



Influence of Social Determinants on Chronic Non-Communicable Diseases: A Systematic Review of the Literature in the Last 5 Years

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Abstract

Non-Communicable Diseases (NCDs) represent the main global burden of morbidity and mortality, presenting an etiology that transcends biological mechanisms and is anchored in the Social Determinants of Health (SDH). This article aimed to analyze, through a systematic literature review (2021-2026), the influence of SDH on the management and prevalence of NCDs, comparing the Brazilian scenario with global trends. The methodology followed PRISMA guidelines, with searches in PubMed, SciELO, and LILACS databases, using controlled descriptors and Boolean operators. The results indicate that socioeconomic precariousness, food insecurity, and low health literacy act as biological catalysts, increasing the allostatic load and reducing the effectiveness of isolated biomedical interventions. It was concluded that the effective control of NCDs requires an intersectoral approach that integrates the diagnostic precision of Biomedicine with the guarantee of rights promoted by Social Work. The adoption of public policies focused on social equity emerges as the only sustainable path to mitigate the epidemiological and economic impacts of chronic diseases in contemporary society.

Keywords: Non-Communicable Diseases; Social Determinants of Health; Biomedicine; Social Work; Systematic Review

Introduction

Chronic Non-Communicable Diseases (NCDs) are the main global public health challenge, accounting for approximately 74% of all annual deaths in the world. This group of pathologies, which includes cardiovascular diseases, cancer, chronic respiratory diseases, and diabetes, has a complex etiology that transcends genetic inheritance, requiring a multifactorial analysis of its propagation mechanisms [1]. Although the traditional biomedical model has made significant progress in understanding biomarkers and early diagnosis protocols, there is a gap in the effectiveness of

interventions when they ignore the housing and economic context of individuals. Recent literature points out that the biological stability of a patient with NCDs is intrinsically linked to their position in the social structure, which demands an intersectoral view between the clinic and social support [2]. Social Determinants of Health (SDH) are defined as the conditions in which people are born, grow, live and work, exerting a direct influence on the morbidity and mortality burden of chronic diseases. Studies conducted in the last three years reveal that factors such as food insecurity and

low level of education are more reliable predictors of glycemic and hypertensive decompensation than pharmacological adherence alone [3]. In the international scenario, high-income countries have implemented the “Integrated Care” model, where biomedical laboratory analysis is complemented by a screening of social risks. This integration allows the therapeutic plan to be adapted to the patient’s financial reality, reducing the rates of hospital readmission due to complications of preventable diseases [4].

On the other hand, in Brazil, the analysis of NCDs reveals deep regional and ethnic-racial disparities, exacerbated by recent economic crises. Data from the National Health Survey indicate that the prevalence of multimorbidity is significantly higher in populations with lower purchasing power, showing that the clinical diagnosis cannot be dissociated from the analysis of social vulnerability [5]. The role of biomedical professionals in Brazilian public health has evolved beyond diagnostic support, requiring a technical understanding of how environmental pollutants and psychosocial stress common in peripheral areas alter the expression of inflammatory cytokines.

This “biology of inequality” demonstrates that the human body responds physiologically to the deprivations imposed by the social environment [6]. At the same time, Social Work plays a strategic role in mediating access to health policies, acting to guarantee rights that directly impact the control of NCDs. The literature highlights that the intervention of the social worker in the follow-up of chronic patients enhances equity by removing bureaucratic and socioeconomic barriers that prevent continuous treatment [7]. The convergence between the accuracy of laboratory diagnosis and social intervention is what defines the comprehensive care proposed by the Unified Health System (SUS). However, the fragmentation of academic knowledge still hinders the consolidation of protocols that unify these two axes, making it essential to review interprofessional practices in primary and secondary care [8].

Globally, the COVID-19 pandemic has acted as a sentinel event, revealing how social fragility accelerates fatal outcome in patients with chronic comorbidities. This phenomenon, classified as an inquiry, reinforces the urgency of public policies that do not focus only on the distribution of medicines, but on changing the structural determinants of poverty [9]. The nutritional transition and the increase in the consumption of ultra-processed foods in popular strata are direct examples of how the market economy shapes population biology. The obesogenic environment, conditioned by a lack of access to fresh food, is a critical SDH that fuels the cycle of diabetes and heart disease in developing countries [10]. Thus, the justification for this systematic review lies in the need to synthesize the evidence produced in the last five years on the impact of SDH on NCDs. The gap identified in the literature refers to the scarcity of studies that systematically compare Brazilian strategies with global trends in biomedical-social integration [11]. Finally, the objective of this study is to analyze scientific publications between 2021 and 2026 that correlate social determinants and chronic diseases, aiming to offer subsidies for the strengthening of intersectoral

practices. It is hoped that this article will contribute to a more humanized and technically robust view of health care in Brazil [12].

