

EXPLORING THE PREVALENCE OF NON-COMMUNICABLE DISEASES IN PAKISTAN: A PUBLIC HEALTH PERSPECTIVE

Saif Ullah*¹, Misbah Abbas², Jawaria Nazir³, Kalsoom Fatima⁴, Dr Noman Ali Chaudhary⁵,
Dr. Muhammad Navid Tahir⁶

*^{1,2,3,4}MPHil Public Health, ISCS, University of the Punjab, ⁵Assistant Professor, ISCS, University of the Punjab, ⁶Assistant Professor, ISCS, University of the Punjab

Corresponding Author: *¹su303969@gmail.com

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ABSTRACT

In Pakistan, non-communicable diseases (NCDs) pose a significant public health challenge. This study undertakes a systematic literature review to examine the prevalence of NCDs in the country, focusing on pertinent risk factors and associated health implications. The primary aim of this study is to assess the prevalence of non-communicable diseases among the Pakistani population, emphasizing key risk factors and their impact on public health. A systematic review of literature published between 2008 and 2020 was conducted, encompassing studies conducted within Pakistan. Relevant data regarding NCDs and their associated risk factors, including hypertension, diabetes, obesity, physical inactivity, and tobacco use, were analyzed and synthesized. The review revealed a high prevalence of NCD risk factors among the Pakistani population, with rates ranging from 8% to 53%. Key risk factors such as hypertension, diabetes, obesity, physical inactivity, and tobacco use were identified as significant contributors to the overall NCD burden. Furthermore, the consumption of unhealthy diets low in fruits and vegetables but high in fats and sugars was found to exacerbate the prevalence of NCDs. Non-communicable diseases account for more than 50% of deaths in Pakistan, underscoring the urgent need for the implementation of effective public health interventions and strategies. The study highlights the importance of enhancing NCD research, establishing comprehensive training programs, and fostering improved healthcare coordination to effectively address the escalating public health challenges posed by NCDs in Pakistan.

Key words: Non-communicable diseases (NCDs), Prevalence, Risk factors, Public health, Pakistan

INTRODUCTION

Non-communicable diseases (NCDs) are a growing concern in Pakistan, with an increasing burden on the healthcare system and society as a whole.

Chronic diseases, also referred to as noncommunicable diseases, are a collection of health conditions that persist over long time and advance gradually. Genetics and the environment are both factors contributing to the development of these diseases, including unhealthy dietary habits, insufficient physical activity, tobacco usage, and excessive alcohol consumption (1).

According to the World Health Organization, 41 million people die every year from

noncommunicable diseases (NCDs). The leading causes of mortality are cardiovascular diseases, such as heart attacks and strokes. Various forms of cancer, chronic lung diseases, and diabetes also contribute significantly to the staggering number of deaths. There are 179 million deaths worldwide each year caused by NCDs, the majority of which are caused by cardiovascular diseases. Cancer accounts for 9.0 million deaths, respiratory diseases for 3.9 million, and diabetes for 1.6 million. It is estimated that these four disease groups cause over 80% of deaths worldwide from NCDs (2).

Pakistan's sedentary lifestyle and altered dietary patterns are contributing to the escalating prevalence of non-communicable diseases (NCDs) (3). In the country, NCDs account for 58% of all deaths. Cardiovascular diseases accounts for 29%, Cancer accounts for 8%, Chronic Respiratory diseases accounts for 5%, diabetes accounts for 5% and other NCDs accounts for 12% of the deaths in Pakistan as per the report presented by WHO in 2018 as a country profile for NCD (4). Pakistan's mortality rates are primarily driven by five noncommunicable diseases: heart diseases, strokes, congenital defects, cirrhosis, and chronic kidney disease. In Pakistan, 21% of people aged 30 to 70 years will die from these four types of NCD (5).

