

Ethical considerations in prevention and management of non-communicable diseases: a narrative review

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Abstract

In recent years, alarming trends in non-communicable diseases (NCDs) have grown into some of the most important health concerns worldwide. The present research attempts to address the controversial approaches to the practical function of medical ethics while critically reviewing the main concepts of ethical considerations in NCD prevention literature. After refining the searched documents, we integrated related concepts and research, particularly emphasizing ethical considerations in NCD management. All four functional areas of NCD prevention (general health policymaking, social interventional, primary prevention, and secondary prevention) are affected by parallel associated factors of health determinants: environmental modification, lifestyle improvement and physiological characteristics, respectively. In addition to the practical aspects of implementing a response to NCDs, a variety of ethical considerations should be taken into account. For instance, general policies, equity in care, interventional programs, and clinical/research data protection. A comprehensive, holistic approach considering all the involved parties can accommodate the wide spectrum of needs and continuum of management for NCDs.

Creating an ethical procedure structure in public health systems can provide insight into managing the challenges posed by NCDs to health systems and assist in systematically confronting ethical problems in the management of NCDs.

Keywords: Non-communicable diseases; Prevention; Health services; Gender equity; Management; Healthcare ethics.

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Introduction

Non-communicable diseases (NCDs) are chronic diseases that are not transmitted from person to person and tend to develop and progress slowly. They are often referred to as “lifestyle diseases” because many could be prevented (1). NCDs are primarily caused by factors such as aging, smoking, alcohol consumption, unhealthy eating habits (including excessive intake of sugar, salt, saturated and trans fats), and lack of physical activity. These diseases are responsible for 38 million deaths yearly, representing 68% of all deaths globally (2). Besides mortality, the increasing trends we have been observing in NCDs have social and economic effects on people, households, and the entire society due to their expensive, protracted treatment and care requirements (3). The latest Sustainable Development Goals (SDGs) introduced by the United Nations Development Program suggest a one-third reduction in mortalities caused by NCDs by 2030 (4). However, ambiguity in the guidelines for achieving these goals increases the risk that nations’ efforts to eliminate NCDs would aggravate socio-economic and health disparities rather than alleviate them and raise the issue of equity among and within countries (5 - 7).

The SDGs rightly call for action to reduce morbidity and mortality from NCDs, but they do not provide guidance on how to achieve these

reductions equitably and equally, nor do they provide such guidance in other key policies, such as the NCD Plan (5, 7).

In health planning, ethical issues are related to needs assessment processes, priority setting, policy making, implementation, and monitoring. However, operationalizing ethical considerations is still very complex and intertwined with many health priorities, and remains controversial among experts.

Many major ethical issues in global health affect the rising trends and burden of NCDs. Instances include unfair distribution of resources (primary goods, access to healthy water, food, or housing), gender or racial inequality (discrimination), and provision of resources and capacity building of the health system through interactive dysfunctional cycles (3).

To develop effective intervention programs in the prevention and management of NCDs, it is necessary to carefully examine and consider the various aspects of the operationalization of these programs, including the corresponding ethical requirements (8, 9).

Based on the above-mentioned considerations, it is clear that we would benefit from all available documents. The present review aimed to provide the most important aspects of ethical

considerations related to NCD prevention and management programs while regularly reviewing related sources and documents.

Methods

In this study, we aimed to adopt a comprehensive, structured approach to ethical considerations in the prevention and management of NCDs while using a predefined search strategy. For this purpose, we searched related international databases, including PubMed/MEDLINE, Scopus, and World of Science (WoS), for the terms “ethical considerations” and “NCDs”.

Review Results

1. General Overview of Ethical Considerations in NCD Prevention Programs:

Considering the patterns of etiologies and analyzing the causes and predisposing factors of NCDs provide the best opportunity for effective integrative planning. Functional areas of NCD prevention have been categorized into four levels: general health policymaking, social interventions, primary prevention, and secondary prevention. These four levels correspond to interventions mainly rooted in the determinants of health, such as environmental modification, lifestyle improvement, and physiological characteristics. Ethical considerations encompass a wide range of principles and standards, and are in interaction with

each level and component of NCD prevention programs (7, 8) (Figure 1).

