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Knowledge and awareness of nasal allergy among patients in a developing country

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ABSTRACT

Background: Nasal allergy is a common public health disorder seen in clinical practice worldwide. This disorder affected activities such as sleep, education, trading, economy, and social life. This study aimed at determining the level of knowledge and awareness of nasal allergy among patients seen in the otorhinolaryngology clinical practice of a developing country. **Methods and Materials:** This was a descriptive cross-sectional study, which was carried out among patients seen in Ekiti state university teaching hospital, Nigeria. Each patient completed a pretested interviewer assisted questionnaire on socio-demographic features, awareness, and knowledge on nasal allergy. Data obtained were documented, collated, and analyzed by SPSS version 18.0. **Results:** There were 16.4% patient's awareness and knowledge on nasal allergy, and 10.6% had allergic rhinitis. The patients included 59.2% males and male to female ratio was 1.5:1. Most common sources of information on nasal allergy were from ear, nose, and throat specialist/other doctors in 62.6%. Other sources were friends/relatives and media/Internet in 28.5% and 9.0%, respectively. Knowledge and awareness on if the nasal allergy was common in Nigeria and worldwide among the patients were 26.6% and 24.9%, respectively. However, 56.7% patients were aware that nasal allergy were commonly seen and diagnosed in the hospital. On the basis of knowledge and awareness of etiology of nasal allergy, majority 55.2% believed micro-organisms caused nasal-allergy. Minority 40.4% agreed nasal allergy was caused by parents genetic transmission from parents to offspring. On the awareness and knowledge of nasal allergy and its manifestations, the most common symptoms was 63.4% itching ear, throat, and eyes others were 63.2% catarrh and 56.3% bout of sneezing. There were 64.6% patients awareness of nasal allergy causes impairing concentration. However, 68.2% believed nasal allergy were curable diseases. On the awareness and knowledge, treatment was 52.7% prayer/spiritual intervention, 34.3% herbs, and 57.1% over-the-counter medication. However, 45.4% were aware and knowledgeable on the significance of avoidance of allergens. **Conclusion:** The level of awareness and knowledge on nasal allergy low with high levels of prevalence. Patients awareness and knowledge on etiology, clinical manifestations, effects, and management of nasal allergy is low.

Keywords: Awareness, knowledge, nasal allergy, Nigeria

Introduction

Nasal allergy is also known as allergic rhinitis is a group of IgE hypersensitivity disorders where nasal mucosa produces

an abnormal immunological response to normally harmless antigens (allergens) resulting in symptoms such as bouts of sneezing, rhinorrhea, itching, nasal blockage, and nasal foreign-body sensation.

In a developed country survey, 20% to 60% were diagnosed with allergic rhinitis by 6 years of age, and most of these children were diagnosed by pediatricians.^[1-5] A prevalence of allergic rhinitis in

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southwestern Nigeria reported up to 7% of the studied patients had allergic rhinitis.^[6,7]

Nasal inflammatory condition from immunoglobulin E (IgE)-mediated may lead to early-phase and late-phase hypersensitivity responses, which are usually secondary to inhalant allergens.^[8,9] Typical inhalant allergens include house dust mite, grass and tree pollens (plant origin), animal origin such as cat, dog, horse and, occasionally, moulds.^[10] It is important to note that different phenotypes exist; those with obvious symptoms of sneezing and running, who are easily recognized, and others with predominant blockage, where the diagnosis may be missed. Others may also present with symptoms related to nasal connections, which include lungs, throat, and ear. Allergic rhinitis health-related quality of life is reduced, which again is in direct correlation with allergen exposure.^[11]

Nasal allergy is a systemic inflammatory process associated with other inflammatory conditions, including allergic conjunctivitis, rhinosinusitis, and asthma. There is a higher prevalence of asthma among those suffering from persistent and more severe allergic rhinitis.^[12,13]

