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Priorities for Public Health and Wellness in the Face of Economic Challenges Caused by the Prevalence of Chronic Diseases

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Abstract

The prevalence of chronic diseases is rising worldwide, which poses a severe threat to emerging countries' efforts to enhance public health. There are easily accessible, affordable, and very effective ways to avoid chronic illnesses; the inability to act is now more of a political than a technical problem. Chronic illness is now the most common cause in many developing countries despite being frequently linked to industrialized nations. Threats to population health are of particular concern to many low- and middle-income countries. In addition to undernutrition, bad diets and lifestyle choices are the root cause of nonfatal illnesses. This project discusses the direct and considerable impact that the fast growth of chronic diseases, the shortage of pharmaceutical products, the supply chain, and medical services have on overcoming the problems facing economic development. This makes research and development emphasizing health and wellness a primary goal.

Keywords: *Chronic Diseases, Developing Country, Health and Wellness, Economic Crisis, Vision 2030*

Introduction

In developing nations, chronic diseases significantly risk longevity and general health. Heart disease, cancer, stroke, rheumatoid arthritis, diabetes, and respiratory disorders are examples of chronic diseases. Chronic diseases are the main cause of disability and mortality in high-income nations. Chronic diseases account for more than 87% of deaths in the United States and more than 70% of fatalities worldwide [1]. Nearly 50% of Americans suffer from one or more non-communicable [2]. The treatment of chronic diseases is projected to account for three-quarters of U.S. healthcare spending, aside from the costs associated with human well-being [3]. Addressing public health issues now more than ever requires the use of health promotion. The global "triple burden of diseases" comprises the unresolved issues surrounding infectious diseases, recently developing and re-emerging diseases, and the extraordinary rise in chronic non-communicable diseases places the health scenario at a unique crossroads [4].

The entire spectrum of variables affecting an individual's general health and well-being must be addressed to address the core problems with population health. A person's birth, living situation, place of employment, and age are critical social determinants of health, along with access to good meals, safe settings, housing, transportation, and economic development [5].

The on-premise, web-based, or cloud-based platforms are used to implement the chronic illness management systems. "on-premises deployment" refers to software tools and solutions for chronic disease management that are integrated into an organization's IT infrastructure

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and implemented internally. The enterprise is in charge of both the solution and any related processes [6]. At a compound annual growth rate (CAGR) of 18.45%, the global market for managing chronic diseases is projected to increase from $5.87 billion in 2021 to $6.95 billion in 2022. According to a 21.97% CAGR, the market is estimated to reach $15.38 billion in 2026.

Individuals in their senior years are most likely to experience chronic diseases. The demand for supportive long-term care services and medical care is frequently amplified by chronic illness, necessitating chronic disease management strategies. In 2050, the percentage of the global population over 60 will almost quadruple from 12% to 22%, according to a WHO assessment released in October 2021. Thus, the market for chronic illness treatment will grow as the senior population grows. One major trend that is becoming more and more popular in the chronic illness management market is technological innovation. Artificial intelligence (AI) and other cutting-edge technologies are being used to treat chronic illnesses. Medical professionals can observe improvements in patient outcomes and early intervention for patients with diabetes, cancer, and heart disease by leveraging AI. For example, in February 2022, Biofourmis, a Boston-based business that specializes in digital pharmaceuticals and AI-driven virtual care, created Biofourmis Care. This service offers patients with chronic diseases high-quality remote treatment.