2. The Main Concepts of Ethical Considerations in NCD Prevention Programs

Beyond the practical aspects of implementing a response to NCDs, there is the need for a variety of ethical considerations. Many important issues, such as general policies, equity in care, interventional programs, and clinical/research data protection, should be considered in more detail in these processes (12).

After extracting and analyzing related data and taking into account different classifications and discussed models, the findings were summarized under four main axes as follows (Table 1).

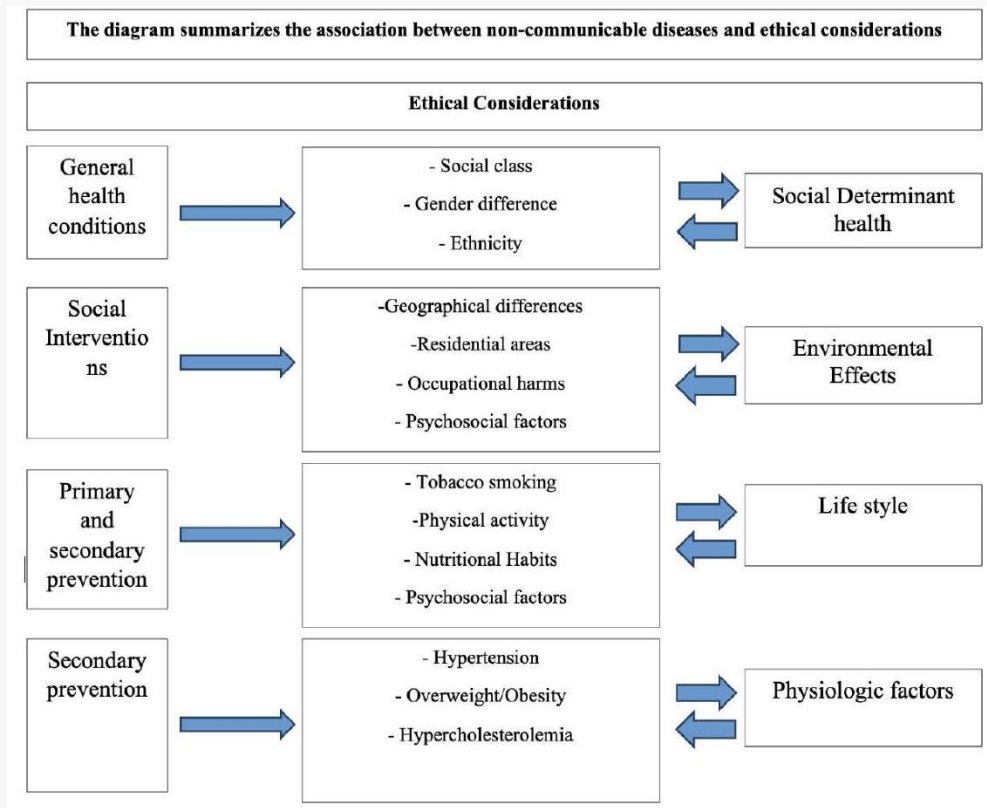


Figure 1. The flow diagram of the interaction between ethical considerations and NCD prevention programs

Table 1. Ethical considerations in the prevention and management of NCDs

General Policies
<ul style="list-style-type: none"> ▪ Health benefits for the target population ▪ Public health versus individual health approach ▪ Social determinants of health ▪ Commercial determinants of health
Equity in Care
<ul style="list-style-type: none"> ▪ Approaches to human rights ▪ The principles of equity in NCD prevention planning
Interventions for NCDs
<ul style="list-style-type: none"> ▪ Strength of evidence for expected efficiency ▪ The decision to screen for NCDs ▪ Resource allocation and individual responsibility ▪ Incremental benefit compared to alternative interventions ▪ Role of implementation studies ▪ Impact on autonomy
Clinical/Research Data Protection
<ul style="list-style-type: none"> ▪ Protection of privacy and confidentiality ▪ Ethical issues in research ▪ Protection of equity, prevention and confidentiality

2.1. General Policies

At global and local levels, NCD interventions should be implemented with special consideration of the determinants of stakeholders' behaviors and the pathologies of marketing processes. Equitable access to food, safe water, and medical and care services are another important issues in this field. In addition to the above, to achieve the right to equal choice, policymakers and health managers must pay special attention to capacity building and vast awareness of target groups (8, 13).

