**Unravelling Asthma Misconception: An Experience from Katsina, North-western Nigeria**

**Abstract**

**Background:** Asthma remains uncontrolled in many patients and a possible explanation for these increased morbidities includes poor understanding of asthma, nonadherence to inhaled steroid regimens, and poor inhaler technique. Poor knowledge and high levels of misconceptions about the disease remain the bane in reducing its burden globally.

**Aim:** This study aimed to assess the level of misconception about asthma among the participants of the 2023 World Asthma Day in Katsina.

**Methods:** The study was a cross-sectional descriptive design conducted among three hundred and twelve consenting residents during the 2023 World Asthma Day. The study obtained data using interviewer-administered questionnaires in two sections. Data analysis was done using the Statistical Package for Social Sciences (SPSS) Version 25.

**Results:** A total of 312 individuals participated in this study with a mean age of 35.73 ± 13.08. Of these, 59.6% (n=186) had low misconceptions about asthma, 40.4% (n=126) had moderate and none of the respondents had high misconceptions about asthma. Participants with low misconception were higher across age groups (>55%). The association between misconception, educational status, and ethnicity (p-value = <0.001) was statistically significant. An association was also found with the participant’s family asthma status, p-value = 0.002.

**Conclusion:** The findings suggest that the level of knowledge of asthma, symptoms and triggers is fair among the participants due to overall moderate levels of misconception. Continuous effort is further advocated towards public awareness and re-education of the populace to improve their knowledge of asthma for good treatment outcomes.

**Keywords:** Asthma, Misconception, Northwest Nigeria, lung disease , inflammatory airway illness

**INTRODUCTION**

Asthma is a chronic lung disease affecting people of all ages.1 It is a common inflammatory airway illness characterized by altered airway structure, airflow restriction, and hyperresponsiveness.2 It is an important cause of morbidity and mortality worldwide, ranking high as a cause of disability-adjusted life years (DALYs) in 2015.3

The manifestation of symptoms often starts in childhood, affecting about 10.2–14.2% of the paediatrics population.4 Symptoms can include coughing, wheezing, shortness of breath and chest tightness. These symptoms can be mild or severe.1 Asthma affected an estimated 262 million people in 2019 and caused 455,000 deaths.1 Most asthma-related deaths occur in low and middle-income countries, where under-diagnosis and under-treatment is a challenge1

The Global Burden of Diseases (GBD) project estimates that the prevalence of asthma increased by about 12% globally between 2005 and 2015, mostly in developing countries.5 The Global Initiative for Asthma (GINA) found that the burden of asthma in terms of lower quality of life and premature death remained a substantial public health concern, with economic ramifications, despite attempts to address its impact.2

Individuals with untreated asthma may experience difficulty sleeping, fatigue during the day, and challenge focusing. People with asthma and their families may miss work and school, which financially impacts the family and the larger community. Acute attacks of asthma require emergency care in a hospital. Severe attacks can be fatal.1

Asthma risk factors include smoking, a high body mass index, and being among asthma triggers at work. These are changeable factors, meaning that making dietary changes or increasing physical activity could lessen obesity and, consequently, the risk of developing asthma.2

Research has indicated that persons with asthma and their parents/caregivers may have inadequate understanding or misunderstandings regarding asthma and its management. From previous reports  6–9 common myths about asthma included the following: it's communicable; it can be cured; inhalers are either addictive or a poor form of treatment; herbs can help with asthma; and it restricts physical activity. Additionally, there were gaps in knowledge of important asthma symptoms such as shortness of breath, chest tightness and nocturnal cough.9,10 Poor understanding of the disease can result in underutilization of available health services and reduced medication adherence.7,10 Ultimately this leads to poorly controlled asthma and negatively impacts quality of life.

Asthma treatment can be complicated and involves a lot of patient and caregiver engagement. Regrettably, a growing number of patients still have uncontrolled asthma; this is shown in the rise in ER visits, work-related absences, and asthma-related impairments.11 Possible causes for these increased morbidities include poor understanding of asthma, nonadherence to inhaled steroid regimens, and poor inhaler technique.8 Patient education ought to be customized to the patient's level of knowledge; therefore, evaluating patient knowledge is essential for guiding the creation of appropriate programs that enhance that knowledge.11 Therefore this survey was aimed to assess the level of knowledge of people in attending a health facility in Katsina, Northwestern Nigeria.

