Community-based pattern of adult bronchial asthma with treatment options in Dar es Salaam Region, Tanzania

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ABSTRACT

Background

Asthma is a complex respiratory condition characterized by chronic airflow obstruction, airway inflammation, and reversible changes. It is diagnosed through tests detecting variations in peak expiratory flow or Forced Expiratory Volume in 1 second (FEV1). Clinical manifestations include recurrent symptoms such as wheezing, cough, and dyspnea. The condition exhibits distinct subtypes associated with age, with allergic asthma prevailing in early childhood and non-allergic asthma emerging in adulthood. The global prevalence of asthma varies significantly across regions, with higher rates in Western Europe and the Americas compared to Asia. However, in regions such as Tanzania, limited and inconclusive data exist, prompting a need for accurate, updated prevalence assessments. Asthma's etiology involves multifactorial elements including viral infections, allergen exposure, genetics, and environmental triggers, leading to various immune responses and distinct subtypes. Diagnosis involves lung function tests like spirometry, with treatment strategies encompassing bronchodilators, inhaled corticosteroids, and preventive measures. The condition can lead to complications ranging from obstructive sleep apnea to psychological disorders, and severe cases may even result in sudden death.

Objective/purpose: to comprehensively investigate the epidemiology, clinical manifestations, diagnostic tools, risk factors, and treatment landscape of bronchial asthma within the adult population in Dar es Salaam, Tanzania. The study aims to determine the prevalence and characteristics of bronchial asthma, examining its clinical presentations, associated risk factors, treatment accessibility, and available options. The research seeks to gather data critical for future health system planning, policy development, and clinical guidance on asthma incidence and care in Tanzania, while also aiming to innovate by evaluating and creating effective tools for asthma identification and accessible treatment solutions specific to this region."

Methods: This is a descriptive cross-sectional community-based study conducted in five municipals (ilala, kigamboni, Kinondoni, temeke and ubungo) of Dar es Salaam, Tanzania, 300 participants were selected, Data on various demographic, anthropometric measurements (body weight, height), medical history, and clinical variables were

collected by using a special structured questionnaire, and asthma diagnosis was determined based on specific criteria and spirometer test (FEV1/FVC < 70%)

Results: The study, based on a sample of 300 participants, delves into the identification of asthma using questionnaire responses and FEV1/FVC ratios. Questionnaire data indicates that 21% of participants were asthmatic, while FEV1/FVC ratios of less than 70% were observed in 4.33% of cases, Clinical characteristics among asthmatic patients were assessed, revealing high percentages for symptoms such as coughing (95%), wheezing (92%), chest tightness (81%), and difficulty in breathing (87%).Demographic analysis highlighted age-associated trends in symptom prevalence,with individuals aged 20-39 displaying more pronounced symptoms. Gender and place of domicile yielded limited impact on symptomatology. Additionally, risk factors were explored, with obesity (25%), allergies (70%), family inheritance (69%), and occupational exposures (94%) being identified as contributing factors. Gender and domicile showed minimal influence on these risk factors. Treatment preferences were observed, where 55% of asthmatic patients were receiving treatment. The majority (74%) opted for modern treatment, while a notable proportion (15%) preferred traditional approaches. Spirometer accuracy analysis indicated promising results, with an 87% true positive rate (sensitivity) for identifying individuals with asthma and an 83% true negative rate for non-asthmatic individuals.

Conclusion: Accurate diagnostic methods, such as spirometry, to correctly identify and treat bronchial asthma. The study emphasizes the necessity of reducing misdiagnoses and ensuring more accurate patient care by employing precise diagnostic procedures.

Recommendation: Building upon the insights gained from this research, several recommendations emerge to guide healthcare practices and policies: Due to relatively high self-reported prevalence of asthma in Dar es Salaam, with lower prevalence values by the aid of the spirometer its strongly recommended that asthma should not be detected by just clinical symptoms of the patient ,instead the use of a questionnaire and spirometer should be implicated as a diagnosis tool ,for proper diagnosis of the patient condition and management outcome.

Preventive Interventions by addressing the identified risk factors, such as obesity, allergies, and environmental exposures, should be a priority. Public health initiatives can focus on promoting healthier lifestyles, encouraging weight management, reducing exposure to allergens, and improving indoor air quality.