2.1.1. Health Benefits for the Target Population (Potential Harms and Burdens)

In the target groups of health intervention programs, one of the most basic principles and ethical standards that best guarantee informed choice/s is awareness of the benefits and harms of the programs. With regard to evaluating and participating in programs, it is important to analyze not only the benefits but also the potential harms. Possible harms to those directly and indirectly affected must be assessed and balanced against the expected benefits for the target population to determine the net benefit (8).

2.1.2. Public Health versus Individual Health Approach

Public or community health involves a population or a population segment, while personal health deals with one individual. Ethical principles and

considerations in the latter include individual choices regarding behavior or lifestyle, and related risk factors. Meanwhile, the mission and goal of public health programs is to prevent and manage risk factors and diseases among a larger part of society. Such an approach commences from the first steps of the NCD prevention program and is accompanied by vast advocacy, resource mobilization, and resource allocation (14).

2.1.3. Social Determinants of Health

The social determinants of health (SDHs) are chronic diseases not caused by infectious agents that can be prevented through lifestyle modifications and early detection. SDHs refer to the conditions in which people are born, grow, live, work, and age (15). The distribution of resources shapes these conditions and affects the incidence of NCDs by controlling various factors such as lifestyle options. For instance, tobacco and alcohol use, physical activity, and diet (16).

Addressing SDHs through policies and programs can improve health outcomes and prevent NCDs. Strategies that focus on improving access to healthy foods, safe environments for physical activity, and affordable healthcare can help reduce NCD risk factors. However, it is challenging for political leaders to decide how to allocate resources to address the causal chain of diseases. They not only have to take care of those who are already sick

but must also address the root causes of these illnesses, including the SDHs (6).

2.1.4. Commercial Determinants of Health

These are the non-health factors that influence health outcomes and behaviors, such as the marketing practices in the food, tobacco, and alcohol industries (17). One of the ethical issues surrounding the commercial determinants of health in the prevention of NCDs is corporate social responsibility (18). There is a concern that the marketing practices of industries such as food and tobacco contribute to the rise in NCDs and that these industries make little attempt to mitigate these harms (17). Some argue that industries have a moral obligation to promote healthy behaviors and reduce the marketing of products that are harmful to health. Others believe that corporations have to maximize profits and it is the responsibility of individuals to have control over their health behaviors and not to allow the marketing practices of industries to influence their choices (19). Another cause for concern is that industries' marketing practices target vulnerable populations such as children, low-income individuals, and ethnic minorities, which may widen existing health inequalities. This raises ethical questions about the distribution of health harms and benefits across different populations and underlines the

responsibility of industries to promote health equity.

2.2. Equity in Care

2.2.1. Approaches to Human Rights

The human rights-based approach (HRBA) is a conceptual framework that benefits from international standards aimed at promoting and protecting human rights. It should be noted that any effective intervention regarding NCDs would include numerous and diverse human rights issues. Concepts such as the right to make informed choices about lifestyle (diet and physical activity, etc.), the right to bodily integrity (such as freedom from exposure to second-hand smoke), and the right to health (including access to essential services and medicines) are examples of such issues. Notably, in many cases, these approaches may conflict with corporate rights, such as the right of pharmaceutical companies to exploit patents or express free speech (through marketing).

2.2.2. The Principles of Equity in NCD Prevention Planning

With the increasing worldwide trends in NCDs, more attention is drawn to the unequal distribution of these disorders, their risk factors and treatments. More than 80% of the deaths caused by NCDs occur in low- to middle-income countries, suggesting a significant healthcare inequality across the world (20, 21). Furthermore, nationwide

studies indicate a similar NCD burden disparity among various regions, socio-economic statuses, and genders. Therefore, it is impossible to substantially reduce the burden of NCDs without accomplishing sufficient equity throughout the population (22).