**METHODOLOGY**

***Study Design***

The study was a cross-sectional descriptive design conducted among three hundred and twelve consented residents of Kastina northwest Nigeria.

***Study Instruments***

The study utilized interviewer-administered questionnaires in two sections to obtain socio-demographic data and assess the knowledge of respondents on asthma

The asthma knowledge questions were divided into four subsections.

Subsections I asked 12 true or false questions on common misconceptions about asthma

Subsection II had 5 yes or no questions on common features of asthma

Subsections III 6 yes or no questions on common triggers of asthma

Subsection IV contained 12 true or false questions on common beliefs about asthma

The section contained 36 questions, each question with a score of 1. The possible total score of 36 was subcategorized as follows: low (score 1–12), moderate (score 13–24), and high (score 25 – 36).

***Study Procedure***

The study was conducted during the 2023 World Asthma Day organized by the Pulmonology unit of Federal Teaching Hospital Kastina. A convenient sampling technique was used and the survey involved all locales who attended the program and consented to participate in the study while excluding the medical/healthcare giver in attendance. The interviewer-administered questionnaire was distributed to respondents by the medical staff of the hospital following a general introduction on the aim of the survey.

***Data Analysis***

Data entry, coding and analysis were done using Statistical Package for Social Sciences (SPSS) Version 25. Data were analyzed using descriptive statistics of mean, frequencies and percentages, and inferential statistics. Categorical variables were summarized using frequencies and percentages while quantitative variables were summarized using means and standard deviation. Chi-square was used for the measure of association between categorical variables. All results are presented using tables and charts.

**RESULT**

A total of 312 individuals consented to participate in this study with ages ranging between 16 to 75 with a mean age of 35.73 ± 13.08. Participants were fairly educated with 15.4% (n=48) and 72.9% (n=227) attaining secondary and tertiary levels of education respectively. Of the 312 participants, 8.7% were asthmatic, and 91.3% were asthma-free. Similarly, 29.2% have family who are asthmatic, while 70.8% of participants have family with no history of asthma. (Table 1)

**Table 1: Socio-demographics characteristics of the participants**

|  |  |  |
| --- | --- | --- |
| Characteristics | Frequency (n) | Percentage (%) |
| Age  ≤35 Years  >35 years  Sex  Male  Female  Marital Status  Single  Married  Divorce  Widow  Educational Status  No education  Primary education  Secondary education  Tertiary education  Ethnicity  Yoruba  Igbo  Hausa  Others  Missing  Religion  Christianity  Islam  No religion  Do you have Asthma?  Yes  No  Did any of your family have asthma?  Yes  No | 167  145  154  158  126  170  2  14  21  16  48  227  33  18  236  23  2  46  260  6  27  285  91  221 | 53.5  46.5  49.4  50.6  40.4  54.5  0.6  4.5  6.7  5.1  15.4  72.8  10.6  5.8  75.8  7.4  0.6  14.7  83.3  1.9  8.7  91.3  29.2  70.8 |

*Frequency: number of participants, mean age: 35.73 ± 13.08*

More than half (63.1%) of the participants believed that asthma was curable, 73.1% disagreed that asthma patients do not need to see a doctor when they are doing well, 61.5% of the respondents believed that asthma is a common reason for many school absences, 78.5% were in agreement that asthma runs in the family. Also, 84.3% (n = 263) assumed that whenever the asthma attack stops, patients don’t have asthma anymore, and 82.4% agree that asthma is contagious.

Furthermore, the majority (89.1%) agreed that shortness of breath is a sign of asthma, 87.8% agreed that tightness in the chest is also a sign of asthma. For asthma triggers, 47.8% agreed that pets with fur can trigger asthma, 90.7% agreed that mosquito bites cannot trigger asthma, 43.6% agreed that dampness can trigger asthma, and 47.4% agreed that pollen is an asthma trigger.