Overview of the Main NCDs in the Brazilian Scenario

In Brazil, cardiovascular diseases (CVD) remain the main cause of death and disability, with a distribution that reflects the country’s structural inequities. Systemic arterial hypertension, the main risk factor for acute myocardial infarction and stroke, affects approximately 26% of the adult population, with significantly lower control rates in black and brown individuals living in vulnerable areas social [5]. Recent studies indicate that chronic stress resulting from housing precariousness acts as an epigenetic modulator, exacerbating vascular reactivity in these groups [6].

Type 2 Diabetes Mellitus (DM2) is the second pathology with the greatest impact on national public health, showing an accelerated growth associated with the nutritional transition and sedentary lifestyle forced by the lack of security in public spaces. The 2023 academic literature highlights that Brazil has the fifth highest incidence of diabetes in the world, and the prognosis of the disease is directly influenced by “health illiteracy”. Populations with less schooling face greater barriers to understanding insulin therapy and to accessing fresh foods, which results in higher rates of complications such as retinopathy and nephropathy [3].

Malignant neoplasms also have an epidemiological profile shaped by social determinants, where the stage of diagnosis is the main watershed between cure and palliability. In Brazil, although mammographic and Pap smear screening is offered by the SUS, the waiting time between the detection of the alteration and the start of cancer treatment is drastically longer for women who depend exclusively on fragile social support networks. The integration between laboratory diagnosis and Social Work reception is, therefore, the determining factor for the reduction of mortality from preventable cancers in the national territory [7].

Finally, Chronic Respiratory Diseases (CKD), such as asthma and Chronic Obstructive Pulmonary Disease (COPD), complete the quartet with the highest burden of morbidity in the country, with a strong environmental correlation. Prolonged exposure to urban pollution and the use of biomass (wood stoves) in impoverished rural areas are determinants that perpetuate cycles of chronic lung inflammation. The 2025 literature reinforces that the management of these diseases requires health surveillance that goes beyond the walls of the clinic, monitoring the territories of residence as an integral part of the therapeutic protocol [11].

Social Work in Public Health: Facing Vulnerability and Impact on NCDs

The insertion of the social worker in Brazilian public health, consolidated after the Health Reform, transcends the palliative dimension, being situated in the analysis of the expressions of the “social question” that directly affect the health-disease process. In the context of NCDs, the work of this professional is directed to the identification of social vulnerability — understood as the weakening of affective-relational bonds and the precariousness

of access to public goods and services. Recent data indicate that the absence of a structured social support network is a factor that doubles the chances of abandonment of treatment for chronic diseases in low-income populations [7]. Contemporary social vulnerability, aggravated by the disruption of the labor market and food insecurity, drastically interferes in the scenario of NCDs by limiting the autonomy of the subject in the face of therapeutic demands. Social Work acts to demystify individual “non-care”, revealing that low adherence to diets or pharmacological schemes is often a concrete impossibility imposed by poverty. Studies from 2023 show that social interventions that guarantee access to social assistance benefits, such as the BPC (Continuous Provision Benefit), are correlated with the stabilization of hypertension and diabetes in vulnerable elderly people [12].

Internationally, the literature reinforces that the screening of social needs (housing, food, transportation) carried out by social workers in a clinical environment is what differentiates high-performance health systems from merely curative models. The integration of this social data into the patient’s medical record allows for more precise risk management, where the biomedical professional and the social worker agree on care goals that consider the financial and environmental viability of the treatment. This intersectoral approach is pointed out as the only way to reduce the premature mortality curve due to chronic diseases in countries that face the phenomenon of surveys [4]. Therefore, the interference of social vulnerability indicators in the scenario of NCDs in Brazil is profound and quantifiable. The worsening of inequalities in the last five years has resulted in an “epidemic of complications” such as amputations and blindness that could be avoided if social support were integrated into laboratory diagnosis from primary care. The performance of Social Work, by operationalizing access to citizenship rights, functions as an essential protective determinant, without which the technological arsenal of biomedicine loses its social and epidemiological efficacy [5].

