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**Knowledge, attitude, and practice about inhaled steroids among asthmatics attending to Alshaab teaching hospital**

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**Abstract**

This study aims to assess the knowledge, attitude, and practice of inhaled steroids amongthe study population. The Global Initiative for Asthma(GINA) describes asthma as a miscellaneous complaint, generally characterized by habitual airway inflammation. According to international asthma guidelines, effective asthma management necessitates a self-management approach that includes a strong partnership between patients and health care workers. The objective of this study was to assess Knowledge, attitude, and practice of inhaled steroids among asthmatics attending Alshaab Hospital-Khartoum-Sudan This was cross-sectional study conducted at Alshaab teaching hospital. Patients were selected randomly to form a study population. The questionnaire was filled by close interview (person to person). Regarding the knowledge, 91.5% of patients know that their inhaled steroid is an asthma medication, but only 46.4% of them know the difference between the "reliever" and "preventer" inhalers. Only 54.5% could mention one possible side effect of inhaled steroids. 56.4% of the patients know what is the spacer. 44.5% of the patients do think that they will be dependent on their inhaled steroids, and 62.7% of the patients think that their inhaled steroids are harmful. 45.5% of the patients do not wash their mouths after use. We concluded that Knowledge about inhaler is poor and misconceptions are prevalent. Therefore, a public education program is needed for both doctors and patients, with the ultimate aim of prevent and control asthma attacks in Khartoum Sudan. Our recommendations: Patient education should be a part of all interactions between health care professionals and patients, and it is applicable to asthma patients of all ages. Asthma education should provide patients with the knowledge, skills, and attitudes needed to control their symptoms and cope effectively with their condition.

**Introduction**

The description and bracket of asthma has been the subject of contestation for several decades. The Global Initiative for Asthma(GINA) describes asthma as “a miscellaneous complaint, generally characterized by habitual airway inflammation. It's defined by the history of respiratory symptoms similar as wheeze, briefness of breath, casket miserliness and cough that vary over time and in intensity,

together with variable expiratory tailwind limitation". Although not rigorously a description, this description captures the essential features for clinical purposes. For population- grounded studies, where croaker opinion isn't practicable, questionnaires are the tool of choice. Questions about more recent symptoms (in the once 12 months) are more dependable than questions about symptoms in the history, because they reduce crimes of recall S2 (1) In both industrialized and developing nations, the frequency of asthma has fleetly increased during the once 15 times. Asthma has a significant profitable impact on the world. Reduced living quality, dropped productivity, missed academy days, advanced health care costs, a advanced chance of hospitalization, and indeed death are some of its consequences (2). In 2016, asthma, across all periods, contributed 23.7 million DALYs encyclopedically. This total burden of complaint has remained unchanged since 1990, despite the substantial increase in world population over that time. Hence, the age standardized rate (329 · 2 DALYs per,000 populations in 2016) has dropped by 36 since 1990. Encyclopedically, asthma ranked 28th among the leading causes of burden of complaint and 27th in low- and middle- income countries(LMICs) S2 (1) Encyclopedically, asthma is ranked 16th among the leading causes of times lived with disability and 28th among the leading causes of the burden of complaint, as measured by disability- acclimated life times(DALYs). It accounts for the loss of over 15 million DALYs annually s3 (3) The Global Burden of Disease collaboration estimated that,000 people in the world failed from asthma each time, i.e., further than 1000 per day of this, over80.0 of asthma- related deaths, as well as severe cases, do in low and middle- income countries. s2(1) In Africa, the frequency of asthma increased across all age groups; it reckoned for49.7 million (13.9; 95 CI9.6-18.3) among children< 15 times,102.9 million (13.8; 95 CI6.2-21.4) among people aged< 45 times, and119.3 million (12.8; 95 CI8.2-17.1) in the total population in 4 2010. (4)

In Ethiopia, the overall frequency rate of asthma was 9.1, and it's the 10th Environmental burden by complaint order (DALYs 1000 capita) per time with a rate of 1.2. (5)

