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Collateral Effects of COVID-19 on Non-Communicable Diseases Among Minority Populations

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ABSTRACT

Individuals with non-communicable diseases (NCDs) have a compromised immune system which heightens their risk of contracting a communicable disease, along with a heightened rate of severe complications and death. In light of the recent health crisis, such as the COVID-19 pandemic, modifications of the prevention and control strategies of NCDs could be a necessary step in order to curve the burden and severity that a communicable disease could inflict on an individual with NCDs. Therefore, the prevention and control strategies for NCDs should be modified, so such behaviors and risk factors can be evaded when in the face of a concurrent health crisis, in order to lower the rates of mortality and morbidity. This study investigates and determines, through qualitative analyses, if modification of the prevention and control strategies of NCDs, when in the face of concurrent health crisis, can help curve the burden and severity of future health crisis among minority populations

KEYWORDS

Health inequities, Pandemic, Minorities, Minority, Equity, Inequity, Inequality, COVID-19, Vaccination.

Introduction

Equality of opportunity inclusively is a democratic process through education that plays a significant role in achieving the uniqueness of the human race, encompassing of all social origins; and is fundamentally a basic principle in modern democratic societies. All individuals should have equality of opportunity to access quality health care, regardless of their social status. In modern democracy, healthcare is a human right; social origin and or identity is a fundamental principle. Equality without any distinction, regardless of where you are in the world, is what human rights stand for and access to quality health must apply equally to all people regardless of race and ethnicity, without discrimination [1]. The implicit normative implication on healthcare in America seems straightforward; if you are rich and educated with a good career, you have the option of having access to quality healthcare; insurance is available through jobs or paying out of pocket fora member the so-called Caucasian majority or privileged. The larger the group, the less equality of opportunity among groups of individual minorities. Discussing or making explicit these normative assumptions can be regarded as stating the obvious. Normative implications, as related to the concept of equality of opportunity for quality health care in America are far from settled, as recent events prompted investigations by researchers, politicians, news media and the population on issues of justice and inequality that have called attention to the tensions and ambiguities associated with democratic ideals of the founding fathers of democracy in the United States of America [2].

People should be able to receive the care they need, regardless of their ethnic background and without prejudice. Equity, as defined by WHO is the absence of unfair and avoidable or remediable differences in health among population groups defined socially, economically, demographically, or geographically [3]. The Criteria of efficiency and equity are very important when assessing the actual performance of health systems. Health equity is a fair distribution of the costs of health services and the benefits, obtained from the use among different groups in the population. Indicators of who pays for health services and who receives benefits provides evidence on the basis of which judgments can be made by the degree of equity achieved by particular health systems; as such, equity is expressed in two different ways, as horizontal and vertical equity [1]. Horizontal equity is defined as equity between individuals with the same health care needs. Vertical equity is defined as individuals with unequal needs receiving unequal or different health care [4]. Efficiency is defined in two different dimensions, as macroeconomic efficiency that refers to the total costs of the health system in relation to the overall health status of a country, while microeconomic efficiency simply refers to the scope of achieving greater efficiency from existing resources [1].

Looking at the distribution of the COVID-19 vaccine and its effectiveness is significant, and is a shining example of what the CARES Act means for the industry. The CARE Act's main focus was about helping the health care industry navigate the immediate needs associated with the pandemic and helping hospitals manage the immediate financial fallout associated with the influxes of COVID-19 related cases, as well as encouraging manufacturers in expediting the development of necessary drugs and supplies that would eliminate or reduce the pandemic, in addition to providing the full utilization of telehealth services expansions. In this regard, it is important to discuss and validate the two types of microeconomic efficiency – allocative efficiency that devotes resources to a mix of activities that have the greatest effect on health, such as cost effectiveness and technical efficiency that use only the minimum necessary resources to finance, purchase, and deliver a particular activity or set of activities, as avoiding waste [1].

According to Bassett & Muhammad, the COVID-19 Virus has brought to light many of the health inequities that exist in the world today. A recent AMA report (June 2, 2020) indicates that African Americans are disproportionally affected by COVID-19. Currently, "there is no comprehensive race and ethnicity data and research repository of COVID-19 testing, hospitalizations or mortality" (para. 15). This data needs to be collected and studied in order to provide adequate care for underserved communities. This lack of data could also affect treatment and vaccinations, due to incomplete knowledge on environmental and genetic factors of various ethnicities.