Methodology

The present investigation is characterized as a systematic review of the literature, of a qualitative and descriptive nature, conducted through a rigorous protocol of search and selection of scientific evidence. The methodological design was based on the guidelines of the PRISMA checklist, aiming to ensure the transparency, reliability and reproducibility of the results achieved. The guiding question of the research, structured under the PICO (Population, Intervention, Comparison, and Outcome) strategy, was defined as: “How do the social determinants of health influence the management and prevalence of NCDs in vulnerable populations in Brazil and worldwide, according to the literature produced between 2021 and 2026?” [13].

Data collection was carried out in the first quarter of 2026, covering the electronic databases PubMed/MEDLINE, SciELO (Scientific Electronic Library Online) and LILACS (Latin American and Caribbean Literature on Health Sciences). The choice of these databases is justified by the need to capture both the global panorama of high biomedical technology and the social and epidemiological specificities of the Brazilian and Latin American

reality. To operationalize the searches, controlled descriptors extracted from DeCS (Health Sciences Descriptors) and MeSH (Medical Subject Headings) were used, combined by Boolean operators (AND, OR), such as: “Social Determinants of Health” AND “Diseases

Non-Communicable Chronicles” AND “Brazil”; “Social Determinants of Health” AND “Chronic Disease” AND “Social Work” [6]. The inclusion criteria established were: original and review articles published in full in peer-reviewed journals; Portuguese, English, or Spanish languages; strict time frame between January 2021 and March 2026; and studies that directly addressed the interface between NCDs and socioeconomic indicators or the performance of Social Work and Biomedicine in this context. Editorials, letters to the editor, theses, dissertations, and studies that did not present a clear methodological basis or that focused exclusively on genetic aspects of pathologies, without correlation with the social environment, were excluded [5].

The selection of manuscripts occurred in three distinct stages: first, screening by title and abstract to eliminate duplicates and irrelevant studies; then, the full reading of the pre-selected texts to verify adherence to the objectives of the review; and, finally, critical analysis and data extraction. The synthesis of the results was organized in a thematic way, comparing Brazilian evidence with international trends, allowing an in-depth discussion on intersectoral barriers in the care of chronic diseases [12].

Social Determinants of Health: Concepts, Categories and Impacts

Social Determinants of Health (SDH) are the non-medical conditions that shape health outcomes, encompassing the circumstances in which populations are born, grow, work, and age, as well as the systems put in place to cope with disease. According to Dahlgren and Whitehead’s classic model, updated by the evidence of the last five years, SDH operate at multiple levels, from individual biological characteristics to socioeconomic and cultural macrostructures. Contemporary literature reinforces that health is not a merely biological event, but a product of social justice and the equitable distribution of resources [2]. The categories of social determinants work interdependently, creating a gradient of health. Socioeconomic conditions and income are primary predictors; the scarcity of financial resources limits access to an anti-inflammatory diet and healthy housing, raising chronic cortisol levels and predisposing to NCDs. Education, in turn, acts as a mediator of self-care; individuals with greater health literacy have greater ability to navigate the health system and understand complex biomedical diagnostic protocols [3]. Access to health and working conditions represent critical axes of exposure to risk. Unhealthy work environments, characterized by high psychological demand and low autonomy, are associated with increased adverse cardiovascular outcomes. In parallel, the environment, including exposure to air pollutants and lack of basic sanitation, acts as a trigger for chronic respiratory and metabolic diseases. Studies from 2024 indicate that “residential segregation” is a SDH that isolates populations from essential services, perpetuating cycles of morbidity in urban peripheries [6].

The impact of SDH on individual and collective health is manifested through the phenomenon of allostatic load, the accumulated wear and tear of the body due to repeated exposure to social stress. Collectively, this results in epidemiological inequalities where vulnerable groups have a higher incidence of multimorbidity (presence of two or more NCDs). The 2026 literature highlights that the management of chronic diseases in Brazil fails when the intervention is purely clinical, ignoring that social vulnerability nullifies the efficacy of state-of-the-art drugs [8]. Recent studies reinforce the thesis that SDH is responsible for up to 50% of health outcomes in patients with NCDs. A global systematic review published in 2024 points out that interventions that combine Social Service support for food safety with biomedical monitoring reduce glycated hemoglobin by 30% in low-income diabetic patients. In Brazil, research from the National Health Survey confirms that the social gradient of schooling is the factor that most influences the prevalence of functional disabilities resulting from stroke and musculoskeletal diseases [5,7].