Treatment is started at the step most applicable to the original inflexibility of the asthma, with the end of achieving early control of symptoms and optimizing respiratory function. Control is maintained by stepping up treatment as necessary and stepping down when control is good. (6) The thing of asthma treatment is to achieve and maintain asthma control, minimizing symptoms and diurnal limitations, as well as reducing life- changing exacerbations and long- term morbidity practices (7) Although asthma control can be reached in a good chance of cases 8 (percentage) (8) currently, despite numerous

advances in asthma opinion and treatment, the frequency of controlled asthma is still low worldwide. It's reported that the position of asthma control is still lower than anticipated, that is, in Vietnam, < 1 of cases have controlled asthma As with any other long- term medicine, successful treatment depends on the patients knowledge, station, and geste .(9) The significance of patient education in icing the effective treatment of CRD was emphasized. Studies show that cases are frequently incorrect about how to take their specifics, and that they do want to be educated. utmost medical professionals assume a advanced position of understanding than actually exists 10 Case education was defined as “a planned literacy experience using a combination of styles, similar as tutoring, comforting and geste revision ways, which impact cases’ knowledge and health geste ; it involves an interactive process which assists cases to share laboriously in their health care ”. likewise, arriving at a participated decision between doctors and patients can occasionally be a demanding exercise. Patients will be more motivated to follow a treatment program if they've the tools and means to apply tone- operation chops and have the support. (10)

In this country, with no clear system for cases education and comforting about their habitual ails, and in absence, or nearly absence, governmental agencies or administrations that give medicine informations for the cases, it's intriguing to assess what do the asthmatic cases know about gobbled steroids, what do they suppose about it, and eventually how they are using it. According to my knowledge, this is the first knowledge, station, and practice(KAP) study of gobbled steroids in Sudan, and I hope that this study will serve as a foundation for unborn exploration in this field. studies are still not sufficient, particularly in low- income countries (11) According to international asthma guidelines, effective asthma management necessitates a self-management approach that includes a strong partnership between patients and health care workers (12) Asthma is a global initiative. Global asthma management and prevention strategy 2012 update (update) mention that patients should be empowered in this model to gain the knowledge, confidence, and skills needed to play an active role in their asthma management. Asthma morbidity can be reduced by using a self-management approach. If the patient has misconceptions about their asthma and inhaled medication, poor self-control is likely. (13)

## METHODOLOGY

**Study design:** Cross sectional, prospective study.

**Study area:** Al-shaab teaching hospital, Khartoum Sudan.

**Study population:** Patients attending Al-Shaaab teaching hospital at the time scale and they were estimated to be 400 patients.

**Sample size:** Sample size calculated to be 220.

**Tool of the study:** The questionnaire was designed by the author to elicit knowledge, attitude and practice in relation to inhaled steroids. The questionnaire collected information on:

1- Personal and background data including age, gender, duration of asthma and how diagnosed, type of inhaled steroid and duration of inhaled steroid usage.

2- The knowledge about inhaled steroid as an asthma medication, the role of inhaled steroid, the possible side effects, the knowledge about spacer.

3- The attitude toward the inhaled steroids.

4- The practice of inhaled steroids among asthmatics.

Collection of the data: The questionnaire was filled by close interview (person to person).

**Type of analysis:**

Analysis of data was done using the statistical package for social sciences (SPSS version 16.0). frequency distributions of all variables were produced. all p values were based on 2- sided tests, and the cutoff value for statistical significance were set at .05. Chi-square analysis was used to test differences in proportions.

**Results**

Data were collected using structured questionnaire, the response rate to the questionnaire was 100%. male to female ratio was 1:1, The mean age of the sample is 44 years. the mean of asthma years since diagnosis is 14 years. the mean duration of using inhaled steroids is 11 years. 94.5% of the sample were diagnosed by lung function tests, while 5.5 were diagnosed clinically. 26.4% of the patients are asthmatic for 5 years or less, 28 % are asthmatic for 6-10 years, and 45 % of patient are asthmatic for more than 10 years

40.0% of the patients are using inhaled steroids for 5 years or less, 22.7% for 6-10 years, and 37.3% of the patients are using inhaled steroids for more than 10 years

93% of the patients are using combined inhalers containing inhaled steroid and long acting beta agonist. 48.2% are using (budesonide and formoterol ) combined inhalers, 45.5% are using ( fluticasone and salmeterol ) combined inhalers, and the rest 6.4% are using beclomethasone inhaler. 39.1% of the patients are using oral steroids, with a frequency of 13 % in the age group > 30 years, 35.7% in the age group 30-50 years and 63.6% in the age group < 50 years ($p > 0.001$ ). 3.4% of asthmatics for 5 years or less,16.1% of asthmatics 6-10 years and 74.0% of asthmatics for more than 10 years are using oral steroids ($p > 0.001$). 7.3% of the patients are using inhaled ibratropium bromide