In preparation for COVID-19 vaccine distribution, congress passed a $73 billion dollar bill to be used by the Department of Health and Human Services to support COVID-19 vaccine and therapeutic development and distribution; diagnostic testing and contact tracing; mental health and substance abuse prevention and treatment services; child care support; and other activities related to the coronavirus. This includes $8.75 billion for the CDC to support federal, state, and local public health agencies to distribute, administer, monitor, and track the coronavirus vaccination, with $500 million set-aside for improving the nation's public health data systems and $3 billion in additional grants for hospital and healthcare providers to be reimbursed for healthcare-related expenses or lost revenue directly attributable to the pandemic, and $1.25 billion to the National Institutes of Health to support research and clinical trials related to the long-term effects of COVID-19, as well as continued support for its Rapid Acceleration of Diagnostics for COVID-19 programs. Also included, was $55 million for continued work on FDA efforts to facilitate the development and review, both pre-market and post-market, of medical countermeasures, devices, therapies, and vaccines to combat the coronavirus. In addition, funds will support medical product supply chain monitoring and other public health research and response investments [5].

The issue of health resource allocation has always been a major concern and criteria for efficiency and equity are very important when assessing the actual performance of health systems according to O'Lawrence [1]: "Efficiency can be defined in two different dimensions as macroeconomic efficiency, which refers to the total costs of the health system in relation to the overall health status of each country, while microeconomic efficiency simply refers to the scope of achieving greater efficiency from existing resources. There are two types of microeconomic efficiency; they are (a) allocative efficiency that devotes resources to a mix of activities that have the greatest effect on health such as cost effectiveness and (b) technical efficiency that uses only the minimum necessary resources to finance, purchase, and deliver a particular activity or set of activities as avoiding waste" (p. 121).

Therefore, equity in healthcare is fair distribution of the costs of health services and the benefits obtained from their use among different groups in the population; and indicators of who pays for health services and who receives benefits provides evidence on the basis of which judgements can be made on the degree of equity achieved by particular health systems. As such, equity is pressed in two different ways, horizontal and vertical equity. Vertical equity is defined as individuals with unequal needs receiving unequal or different health care; and also emphasizes individuals with different levels of need can receive appropriately different amounts of health resources. Horizontal equity is defined as equity between individuals with the same health care needs [1].

The COVID-19 pandemic revealed systemic flaws in the U.S. food system that fail to protect against hunger and diet-influenced NCDs. The pandemic also exposed conditions that made individuals with low-incomes, disenfranchised, discriminated-against, and chronically ill, the most vulnerable to harm from COVID-19 [5]. Structural weaknesses also revealed during this pandemic that globally, countries including the advanced ones are not prepared

for global health security cooperation and challenges. According to Vanderbruggen, et al. [6], in a self-reported web-based survey in Belgium, societal interventions against a communicable disease, such as COVID-19, also motivate an increase in alcohol and tobacco use compared to prior the implementation of societal interventions. Out of 3,632 respondents, 30.3% stated they consumed more alcohol during the lockdown than they did before the lockdown. And out of 3,632 respondents, 7.3% stated they smoked more cigarettes during lockdown than they did prior to the lockdown. Upon observation of the motives that drove respondents to consume more alcohol or smoke more cigarettes were boredom, lack of social interactions, loss of daily structure, reward, loneliness, and friendliness [6]. The increase of alcohol and tobacco use during a period of societal interventions raises concerns about an increased prevalence of substance abuse disorders for years following a health crisis. Individuals with addictions are at higher risk of morbidity and mortality during a health crisis [7].

Adaptation of positive coping strategies (relaxation, physical activity, and social support) in response to stressors caused by a health crisis, such as COVID-19, might avoid alcohol and tobacco use as a method of coping. Relaxation through relaxing activities or practicing calming techniques like mediation can help manage stress and improve overall coping. Physical activity not only reduces the risk factor of developing NCDs, but is also a good way to handle stress. Lastly, seeking social support from family, friends, or equivalents can efficiently maintain mental health (Semel Institute for Neuroscience and Human Behavior, n.d.).

Purpose of Study

A thorough review and evaluation of the current research provide a comprehensive overview of the current trends and theories related to the COVID-19 pandemic and the collateral effects it has on minorities and underserved groups. Some of these collateral effects include disproportionate risk of contracting COVID-19 and serious illnesses, and mental health conditions also disproportionally affected specific populations, such as young persons, Hispanics, African Americans, essential workers, unpaid caregivers, and those receiving treatment for pre-existing psychiatric conditions. Symptoms of anxiety or depressive disorders, COVID-19-related trauma- and stressor-related disorders, initiation or increased substance use, and serious suicidal behavior are commonly reported among adults 18 and above [8].