Recent Evidence: The Impact of SDS on the Burden of NCDs

Longitudinal studies published in the last three years (2023-2026) consolidate the premise that individual biology is, to a large extent, an adaptive response to the social environment. The international literature, with emphasis on meta-analyses from *The Lancet*, points out that prolonged exposure to environments of high social vulnerability induces a state of low-intensity systemic inflammation, known as early “inflammaging”. This biological phenomenon, catalyzed by psychosocial stress and food insecurity, accelerates the manifestation of NCDs by up to a decade when compared to populations from high socioeconomic strata [2,4].

In the specific context of type 2 Diabetes Mellitus and Hypertension, evidence from 2024 demonstrates that glycemic and pressure stability does not depend only on pharmacology, but on what the literature calls “home stability”. Research carried out in Brazilian urban centers reveals that patients who live in areas with “food deserts”, places where there are a shortage of fresh food and an abundance of ultra-processed foods, have hospitalization rates for acute complications 40% higher than the national average. This demonstrates that the biomedical diagnosis, without the support of the Social Service to enable access to adequate food, becomes insufficient [3,5].

Recent literature has also introduced the concept of “Chronic Disease Survey”, suggesting that pathologies such as obesity and cardiovascular diseases interact synergistically with social determinants such as structural racism and housing segregation. In Brazil, studies from 2026 highlight that black women in vulnerable situations are the most affected by multimorbidity, showing that gender and race act as determinants. These data reinforce the need for clinical protocols that integrate social risk assessment as a mandatory step of care [6,8]. Finally, the global comparative analysis indicates that countries that have invested in “Social Prescribing” models where the doctor or biomedical doctor can formally refer the patient to social care and community support

services have obtained a significant reduction in hospital costs. Current scientific evidence suggests that investment in social determinants, such as housing and education, has a higher return on investment (ROI) in health than many diagnostic technologies alone. In Brazil, the performance of the Family Health Strategy (FHS) is cited internationally as a model that, although plagued by crises, remains the main barrier against the worsening of NCDs via SDH monitoring [7,11].

Chronic Non-Communicable Diseases (Ncds): Profile, Risks and Impacts

Chronic Non-Communicable Diseases (NCDs) are a group of pathologies of multifactorial etiology, characterized by an insidious onset, prolonged clinical course, and often the absence of a definitive cure, requiring continuous monitoring. According to the World Health Organization, NCDs are divided into four main groups that account for the highest burden of morbidity and mortality: cardiovascular diseases (responsible for the highest lethality), diabetes mellitus, neoplasms (cancer) and chronic respiratory diseases. The defining characteristic of this group is the need for integrated management that involves both the accuracy of the biomedical diagnosis and the stability of the patient’s social determinants [1,5].

The main risk factors associated with NCDs are classified as modifiable and non-modifiable. Among those that can be modified, smoking, inadequate diet (hypercaloric and ultra-processed), physical inactivity and harmful use of alcohol stand out. However, the literature produced between 2023 and 2026 introduces “environmental vulnerability” as an emerging and critical risk factor. Studies have shown that the obesogenic environment and air pollution act as biological catalysts that potentiate genetic factors, making NCDs a pathophysiological response to precarious living conditions [2,10]. Analysis of the prevalence of NCDs reveals a marked disparity between different geographic regions. Globally, it is observed that, while high-income countries have managed to stabilize premature mortality through advanced technologies and SDH control, middle- and low-income countries, such as Brazil, face a “double burden of diseases” (infectious and chronic simultaneously). Regionally, in Brazil, the prevalence of multimorbidity is higher in the South and Southeast regions due to population aging, however, lethality and acute complications are proportionally more severe in the North and Northeast regions, where access to laboratory diagnosis and to the Social Service network is more fragmented [5,7].

The impact of NCDs on public health and the economy is devastating, generating what the literature calls a “cycle of poverty and disease”. Economically, these pathologies impose high direct costs on the health system (hospitalizations and drugs) and massive indirect costs related to lost productivity, early retirement, and catastrophic family spending on care. Socially, the worsening of NCDs disrupts family dynamics, often requiring family members to leave the labor market to act as caregivers, which deepens social vulnerability and feeds back into negative determinants of health [3,12] (Table 1).

Table 1: Prevalence of NCDs in the adult population according to level of education – Brazil.

Level of Education	Hypertension (%)	Diabetes Mellitus (%)	Cardiovascular Disease (%)
No schooling/incomplete elementary school	31,1	10,5	6,2
Complete Elementary/Incomplete High School	21,5	6,8	4,1
Complete High School/Incomplete Higher Education	18,2	5,4	3,3
Complete Superior	16,5	4,2	2,8

Prepared by the authors based on data from the PNS (National Health Survey 2021).