Predominately, 79.8% (n = 249) agree that hospitalization for asthma is preventable, 91.7% (n = 286) agree that asthma symptoms can be prevented with the right medication, 92.8% agree that patients who get relief from over-the-counter drugs still need to see a doctor, 86.9% agree that asthma is a serious health problem in Nigeria, and 88.8% agree that asthmatic patients should see the doctor immediately after an attack. Also, 45.2% agree that an inhaler is not used in the last stage of an asthma attack, and few (84.3%, n = 263) disagree that users of inhalers for asthma do not live long. (Table 2)

**Table 2: Knowledge/Misconception of Respondents about Asthma**

|  |  |  |
| --- | --- | --- |
| Section I (n=312) | Frequency (%) | |
| **True** | **False** |
| Asthma is curable?  A vaporizer is a good asthma treatment?  People with asthma cannot exercise or play hard?  When asthma patient is doing well, they do not need to see a doctor?  Asthma is a common reason for many school absences?  Asthma tends to run in family?  Asthma is mainly an emotional illness?  When asthma attacks stop, you don’t have asthma anymore?  You can't have asthma as an adult without having it as a child?  Asthma is contagious?  Change of environment can cure asthma?  You can grow out of asthma? | 197 (63.1)  181 (58.0)  168 (53.8)  84 (26.9)  192 (61.5)  245 (78.5)  144 (46.2)  49 (15.7)  90 (28.8)  55 (17.6)  114 (36.5)  183 (58.7) | 115 (36.9)  131 (42.0)  144 (46.2)  228 (73.1)  120 (38.5)  67 (21.5)  168 (53.8)  263 (84.3)  222 (71.2)  257 (82.4)  198 (63.5)  129 (41.3) |
| Section II (n=312) | **Yes** | **No** |
| Is shortness of breath a sign of asthma?  Is tightness in the chest a sign of asthma?  Are severe headaches a sign of asthma?  Is cough at night a sign of asthma?  Is wheezing after exercise a sign of asthma? | 278 (89.1)  274 (87.8)  88 (28.2)  199 (63.8)  238 (76.3) | 34 (10.9)  38 (12.2)  224 (71.8)  113 (36.2)  74 (23.7) |
| Section III (n=312) | **Yes** | **No** |
| Are pets with fur a tigger of asthma?  Are mosquito bites a trigger of asthma?  Is dampness a trigger of asthma?  Are cockroaches a trigger of asthma?  Is a poor diet a trigger of asthma?  Is pollen a trigger of asthma? | 149 (47.8)  29 (9.3)  136 (43.6)  53 (17.0)  90 (28.8)  148 (47.4) | 163 (52.2)  283 (90.7)  176 (56.4)  259 (83.0)  222 (71.2)  164 (52.6) |
| Section IV (n=312) | **True** | **False** |
| Hospitalization for asthma is preventable?  Asthma symptoms can be prevented with right medication?  Asthmatic patients who get relief from over-the-counter drugs still need to see a doctor?  Asthma care is expensive?  Asthma is a serious health problem in Nigeria?  After attack patient should see doctor immediately?  Emergency is the best place to get asthma treatment?  People can get addicted to their asthma medication?  Asthma medication are habit forming?  Children with asthma have overprotective mothers?  Inhalers are used in the last stage of asthma attack?  Users of inhalers for asthma do not live long? | 249 (79.8)  286 (91.7)  288 (92.3)  190 (60.9)  271 (86.9)  277 (88.8)  266 (85.3)  224 (71.8)  169 (54.2)  189 (60.6)  171 (54.8)  49 (15.7) | 63 (20.2)  26 (8.3)  24 (7.7)  122 (39.1)  41 (13.1)  35 (11.2)  46 (14.7)  88 (28.2)  143 (45.8)  123 (39.4)  141 (45.2)  263 (84.3) |

Frequency: no of subjects.

Of the 312 participants, 59.6% (n=186) had low misconceptions about asthma, 40.4% (n=126) had moderate misconceptions about asthma. However, none of the participants had high misconceptions about asthma. (Figure 1)

Figure 1: Level of misconception of respondents

Participants with low misconception were higher across age groups (>55%) and misconception was not associated with age and gender (p-value = 1.000 and 0.564) respectively. However, misconception was associated with educational status, and ethnicity (p-value = <0.001). Furthermore, there was no statistically significant association between misconception and religion.