Regarding the knowledge, 91.5% of patients know that their inhaled steroid is an asthma medication, but only 46.4% of them know the difference between the "reliever" and "preventer" inhalers

Only 54.5% could mention one possible side effect of inhaled steroids. with a frequency of 38.7% in asthmatics for 5 years or less, 58.6% in asthmatics for 6-10 years and 62.0% in asthmatics for more than 10 years ($p = 0.012$)

35.5% of the patients know the role of the inhaled steroid in asthma management, with a frequency of 21.4% in asthmatics for 5 years or less, 28.3% in asthmatics for 6-10 years and 56.0% in asthmatics for more than 10 years. ($p > 0.00$).

56.4% of the patients know what is the spacer. With a frequency of 44.8% in asthmatics for 5 years or less, 48.4% in asthmatics for 6-10 years and 68.0% in asthmatics for more than 10years ( $p= .006$ ).

89.1% of the patients think that their inhaled steroids are useful. and 93.6% of the patients agreed with that they will continue using it. with a frequency of 84.2% of the age group > 30 years, 96.4% in the age group 30-50 years, and 100% in the age group more than 50 years ($p > 0.001$).

44.5% of the patients do think that they will be dependent on their inhaled steroids, and 62.7% of the patients think that their inhaled steroids are harmful. With a frequncy of 41.4% in asthmatics for 5 years or less, 67.7% in asthmatics for 6-10 years and 72.0% in asthmatics for more than 10 years. ($P > 0.001$)

Regarding practice,45.5% of the patients stopped their inhaled steroids without medical advice b. 45.5% of the patients do not wash their mouths after use (. with frequency of 75.9% in asthmatics for 5 years or less, 51.6% in asrhmatics for 6-10 years and 24.0% in asthmatics for more than 10 years ($p > 0.001$). Also, 44.7% of the age group less then 30 years,75.0% of the age group 30-50 years and 27.3% of the age group above 50 years do not wash their mouths after use ($p > 0.001$).

11.8% of patients are using spacers, with a frequency of 2.5% in the age group less than 30 years, 5.3% in the age group 30-50 years and 27.3% in the age group more than 50 years ($p= 0.001$).

94.5% of the patients do use their inhaled steroids in acute attack of asthma. with a frequency of 96.6% in asthmatics for 5 years or less, 87.1% in asthmatics for 6-10 years and 98.0% in asthmatics for more than 10 years ($p= 0.009$)

48.2% of the patients increase the dose\frequency themselves. With a frequency of 55.2% in asthmatics for 5 years or less, 29.0% in asthmatics for 6-10 years and 56.0% in asthmatics for more than 10 years ($p = 0.002$)

**Discussion**

The data was collected between the 20th of August and the 20th of September -2021 at Al-Shaab hospital in Khartoum, Sudan's largest specialized center for chest medicine. The response rate to the questionnaire was 100%, which reflects highly cooperative patients. Males are almost equal to females in the sample. The patients have been asthmatic for a mean of 14 years and have used inhaled steroids for a mean of 11 years. Most of the patients were diagnosed by lung function tests, and about one-third had been using inhaled steroids for more than ten years. Most patients know that their steroid inhaler is an asthma medication, but less than half know the difference between the "reliever" and "preventer" inhalers. The knowledge of this point increases as the duration of asthma and inhaled steroids increases. This may indicate that those patients who know the difference between the "reliever" and "preventer" inhalers gained their knowledge through experience rather than through a systematic counseling process. which is not surprising and is consistent with other studies 1(14) (Gibson PG, Henry RL, Vimpani GV, Halliday.1995). studis 2(Bruzzese JM, Unikel HL, Evans D, Bornstein L, Surrence K, Mellins BR.. 2010) (15) However, even individuals with asthma demonstrated numerous knowledge gaps and misconceptions relating to disease characteristics, asthma management and quality of life. Such attitudes

can have a negative impact on patient care and quality of life [also work]. (12) Moreover, only one-third of patients know the role of inhaled steroids in asthma management, this similer to several studies which say we found that knowledge about asthma is generally poor and we identified misconceptions about inhaled medications that are comparable with findings from other developing countries (2 references) (16) (17). Compliance is expected to be reduced. As a result, roughly half of the patients had previously stopped using inhaled steroids, and nearly all of the patients still use inhaled steroids for acute asthma attacks. about half of the patients do increase the dose.