Interrelationship Between Social Determinants and NCDs: Mechanisms and Impacts

The interrelationship between Social Determinants of Health (SDH) and NCDs operates through complex biological and social pathways that connect economic macrostructure to individual pathophysiology. The main biological mechanism described in the recent literature (2023-2026) is the Allostatic Load, which represents the multisystem wear and tear resulting from chronic exposure to psychosocial stress (financial insecurity, racism, violence). This stress activates the hypothalamic-pituitary-adrenal (HPA) axis, resulting in elevated levels of cortisol and pro-inflammatory cytokines, which chronically trigger insulin resistance, endothelial dysfunction, and hypertension [2,6].

Socioeconomic factors exert a decisive and often coercive influence on lifestyle habits, demystifying the idea that diet and physical activity depend exclusively on individual choices. In contexts of vulnerability, the high cost of fresh foods compared to the low cost of ultra-processed foods creates “structural dietary barriers”. Likewise, the practice of physical activity is conditioned by public safety and the existence of urban infrastructure in peripheral neighborhoods. Studies from 2024 confirm that the prevalence of obesity in popular strata is not a failure of will, but a metabolic adaptation to restrictive obesogenic environments [10,3].

The role of education emerges as one of the most potent protective determinants in health promotion and prevention of

NCDs. Health literacy, directly associated with the level of education, allows the individual to understand the silent progression of diseases such as diabetes and the importance of long-term therapeutic adherence. The literature highlights that interprofessional educational interventions, which combine the technical knowledge of Biomedicine with the social pedagogy of Social Work, increase the effectiveness of self-care in vulnerable communities by up to 50%, reducing avoidable complications [8,12]. Social inequality impacts access to health care in a multidimensional way, creating what the literature calls the “Law of Inverse Care”, where the populations that most need assistance are the ones that face the greatest barriers to access. In Brazil, although the SUS is universal, inequality is manifested in the waiting time for highly complex diagnostic tests and in the availability of specialists. Social Work acts on the front line to mitigate this impact, ensuring that economic vulnerability (such as lack of resources for transportation) does not interrupt the therapeutic itinerary of the chronic patient [5,7].

Recent regional studies consolidate these associations by analyzing specific biomes and contexts in Brazil. Research carried out in the Brazilian Northeast in 2025 associates’ water and food insecurity with peaks in hypertensive decompensation, while studies in the Southeast region correlate exposure to pollutants in peripheral industrial zones with a 25% increase in hospitalizations for chronic respiratory diseases in low-income children and the elderly. These regional data confirm that NCDs are ultimately the biological expression of territorial inequality [11,5] (Chart 1).

Chart 1: Impact of Social Determinants on NCDs according to the PNS.

Social Determinant	Observed Impact on NCDs (PNS 201G/2021)	Epidemiological Consequence
Low Education	Higher prevalence of diabetes and hypertension.	Difficulty in health literacy and self-care.
Renda per capita	Less access to highly complex diagnostic tests.	Late diagnoses and higher rate of sequelae (e.g., stroke).
Location (N/NE)	Higher rate of hospitalizations due to acute complications.	Fragility in the primary care and Social Work network.
Gender/Race	Black women have a higher burden of multimorbidity.	Exposure to chronic stress and barriers to access.

Source: Adapted from Malta et al. (2021) and IBGE/PNS (2021).

Public Policies and Interventions: Intersectionality as A Strategy

Public policies aimed at confronting NCDs have evolved from strictly care models to approaches that privilege social

determinants as axes of intervention. In Brazil, the Strategic Action Plan for Combating Chronic Diseases and Non-Communicable Diseases (2021-2030) establishes guidelines that seek to integrate epidemiological surveillance with health promotion. The updated literature indicates that policies that act at the root of inequalities,

such as the regulation of advertising of ultra-processed foods and the taxation of sugary drinks, have a greater impact on reducing the burden of disease than isolated clinical interventions [14,15]. Prevention strategies based on social determinants have shown superior effectiveness when implemented in the territory. International examples, such as the Pan American Health Organization (PAHO) "Healthy Cities" model, focus on creating urban spaces that favor active mobility and access to solidarity economy circuits for fresh food. In Brazil, the Health Gym Program is cited as a successful intervention that, when mediated by multiprofessional teams, reduces social vulnerability by strengthening community support networks, directly impacting blood pressure and blood glucose control [16,17].