The findings from relevant documents emphasize that factors such as aging, female gender, poor education and low income increase the risk of multimorbidity. Therefore, particular attention should be paid to the association between equity and multimorbidity. Moreover, attention to key points such as access to public health intervention, analyzing the distribution of the benefits, burdens, and risks of interventions, and the impact on health disparities can be beneficial in terms of increasing the success of the programs (23).

2.2.2.1. Equitable Education and Development Programs

Providing equal education opportunities is a principal means of reducing socio-economic inequalities. Early childhood development programs, especially for children of lower socio-economic status, can reduce these inequalities in the long term. Also, in continuing to develop classical education, it is very important to pay attention to constant awareness and empowerment of adult target groups (24).

2.2.2.2. Employment for Disadvantaged Groups

Another important goal for the effective reduction of social inequalities is providing employment for underprivileged populations. This is possible through policymaking and planning to develop sustainable jobs while removing employment barriers, especially for low socio-economic groups (25).

2.2.2.3. Strategies for Lifestyle Modification

Long-term lifestyle changes/modifications and public health programs for environmental support should be followed as comprehensive approaches to increasing physical activity and healthy nutritional habits. Many risky behaviors, such as alcohol and tobacco consumption, require collaborative planning in different individual and social dimensions.

2.2.2.4. Primary Care and Preventive Interventions

Although primary care facilities already exist in many parts of the world, they need to be universal and financially and physically accessible, and provide high-quality care for patients regardless of their economic status. These facilities play an essential role in the early diagnosis and treatment of NCDs (26).

2.2.2.5. Universal Insurance

Financial inequalities are the leading cause of unbalanced healthcare quality in society. Removing financial barriers in to healthcare

through a universal insurance system and other mechanisms are especially vital (27).

2.3. Interventions for NCDs

2.3.1. Strength of Evidence for Expected Efficiency

Evidence-based ethical approaches to the design and implementation of NCD prevention and management planning make it possible to benefit from the experiences and lessons learned from related programs in other situations or communities.

Such an approach, along with a strategic and deliberate method using empirical knowledge and research-supported principles, leads to fair health planning that covers the interests of all stakeholders equally (8, 12).

2.3.2. Decision to Screen for NCDs

Screening for serious diseases, including NCDs and the associated risk factors, has attracted increasing attention in different countries. In this regard, many studies have discussed the potential benefits of early detection and intervention in preventing or reducing the complications, burden of diseases, and premature mortalities. Valid and reliable screening tests are now available for some of the most common NCDs, including cardiovascular disease, type 2 diabetes and many cancers.

However, in many countries and societies, the issue of resource allocation for screening and early

detection of at-risk populations is still debatable as a fundamental ethical issue in the policymaking and management of these diseases.

Another ethical issue is related to allocating resources for NCD prevention. The burden of NCDs disproportionately affects low- and middle-income countries (LMICs), where resources for NCD prevention are often limited (28). Therefore, there is a concern that the existing health inequalities among countries will widen. This raises ethical questions about the distribution of resources across different nations and the responsibility of high-income countries to support the prevention of NCDs in LMICs (12, 29).

2.3.3. Resource Allocation and Individual Responsibility

While prevention and control of NCDs have been identified as a critical priority for global health, resource allocation has been the subject of ethical debates in this regard. One of the main ethical debates surrounding the allocation of resources for NCD prevention is the issue of distributive justice. Simply put, distributive justice concerns the fair distribution of resources and societal benefits (30). There is a concern that allocating resources for NCD prevention may result in neglecting other important health priorities. For instance, public health interventions such as infectious disease control, maternal and child health, and nutrition

programs (31, 32). This raises ethical questions about the appropriate balance of resource allocation across different health priorities.

Furthermore, the issue of personal responsibility also comes into play in the allocation of resources for NCD prevention. There is a debate about the extent to which individuals are responsible for lifestyle choices and behaviors that contribute to NCDs, such as tobacco use, unhealthy diets, and physical inactivity (33). Some argue that individuals should be held responsible for their choices, and resources for NCD prevention should not be targeted toward those at higher risk due to their lifestyle choices. Others argue that the root causes of NCDs are complex and that blaming individuals for their behaviors oversimplifies the issue (9, 33, 34).