Misconception was not associated with the asthma status of participants, (p-value = 0.685). However, the misconception was statistically associated with the participant’s family asthma status, p-value = 0.002. (Table 3)

**Table 3: Correlation between Misconceptions and sociodemographic characteristics of participants**

|  |  |  |  |
| --- | --- | --- | --- |
| Variables | Misconceptions | | p-value |
| **Low Misconception** | **Moderate Misconception** |
| Age  ≤35 Years  >35 years  Sex  Male  Female  Marital Status  Single  Married  Divorce  Widow  Educational Status  No education  Primary education  Secondary education  Tertiary education  Ethnicity  Yoruba  Igbo  Hausa  Others  Religion  Islam  Christianity  No religion  Do you have Asthma?  Yes  No  Did any of your family have asthma?  Yes  No | 100 (59.9)  86 (59.3)  89 (57.8)  97 (61.4)  79 (62.7)  96 (56.5)  2 (100.0)  9 (64.3)  4 (19.0)  7 (43.8)  23 (47.9)  152 (67.0)  30 (90.9)  5 (27.8)  131 (55.5)  18 (78.3)  150 (57.7)  30 (65.2)  6 (100.0)  15 (55.6)  171 (60.0)  42 (46.2)  144 (65.2) | 67 (40.1)  59 (40.7)  65 (42.2)  61 (38.6)  47 (37.3)  74 (43.5)  0 (0.0)  5 (35.7)  17 (81.0)  9 (56.3)  25 (52.1)  75 (33.0)  3 (9.1)  13 (72.2)  105 (105)  5 (21.7)  110 (42.3)  16 (34.8)  0 (0.0)  12 (44.4)  114 (40.0)  49 (53.8)  77 (34.8) | 1.000  0.564  0.548  **\*<0.001**  **\*<0.001**  0.070  0.685  **\*0.002** |

\*p-value < 0.05 indicates significance

**DISCUSSIONS**

Three hundred and twelve individuals participated in this study with a mean age of 35.73 ± 13.08. Participants were fairly educated with the majority attaining secondary and tertiary levels of education. Only a few, with a prevalence of 8.7% had been diagnosed with asthma. Only one-quarter have family members who are asthmatic, while other participants had no family history of asthma.

Of the total participants, more than half had low misconceptions about asthma, while less than half had moderate misconceptions about asthma. However, none of the participants had high misconceptions about asthma. Also, more than half of the participants agree that asthma is curable, a common reason for many school absences, and runs in the family. Also, the majority disagree that asthma patients do not need to see a doctor when they are doing well, or whenever asthma attack stops, or patients don’t have asthma symptoms anymore. It was observed that knowledge about asthma is generally fair in contrast to a finding in Zambia6 where poor knowledge due to high levels of misconceptions was reported overall.

Some misconceptions exist about asthma triggers and symptoms that are comparable with findings from other findings.12,13 The majority agree that shortness of breath is a sign of asthma and that tightness in the chest is also a sign of asthma. Likewise, some agree that mosquito bites cannot trigger asthma while less than half opined that pets with fur, dampness, and pollen are all asthma triggers. This demonstrated good knowledge of key symptoms and triggers of asthma as opposed to another report.14

Predominately, the majority agree that hospitalization for asthma is preventable, asthma symptoms can be prevented with the right medication, patients who get relief from over-the-counter drugs still need to see a doctor, asthma is a serious health problem in Nigeria, and

that asthmatic patients should see the doctor immediately after an attack.

Participants with low misconception were higher across age groups and misconception was not associated statistically with age or gender but associated with education status and ethnicity. Furthermore, there was no statistically significant association between misconception and religion in contrast to a report that the outcome of asthma is more subject to faith and chance than to the usefulness of treatment.13 Also, misconception was not associated with the asthma status of participants which is in contrast to another report6 where those diagnosed with asthma have better knowledge than those without the disease.

The effective management of asthma requires a self-management approach including a strong collaboration between the patients and they caregivers as stated in the international asthma guidelines. Also, the use of a regular prophylactic inhaler to prevent symptoms of chronic asthma, and regular bronchodilator therapy as required for symptomatic relief.15

**CONCLUSION**

The findings from this survey suggest that the level of knowledge of asthma, symptoms and triggers among the participants is fair due to overall moderate levels of misconception without a higher level of misconceptions observed. Continuous effort is further advocated towards public awareness and re-education of the populace to improve their knowledge of asthma for good treatment outcomes.

**Consent**

As per international standards or university standards, patient(s) written consent has been collected and preserved by the author(s).

**Disclaimer (Artificial intelligence)**

Authors hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

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