frequency without medical counseling, possibly breaking the safety margin and exposing themselves to the risk of using high-dose steroids and their consequences. The interesting point is that the misuse of inhaled steroids during an acute asthma attack is most common among "senior" asthmatics. Data conducted by Sharon J in 2013 confirm that In our integrated health system the conditions with the poorest adherence and biggest need for improvement were asthma (33%) and diabetes (51%) (18) Frequency, complexity, and length of treatment are some of the many treatment-related factors that may affect adherence to asthma medications. This may due psychological condition. (19)

Only about half of the patients were able to mention just one possible side effect of inhaled steroids. The knowledge about the possible side effects increases as the duration of asthma increases. This may be because most of these patients have had to experience these side effects themselves before getting some idea that their inhalers can cause some side effects, or they got their information through repeated nonsystematic counseling. This result cross bond with Canadian Survey Say that many patients believed that inhaled corticosteroids cause weight gain, build huge muscles, cause infections, make bones susceptible to fractures, or affect growth. That difference may be due to different environments. (20)

More of patients don’t use spacer which consistent with the study conducted in by (Abuzar OSMAN, Imad S. AHMED HASSAN, Mohamed Izham M. Ibrahim) Spacing chamber had the highest rate of total unfamiliarity despite its long duration in the market place/ devices. (21) As a result, about half of the patients do not wash their mouths after use, and it is expected that a large proportion of those patients will develop side effects such as oral candidiasis. Our finding was consistent with that of other studies, which indicated adherence rates ranging from 54.4% to 86.8% (wash 1.wash 2)(22)(23) Most patients consider their inhaled steroids to be useful medication and agree that they will continue using them. Although the patient's knowledge of the disease is supposed to improve as the disease progresses,

the prevalence of this common misconception rises with the duration of asthma, peaking among "senior" asthmatics. One-fifth of the patients believed that their inhaled steroids would worsen their asthma. This could be due to patients who may be using inhaled steroids at the expense of their short-acting. Although the patient's knowledge of the disease is supposed to improve as the disease progresses, the prevalence of this common misconception rises with the duration of asthma, peaking among "senior" asthmatics. Unfortunately, Asthma has never been a public health priority in Sudan due until we take a well-considered plans.

**Conclusion**

According to the findings of this study:

Knowledge about inhaler is poor an. Most patients know that their inhaled steroids are asthma medication and less than half of patients understand the distinction between reliever and preventer inhalers. About two-thirds of the patients do think that their inhaled steroids may be harmful and may exacerbate asthma. One half of patients don’t wash their mouths after use and as the asthma duration increases the patients are less likely to use mouthwash after use. About half of the patients don’t know what the spacer and a minority of patients use spacers, and the use of spacers increases with age. About one-half of the patients increase the dose/frequency themselves without medical consultation and about one-half of them stopped their inhalation of steroids without medical consultation. Strategies are needed to increase education and awareness about the disease in order to improve disease management,

**RECOMMENDATIONS**

According to the Global Initiative for Asthma Guidelines, patient education should be a part of all interactions between health care professionals and patients, and it is applicable to asthma patients of all ages. Asthma education should provide patients with the knowledge, skills, and attitudes needed to control their symptoms and cope effectively with their condition, as well as the ability to recognize and avoid ineffective practices. (7)

1-Develop and disseminate a vision on the role of patient organizations in the fight against asthma

