobain et al, 2012). In a systematic review conducted by Adeloye et al, 2013, there was an increasing prevalence of asthma among children < 15 years in the Africa population from 34.1 million asthma cases (12.1%; 95% confidence interval [CI] 7.2-16.9) to 49.7 million asthma cases (13.9%; 95% CI 9.6-18.3) between 1990 and 2010. The prevalence of “current wheeze” (wheeze at rest-12 months) among children aged 13-14 years old in South Africa increased from 16.1% to 20.3% between 1995 and 2002; Nigeria (West Africa) recorded an increase from 10.9% to 13.0%, Ethiopia (Horn of Africa) reported an increase from 6.2% to 9.1%, and Kenya (East Africa) an increase from 13.9% to 18.0% (Ait-Khaled et al, 2007; Zar et al, 2007).

Asthma is widely known as a multifactorial respiratory disorder with both genetic and environmental underlying risk factors (Bousquet et al, 2010). Factors that contribute to asthma symptoms and severity include; viral infections; allergens, such as dust mites, cockroaches, animal dander, and molds; irritants, such as environmental tobacco smoke (ETS), and exposures to certain chemical fumes, gases, or vapors;

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and miscellaneous causes such as exercise, food allergies, gastro esophageal reflux, aspirin or other nonsteroidal anti-inflammatory drugs (NSAID); sulfite sensitivity, and others (Bousquet et al, 2010).

Adolescent asthma is an especially important issue as teens may have difficulties adhering to a medication plan. Patients in this age group may not appreciate the danger of poorly controlled asthma. They may deny having a chronic illness, or they may view the treatment plan as interfering with their emerging independence as they strive to reach adulthood (Burns et al, 2006). Asthma has multidimensional effects among school age children. The flare-up of asthma may lead to impaired daily function and absence from school (Akinbami, 2006; Glazebrook et al, 2006)

Some studies have shown relatives of those with asthma and individuals suffering from asthma may have poor knowledge or misconceptions about asthma and its treatment. Common misconceptions in these studies included the idea that asthma is contagious, that it can be cured, that inhalers are either addictive or are not good treatment, that herbs play a role in asthma treatment and that asthma limits exercise (Evers et al, 2013;Zaraket et al, 2011). Additionally, there were gaps in knowledge of important asthma symptoms such as shortness of breath, chest tightness and nocturnal cough (Evers et al, 2013; Malone et al, 2008). Poor understanding of the disease has been reported to result in underutilisation of available health services and reduced adherence to medication which ultimately leads to poorly controlled asthma and negatively impacts quality of life especially among the adolescents and older school age children (Ponieman et al, 2009; Zaman et al, 2006). There is expanding empirical support for the assertion that perceptions regarding asthma and its treatment are important influences on outcomes (Kaptein et al, 2008).

The range of social and psychological factors found to either influence, or be associated with asthma perception and interpretation includes age, gender, Body Mass Index (BMI), history of exercise-induced symptoms, and psychological state (Chen et al, 2006). Higher asthma knowledge has also been found to be associated with positive attitude and internal locus of control in asthma (Gibson et al, 1998). Also, ethnic background, age, body mass index and residential area are significantly associated with atopic symptoms and disease as shown in a Brazilian study done on adolescents (Gibson et al, 1998).

Knowledge is defined as the expertise and skills acquired by a person through experience or education with the ability to use it for a particular purpose (Sharda, & Shetty, 2008). Perception is the elaboration, interpretation and assignment of meaning to a sensory experience (Promtussananon, 2003). An individual's perception, in addition to numerous environmental, cultural, group, and personal factors can influence the development of health behaviour. Improved understanding of perceptions, local belief and behaviour regarding asthma are crucial if public health programmes are to prove sustainable.

Methods

Research design, study area and population

A descriptive cross sectional study was conducted on knowledge and perceptions of asthma among secondary school students of Ambassadors College, Ile- Ife, Osun State, South West, Nigeria in July of the 2016/ 2017 academic year. The study was carried out in Ambassadors College, a well-known and reputable private secondary school in Ile-Ife town. Ile-Ife is an ancient city of Yoruba land situated in Osun State which is located in the South- Western part of Nigeria. The study population consisted of the secondary school students' boys and girls in the junior secondary school one and two (JSS1 and JSS 2) and senior secondary school one, two and three (SSS1, SSS2 and SSS3) of the College.

Ethical consideration

Ethical approval to conduct the study was got from the Obafemi Awolowo University Teaching Hospital Ethics and Research Committee (Protocol number ERC/ 2017/08/14; International registration number IRB/IEC/0004553; National registration number NHREC/27/02/2009a). Permission to conduct the study was also sought and obtained from the State Ministry of Education zonal office and the school authority (Principal) of Ambassadors College, Ile- Ife. Informed consent was also got from the respondents before proceeding with the study.