Allergic rhinitis affects both the physical and psychological well-being of the sufferers.^[14,15] Apart from the patient, the family dynamics may also be disturbed.^[16] Poorly or uncontrolled allergic rhinitis leads to quality-of-life impairment such as reduces sleep quality impairing concentration, poor working attitude, poor school attendance and performance, sedating antihistamines with treatment further reduce learning ability, and impinge on examination results.^[11,17] It will be noted that allergic disease involving the nose in the form of allergic rhinoconjunctivitis is not only common but a disease of a public health concern owing to its impact on the quality of life and economic cost.^[18]

There is an upsurge in allergic diseases among the study done.^[19] Experts are, therefore, contemplating the contribution of numerous factors, which include genetics predisposition, industrial air pollution, pets, and early childhood exposure.^[20] It can be deduced that most of these factors are environmental resulting mainly from increasing industrialization and technology development.^[21]

These chronic forms of allergic diseases involving the nose, sinuses other organs such as ear, throat, eye, skin, and lung must necessitate co-management with other specialists like allergists, dermatologists, ophthalmologists, pulmonologist, and pediatricians. This will definitely pose more financial burden of specialists' consultation to sufferers or the sponsors.^[22]

This problem with the management of allergic rhinitis highlights the need for in-depth public health measures from careful assessment of the knowledge, attitude, and practice level of the patients. There is an urgent need to prioritize and concert research efforts in the field of nasal allergy. This will enable sustainable results in control of this prevalent chronic

allergic nasal disease in this 21st century. This study, therefore, sought to assess the knowledge and awareness of nasal allergy among patients in otolaryngology, head and neck practices of a developing country.

Methods and Materials

A descriptive cross-sectional study using a pretested interviewers assisted questionnaire. This study was conducted among the patients seen in the ear, nose, and throat department of Ekiti state university teaching hospital, Ado Ekiti, Nigeria. The study was conducted over a period of 1 year (January to December 2018). Informed consent was obtained from patients/guardian. Consented patients were enrolled into the study.

The obtained data included socio-demographic details, knowledge, and awareness of patients/guardians on nasal allergy using pretested interviewer associated questionnaire. Awareness as used in this study was defined as "having heard of nasal allergy" and consisted of several questions on basic national and international epidemiological facts aimed at establishing their awareness of nasal allergy. Questionnaire on sociodemographic detailed included age, gender, religion, dwelling, occupation, and marital status. Questionnaire on knowledge and awareness of nasal allergy centered on the definition of nasal allergy, signs and symptoms, common triggers of the nasal allergy, as well as general treatment and management protocols. Data obtained were documented, collated, and analyzed by SPSS version 18.0. Descriptive statistics, frequency tables, and percentages were used in expression and interpretation of the result. For this study, ethical clearance was sought for and obtained from the ethical committee of the institution.

Results

From 3,100 questionnaires that were distributed, 2,912 were completely filled. The overall response rate was 93.9%. Out of the 2,912, only 478 (16.4%) patients were aware of nasal allergy. Out of 2,912 patients, 309 (10.6%) had allergic rhinitis.

All age groups were involved with a peak prevalence of 124 (25.9%) at age group 1–10 years. The patients included 283 (59.2%) males and 195 (40.8%) females. The male to female ratio was 1.5:1. Urban dwellers in 277 (57.9%) were commoner than rural dwellers in 201 (42.1%). Christian faith was commoner than Muslim faith in 413 (86.4%) and 65 (13.6%). Parents or patients education level was post secondary, secondary, primary, and nil formal education in 146 (30.5%), 139 (29.1%), 104 (21.8%), and 89 (18.6%), respectively. The most common occupation was 137 (28.7%) civil servants followed by 128 (26.8%) student/apprentice, 84 (17.6%) business, and 76 (15.9%) artisans. The majority were 192 (40.2%) married, whereas others were single and divorced 152 (31.8%) and 73 (15.3%), respectively as illustrated in Table 1.