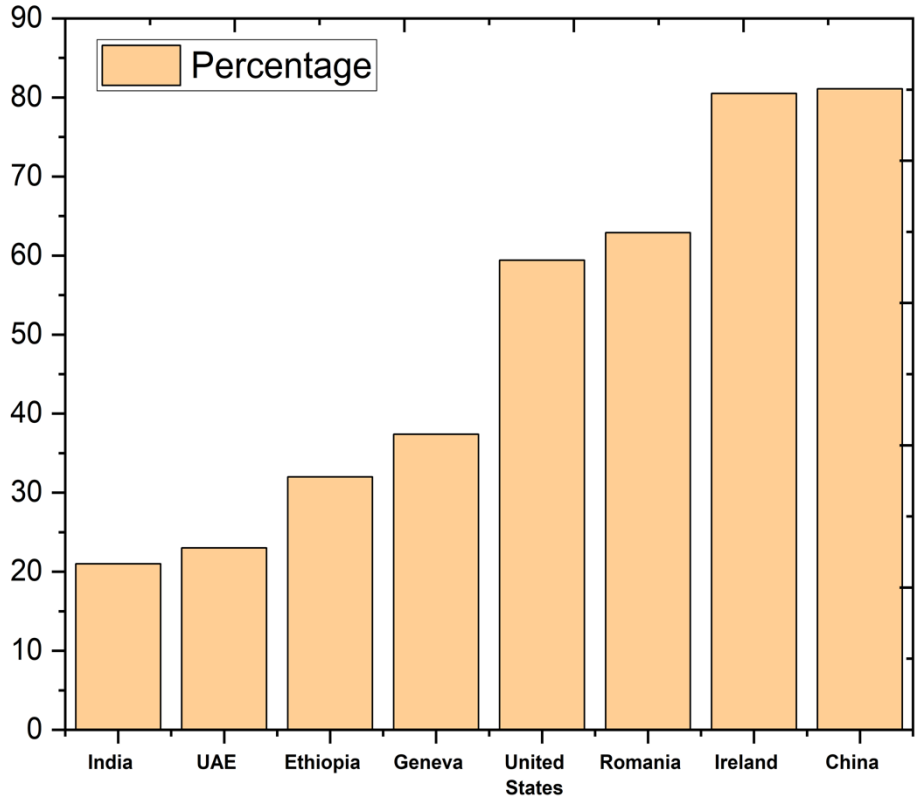

Figure 1. Prevalence of Chronic Diseases in Selected Countries

Figure 1 shows the current and projected country-level prevalence of chronic diseases. Countries with high rates of chronic diseases include India (21%), the United Arab Emirates (23%),

Ethiopia (32%), Geneva (37.3%), the United States (59.4%), Romania (62.9%), Ireland (80.5%), and China (81.1%).

In particular, the General Authority for Statistics, or GaStat, carried out a Household Health Survey in 2018 for all Saudi citizens as well as non-Saudi residents [27]. After doing a secondary analysis on the 24,012 households surveyed, Alzahrani et al. [24] discovered that the estimated overall prevalence of chronic diseases is 13.5%, with diabetes mellitus (6.6%), hypertension (5.9%), cardiovascular diseases (0.9%), and cancer (0.1) per 100,000 population-year in the total population. According to Figure 2 (a) in the study, the Makkah region had the greatest rate of chronic disease in 2018 (16.2%), while Najran had the lowest (8.6%). Figure 2 (b) shows the prevalence of chronic disease by gender group in different geographic regions. These figures should be extensively disseminated in order to support Saudi Vision 2030's objectives of enhancing and modernizing Saudi Arabia's healthcare system [24-26].