A range of risk factors contribute to noncommunicable diseases (NCDs) in Pakistan, including physical inactivity, excessive sodium intake, nicotine consumption, elevated blood pressure, diabetes, obesity, and ambient air pollution. Such diseases are particularly prevalent among the elderly (6). Poor dietary habits, physical inactivity, and tobacco use all contribute to the prevalence of NCDs in Pakistan. Heart disease, diabetes, and cancer are significantly increased risks as a result of these behaviors (7).

Rapid urbanization is also a contributing factor as more people move to urban areas, they may adopt unhealthy lifestyles, including sedentary behavior and consumption of processed foods, which can contribute to the development of NCDs(8). Aging population also presents a risk factor in contributing to NCDs as the population ages, the prevalence of NCDs tends to increase, as older individuals are more susceptible to chronic conditions.

Limited access to healthcare also contributes as Inadequate healthcare infrastructure and a lack of trained healthcare professionals can make it difficult for individuals to receive timely diagnosis and treatment for NCDs, leading to higher morbidity and mortality rates (9). The lack of access to healthcare services and unhealthy lifestyle choices associated with poverty can lead to NCDs. Environmental factors such as Exposure to air pollution and other environmental hazards can increase the risk of developing respiratory and cardiovascular diseases (10).

A true estimate of the impact of this double burden of disease is impossible without recent, population-

based longitudinal data. From a public health perspective, this study examines the prevalence of NCDs in Pakistan.

Research Question

In Pakistan, what is the prevalence of non-communicable diseases and what are the contributing factors?

Problem Statement

Pakistan is plagued by numerous noncommunicable diseases and the prevalence of these diseases is increasing, leading to a strain on healthcare system and a decrease in the quality of life for affected individuals.

Research Objectives

The objectives of this study are to:

- To Analyze the prevalence of Non-communicable diseases (NCD) in Pakistan.
- To Identify the contributing factors to the prevalence of non-communicable diseases in Pakistan.

Rationale

This study holds significant value in providing crucial insights into the prevalence of non-communicable diseases in Pakistan, facilitating the development of effective prevention and management strategies. By identifying contributing factors, policymakers and healthcare providers can design targeted interventions to address this issue comprehensively.

METHODOLOGY

Comprehensive literature search in reputable databases such as PubMed and Google Scholar using specific keywords.

Integration of WHO reports including the Global Status Report on NCDs and WHO STEPwise approach to Surveillance (STEPS) for Pakistan-specific insights.

Data extraction and compilation emphasizing NCD prevalence, associated risk factors, and public health intervention implementation.

Stringent adherence to ethical considerations to ensure data confidentiality and integrity.

Inclusion Criteria

Studies published from 2008 to the present to incorporate recent research.

Studies conducted within Pakistan to ensure contextual relevance.

Exclusion Criteria

Studies published before 2008 to prioritize current information.

Studies conducted outside Pakistan to maintain population specificity.

Exclusion of non-English studies to ensure consistent understanding and analysis.

This systematic methodology ensures the inclusion of recent, Pakistan-specific studies on NCDs, providing an accurate representation of the prevailing NCD landscape.

RESULTS

Among the initially identified corpus of 70 studies, a comprehensive and meticulous review led to the inclusion of 14 studies for thorough analysis. Notably, out of these, 8 studies were subsequently subjected to heightened scrutiny due to their pronounced relevance in delving into the Presence of non-communicable diseases within the context of Pakistan. Strict selection criteria were used, involving an initial review of abstracts from the complete set of 70 studies, followed by the careful selection of 14 studies that exhibited substantive alignment with the research objectives. From this subset, 8 studies were then chosen for a more detailed examination, guided by their particular suitability in

contributing to the exploration of NCD prevalence in Pakistan.