Data collection

Information was collected from respondents by means of a pre-tested 71- item, purpose designed, self- administered anonymous questionnaire containing closed ended questions. The questionnaire was divided into three major sections: Section A contained 10 items focusing on socio-demographic characteristics of the secondary school students. Section B contained 31 items focusing on questions related to knowledge of the secondary school students on asthma while section C contained 30 items focusing on questions related to perceptions of asthma among the secondary school students of the College. The first part of the questionnaire contained 31 asthma knowledge items, adapted from a validated Newcastle asthma knowledge questionnaire (Fitzclarence et al, 1990). The second part of the questionnaire contained 30 asthma perception items, adapted from validated revised Illness perception questionnaire (IPQ- R) which have been adapted to assess illness perceptions among healthy people (Figueiras and Alves, 2007). All validated questionnaires were also tested for reliability. The designed questionnaire had been piloted with 10 participants and it took approximately 25 minutes to be completed. No major modification was done. Answers were graded by assigning 1 degree for the right answers and 0 degree for the wrong answers given to the questions on asthma knowledge. Scores regarding asthma knowledge range from 0 to 31. To measure the level of students' knowledge, the total score is divided into three grades: Low grade of knowledge: from 0-10 degrees, Intermediate grade of knowledge: from 11-20 degrees and High grade of knowledge: 21-31 degrees. Answers to the questions on perceptions of asthma were also graded by assigning 1 degree for the right answers and 0 degree for the wrong answers. Scores regarding perceptions of asthma range from 0 to 30. To measure the level of students' perceptions, the total score is divided into three grades: Low grade of perceptions: from 0-10 degrees, Intermediate grade of perceptions: from 11-20 degrees and High grade of perceptions: 21-30 degrees.

Sample size determination

The minimum sample size was calculated using the **Leslie and Kish formula** for descriptive studies $\mathbf{N = P\ (1\text{-}P)\ Z^2/D^2}$ where N is the minimum sample size needed; D is the level of error that can be tolerated (0.05 absolute precision) and P, the estimated proportion of secondary school students who had good level of knowledge of asthma from a previous study (Anwar et al, 2008) was 48.1% i.e. p= 0.48. Z is the standard variation corresponding to confidence level. At confidence level of 95%, Z= 1.96. Therefore,

$N = 0.48(1\text{-}0.48)\ 1.96^2/0.05^2$

N= 384. To give allowance for an anticipated non-response rate of 10% (38 respondents), the sample size was increased by 38 to make **422** respondents.

Sampling method

Each secondary class level from JSS1 to SSS3 has four arms. A simple random sampling technique was employed to select a minimum of 90 secondary school students at random from each class level (i.e.90 from JSS1, 90 from JSS2, 90 from SSS1, 90 from SSS2 and 62 from SSS 3) of the junior and senior secondary classes of Ambassador College, Ile-Ife with age ranges from 9 – 20 years to make a total of 422 students to participate in the study. Of the 422 questionnaires distributed, 416 (response rate of 98.6%) were returned and used for the analysis. Each respondent was provided with an assurance of confidentiality of information provided in the questionnaire.

Data analysis

The completed questionnaires were collated, analyzed and presented using descriptive statistics of simple percentages and frequency distribution. All statistical analyses were performed using the Statistical Package for the Social Sciences, Version 20.0 (IBM, Armonk, NY, USA). Means and standard deviation were used to present the scores of asthma knowledge and perceptions of the students. Chi-square test was performed to test for differences in socio-demographic and academic variables between students who passed the asthma knowledge questions and those who failed. Findings with a P-value < 0.05 were considered to be statistically significant. Analysis was stratified by gender to show how responses to the variables of knowledge and perceptions of asthma differ for males and females.

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Also inferential statistics of Chi squares was used to determine the association between socio-demographic variables and asthma knowledge and also between socio- demographic variables and asthma perceptions of the respondents. Inferential statistics of Pearson product moment correlation coefficient was used to determine the correlation between asthma knowledge and perceptions of secondary school students of Ambassadors College, Ile- Ife.

Results

Demographic characteristics of the respondents

In the study, slightly above average of the respondents (51.7%) were males. Majority of the respondents (52.4%) were between the ages of 13 and 16 years. The result also showed that class SSS1 had most respondents (22.8%). Largest percentages of them were Christians (93.8%) as shown by the result. The results also showed that largest percentages of them were Yoruba tribe (91.1%) as shown in Table 1.