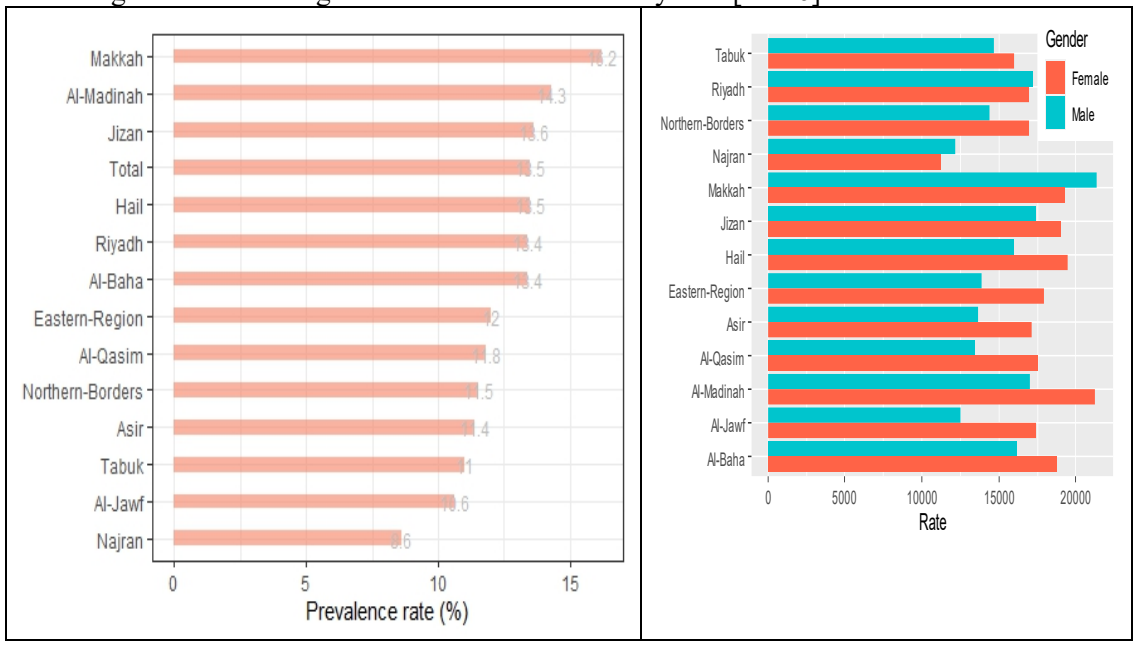

Figure 2.

(a) The prevalence of chronic illnesses per 100,000 population-year in overall population. (b) Gender-specific rates of chronic illnesses in the overall population of Saudi Arabia.

Furthermore, the burden of communicable diseases has decreased, which has led to an increase in chronic diseases. Tragically, however, this progress has also been made possible by the poor countries' growing adoption of the unhealthy lifestyles of the industrialized world.

Globally, chronic diseases receive little attention and funding, particularly from governments and development organizations in low- and middle-income nations. Scientific proof alone won't persuade people to act differently, nor will an increase in cost-effectiveness studies result in more funding [7]. This series tackles the persistent political disregard for chronic illnesses and contends that, regardless of the cause, the best course of action is to deal with the common reasons for the high rate of diseases that can be prevented through inclusive, coordinated actions that closely link to the development and global health agendas [8].

The World Health Organization forecasts that until 2030, chronic disease-related illnesses and deaths will rise in middle- and low-income nations. The shifting epidemiologic profile and the rising average age of the population are the two critical phenomena contributing to the rising prevalence of chronic illness in developing nations.

This research aims to give an evidence-based summary of the detrimental effects of chronic illnesses' fast prevalence, making it challenging to overcome obstacles to economic growth and development due to a lack of pharmaceutical items, medical services, and a reliable supply chain. It also emphasizes the importance of prioritizing and safeguarding human health and well-being in this economic crisis, especially in light of chronic diseases.

Related Works

Martin et al. [9] investigated how chronic diseases are the major causes of disability or death, drivers of healthcare expenses, and more impoverished worker productivity. O'Toole et al. [10] studied chronic illness prevention through diet and exercise in a field of public health practice. By 2030, chronic diseases will account for over three-quarters of all fatalities and will be the world's most significant cause of morbidity and mortality [11]. Nowadays, chronic illness accounts caused more than 80% of fatalities in countries with low and moderate incomes, with significant ramifications for people's lives, families, and economies [12,13].

As previously indicated, the global increase in chronic diseases is mostly driven by demographic changes. Some people think that the aging of the population alone is the cause of the inevitable growth in chronic disease [14]. This may be the case, but the economic impact of chronic illnesses will vary depending on whether they strike people most during their productive working years as opposed to after retirement, and whether they are treated as opposed to going undiagnosed or untreated. Again, the burden of chronic diseases varies between wealthy and developing nations. Low- and middle-income nations have higher mortality and morbidity rates from chronic diseases before the age of 60 than high-income nations. Before age 60, chronic illness-related fatalities accounted for approximately 44% in low-income nations and 33% of deaths in middle-income nations [15]. Furthermore, numerous additional risk variables that are outside the responsibility of the chosen intervention options also affect the diseases under discussion. Previous studies have demonstrated that a combination of recognised risk factors is responsible for at least 45–50% of the burden of chronic diseases in low- and middle-income nations [16, 17].

According to Wang et al. [18], a healthy diet was typically linked to a lower risk of developing a major chronic illness. The most significant risk reduction for incident diabetes risk-reducing (confidence interval (CI) = 0.69, 0.72 and Hazard Ratio (HR) = 0.70, 95%), cancer was observed in participants with low inflammatory (95% CI = 0.60, 0.63 and HR = 0.61), low insulinemic (95% CI= 0.57, 0.60 and HR = 0.58), diets. Subramanian et al. [19], proposed that precision medicine uses substantial complex datasets that combine individual genes, functions, and environmental differences to create and improve diagnostics, treatments, and prognoses. Artificial intelligence (AI) and high-performance computing (HPC) can anticipate hazards more accurately by utilizing biological and multidimensional clinical datasets. Precision medicine driven by AI allows doctors to customize early therapies for each patient individually.