The collected studies share a collective aim of delving into the prevalence of non-communicable diseases (NCDs) within Pakistan. These investigations encompass a range of methodological approaches, with qualitative and quantitative methodologies both evident. The studies are geographically diverse, spanning cities such as Karachi, Lahore, Islamabad, and Peshawar. Sample sizes vary, from smaller qualitative groups of NCD stakeholders to larger household-based quantitative surveys, ranging from 613 to 7710 participants. The studies underscore the multifaceted nature of NCD prevalence in Pakistan, touching upon factors like tobacco use, insufficient fruit and vegetable consumption, physical inactivity, overweight, obesity, and their association with related health conditions. The significance of communication technologies, clean water access, and gender variations in NCD risk factors also emerges across these studies. In aggregate, these diverse studies contribute to a comprehensive understanding of the landscape of NCDs in Pakistan, addressing various aspects of their prevalence, risk factors, and associated conditions.

Here is a table summarizing the information from the systematic literature review on the prevalence of non-communicable diseases in Pakistan:

Ref	Author	Year of Publication	Place of Study	Type of Study	Sample Size	Key Findings
(11)	Faisal Khan et al.	2013	Karachi, Pakistan	Qualitative	667	Most households (85%) occupied permanent structures and were connected to basic utilities (77%) and sanitation (98%). The availability of clean drinking water was limited (68%). There was widespread ownership of communication technologies, including cable television (69%) and mobile phones (83%). In addition to high tobacco smoking rates (45%), pre-diabetes (40%), hypertension (18%), overweight (20%), abdominal obesity (53%) and diabetes (8%), and there was a high prevalence of noncommunicable diseases (NCDs). The population was also highly susceptible to infectious diseases, such as hepatitis C (8%) and hepatitis B (24%).
(12)	Aysha Almas et al.	2022	Pakistan	Qualitative	14 (NCD Stakeholders)	Research and training programs on non-communicable diseases (NCDs) are in demand in Pakistan, but they are limited in quality. For NCD research programs to meet these needs, protected time should be available for dedicated work, career guidance, and mentorship opportunities. Cardiovascular diseases and the integration of health information technology are research priorities. Healthcare professionals lack training to conduct high-quality research, and postgraduate medical research is of low quality. National organizations should focus on building research capacity, particularly in NCDs. Public health degrees do not always translate to research skills, so disease-specific epidemiology and NCD courses are necessary. Poor coordination between tertiary and primary care facilities is also observed.
(13)	Tehseen Kazmi et al.	2022	Lahore, Pakistan	Quantitative	906	A study conducted in 2022 found that non-communicable diseases account for 58% of all deaths in Pakistan. Additionally, diabetes, hypertension, and abnormal heart rates are on the rise within the country, according to the study.

(14)	Sajida Naseem et al.	2015	Islamabad, Pakistan	Quantitative	1210 Household	A study found elevated prevalence rates in several health aspects in a semi-urban community of Islamabad. 34.4% had dental issues, 38.7% of individuals had high blood pressure/ischemic heart disease (IHD), 14.6% had diabetes and 24.3% had physical disabilities. A significant proportion of this population (48.2%) used tobacco products, 13.6 percent abused drugs, and 1.8% drank alcohol.
(15)	Ibrar Rafique et al.	2018	Punjab and Sindh	Quantitative	7710 Household	Punjab and Sindh, Pakistan, were studied to identify the prevalence of noncommunicable disease risk factors. Data were collected using the WHO STEPS instrument from 7,710 households. Researchers found that NCD risk factors were substantially prevalent, such as tobacco use (19.7%), insufficient fruit/vegetable consumption (96.5%), low physical activity (41.5%), overweight (26.3%), and obesity (14.9%). For stage I, hypertension was prevalent at 37%, and for stage II, it was prevalent at 15.9%. There were notable differences based on sex and occupation. Interventions in public health are imperative, with a particular focus on youth and young adults.
(16)	Saima Ghaus et al.	2021	Karachi, Pakistan	Quantitative	613	This retrospective study of 613 patients at a private endocrinology clinic in Karachi, Pakistan, found a high prevalence of obesity (72.6%) and identified it as an independent risk factor for dyslipidemia, hypertension, and diabetes. The most common associated non-communicable diseases were dyslipidemia, diabetes, and hypertension.
(17)	Zia ul Ain Sabiha et al.	2022	Peshawar, Pakistan	Quantitative	675	Noncommunicable diseases (NCDs) in Pakistan and their underlying factors are examined in this study, a low-income country where NCDs account for two-thirds of fatalities each year. Using a multistage sampling method, 675 eligible participants aged 15 to 60 were selected for the STEPS survey. Most of the risk factors are associated with consuming fewer than five portions of fruits and vegetables per day. A total of 50.51% of participants were current smokers, 76% lacked physical activity, 37.18% had elevated blood pressure, 36.29% had diabetes, and 31.85% had high cholesterol. Each individual was at risk for two NCDs on average. Multiple risk factors are present among a significant portion of the Pakistani population, emphasizing the need for targeted NCD management and prevention programs in urban areas.
(18)	Khuwaja et al.	2010	Karachi, Pakistan	Quantitative	680 Households	Based on a community-based survey conducted in Karachi, Pakistan, 80% of adults exhibited two or more risk factors. 22.5% of surveyed adults reported anxiety or depression, 47.8% were not eating enough fruits and vegetables, 60.1% were inactive, and 49.8% were overweight or obese. The prevalence of anxiety or depression, physical inactivity, and overweight/obesity was significantly higher among women. There was a higher prevalence of inadequate fruit and vegetable consumption among men. In particular, women exhibited a higher clustering of these risk factors.