Most common sources of information on nasal allergy were from ear, nose, and throat specialist/other doctors in

299 (62.6%). Other sources were friends/relatives and media/Internet in 136 (28.5%) and 43 (9.0%), respectively. Knowledge and awareness on if nasal allergy was common in Nigeria and worldwide among the patients were 127 (26.6%) and 119 (24.9%), respectively. However, 271 (56.7%) patients were aware that nasal allergy were commonly seen and diagnosed in the hospital as showed in Table 2.

On the basis of knowledge and awareness of etiology of nasal allergy, majority 264 (55.2%) believed micro-organisms caused nasal allergy. Other patients believed it was secondary to 142 (29.7%) harmless foreign substance (allergens) and 72 (15.1%) spiritual attack. Minority 193 (40.4%) agreed nasal allergy was caused by parents genetic transmission from parents to offspring. Majority 316 (66.1%) believed nasal allergy were communicable diseases. Minority 107 (22.4%) believed nasal allergy occurred during a specific season of the year. Majority 382 (79.9%) of the patients are of the opinion that nasal allergy occurred all year round (perennial) as illustrated in Table 3.

On the awareness and knowledge of nasal allergy and its manifestations, the most common symptoms were 303 (63.4%) cause itching ear, throat, and eyes; others were 302 (63.2%) catarrh, 269 (56.3%) bout of sneezing, 269 (56.3%) headache, 241 (50.4%) nasal foreign body (crawling) sensation, and 227 (47.5%) nasal blockage as detailed in Table 4.

Out of the 378 patients, 309 (64.6%) were aware of nasal allergy causes impairing concentration. Other awareness and knowledge on effects of nasal allergy on patients were poor work performance, absent from functions (isolation), poor school attendance, and reduce sleep quality in 297 (62.1%), 281 (58.8%), 178 (37.2%), and 127 (26.6%), respectively as showed in Table 5.

On the management of nasal allergy, 326 (68.2%) believed nasal allergy were curable diseases. On the awareness and knowledge, treatment was 252 (52.7%) prayer/spiritual intervention, 164 (34.3%) herbs, and 273 (57.1%) over-the-counter medication. Out of 478 patients, 217 (45.4%) were aware and knowledgeable on significance of avoidance of allergens in the management of nasal allergy. There were 413 (86.4%) awareness and knowledge of specialist competence care on nasal allergy, whereas 65 (13.6%) were not. However, 334 (69.9%) of patients were aware and knowledgeable on significance of surgery in the treatment of nasal allergy as illustrated in Table 6.

Discussion

Nasal allergy is one of the growing health disorders with great impacts on patients activities and quality of life. There is high prevalence of nasal allergy worldwide, and there is associated low level of knowledge and awareness of nasal allergy, as demonstrated in this study and previous studies.^[6,7] Higher prevalence of nasal allergy was reported in other studies in countries with higher levels of awareness.^[23,24] This condition is underestimated, underdiagnosed, and undertreated in medical

Table 1: Sociodemographic features of the patients

Sociodemographic features	Number	Percentage (%)
Age		
1-10	124	25.9
11-20	102	21.3
21-30	108	22.6
31-40	49	10.3
41-50	61	12.8
51-60	28	5.9
>60	6	1.3
Sex		
Male	283	59.2
Female	195	40.8
Dwelling		
Rural	201	42.1
Urban	277	57.9
Religion		
Christian	413	86.4
Muslim	65	13.6
Parent/patient education level		
Nil	89	18.6
Primary	104	21.8
Secondary	139	29.1
Post secondary	146	30.5
Parent/patient occupation		
Student/Apprentice	128	26.8
Business	84	17.6
Artisan	76	15.9
Civil servant	137	28.7
Farming	53	11.1
Marital status		
Single	152	31.8
Married	192	40.2
Divorced	73	15.3
Widow/Widower	61	12.8

Table 2: Awareness and knowledge of nasal allergy on distribution

Parameters	Number	Percentage (%)
Sources of nasal allergy information		
Media/Internet	43	9.0
Friends/relatives	136	28.5
Ear, nose and throat/other doctor	299	62.6
Is nasal allergy common worldwide		
Yes	119	24.9
No	359	75.1
Nasal allergy common in Nigeria?		
True	127	26.6
False	351	73.4
Is nasal allergy commonly seen in hospital		
Yes	271	56.7
No	207	43.3

practice with late presentation in our practice. In this study, there were higher levels of undiagnosed nasal allergy as previously reported in other study.^[25] Majority of the patients assumed all forms of rhinitis are the same and are managed as such.