Kadum et al. [20] sought to enhance the distant patients' triage system who live distant from hospitals and use telemedicine by taking into account the variance in their chronic conditions. The simulation results demonstrated that when compared to the pertinent algorithms such as

support vector machine (SVM) 91%, neural network (NN) 97%, and random forest (RF) 97%, the decision tree (DT) method has the highest accurate outcome, 100%. A specific kind of neural network map and other machine learning (ML) techniques were used by Rankovic [21] to find previously unidentified comorbidities linked to chronic diseases, enabling quick, accurate, and precise predictions. These results demonstrate the promise of ML algorithms to deliver precise and personalised diagnoses, identify interventions and risk factors, and ultimately enhance patient outcomes while lowering healthcare costs. In order to lessen the burden of chronic diseases, they will also be used to build focused public health initiatives and policies for upcoming healthcare systems.

Alzahrani et al. [24] did a secondary analysis of 24012 households' 2018 Household Survey data in order to determine the 2018 national and regional rates of chronic illnesses and all-cause death among the total and Saudi populations. Diabetes mellitus (DM), hypertension (HTN), cardiovascular disease (CAD), and cancer (CN) are among the chronic disorders studied in this descriptive cross-sectional study. According to the findings of this study, Makkah and Al-Medina had higher rates than the whole population; nevertheless, Al-Baha and Ha'il had higher rates of chronic diseases and related mortality among the Saudi population. The rate for men was greater than the rate for women. It is concluded by this study that the highest death rates were found in those 65 years of age and above. The introduction of wellness measures for Saudi Arabia's overweight population has been linked to the development of chronic diseases, despite the fact that the study's estimations of chronic diseases and all-cause mortality are restricted to 2018.

Chronic Disease Associated with the Poor: Causes

The escalation of chronic illnesses is the result of a complex interaction of economic, social, and behavioural variables. With the benefit of hindsight, we can only partially transfer the lessons from rich nations to emerging nations. Like in affluent countries, the three primary risk factors for chronic diseases are overeating, inactivity, and tobacco use are usually rising in emerging nations. Speed at which dangerous behaviour have spread throughout developing economies and show little signs of abating.

Changes in Local Habits

The chronic conditions covered in this part are sometimes referred to as lifestyle illnesses. That language implies that people pick harmful behaviours out of personal desire, like smoking, eating meals high in calories, and engaging in less physical exercise. Researchers are continuously learning more about this difficult topic of how prevalent unhealthy habits and risky exposures. How much choice exists in other hazardous behaviours and environmental factors is less evident. According to survey data, the impoverished and urban populations are more frequently associated with the main chronic disease risk factors in emerging nations.

Understanding why this trend is occurring is necessary for determining whether public policy is appropriate in its endeavour to halt it. More recent research has proven that unfavourable risk factors may nearly entirely account for the substantial inverse link between wealth and cardiovascular health in industrialised nations, indicating that lowering socioeconomic gradients would save society a lot of money. That conclusion is especially relevant in cases where society is forced to shoulder part of the costs of poor health, such as increased healthcare expenses or lost working years. Figure 3 depicts the relation between poverty, chronic illness, and development.