DISCUSSION

In the pursuit of comprehensively taking steps to reduce non-communicable disease prevalence in Pakistan, a systematic review was undertaken, drawing upon an amalgamation of diverse data sources. This encompassed literature databases, WHO reports, data from national and international entities, and policy papers. The methodological framework involved meticulous stages of data extraction, analysis, and ensuing discussion of findings, with a particular emphasis on unraveling the public health implications and ethical considerations intrinsic to the subject matter.

The study concludes that presense of non-communicable diseases in Pakistan is alarmingly high that poses a significant public health challenge. Several key findings emerge from a systematic literature review regarding NCDs in the country and their risk factors. With rates ranging from 8% to 53%, the study reveals that Pakistani populations are prone to risk factors like hypertension, diabetes, obesity, physical inactivity, and tobacco use.

In Pakistan, non-communicable diseases (NCDs) are exacerbated by unhealthy diets characterized by a low fruit and vegetable intake and a high fat and sugar content. Many people do not consume the recommended daily intake of fruits and vegetables, consuming fewer than five servings per day. The prevalence of NCDs in this country is largely due to this dietary pattern.

Furthermore, the studies highlight the substantial burden that NCDs, including diabetes, hypertension, and cardiovascular diseases, place on the Pakistani health system. The findings suggest that NCDs account for over 50% of deaths in Pakistan, indicating the urgent need for comprehensive interventions and strategies to address this growing burden.

The research also highlights the need for improved NCD research, training programs, and public health interventions in Pakistan. The existing programs currently lack sufficient resources and capacity, hampering efforts to effectively combat NCDs. Therefore, it is crucial to prioritize research capacity building and invest in disease-specific epidemiology

and NCD courses for healthcare professionals to enhance their skills in conducting high-quality research.

Moreover, the study emphasizes the importance of better coordination between primary care and tertiary care facilities to improve the management of NCDs. Strengthening the linkages between these healthcare settings can enhance the overall care provided to individuals with NCDs and ensure a more comprehensive approach to prevention, treatment, and management.

The clustering of risk factors is another significant finding of the research, with individuals commonly exhibiting two or more NCD risk factors on average. Additionally, the studies highlight that certain risk factors, such as anxiety, physical inactivity, and obesity, have a higher prevalence among women in Pakistan.

In conclusion, the systematic literature review on the prevalence of NCDs in Pakistan underscores the urgent need for public health interventions and strategies Addressing NCDs and their associated risks. The findings highlight the need for improved research, training programs, and healthcare coordination, along with lifestyle interventions, to effectively tackle this growing public health concern. By prioritizing these areas, Pakistan can work towards reducing the prevalence of NCDs and improving the overall health and well-being of its population.

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