On socio-demographic features, all age group were enrolled. This proved that nasal allergy occurred in all ages. Both males and females were affected with male preponderance due higher

Table 3: Awareness and knowledge on aetiology of nasal allergy

Parameter	Number	Percentage (%)
Causes of nasal allergy is?		
Microorganisms	264	55.2
Harmless foreign substance (allergens)	72	15.1
Spiritual attack	142	29.7
Is nasal allergy from parents gene?		
True	193	40.4
False	285	59.6
Is nasal allergy from person to person?		
True	316	66.1
False	162	33.9
Is nasal allergy occurred during season		
Yes	107	22.4
No	371	77.6
Is nasal allergy occurred round the year		
Yes	382	79.9
No	96	20.1

Table 4: Awareness and knowledge of nasal allergy and its manifestations

Parameter	Number	Percentage (%)
Bouts of sneezing		
True	269	56.3
False	209	43.7
Catarrh		
True	302	63.2
False	176	36.8
Nasal blockage		
True	227	47.5
False	251	52.5
Cause itching ear, throat and eye		
True	303	63.4
False	175	36.6
Nasal foreign body (crawling) sensation		
True	241	50.4
False	237	49.6
Headache		
True	269	56.3
False	209	43.7

activities and exposure. Urban dweller patients were most common than rural dweller patients this is most likely owing to accessibility and location of the health facilities in the state capital. Furthermore, nasal allergy is none respecter of education level, occupation, and marital status as in this study. On the sources of awareness and knowledge about nasal allergy, majority of the patients acquired their knowledge of nasal allergy from ear, nose, and throat specialist/other doctors followed by friends/relatives and media/internet.^[26] This proved that the primary source of health information is hospital, whereas secondary information is from neighbourhoods.^[26] Moreover, media and internet were devoted for social means rather than health education in our community. Medical training and information by otorhinolaryngologist will play a major role in creating awareness in the community health education, which will be augmented by relatives or friends contribution to create awareness on nasal allergy. This highlights the significance of community timely

Table 5: Awareness and knowledge of nasal allergy and quality of life

Parameter	Number	Percentage (%)
Reduces sleep quality		
True	127	26.6
False	351	73.4
Impairing concentration		
True	309	64.6
False	169	35.4
Absent from functions (isolation)		
True	281	58.8
False	197	41.2
Poor school attendance		
True	178	37.2
False	300	62.8
Poor work performance		
True	297	62.1
False	181	37.9

Table 6: Awareness and knowledge of management of nasal allergy

Parameter	Number	Percentage (%)
Avoidance of allergens		
True	217	45.4
False	261	54.6
Curable		
True	326	68.2
False	152	31.8
Prayer/spiritual intervention		
True	252	52.7
False	226	47.3
Herbs		
True	164	34.3
False	314	65.7
Over the counter drugs		
True	273	57.1
False	205	42.9
Pharmacy Drugs/Surgery		
True	334	69.9
False	144	30.1
Specialist care		
True	413	86.4
False	65	13.6

basic health education at primary care level.^[26] From this study, media and internet facilities should be channel away from sport, game, scam, and social interaction but toward health education.