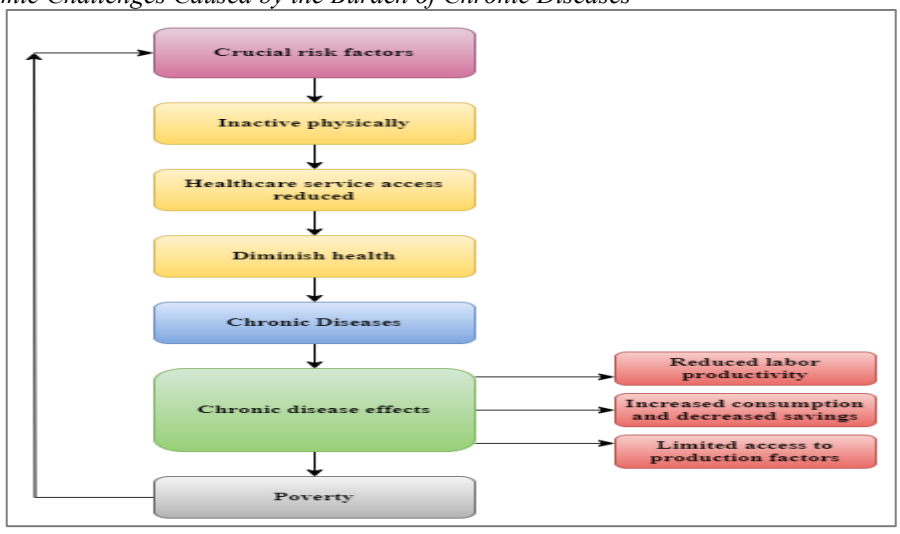

Figure 3. Interconnection Of Chronic Diseases, Their Effects and Poverty

The nutrition shift refers to the significant changes in diets that are happening globally. According to the paradigm, as societies modernise and urbanise, relative food prices are one consideration: The 22-year decrease trend in the price of animal products, sugars, and edible oils has helped developing nations consume more of these commodities in conjunction with rising wages. As a result, huge portions of the poor nation's populace that depend on the subsidy programmes for a sizable portion of their daily caloric intake eat poorly.

Cost-effective Chronic Disease Activities

Decision-makers and healthcare professionals can choose from a variety of interventions. Cost-effectiveness analysis also helps them set realistic expectations for the costs associated with modifying. Health initiatives must not excessively rely overworked because to illness in countries with low resources. Population-based initiatives are therefore particularly intriguing, yet the strength of the evidence supporting such treatments is rather low. Only a few studies have detailed lifestyle disease therapies in poor nations, and only approximately half of those studies incorporate cost information and draw conclusions regarding cost-effectiveness. Lack of medical services, pharmaceuticals, and supply chains have a direct and major influence on resolving issues with economic and development due to the rapid expansion of chronic illnesses.

The paucity of research is likely due to the recent emergence of chronic illnesses effective strategies for altering societal and individual behaviour. It is not reasonable to expect that the findings of research conducted in wealthy nations will translate well to situations in underdeveloped nations, treatments might differ greatly. In a wide variety of developing nations, two significant primary preventive techniques for chronic diseases and one secondary prevention strategy are both economically viable. Other preventative and treatment methods could be more affordable, but they haven't been fully applied and tested yet.

Economic downturn

These direct treatment costs are included in a more comprehensive economic assessment together as lost productivity and earning capacity and carer expenses. This study accounts for part of the lower savings and investments due to lost jobs, but it leaves out negative impacts

factors ought to taken into account in a thorough analysis of chronic illness impacts. This estimate was created by estimating the number of early deaths in those nations. An Approach utilised excludes higher morbidity as well as the household impacts mentioned previously, are often substantially greater in industrialised nations than in developing nations, mostly due to access to care differences. Many chronic illnesses in emerging nations go untreated, especially in the poor and middle class.

As a result, critical estimate the poor nation task can't solve or help the most recent data on prevalence, causes severe pain and suffering, a reduction in savings, a loss of income or loss of pay, and the inability to care for one's family. Other effects include the family having less food accessible to them. The indirect economic impacts may be minimal in the early stages, sometimes even before an illness is detected. Contrasted with communicable illnesses, which may cause a short-term crisis and even death. Severe myocardial infarctions and uncontrolled diabetes, where the patient frequently succumbs to severe hyper-glycemia, may be exceptions to the protracted economic burden.

Lee et. al. [28] demonstrates that Americans who had a chronic illness spent, on average, $2243 more. Stress related to money may make it more difficult for people to take their prescription drugs as directed [28-30]. Laws prevent people with chronic illnesses from having an excessive financial burden in a number of other countries. For instance, Germany limits cost sharing to 1% of income rather than 2% for the entire population, and France reduced co-payments for people with chronic diseases as of 2008 [31]. Saudi Arabia is a prosperous nation. The Saudi people have received a substantial share of this riches in the form of free healthcare for anybody who can demonstrate their legal residency, regardless of Saudi nationality [24,32].