Table 1. Demographic characteristics of the respondents

Socio-demographic characteristics	Number of respondent (N)	Percentage (%)
Age (Years)		
9-12	178	42.8
13-16	218	52.4
17-20	20	4.8
>20	-	-
Total	**416**	**100.0**
Gender		
Male	198	47.6
Female	215	51.7
Not identified	3	0.7
Total	**416**	**100.0**
Class		
JSS 1	94	22.6
JSS2	94	22.6
SSS1	95	22.8
SSS2	90	21.6
SSS3	43	10.3
Total	**416**	**100.0**
Religion		
Christianity	390	93.8
Islam	19	4.6
Others	7	1.6
Total	**416**	**100.0**
Ethnic Group		
Yoruba	379	91.1
Ibo	15	3.6
Hausa	2	0.5
Others	20	4.8
Total	**416**	**100.0**

Distribution of other demographic characteristics of the respondents in relation to asthma

The result showed in table 2 below that 30 (7.2%) of the respondents have been diagnosed to have asthma or presently have asthma. Twenty-two (5.3%) of the respondents are currently taking an asthma medication. It also showed that 72 (17.3%) of the respondents have a relative with asthma. The results also showed that 193 (46.4%) have lived or known someone with asthma. Three hundred and eighty six

(92.8%) of the respondents had heard about asthma before. School constituted the largest source of information about asthma accounting for 45.2% of responses.

Table 2. Demographic characteristics of the respondents in relation to asthma

Variable	Frequency	Percentage (%)
Have you ever been diagnosed to have asthma or do you have asthma?		
YES	30	7.2
NO	383	92.1
NON RESPONSE	3	0.7
Total	**416**	**100.0**
Are you currently taking any asthma medications?		
YES	22	5.3
NO	393	94.5
NON RESPONSE	1	0.2
Total	**416**	**100.0**
Family Experience 1 (Have a relative with asthma?)		
YES	72	17.3
NO	343	82.5
NON RESPONSE	1	0.2
Total	**416**	**100.0**
Family Experience 2 (Have lived with or known someone with asthma?)		
YES	193	46.4
NO	223	53.6
Total	**416**	**100.0**
Have you heard about asthma before?		
YES	386	92.8
NO	29	7.0
NON RESPONSE	1	0.2
Total	**416**	**100.0**
Where did you find out about it?		
School	188	45.2
Television and Radio	87	20.9
Books	60	14.4
Relatives and Family members	84	20.2
Friends	78	18.8
Newspaper and Magazines	40	9.6
Doctor/Healthcare Practitioner	81	19.5
Others	17	4.1

Asthma knowledge levels of the respondents

From table 3a, majority of the respondents 68.5% (285) have intermediate level of knowledge scoring between 11-20 ($\bar{X}$ = 13.19, SD= 5.210). Table 3b shows the total number and the percentages of correct responses given by the secondary school students of Ambassadors College, Ile- Ife on few of the questions in the questionnaire on asthma knowledge. Majority of the respondents (87%) knew people with frequent asthma symptoms should take preventive drugs.

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Table 3a. Asthma knowledge level of the respondents

Scores	**Grade**	**N**	**%**	$\bar{X}$ **± SD**
0-10	Low	109	26.2	13.19 ± 5.210
11-20	Intermediate	285	68.5	
21-31	High	22	5.3	
Total		**416**	**100.0**	

Key: $\bar{X}$ = Mean Score, SD= Standard Deviation

Table 3b. Responses to asthma knowledge questions

Questions	Correct answers		Incorrect answers	
	N	%	N	%
1. An asthma attack is caused by redness and swelling in the airways.	115	27.6	301	72.4
2. Asthma is an infectious disease (can be spread from person to person).	316	76	100	24
3. Smoking does not affect people with asthma.	318	76.4	98	23.6
4. People with asthma should not consume food from animals like cow's milk.	149	35.8	267	64.2
5. The three main symptoms of asthma are coughing, whistling sound and shortness of breath.	323	77.6	93	22.4
6. If one child in a family has asthma, then their brothers and sisters will have asthma too.	336	80.8	80	19.2
7. People with frequent asthma symptoms should take preventive drugs.	362	87	54	13
8. A Ventolin puffer (inhaler) should be used when a person has asthma attack.	340	81.7	76	18.3
9. People with asthma are usually tensed up during attack.	301	72.4	115	27.6
10. Asthma is more of a problem at night than during the day.	141	33.9	275	66.1

Asthma perception levels of the respondents

From table 4a, the results showed that majority of the respondents 63.7% (265) have intermediate level of perceptions of asthma scoring between 11-20 ($\bar{X}$ = 13.43, SD= 7.831). Table 4b shows the total number and the percentages of correct responses given by the secondary school students of Ambassadors College, Ile- Ife on few of the questions in the questionnaire on asthma perceptions. Majority of the respondents (77.6%) believed asthma is a serious condition.