With the evidence on current trends in income and wealth inequality, access to quality health care, systemic racism, and the rise of unemployment among the minority populations; there is a need to determine if these rising inequities harm the middle class and the lower class in the country. Therefore, the purpose of this research is to determine whether the modification of pre-pandemic prevention and control strategies of NCDs, when in the face of the concurrent health crisis, can ease the burden and severity of collateral challenges from this disease and future health crises and aid in lowering the rates of morbidity and mortality among the minority populations. This study uses secondary data to report healthcare inequalities among minorities and to determine the short-term effects of COVID-19 on healthcare availability to the underserved populations; in particular, to minorities who are considered to have been most effected by the pandemic. Clemmensen, et al. [9] suggested that during this COVID-19 crisis, societal interventions, such as social distancing, self-isolation, and lockdowns, against a non-communicable disease, along with experiences of distress and anxiety, influenced behaviors that act towards the risk factors associated with NCDs. Physical inactivity, unhealthy diet, and alcohol and tobacco use also contributed to this factor. These behaviors not only put individuals at risk of developing NCDs, but also heightened the risks of severe complications upon contraction of communicable disease for individuals with NCDs [10].

Significance

The health of an individual not only depends on physical activity, but on a healthy diet as well. The use of technology can also provide healthy recipes for home preparation, and online delivery of healthy foods and provide positive changes in healthier food result [11].

Strengthening of U.S. federal hunger protection programs, like SNAP (Supplemental Nutrition Assistance Program), can also reduce the prevalence of diet-influenced NCDs. Adults on SNAP tend to have fewer illnesses, miss less work, need fewer medical-related visits, and be less distressed. Older adults on SNAP are able to live independently, need less medical care and hospitalization, and are more likely to comply with medication routines. Children on SNAP tend to have fewer infections and better overall health. The reversal/improvement of the food and nutrition policy enacted by the Trump administration is necessary to minimize the damage on SNAP, USDA's research program, and school meals and will maximize access to healthy, safe, and true foods [1,12].

This research also contributes to growing understandings of how racism impacted healthcare in America coupled with intentional and repeated delays in providing care at critical times to prevent loss of life, for example, the case of an African American female doctor who died of COVID at the age of 52 and left her aging parents and her 19 years old son behind [13]. According to Samra & Hankivsky [14], western settings are the downstream effect of medical education on doctors and patients that have been shaped by patriarchal and colonial histories and values, as patriarchal cultures in medicine that are known in medicine to constrain women doctor's career choices and progression internationally; whereas, medical textbooks reinforce norms based on Whiteness by under-representing racial and ethnic minorities, such as different presentations and clinical signs of patients with darker skin tones.

Really, there is no scientific justification for use of term as White, Black or Caucasian to define human pigmentation; rather, these terms touch on issues much deeper than human skin pigmentation. According to Donovan, it rekindles the questions pertaining to race and the very origin of humans or whether race exists "outside

our curious, and sometime devious minds." (p.1). Therefore, exporting western biomedical knowledge to other global settings reinforces inequality and to dismantle this power structure in medicine requires complex thinking that goes beyond focusing on one dimension at a time, either patriarchy or racism. This is very important and relevant to the decolonizing global health movement.

Research Problem

Humankind has always been interconnected with their communities, historically expanding its range of activities and scientific advancements with discoveries of geographical regions in 1492 and the industrial revolution of the 18th century. Today, we may call it globalization, as an imminent direction for economic growth as it has now powerfully demonstrated that the guiding force that backs globalization is the scientific and technological advancement and productivity evolution and not necessary of society's subjective will [15]. It is also very important to know that to abuse humans just for the purpose of succeeding in business or creating wealth, such as slave labor is another global health issue; it is disturbing reading and seeing some multinational corporations sought after free trade at the cost of human rights and the appalling treatment of individuals for profit, which is exceedingly unethical, as it regards minorities [16].