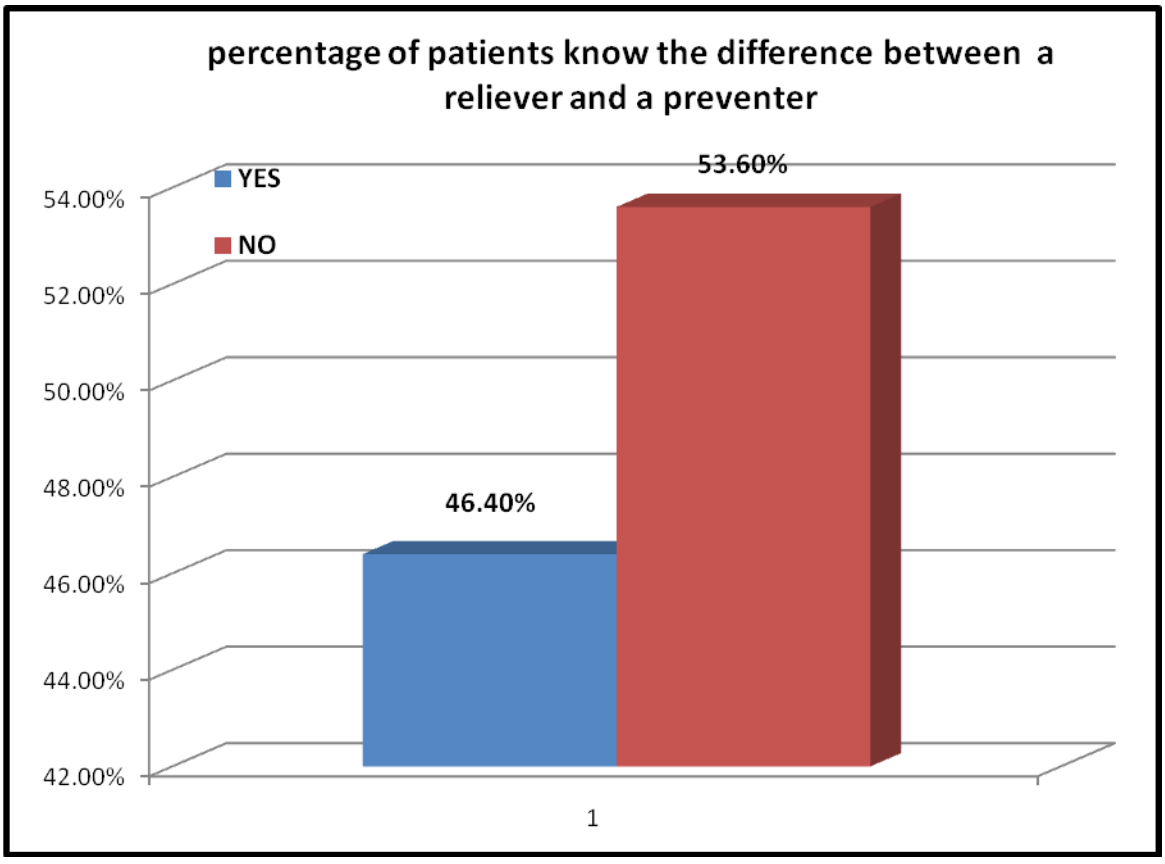
2- Any patient given an inhaled steroid for the first time should be fully counseled

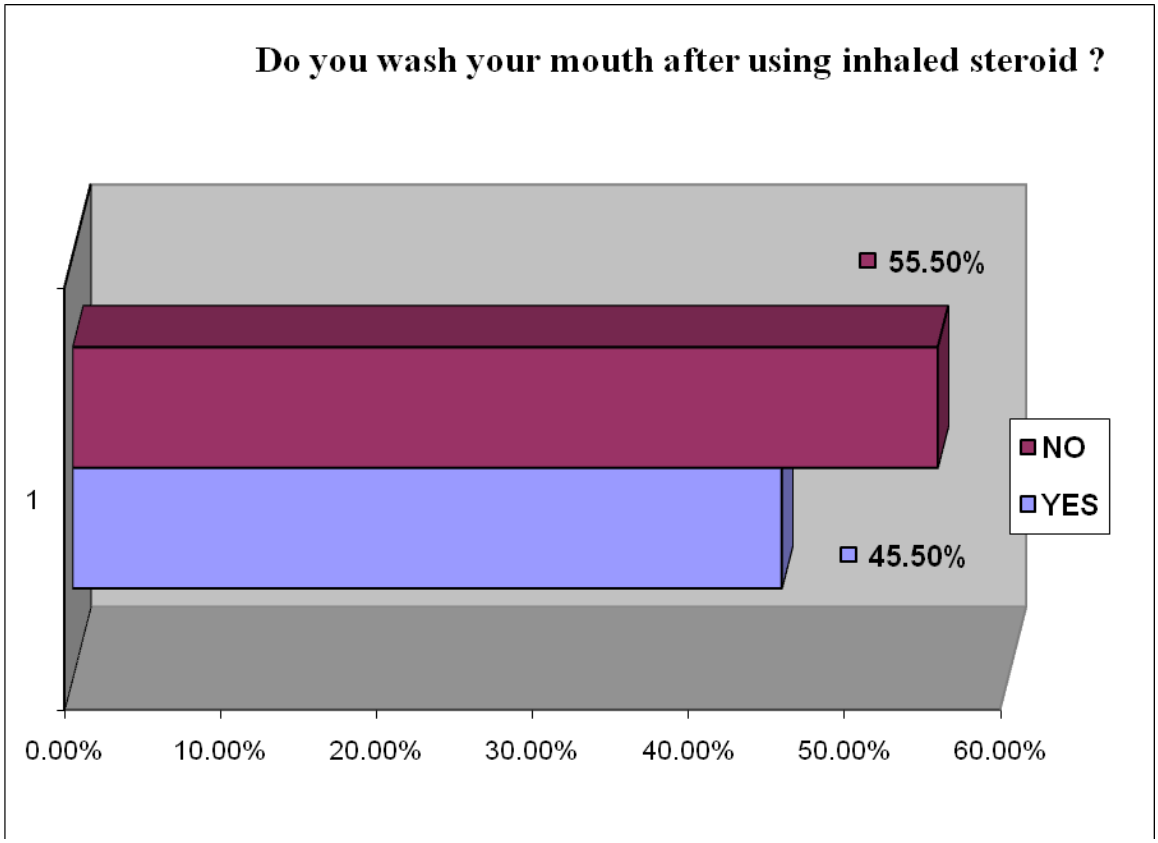
3-Finding patient counseling pathways through a well-defined counseling system that includes physicians, nurses, and paramedics and encourage patients' discussion groups using social media.