Table 4a. Asthma perceptions level of the respondents

Scores	**Grade**	**N**	**%**	$\bar{X}$ **± SD**
0-10	Low	115	27.6	13.43 ± 7.831
11-20	Intermediate	265	63.7	
21-30	High	36	8.7	
Total		**416**	**100.0**	

Key: $\bar{X}$ = Mean Score, SD= Standard Deviation

Table 3b. Responses to asthma perceptions questions

Questions	Correct answers		Incorrect answers	
	N	%	N	%
1. Asthma will last for a short time.	154	37	262	63
2. Asthma is likely to be permanent rather than temporary.	171	41.1	245	58.9
3. Asthma will improve as patients grow older.	160	38.5	256	61.5
4. Asthma does not have much effect on patient's life.	176	42.3	240	57.7
5. Asthma has a serious financial consequence.	196	47.1	220	52.9
6. Asthma causes difficulties for the people close to those that have it.	165	39.7	251	60.3
7. Asthma is a serious condition.	323	77.6	93	22.4
8. There is a lot those with asthma can do to control their symptoms.	232	55.8	184	44.2
9. Difficult breathing is usually not associated with asthma.	213	51.2	203	48.8
10. Difficulty in sleeping is associated with asthma.	118	28.4	298	71.6

Association between asthma knowledge level and socio-demographic characteristics of the students

Table 5 is Chi-square analysis which shows association between asthma knowledge level and age, class, gender, religion, ethnicity of the students. The table showed there were statistical significant association between asthma knowledge level and age of the students and also class of the students ($P < 0.05$). It also showed there were no statistical significant association between asthma knowledge level and gender, religion, ethnicity of the students ($P > 0.05$).

Table 5. The association between socio- demographic characteristics and asthma knowledge level of the students

Variable	**Knowledge level (number of students)**			**Pearson X^2**	**p- value**
	Low grade	**Intermediate grade**	**High grade**		
Age (yrs)					
9- 12	66	105	7	21.513	**0.000**
13- 16	42	163	13		
17- 20	1	17	2		
Class					
JSS 1	37	54	3	31.132	**0.000**
JSS 2	33	56	5		
SSS 1	15	78	2		
SSS 2	19	65	6		
SSS 3	5	32	6		
Gender					
Male	57	132	9	3.690	**0.719**
Female	52	150	13		

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Religion					
Christianity	102	269	19	4.548	**0.603**
Islam	5	11	3		
Others	2	4	0		
Ethnicity					
Yoruba	98	261	20	4.366	0.627
Ibo	4	9	2		
Hausa	1	1	0		
Others	6	14	0		

Association between asthma perception level and socio-demographic characteristics of the students

Table 6 is Chi-square analysis which shows association between asthma perceptions level and age, class, gender, religion, ethnicity of the students. The table showed there were statistical significant association between asthma perceptions level and age of the students and also class of the students ($P < 0.05$). It also showed there were no statistical significant association between asthma perceptions level and gender, religion, ethnicity ($P > 0.05$).

Table 6. The association between socio- demographic characteristics and asthma perceptions level of the students

Variable	Perceptions level (number of students)			Pearson X^2	p- value
	Low grade	Intermediate grade	High grade		
Age (yrs)					
9- 12	56	112	10	11.711	**0.000**
13- 16	57	140	21		
17- 20	2	13	5		
Class					
JSS 1	32	57	5	18.258	**0.000**
JSS 2	31	59	4		
SSS 1	22	62	11		
SSS 2	27	53	10		
SSS 3	3	34	6		
Gender					
Male	60	117	20		
Female	53	147	15	9.609	**0.142**
Religion					
Christianity	107	248	35	10.884	
Islam	4	5	0		
Others	4	1	1		
Ethnicity					
Yoruba	100	243	36	11.052	**0.087**
Ibo	4	11	0		
Hausa	1	1	0		

Others	10	10	0		

Correlation between asthma knowledge and asthma perceptions scores of the respondents

Table 7 shows the correlation between asthma knowledge and asthma perceptions score of the secondary school students considered in the study. The result showed that there was a moderate, positive correlation between the two variables [r = 0.474, n = 416, p< 0.05]. Correlation is significant at the 0.01 level when P = 0.000.