In any situation, the diagnosis can come right after death. Every economic method used to quantify the impact of chronic illnesses includes a calculation of lost productivity, either using the number of days missed at different pay or using a more thorough model of economic linkages. These losses were included in the macroeconomic consequences of chronic illness mortality in the earlier numbers. From a macroeconomic perspective, chronic illnesses have a negative impact on the productivity of persons who suffer from them and may impair their ability to earn a living. There are direct and quantitative attempts to quantify the effect.

Insufficient Medical Treatment

In underdeveloped, impoverished nations, individuals frequently lack access to and cannot afford preventive care. Additionally, primary care systems are inadequate and sometimes unprepared to respond to newly appearing illness signs. Only 15% of diabetics reside in wealthy nations, where more than 85% of diabetes care is offered. As a result, those in the middle quintile of income may be more at risk from the impacts of chronic illness. Depending on where they reside, what they do for a living.

Chronic diseases are the subject of almost 85% of visits with general practitioners. A chronic condition is present in two-thirds of individuals who are hospitalised for medical emergencies. Costs are six times greater for people with several conditions than for those with just one. According to data from the United States, 82% of all healthcare expenditures go towards treating patients with chronic diseases.

It is important to remember that individuals in underdeveloped nations and those in the UK utilise healthcare in very different ways. Chronic illnesses are shortly to reach 56% of the disease burden in developing nations. Obesity and overweight are strongly correlated with chronic

illnesses, with obese persons having a relative risk of diabetes or higher and a 18%–25% higher incidence of cardiac issues than nonobese people.

According to the National Family Health Survey of India, 13% of women had a BMI that indicated obesity, whereas 42% of women had a BMI that indicated under nutrition. In 9% of Indonesian homes, there are family members who are both obese and undernourished. Feasible in order to minimise expenditures and the sacrifice of quality of life. Slowing the course of an illness and sustaining daily functioning are both dependent on early diagnosis and disease care, which is especially important for the poor.

4. Priority for Human Health and Wellness

The remarkable achievements of the past are built upon in public health (Figure 4). Public health 1.0 [22] is the time period from the late 19th century through much of the 20th century when specialised federal, state, municipal, and tribal public health agencies were established and contemporary public health became an essential governmental role. Public health developed effective preventative and treatment tools like vaccinations and antibiotics during this time, as well as systematised sanitation, improved food and water safety, and increased our understanding of illnesses that provides priority for human health and wellness. This scientific and organisational advancement made it feasible for the general people to get complete priority public health protection, ranging from primary prevention of effects through science-based tertiary prevention and medical treatment.