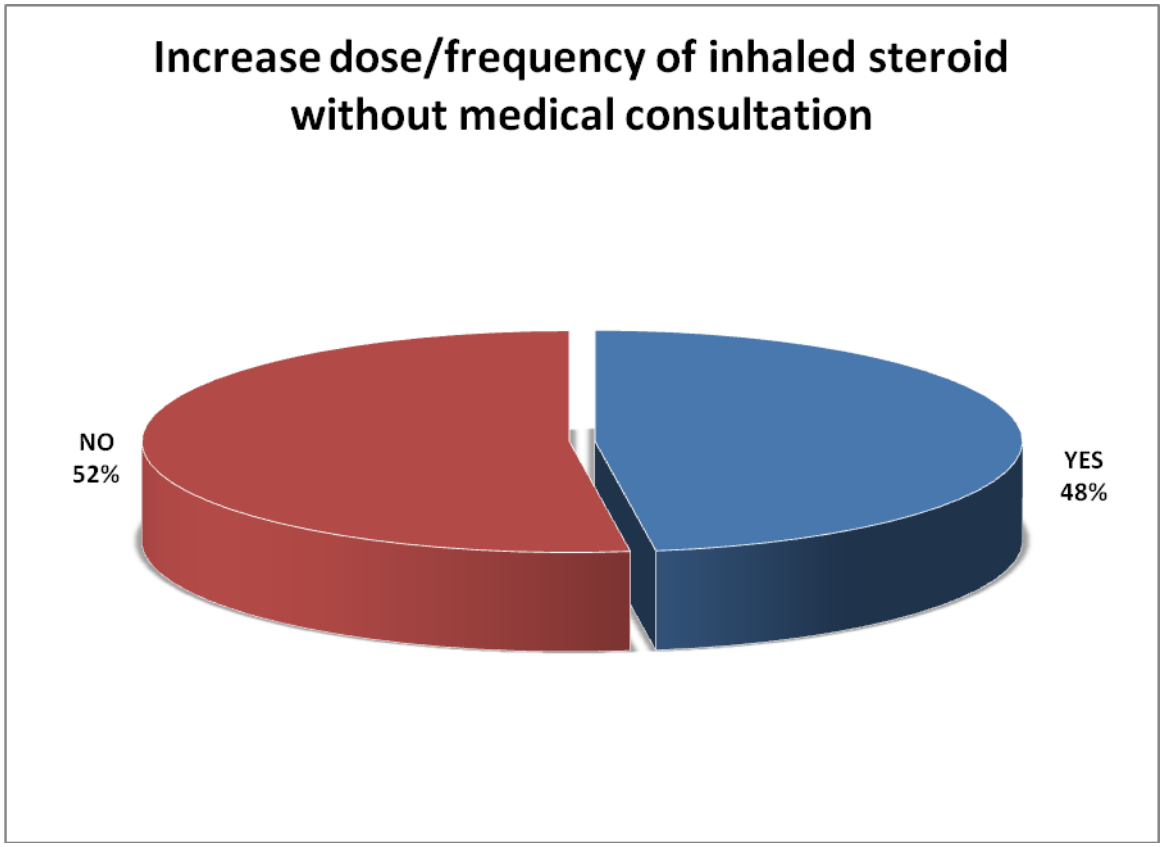
4-Targeting the misconceptions of the community regarding inhaling steroids through media and workshop

