EPIDEMIOLOGY OF NON-COMMUNICABLE RESPIRATORY DISEASES IN PAKISTAN

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Abstract:
Introduction: Non-communicable diseases (NCDs) are a major and increasing global health issue. According to the Global Burden of Diseases (GDB) 2015 report, there are between 39.8 and 40.5 million deaths per year from the four main categories of NCDs, namely cardiovascular diseases, diabetes, cancer, and chronic respiratory diseases (CRDs), representing 63% of all global deaths. **Aims and objectives:** *The basic aim of the study is to analyze the epidemiology of non-communicable respiratory diseases in Pakistan.* **Methodology of the study:** *This cross sectional study was conducted at Ghurki Trust and Teaching Hospital Lahore in 2019 with the permission of ethical committee of hospital. There were 100 patients who was suffering from different kind of respiratory diseases, selected for this study. Patients of both genders were included in this research analysis. For this purpose we collect the socio-demographic data of selected participants.* **Results:** *The data was collected from 100 selected patients. There was significant association between presence of metabolic syndrome and BMI with p-value = 0.000. Significant association was found between the presence of metabolic syndrome and duration of COPD with p-value = 0.000. There was significant association between presence of metabolic syndrome and smoking with p-value = 0.000.* **Conclusion:** *It is concluded that there is, however, limited epidemiological evidence currently representing an important gap in the evidence base and need for further research. Asthma and COPD are likely to be under-estimated, under-diagnosed, under-treated as well as inadequately prevented.*

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INTRODUCTION:

Asthma is a chronic, non-communicable lung condition affecting 235 million people worldwide. Asthma was once found predominantly in industrialised countries, and now, over the past 20 years, has become an increasingly widespread problem in low- and middle-income countries, particularly in urban areas. While asthma is not curable, it can be managed, and most of the 250,000 deaths that occur each year can be attributed to poorly managed care [1].

Over the past 15 years, helping low- and middle-income countries manage asthma has been one of The Union's priorities. The Asthma Division has developed an approach to asthma management that is based on The Union's successful approach to tuberculosis and produced a guide outlining its recommendations [2]. Non-communicable diseases (NCDs) are a major and increasing global health issue. According to the Global Burden of Diseases (GDB) 2015 report, there are between 39.8 and 40.5 million deaths per year from the four main categories of NCDs, namely cardiovascular diseases, diabetes, cancer, and chronic respiratory diseases (CRDs), representing 63% of all global deaths. Of these, 3.9 million were due to CRDs. In 2008, the World Health Organization (WHO) estimated that over the following decade respiratory diseases would be responsible for the largest increase in global mortality [3]. Low- and middle-income countries (LMICs) shoulder 80% of the deaths from NCDs, of which an estimated 12% are due to respiratory problems, particularly asthma and chronic obstructive pulmonary disease (COPD). Respiratory diseases also have a significant economic impact, causing 4·7% of global disability-adjusted life-years (DALYs), two-thirds of which are due to COPD and one-fifth due to asthma [4].

As a consequence of its high prevalence and chronicity, COPD causes high resource utilization with frequent clinician office visits, frequent hospitalizations due to acute exacerbations, and the need for chronic therapy (eg, supplemental oxygen therapy, medication) [5]. Correct diagnosis of COPD is important because appropriate management can decrease symptoms (especially dyspnea), reduce the frequency and severity of exacerbations, improve health status, improve exercise capacity, and prolong survival [6].

Aims and objectives

The basic aim of the study is to analyze the epidemiology of non-communicable respiratory diseases in Pakistan.

METHODOLOGY OF THE STUDY:

This study was conducted at Ghurki Trust and Teaching Hospital Lahore in 2019 with the permission of ethical committee of hospital. There were 100 patients who was suffering from different kind of respiratory diseases, selected for this study. Patients of both genders were included in this research analysis. For this purpose we collect the socio-demographic data of selected participants. And for the analysis of epidemiology and reasons of non-communicable respiratory diseases such as COPD and asthma, we prepare a questionnaire. This questionnaire include the views and reasons of theses diseases.

Statistical analysis

All the collected data was entered into SPSS version 16. Data was stratified for age, gender and BMI and duration of COPD and smoking (>5 pack years) and Post stratification Chi-square test was applied at < 0.05 as level of significance.

RESULTS:

The data was collected from 100 selected patients. There was significant association between presence of metabolic syndrome and BMI with p-value = 0.000. Significant association was found between the presence of metabolic syndrome and duration of COPD with p-value = 0.000. There was significant association between presence of metabolic syndrome and smoking with p-value = 0.000.

Table 01: Stratification with respect to Duration of COPD

Duration of COPD	Metabolic Syndrome		Total	P-value
	Yes	**No**		
< 5 years	11	71	82	0.000
≥ 5 years	54	12	66	
Total	65	83	148	

Chi-square test was applied

Following are some risk factors which we find in our analysis are as follows:

Tobacco
Tobacco smoking, alongside the aging of the population, are widely regarded as the most important risk factors for COPD globally. The WHO reports that smoking alone causes about 42% of CRD. Environmental tobacco smoke exposure is a risk factor for asthma in pediatric patients.

Air pollution
Exposure to household air pollution from biomass fuel smoke is a recognized risk factor for CRD, particularly COPD and mostly among women. Biomass fuel contains material from plants or animals burnt by humans such as wood, animal dung, crop residues, and grass. It is estimated that over 80% of homes in sub-Saharan Africa and 90% of rural houses use biomass fue. A Malawian study, found women and people of lower socioeconomic status in SSA are particularly affected by biomass smoke exposure.

Outdoor air pollution
Outdoor air pollution is variable, differing greatly between urban and rural environments and with the degree and nature of local industry. The main contributors to the outdoor air pollution are combination of wood smoke and vehicle exhausts with higher levels of nitrogen dioxide, ozone, particulate matter and sulphur dioxide in urban areas. There has been a rise in the prevalence of asthma that corresponds with increasing urbanisation over the last three decades [7].

Occupational exposures
Hoy et al. estimates 15 to 20% of asthma cases are caused by occupational exposure. However, this is only valid to developed countries which have strong occupational health data.[85] Similarly, the American Thoracic Society (ATS) reported occupational exposure as the main cause of 15% of COPD and asthma and was associated with an increased mortality rate in the COPD population [8].

DISCUSSION:
Poor socioeconomic status is an independent risk factor for COPD and there is a significant correlation with lung function even after adjustment for smoking, occupational exposure and ethnicity. The interplay of several risk factors is complex but thought to include low birth weight, recurrent respiratory infections, poor nutrition, housing conditions and air pollution. A similar pattern of exposure to risk factors and an impact on health care access may also influence the development of asthma [9].

Other important factors implicated in asthma include drugs, exercise and diet. In particular cow's milk, egg, nuts, fish, and shellfish are the most allergenic foods, causing an IgE-mediated reaction. About 40% of allergic children have asthma and 30% will have allergic rhinitis. Food induced asthma appears to be less frequent in SSA than in the developed world although data are limited. In a Zimbabwean study, tropical dietary lifestyles considered a probable cause of allergen sensitization in Africa included grains, plants, fruits and even insects [10].

CONCLUSION:
It is concluded that there is, however, limited epidemiological evidence currently representing an important gap in the evidence base and need for further research. Asthma and COPD are likely to be under-estimated, under-diagnosed, under-treated as well as inadequately prevented. There are important challenges regarding the lack of diagnostic equipment, treatment and trained and experienced health care providers which need to be addressed through strengthening of health systems.

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