This raises ethical questions about how resources for NCD prevention should be allocated and whether it is fair to distribute resources based on individual responsibility. These debates highlight the importance of addressing NCDs as a global health priority while ensuring that ethical principles guide resource allocation.

2.3.4. Incremental Benefit Compared to Alternative Interventions

While various interventions are available to prevent and manage NCDs, resource constraints limit the ability of healthcare systems to implement

all possible interventions. This raises important ethical questions about allocating resources for NCD prevention, particularly in the context of cost-effective interventions. Distributive justice requires that resources be distributed fairly and equitably and that health inequalities be addressed so that the most vulnerable populations receive the necessary resources. This principle can be challenging to implement in NCD prevention, as there are often trade-offs between the cost-effectiveness of interventions and their impact on health inequalities (35).

Based on the principle of autonomy, individuals should have the freedom to make decisions about their health and be provided with accurate information and resources to support these decisions (13, 36). However, cost-effective interventions may limit individual choice and autonomy, particularly if they involve regulations or restrictions on behaviors associated with increased risk for NCDs (37, 38).

Another issue in the context of cost-effective interventions for NCD prevention is the principle of beneficence. Beneficence depends on interventions to maximize the benefits to individuals and society while minimizing harm (36). Cost-effective interventions may promote beneficence by providing the greatest health benefits in exchange for the invested resources.

However, there may be trade-offs between the short-term benefits of cost-effective interventions and the long-term impact on health outcomes, particularly if these interventions do not address the underlying social determinants of health that contribute to NCDs (39).

As policymakers and healthcare providers grapple with the challenges of resource allocation for NCD prevention, it is important to engage in open and transparent discussions about these ethical issues and prioritize interventions that promote health equity, individual autonomy, and long-term health outcomes (6, 12).

2.3.5. Role of Implementation Studies

Achievement of SDG 3.4 to reduce premature mortality from non-communicable diseases (NCDs) is in jeopardy and is most at risk in low- and middle-income countries, where NCDs account for 7 out of 10 deaths (40). The term “implementation gap” is commonly used to describe a situation where countries are unable to put in place implementation plans effectively, often discussed as a final stage problem (41). Implementation studies are research studies that aim to evaluate the effectiveness of interventions in real-world settings and can provide valuable information on the ethical implications of NCD prevention interventions (42). One of the key ethical issues in NCD prevention is the equitable

distribution of resources and interventions, and these studies can provide evidence on whether the interventions are being implemented equitably and reach populations most in need. Another ethical issue in NCD prevention is the impact of interventions on vulnerable populations, such as low-income individuals and ethnic minorities (43). Implementation studies can 1) provide information on whether interventions are having unintended negative consequences for these populations or whether they are exacerbating existing health inequalities, and 2) explore the acceptability and feasibility of the interventions (44).

2.3.6. Impact on Autonomy

Autonomy and empowerment, as the freedom, responsibility, and authority to make choices, act, and solve problems, are among the most fundamental matters that must be carefully considered in NCD planning. Such an important priority should be introduced in the early stages of NCD prevention programs through continuous training and vast advocacy to improve the awareness and knowledge of target populations. Integrating empowerment programs into routine public health practices is another crucial aspect of ethics in public health that can prevent potential ethical conflicts later on. Training the practitioners, adjusting responses to ethical conflicts, considering public health ethics while designing practices, and

increasing knowledge of ethical dilemmas can accomplish preemptive consideration of ethics in the field of public health (45, 46, 47).