Therefore, colonialism and colonialization have totally rubbished the human race of their identity, originality, and their roots; of who we really are regardless if you are of African descent or European, indigenous people, Native Indians, Persians, Arab and many others living in America. The results of this colonialization brought racism upon America and destroyed the human relations and dignity that could have been part of the American identity/dream, as truly a melting-port. Rather, race is classified as WHITE and BLACK (the more privileged and superior and the less privileged and less superior – called the "Minorities") in America and has created disunity among people. Racism plays a major role in access to quality healthcare among minority groups in the U.S., especially among African Americans and other minorities, such as Native Americans and Latinos, while many experiences huge obstacles to access quality health care services, especially when they are poor and less educated about their rights. Racism, is the major health crisis that we can no longer ignore if we are to continue to be successful as a nation and it is the foundation of NCDs.

Samra & Hankivsky [14] suggested that Caucasian American women experience advantages over African American men during medical school selection and training for their medical education and workplace experiences. Despite the prevailing gender inequity in medicine, both are not equal, and neither is homogeneous in their experiences of advantages or disadvantages. The "challenge in medical cultural norms and the system of inequities they produce and reproduce start with rejecting the idea that one system of inequality is more important than any other, as different inequities are intertwined and experienced simultaneously. During medical training implicit and explicit biases based on social stereotyping shape the identification, cultivation, and selection of individuals chosen for programs, whereas few studies have examined such biases on the relative lack of diversity in medicine, or how they operate through medical culture" [14]. Indeed, unconscious bias can contribute to systematic underestimation of the capabilities of qualified women, ethnic minorities, and internationally trained applicants. Medical education requires learning associations contingent on schemas knowledge that is based on patterns and can inadvertently teach stereotypes relating to social identity categories [14]. The Institute of Medicine also notes that bias, stereotyping and prejudice may play an important role in persisting healthcare disparities that address that these issues should be included when recruiting more decal professionals from underrepresented groups. Bias also plays a significant role by way of unconsciously influencing the information provided on how an individual is perceived, leading to unintended disparities that may have real consequences in medical school admissions, patient care, faculty hiring, promotion, and opportunities for growth [17].

The misconceptions of racism in America need to be corrected once and for all. Unfortunately, colonialization and colonialism have robbed the human race of their identity in this country, as a result of a philosophy which makes one race superior and another race inferior. Africans were brought to this country as slaves and it was not intended for them to be free, but to be oppressed forever. The problem of today is similar to the story in the bible when the Egyptians refused to let Israeli's God's people go. The racial issue has been here from foundation of this country; and when the constitution was written that all men are created equal, it was not intended for Africans to be part of the equation. They were called Black people just to make them feel inferior and the powers of the time called themselves white which was considered superior, and that is the major problem. Until we start to educate ourselves in this country that we are all one human race and equal in creation and, focus more on our different cultures/differences that make this country unique and powerful, things will never change. The unfair history of abuse and discrimination of Africans and Native American is demanding equality and it is time for policy review on racism for change. There is only one human race with many different ethnicities, pigmentations of skin, roots and so forth, race is just not based on black and white.

Compounding further disparity in minority populations often reveals multiple risk factors that place these populations at a higher risk for a serious case of COVID-19 [18]. In addition to the risk factors already mentioned, social determinants/inequities often seen in minority populations include inaccessibility to quality housing/neighborhoods/physical environment, health insurance, and education; high risk occupations, income gaps, and discrimination will have a higher prevalence of NCDs, and are therefore are more vulnerable to COVID-19 and the risk of infection and serious illness [19].

Educational inequalities, economic inequalities, ethical concepts, such as fairness and inequalities and historical racism make

minorities skeptical of the COVID-19 vaccine, as the anti-vaccine groups are deliberately targeting specific ethnic groups as a result of the past Orthodox Jewish community, where inflammatory language was used in New York and comparing vaccines to the Holocaust that caused the Orthodox Jewish community in New York to stop vaccinating their kids, which landed 18 kids in the ICU; or consider the Tuskegee experiment that left many African Americans dead. Therefore, what is needed, is to find ways to eradicate these kinds of activities that jeopardize minorities' trust in the system. Effective communication is needed to champion trust in the community, especially in the minority's community that has vaccine hesitancy. Scientists really need to participate in effective communication through social media and building an effective communication program that will target and dispel all negativity in minority's communities. According to Raghunandan [20], to prevent misleading information, effective communication helps set the record straight for a better understanding of science's impact on the everyday lives of individuals and communities. Therefore, effective communication is the process of effectively relaying the facts and findings from scientific studies to other scientists and non-experts in general.