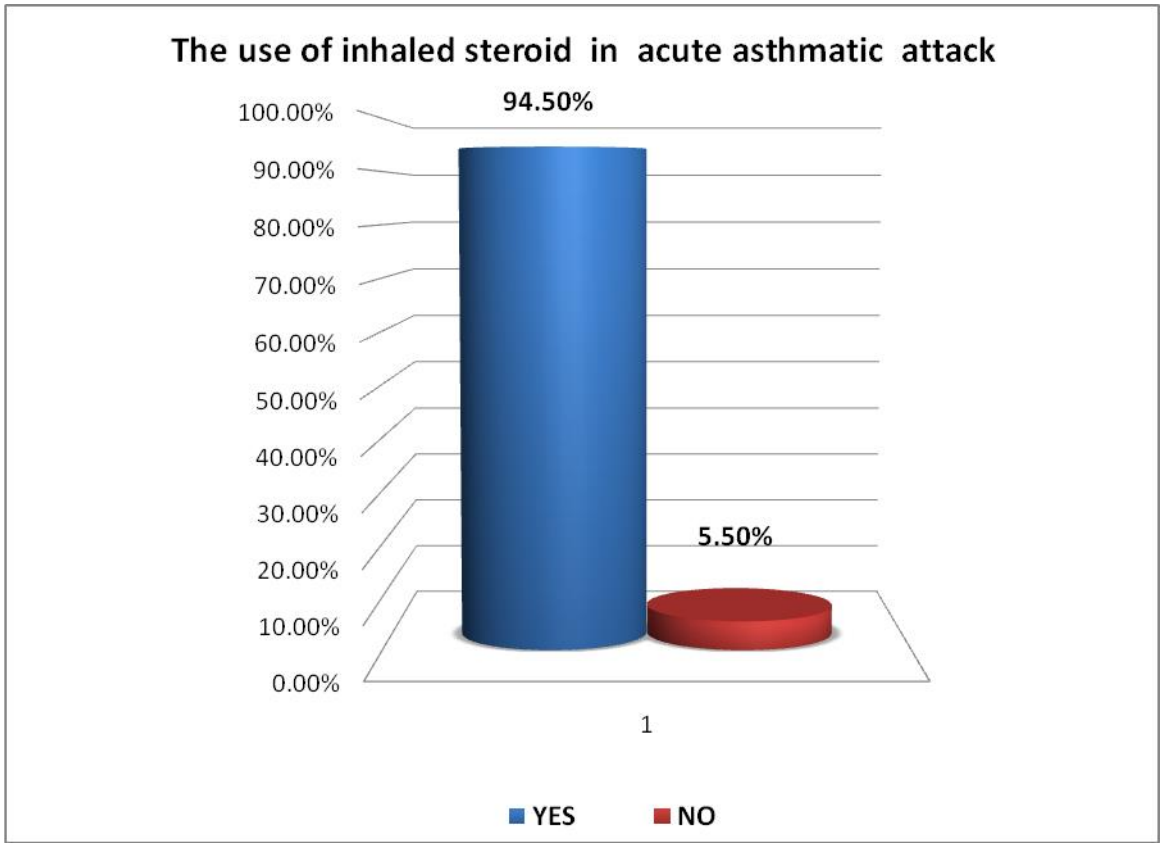
5-To achieve an appreciable level of compliance with the minimum side effects through close counseling, follow-up and frequent assessment of patients' knowledge, attitude, and practice of inhaled steroids.

6-adopt one (start-up) patient organization in each continent to develop a pilot scheme on how patient organizations can work effectively in low- and middle-income countries.




Do you wash your mouth after using inhaled steroid ?
55.50%
45.50%
NO
YES
1
0.00%
10.00%
20.00%
30.00%
40.00%
50.00%
60.00%


Increase dose/frequency of inhaled steroid without medical consultation
NO
52%
YES
48%

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**Upper aero digestive tract Endoscopy in the Preschool age in Gezira State**

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