Table 7. Correlation between asthma knowledge and asthma perceptions scores of the respondents Correlations

		Asthma knowledge score	Asthma perception score
Asthma knowledge score	Pearson Correlation	1	.474^{xx}
	Sig. (2-tailed)		.000
	N	416	416
Asthma perception score	Pearson Correlation	.474^{xx}	1
	Sig. (2-tailed)	.000	
	N	416	416

^{xx}Correlation is significant at the 0.01 level (2-tailed)

Discussion

The study showed that 7.2% of the respondents reported they have ever been diagnosed to have asthma or presently have asthma. This self- reported asthma prevalence in this study is comparable to that reported in a similar study by Shimwela et al, 2013 which showed a 6.6% prevalence for self-reported asthma in the rural pupils in Tanzania. It is also comparable to that reported from other parts of Nigeria, Africa, India and tropical countries (Oluwole et al, 2017; Pearce et al, 2007).

Majority of the students considered in this study have intermediate level of knowledge of asthma. This study is in line with a related study conducted by Desalu et al, 2013 who rated the asthma knowledge level of their respondents to be satisfactory (intermediate). The result is also in line with that of Anwar et al, 2008 who obtained that majority of their respondents have a moderate knowledge level of asthma which is about 49.6% and only 2.3% respondents take in low level of knowledge. This reiterated the importance of developing health education curricula in the secondary schools which can help the teachers to improve the amount of knowledge of asthma which will be passed across to the students.

The result in this study also showed that majority of the respondents (265) have moderate level of perceptions of asthma with a total score of 63.7% and only 8.7% (36) respondents have high level of perceptions about asthma. This result is in agreement with a study by Marsden et al, 2016 showing moderate level of perceptions of asthma where about 54.7% of the study population believed that asthma symptoms could be prevented with medication and 60.4% of the respondents agreed that asthma is a serious health problem.

The outcome of this study also showed that significant association was found between asthma knowledge score and age and also class of the respondents. This study is in agreement with the study by Meyer et al, 2001 who found out that better knowledge was significantly associated to younger age and higher education among adults who were managed in emergency department due to asthma related visits. The result is also in agreement with a study by Fadzil et al, 2002 which showed a signification association between parental asthma knowledge and their level of education.

The result also showed that significant association was found between asthma perceptions score and age and also class of the students. This shows that as the participants grow older and the level of their education increases, there is a high likelihood that their perceptions about asthma will improve.

Finally, there was significant correlation between asthma knowledge and asthma perceptions of the students. This result corroborates the outcome of a study by Meyer et al, 2001 who found out that chance- orientated health locus of control and lower self- esteem were associated with lower asthma

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knowledge. It is also in agreement with the study of Gibson et al, 1995 which found higher asthma knowledge to be associated with positive attitude and internal locus of control in adolescents. Locus of control refers to a person' s belief about what causes the good or bad results in his or her life, either in general or in a specific area such as health. The belief or perceptions of some of the students about the causes of asthma which they attributed to factors such as mysterious causes or evil people were due to their low level of knowledge of asthma.

Limitation of the study

This study is not without some limitations. One, the study is based on self- reported information and thus is subject to self- report bias. To correct this, effort was made to reduce the impact of this bias by making the questionnaire a guided self- administered process. Two, the students used for this study were drawn mainly from a private high school in Ile-Ife and therefore the outcome of the study cannot be generalized as they are not true representatives of all the secondary school students in Ile-Ife. Three, there were no respondents from junior secondary school 3 (JSS 3) and only a handful that were still available from senior secondary school 3 (SSS3) could participate because they have finished the writing of their final exams. Hence they were not available to participate in the filling of the questionnaire.

Conclusion

The outcome of this study reveals that majority of the secondary school students considered in this study have moderate level of asthma knowledge and moderate level of asthma perceptions. Also, the study shows a significant association between asthma knowledge scores and age and also class of the students. It also shows a significant association between asthma perception scores and age and also class of the secondary school students. Lastly, in this study, there was significant correlation between asthma knowledge and asthma perceptions of the students.

Recommendations

Based on the findings in this study, the followings are therefore recommended:

1. Regular health education intervention on asthma should be conducted among students in the study area so as to increase their basic knowledge of asthma and correct the myths about it.
2. Asthma education curriculum should be developed for these students to improve their asthma knowledge and perceptions.
3. Collaborations between the State ministry of Education and ministry of Health should be enhanced in order to establish policies that will encourage instituting well equipped health centre facilities in the schools where students with asthma can be attended to in case of emergencies and regular monitoring of those with symptoms related to asthma.
4. Peer- led asthma education programme should be encouraged among students in the study area to allow older and advanced students to teach and interact with students from lower classes in order reinforce their knowledge and help those with asthma to be well received among their peers.

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