Most patients believe nasal allergy in most common in Nigeria than other parts of the world owing to bad weather.^[27] Also that the disorder is mainly hospital diseases and treated by doctors.^[27] This proved that the relatives is lag of knowledge on nasal allergy that were acquired from neighbourhoods and media compared to medical information. It is clear that most information conveys to the general public about nasal allergy were mostly false. This study gives a clue that a lot of public misinformation about nasal allergy and other illnesses were untrue from the relative and media.^[28]

On basis of the awareness and knowledge on etiology of nasal allergy, majority of the patients were aware of micro-organisms

as the main causes of nasal allergy followed by spiritual attack and least was by allergens. Similar report was recorded by other studies.^[28,29] There is knowledge and awareness that nasal allergy run in the family and blood by minority, whereas majority are aware and knowledge that nasal allergy is transmissible and contagious. There is associated knowledge and awareness that nasal allergy could occurred in any seasons by majority of the patients while minority agreed it is seasonal.

Awareness and knowledge of nasal allergy and its manifestations on the suffering individuals were mainly bout of sneezing, catarrh, itching (nose, ear, throat, and eye) nasal foreign body (crawling) sensation, and headache. This is contrary to finding other studies.^[29,30] Minority of the patients associated nasal allergy with nasal blockage.

Majority of the patients were aware and knowledgeable on nasal allergy affectation on quality of life such as poor work performance, absent from functions (isolation), impaired concentration, and reduced sleep quality. Majority of the patients were of the knowledge that nasal allergy has no effects on school attendance because nasal allergy is childhood diseases.

On the basis of awareness and knowledge of management of nasal allergy, majority of the patients believes it is a curable diseases. This concur with other research work.^[31,32] However, some recent research studies showed that patients' have high expectations of their anti-allergic medications, with expectations such as complete symptom relief, quick-onset and long-lasting effects, and favorable or no adverse effects.^[33] However, patients are often unhappy with the efficiency of their medications, which can cause poor patient compliance and addition of over-the-counter products.^[33] Also most patients believe in prayers and spiritual intervention followed by other form of therapy. Drugs treatment from over-the-counter by majority and herbs or concussion by minority. Majority are aware and knowledgeable on significance of specialist care pharmacy drugs and possible surgical interventions, but it is available in few hospital. Majority of the patients were aware and knowledgeable on significance of avoidance of allergens or causes of nasal allergens, which difficult to identified and avoid.

Further on the limitation of this study and indications for further study was significance of primary health care physician on the management of nasal allergy.^[33] Owing to the fact that many patients with nasal allergy relies on their general practitioners for the diagnosis and treatment of their general health disorders, general health care practices remains an interesting and important target to be evaluated in the management of nasal allergy.^[34,35] This is significant because nasal allergy affects more than 10% of the world population with manifestations as rhinorrhea, nasal obstruction, itching, and sneezing, and these symptoms are usually reversible.^[36,37] These symptoms are triggered by exposure to allergens, which are usually not recognized by the patients. Nasal allergy with associated comorbid illnesses is a major airway disease, which significantly impairs patient's ability

to optimal function and quality of life. General practitioners are often the first source of medical advice in patients suffering from nasal allergy and are one of the main reasons for a visit to the primary care clinics. More than half of the patients with nasal allergy visited a primary care physician and less than half of the patients visited an otorhinolaryngologist.^[36,37] Two-thirds of patients self-manage nasal allergy before seeking medical care because it is regarded as a trivial issue unworthy of the doctors consultation and opted for home remedy or over-the-counter medication.^[38] Many of the patients need to be educated on the disorder, adherence to therapy, follow-up, and referral where necessary by general practitioners and specialists for better management of nasal allergy.

Conclusions

In this study, level of awareness and knowledge on nasal allergy is low with high levels of prevalence among the patients. Patient's awareness and knowledge on etiology, clinical manifestations, effects, and management of nasal allergy is low. Patients' health education programs on nasal allergy may influence their knowledge on nasal allergy. Public health education measures and increase usage of media/internet facility for health issues are advised to establish early and appropriate intervention.

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Ethical approval

The study was approved by the Institutional Ethics Committee.

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Conflicts of interest

There are no conflicts of interest.

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