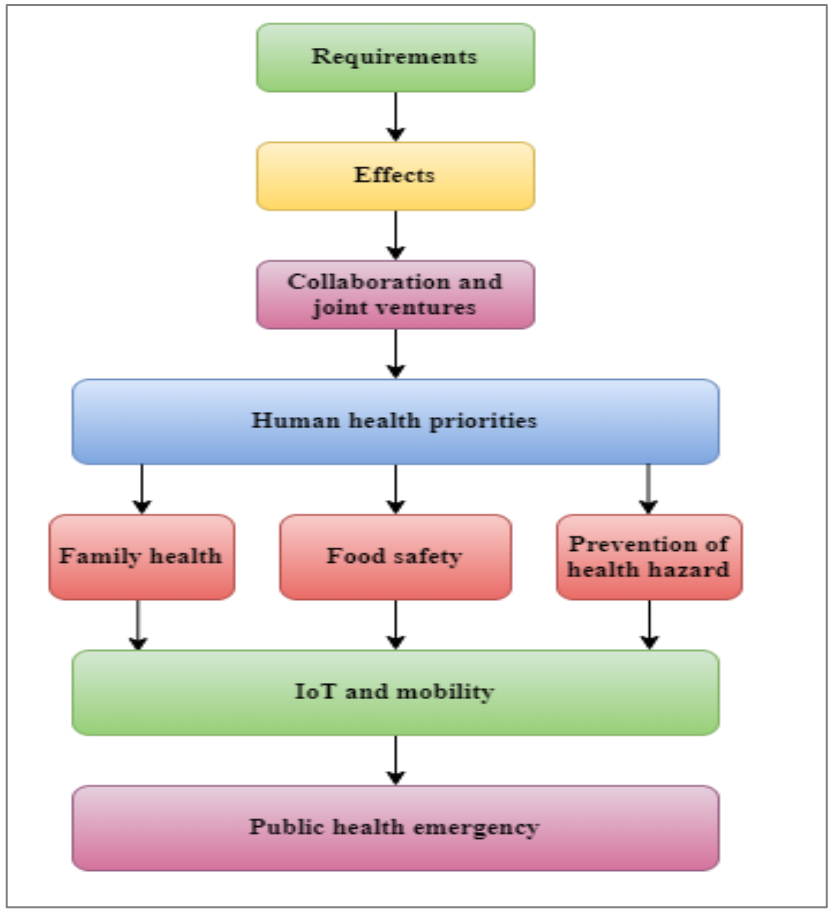

Figure 4. Advancement Of Public Health Procedures

Discussion

In United States, costs of chronic illnesses were six times higher than the direct expenditures. The WHO estimated that by 2015, five significant developing nations will have lost $1.25 trillion in economic production due to diabetes, stroke, and cardiovascular disease [22]. According to Monteiro et al. [23], when [gross domestic product] reaches a value of roughly $2500 per capita, obesity begins to fuel health inequalities in developing countries. As researchers continue to choose different approaches, the outcomes are interpreted in many ways.

By normalising conversations about mental health among doctors and other healthcare professionals, it can help to lessen some of this stigma while also monitoring early signs and continuously preventing PTSD, burnout, and other mental health issues. The leadership of health and care organizations should give this issue more thought and take action because there is a high potential for moral injury when dealing with demanding circumstances, heavy workload, difficult decisions or limited resources, particularly in the midst of a public health emergency. Supervisors can help employees understand morally challenging decisions and their psychological response to them by being upfront and honest about potential ethical difficulties. In addition, line supervisors' and co-workers' support are beneficial in preserving the mental health of healthcare professionals in various ways.

The assumption is that people who suffer from communicable diseases are victims either of the conditions that rendered them susceptible to infection or of the infectious agent itself that dominates discussions in human health. Contrarily, persons who suffer from chronic illnesses are frequently portrayed as being the source of their own misfortune, mainly because they voluntarily engage in certain health-harming activities like smoking, risky drinking, inactivity or overeating.

Effective measures to combat chronic diseases have had some success when such a viewpoint was not the majority, as in the case of the establishment of smoke-free public spaces to save non-smokers from the risks. Uncertainty is a second factor that comes up in conversations about human health. The issue is complicated for chronic illnesses and entails interpreting relative risks determined from observational epidemiology.

These hazards nearly always come with limitations like exposure assessment, bias, and confounding. Strong vested interests have also been at play in this situation. For instance, studies commissioned by the tobacco industry to cast doubt on the effects of second hand smoking or attempts to redefine proper epidemiological practise in order to leave out significant risk variables have both played a role. The creation of a new narrative that conjures up compelling, symbolic, and emotive representations of the victims and causes of chronic illnesses is necessary in addition to dispelling these misconceptions through debunking. To dispel prevailing beliefs, it will be necessary to gather and communicate information concerning the addictiveness of many items that contribute to chronic illnesses, particularly in youngsters. This will need doing scientific study and finding corporate strategy papers that make such references.

Conclusion

Since cost-effective therapies exist but are not frequently used, the development response to the pandemic expansion of chronic diseases has failed. Lack of medical services, pharmaceuticals, and supply chains have a direct and major influence on resolving issues with economic and development due to the rapid expansion of chronic illnesses. As a result, research and development begin to place a high premium on health and wellness. The governments of developed nations, as well as development and donor organizations, should adopt a proactive stance to address the causes of chronic illnesses. To address the full spectrum of socioeconomic determinants of health, such an approach requires sophisticated, diverse, and intersectoral interventions based on long-term time frames; making a strong step in this direction is necessary to eliminate poverty and health disparities. Finally, this study could aid in the nation's understanding of the financial impacts of chronic illnesses. Saudi Arabia is a financially secure nation. The Saudi people have received a sizable share of this money in the form of free healthcare for everyone who can demonstrate their residency status legally.

Availability of Data and Materials

All data used and analysed during this study are included in this article and will be provided on request.

Competing Interests

The author declares that they have no competing interests.

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Author's Contribution:

MTA conducted background research, determined the goals and need of the study, and wrote the initial article. Additionally, the author made significant improvements to the manuscript's version through critical revision. The final paper was reviewed and approved by the author MTA.

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