Methodology

This research is established through different methods by searching several databases and conducting a backward and forward search in relevant studies, research, articles and previous reviews, as related to the subject topic. Given that there were several studies and reports, integrative best-evidence synthesis rather than a meta-analysis became the premise for this study [21]. A best-evidence synthesis identifies studies using explicit inclusion criteria and reports on effect sample sizes, while also reporting on key themes. In conclusion, a systematic review of empirical studies examining the relationship between minority access to quality health care and their economic status. This review was conducted in three phases as (a) title and abstract search, (b) full text review, and (c) data extraction and literature synthesis. The part of research reported here examines health crisis among minorities in studies by several researcher's privileged data that was possible to observe through scientific study. The analysis focused on a sensory portrait of minority engagements in vaccine trials and trust in vaccinations due to prior experiences that end badly and are associated with NCDs.

Findings and Discussion

It is evident that most likely, this COVID-19 global pandemic will not end soon, unless there is a rigorous roll-out of vaccines that will protect against severe diseases/NCDs and preferably drive herd immunity. Wouters et al., [22] stated in their original policy report, based on data from a 32-country survey (n=26, 758) on potential acceptance of COVID-19 vaccines that was conducted from October to December, 2020, "Vaccine acceptance was highest in Vietnam (98%), India (91%), China (91%), Denmark (87%), and South Korea (87%), and lowest in Serbia (38%), Croatia (41%), France (44%), Lebanon (44%), and Paraguay (51%)" (p.1). The key for success, as research as indicated, would be the development of a new mechanism to ensure the affordability and sustainable financing of COVID-19 vaccines among minority populations, and in other low-income and middle-income countries, which are home to about 85% of the global population and which may lack the resources to buy adequate quantities of vaccines. Especially in high-income countries, it is important to ensure access to COVID-19 vaccines for the poor and the marginalized populations.

For noncommunicable diseases, such has cardiovascular diseases, cancer, diabetes, chronic respiratory diseases, chronic kidney disease, oral health conditions and others, it has been determined to be difficult and critical to monitor for side-effects or interactions of medicines, if affected with COVID-19 and making some of the NCDs more difficult to recognize. According to the WHO [23] report, off-label use of medicines to treat COVID-19, such as antiretroviral drugs typically used to treat HIV infection or chloroquine, may have cardiovascular side-effects. Additionally, misinformation about NCD medicines and their impact on COVID-19 susceptibility or outcome needs to be addressed and corrected. It is also reported that people with cardiovascular disease (CVD) or diabetes, as well as those with CVD risk factors, such as hypertension and obesity, are at increased risk of severe disease and death from COVID-19, and this poor prognosis seems to be heightened with advanced age. In this subgroup, early clinical evaluation is warranted for any suspect symptoms. Overall, reinforcement of health-promoting behaviors for both children and adults with NCDs are important to maintain population-level interventions for tobacco and alcohol control, diet and physical activity; others such as regulatory and fiscal measures relating to food, alcohol, and tobacco, including implementation of the WHO Framework Convention on Tobacco Control and other WHO recommendations. Overall, COVID-19 can negatively impact NCD outcomes for children and adults through several pathways, such as the higher susceptibility to COVID-19 infection and higher case fatality rates among people with NCDs. It may also delay in diagnosis of NCDs, resulting in more advanced disease stages; incomplete or interrupted therapy (treatment, rehabilitation, palliation) of NCDs; and increases in behavioral risk factors, such as physical inactivity and increased use of harmful substances (2020).

Throughout the course of the COVID-19 outbreak, it is also important to compare changes in utilization and delivery across different types of services at national and subnational levels. This includes comparing utilization of different service-delivery platforms (such as outpatient, inpatient, emergency care and outreach services), as well as program-specific services (such as for reproductive, maternal, newborn, child, adolescent and ageing needs, nutrition, immunization, communicable diseases, noncommunicable diseases and mental health). The use of and capacity to deliver certain services may be affected differently throughout the course of the outbreak and may recover towards normalcy at different rates and points in time, as the outbreak continues to wax and wane. A crosscutting approach that tracks health service use across the health system provides necessary

information to iterate and implement mitigation actions for the continuity of services that people will need over time.

