

Peer Review Report

Review Report on ASTHMA, AIRFLOW OBSTRUCTION, AND EOSINOPHILIC AIRWAY INFLAMMATION IN WESTERN KENYA: A POPULATION-BASED CROSS-SECTIONAL STUDY

Original Article, Int J Public Health

Reviewer: Rajen Nithiseelan Naidoo

Submitted on: 07 May 2023

Article DOI: 10.3389/ijph.2023.1606030

EVALUATION

Q 1 Please summarize the main findings of the study.

Overview

This was a community based prevalence study of asthma and airflow obstruction in Uasin Gishu County, Western Kenya. It was a cluster-randomised cross-sectional study of 392 participants, consisting of 64% females, with age ranges from 12–94 years. Participants were subjected to standardised interviews using the St Georges Respiratory Questionnaire, spirometry and fractional exhaled nitric oxide assessments. The objective of the study as stated in the introduction was “to quantify the prevalence of asthma, obstruction on spirometry, and eosinophilic airway inflammation, as well as related correlates of the prevalence of asthma and airflow obstruction”. The prevalence of “wheezing or whistling in the last year”, airflow obstruction on spirometry, and eosinophilic airway inflammation was 21.7%, 11.1% and 15.7% respectively in the sample. Wheezing and whistling as well as SGRQ scores were associated with eosinophilic airway inflammation.

Q 2 Please highlight the limitations and strengths.

General Comments

The study provides a useful description of the respiratory health of populations that are poorly described in the literature, particularly in the African context. The authors attempted to obtain a random sample through “a three-stage modified EPI cluster-randomized” to minimize sampling bias, such that the findings will be generalizable to the communities of interest. The use of standardised instruments and methods was useful to compare their findings with other studies in other settings.

However, there were several weaknesses in the study that require addressing by the authors.

Q 3 Please provide your detailed review report to the authors. The editors prefer to receive your review structured in major and minor comments. Please consider in your review the methods (statistical methods valid and correctly applied (e.g. sample size, choice of test), is the study replicable based on the method description?), results, data interpretation and references. If there are any objective errors, or if the conclusions are not supported, you should detail your concerns.

Major Comments

The objective of the study is not clearly stated – “quantifying the prevalence of asthma, obstruction on spirometry and airflow obstruction” suggests a purely descriptive objective, but “related correlates” suggests the intention to investigate associations with risk factors. This lack of clarity then influences the study design. The choice of a multi-level (administrative subunit > household > members within household) is a strong approach to generalize the findings to the broader community. However, it is not clear why multiple members were selected from within a single household, as this then introduces a sampling bias to the study, especially when household “correlates” are intended to be investigated, as well as other risk factors that are likely to be household specific, including socio-demographic and economic variables which are likely to influence the outcomes of interest.

The second area of concern in the study design is the choice to select everyone from about 12 years of age, particularly in a descriptive study. Firstly, the instruments used are age-sensitive, for example determining the cutpoints either in spirometry and particularly FeNO – while 50ppb is used in adults, it is 35ppb among children, and those in the 12–15 year age group are likely to be in a “grey area” to be compared against adult benchmarks. Also, the factors that influence outcomes or persistence of symptoms vary between children and adults, and grouping them together is likely to fail to appropriately describe these relationships in the specific age groups.

Further, in trying to describe these outcomes within the community, while “wheezing and whistling in the past 12 months” is an important proxy for asthma, there is no indicated as to whether enquiries were made about a doctor/health professional diagnosis of asthma was made, whether participants were taking asthma medication, or the severity of symptoms (symptoms not present with a cold or ‘flu; symptoms at night; symptoms with exercise etc).

With regard to FeNO and eosinophilic airway inflammation – this is not reflected in the objectives of the study. This does provide important information in this sample, but the authors need to broaden their objectives and show how this outcome is of interest.

The use of the SGRQ was interesting: this instrument is particularly useful when assessing disease severity and impact on activities of daily living among those with respiratory disease, particularly in relation to the scoring. The scoring has less relevance among those without respiratory disease, and I would argue, limited value in a broad, randomly selected community sample of participants. The European Community Respiratory Health Study (ECRHS) instruments will probably have been of better value.

PLEASE COMMENT

Q 4 Is the title appropriate, concise, attractive?

Yes

Q 5 Are the keywords appropriate?

Yes

Q 6 Is the English language of sufficient quality?

No answer given.

Q 7 Is the quality of the figures and tables satisfactory?

No answer given.

Q 8 Does the reference list cover the relevant literature adequately and in an unbiased manner?)

No answer given.

QUALITY ASSESSMENT

Q 9 Originality



Q 10 Rigor



Q 11 Significance to the field



Q 12 Interest to a general audience

Q 13 Quality of the writing

Q 14 Overall scientific quality of the study

REVISION LEVEL

Q 15 Please make a recommendation based on your comments:

Major revisions.