2.4. Clinical/Research Data Protection

2.4.1. Protection of Privacy and Confidentiality

In NCD prevention and management, ethical considerations arise regarding the use of digital health tools, wearable devices, and health applications. There is evidence that the COVID-19 pandemic has significantly impacted patients with NCDs (48 - 52). This highlights the importance of continuity of care to ensure optimum disease control and management for these patients, as well as the need for adjustments to daily routines and changes to care models (51, 53). Digital tools and remote consultations have been recognized as ways to improve access to healthcare before (51, 54 - 56). However, they have not been widely adopted and used due to technical, administrative, financial, and professional barriers (57, 58). A sharp increase in the use of remote counseling has been attributed to the COVID-19 pandemic, which has prompted innovative methods to continue outpatient care for patients with NCDs (58). Telemedicine is considered one of the ways to safeguard vulnerable groups with a high risk of infection and unfavorable health outcomes. It is also a means to ensure health monitoring and medical treatment for patients with NCDs (59). The constant changes in

regulations and algorithms defining how work is organized and treatment regimens are administered have caused significant levels of stress, reported by both general practitioners and specialists. There are also concerns about possibly missing relevant new information (51). The rapid adoption of remote consultation as a routine aspect of healthcare has provoked alarm about personal data security and privacy for doctors and patients (51). Remote consultation has given patients access to clinicians. On the other hand, it has also raised questions about the quality of the services and led to confusion among patients, creating a moral dilemma (51). According to physicians, one of the technological limitations in these situations is conducting a remote visual examination of a patient (51). Another concern regarding the doctor-patient relationship in telemedicine is physician access to all medical laboratory and imaging records and previous medical documents (51). The capabilities now required for successful remote consultation reveal the often insufficient level of health literacy as the doctor-patient relationship continues to expand (51).

2.4.2. Ethical Issues in Research

As in other fields, compliance with ethical principles is essential in designing and implementing studies related to NCDs. These principles safeguard research participants' dignity,

rights and health, and an ethics committee must therefore assess all human-based research to meet appropriate ethical standards.

Considering the limitation of research resources, another important ethical issue is priority setting in research topics. Resources should be allocated to feasible studies leading to findings that can be used to improve preventive programs in NCD management. Assessing the prioritization of NCDs is a significant and intriguing example of how low-income countries (LICs) struggle to manage the dual burden of disease with scarce resources and how international priorities are being implemented at the local level.

2.4.3. Protection of Equity, Prevention and Confidentiality

Ethical debates surrounding big data and patient privacy in NCD prevention and management require careful consideration of autonomy, beneficence, and justice principle. Autonomy requires that individuals have control over their personal information, including health data, and that they can decide how this information is used. However, using big data for NCD prevention and management may involve collecting and analyzing large amounts of health records without explicit consent from patients, raising concerns about infringement of patient autonomy.

Beneficence demands that big data be utilized in NCD management to maximize benefits to individuals and society while minimizing harm.

There is, however, the risk of breaches of patient privacy and the unauthorized access or use of sensitive health data, which could cause harm to patients and erode public trust in healthcare systems (14).

The justice principle requires that the benefits and risks of using big data for NCD prevention and management be distributed fairly and equitably. However, using big data may disproportionately benefit certain populations or groups, such as those with access to technology or resources, while excluding others. This raises important questions about fairness and equity in using big data for NCD prevention and management. Balancing these principles in practice necessitates the development of robust privacy and confidentiality policies and the implementation of regulatory frameworks that ensure the responsible and ethical use of big data in healthcare.

Conclusion

In conclusion, preventing and managing NCDs pose several ethical challenges, including debates regarding social determinants of health, using big data, doctor-patient relationships, and resource allocation. In order to address these challenges, health systems must acquire a multidisciplinary

approach that takes into account the ethical implications of public health policies and interventions and devise an ethical framework that promotes social justice, equity, and human rights. Furthermore, it is essential to ensure that public health policies and interventions are designed and implemented in a way that empowers individuals and communities to make informed decisions about their health. This can be achieved by promoting health literacy and involving individuals and communities in managing public health interventions. The ethical challenges associated with NCDs require ongoing attention and discussion to ensure that public health policies are designed and implemented ethically and equitably.

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Availability of Data and Materials

The full operational guidelines are available on request from the authors.

Ethics Approval and Consent to Participate

N/A

Consent for Publication

N/A

Conflict of Interests

The authors declare no potential conflict of interest concerning this publication.

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