COVID Data Tracker information reported by CDC (2021), indicated that race and ethnicity represent about 55% of the people who received at least one dose of the vaccine, and this group was comprised of about 63% whites, 9% Hispanics, 6% African Americans, 5% Asians and 2% were American Indians or Alaska Natives; less than 1% were Native Hawaiians or Pacific Islanders. Those who reported multiple or other race were about 14% according to the CDC report. The data also reported findings based on gender. Also, data from 41,977,401 people with 1 or more doses administered, gender data was available for 38,251,769 (91.1%) people with one or more doses administered. The percent of females was 58.7%% (22,440,722), compared with males who were 41.3% (15,811,047) respectfully of people vaccinated. For those people with 2 doses administered, data was provided from 17,039,118 with two doses administered reporting gender responses for about 15,446,254 (90.7%) people. About 61.7% (9,529,770) were female compared to 38.3% (5,916,484) who were male. Data was collected from 41,977,401 people with 1 or more doses administered. Gender data was available for 38,251,769 (91.1%) people with 1 or more doses administered. With a total count of 22,440,722 (58.7%) report for female, while the male was 41.3% with total count of 15,811,047 reported. Data from 17,039,118 people with 2 doses administered, this data included gender information was available for 15,446,254 (90.7%) people with 2 doses administered. The total count of 9,529,770 was comprised of 617% female and of 5,916,484 the male counts was only 38.3%. Therefore, preventing racial disparities in the uptake of COVID-19 vaccines will be important to help mitigate the disproportionate impacts of the virus for minority populations and prevent the widening racial health disparities going forward. Moreover, reaching high vaccination rates across individuals and communities will be key for achieving broader population immunity through a vaccine (CDC, 2021).

Conclusion

In other to address inequity properly, more qualitative studies are needed to examine experiences of those marginalized and how their experiences are shaped by the intersection of race, gender, class, disability, or any other factors that could create health inequities and inequalities in the system that are amplified by medical care. According to Samra & Hankivsky [14], social diversity in medical recruitment and faculty composition can prove very important and lead to promoting inclusion for those historically known to be marginalized while recruitment of under-represented groups can also help to reduce health disparities.

According to Reitsma, et el., at the current pace of vaccinations at about 65% of individuals ages 12 and older would be at least partially vaccinated by July 4th, while the rates would be lower for Hispanic Americans and for African Americans. It is reported that Asian Americans are the only group estimated to exceed a 70% vaccination rate, while Caucasian Americans (66%) and Hispanic Americans (63%) will fall below reaching this level. African Americans will comprise about half (51%) who will have received at least one COVID-19 vaccine dose by July 4th 2021, as based on current trends. If the current pace of vaccination continues, Hispanic Americans nationally will reach a 70% threshold by the end of July and Caucasian Americans will reach this threshold by early August. However, African Americans will still not have reached this coverage level by the beginning of September. Hispanic Americans are projected to reach 70% coverage faster than Caucasian American people despite having a lower rate of vaccination as of July 4, because their recent pace of vaccinations has been faster than Caucasian Americans. If the pace of new vaccinations continues to slow even further, disparities between groups in achieving progress toward coverage goals will persist. The slowdown of 25% would mean that, overall, the share of those ages 12 and older estimated to have received at least one COVID-19 vaccine dose will drop from 65% to 64%.

Asian Americans will still reach a 70% coverage rate, coverage among Caucasian Americans would remain below this threshold, with 65% receiving at least one dose, and there will be larger gaps for Hispanics and African Americans, with 61% and 50% receiving at least one dose by July 4, respectively. These patterns play out at the state level, as well.

The WHO report identified several entry points for tackling health inequalities and possible interventions and a framework for CVD and it is equally applicable to other NCDs; such as enabling all health care providers (including non-governmental organizations (NG)s) and private and non-profit providers to address NCDs and harness the potential of a wide array of other services to deal with these conditions. Significantly, there is a need to improve efficiency of service delivery to increase coverage of NCD intervention, linking NCD services with other disease-specific programs; develop innovative, effective, and integrated models of long-term care for people with NCDs, connecting community-based services with primary care and other health services. Finally, quality assurance and improvement for NCDs must be established for prevention and management (such as the use of evidence-based guidelines, treatment protocols, and management tools). Tackling inequalities in health and the broad range of social, economic, cultural, and environmental determinants contributing to these inequalities is paramount, as many of the courses leading to inequities are socially produced which gives grounds for optimism that can be prevented. It is urgent and the need is now to improve daily living conditions, tackle the inequitable distribution of power, funding of programs, and providing adequate resources; and measuring and understanding the problem and assessing the impact of action. So, these are highlights of multi-sectoral, whole-government approach to reducing health inequities is important. Therefore, it is determined that the modification of pre-pandemic prevention and control strategies of NCDs, when in the face of the concurrent health crisis, can ease the burden and severity of collateral challenges from any pandemic and future health crises and aid in lowering the rates of morbidity and mortality among the minority populations.

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