The role of public health policies in mitigating NCDs is fundamentally regulatory and redistributive. The consolidation of the economic-industrial health complex must go hand in hand with the expansion of Primary Health Care (PHC), which works as the filter of the SDH. Research from 2024 highlights that countries that maintain robust investments in basic social protection have a 20% more stable NCD mortality curve during economic crises. This is because health policy, when integrated with food security, prevents food inflation from immediately translating into peaks of metabolic decompensation in poor populations [18,19]. Intersectoral initiatives are the pillar to improve social conditions and prevent chronic diseases, requiring the break of isolation between the health and social assistance departments. The integration of social policies, such as the Bolsa Família Program and the monitoring of health conditionalities, exemplifies how income transfer acts as a protective determinant. The 2026 literature emphasizes that the social worker and the biomedical worker must share indicators: while the laboratory points out the clinical risk, the social diagnosis reveals the feasibility of the therapeutic plan, allowing a customized intervention that combats inequity [20,21].

The integration of social and health policies in the fight against NCDs reflects the transition to the "Health in All Policies" model. This approach assumes that decisions in areas such as transportation, housing, and employment are essentially public health decisions. Recent studies in databases such as LILACS show that the implementation of community gardens in areas of vulnerability, supported by urban development policies, has resulted in the reduction of inflammatory biomarkers in chronic patients in the region. Such evidence confirms that the fight against NCDs in the twenty-first century is primarily a task of rebuilding the social fabric [22,23].

Recent Evidence (2021-2026): Disruptive Trends and Findings

Research published between 2021 and 2026 consolidated a paradigm shift: the transition from a focus on "risk behaviors" to "structural risk exposure." The most prominent trend in the current literature is Social Epigenetics, which investigates how socioeconomic deprivation and chronic stress of vulnerable populations leave molecular imprints on DNA (methylation), predisposing entire generations to early NCDs. Studies from 2025

suggest that the social environment "enters under the skin" long before the appearance of clinical symptoms, transforming inequality into a measurable biomarker in contemporary biomedicine [24,25]. Another critical finding of the 2021-2026 period is the consolidation of the concept of NCD Survey, exacerbated by the recent global health crisis. Research from 2024 indicates that patients with multimorbidity (diabetes and hypertension) living in areas of food insecurity suffered cognitive and functional decline 30% faster than predicted by isolated biological models. The conclusion is that NCDs are not only chronic diseases, but biological events amplified by the disruption of social protection networks, which requires that the social worker acts as a "manager of therapeutic itineraries" to avoid fatal outcomes [26,27].

The contributions of recent Brazilian research (2025-2026) highlight the role of Data Intelligence in predicting NCDs in vulnerable territories. Through the integration of the Unified Registry (CadÚnico) with the Health Information System for Primary Care (SISAB), researchers were able to map "vulnerability clusters", where low education and lack of sanitation explain up to 60% of the variation in the incidence of stroke complications. This evidence reinforces that the accuracy of biomedical laboratory diagnosis must be crossed with social georeferencing so that public policies are, in fact, equitable [28,29].

Finally, the literature points to the success of interventions based on "Community Health Assets". Studies published in *The Lancet* and *SciELO* demonstrate that, in contexts of extreme poverty, strengthening social capital and implementing basic income programs have a higher cardioprotective effect than many high-cost drug interventions. The main conclusion of this five-year period is that the sustainability of the fight against NCDs does not depend only on pharmaceutical innovation, but on the repair of social determinants, placing Social Work and Biomedicine at the center of a new clinical practice: Social Precision Medicine [20,30].

Discussion

The synthesis of the findings of this systematic review reveals an unequivocal and measurable correlation between the precariousness of social determinants and the worsening of chronic diseases in the five-year period 2021-2026. The data show that, while biomedical technological advances have allowed for more accurate diagnoses, global therapeutic efficacy has stagnated in territories of high social vulnerability. The main finding points to the "Social Index of NCDs": the synergistic interaction between food insecurity, low health literacy and allostatic load, which together cancel out the benefits of isolated pharmacological protocols [30,2]. The implications of social determinants in the control of NCDs require a restructuring of the care model. Current scientific evidence suggests that the "control" of pathologies such as diabetes and hypertension is inseparable from housing and financial stability. For the biomedical professional, this implies interpreting inflammatory biomarkers not only as signs of pathogenesis, but as indicators of environmental stress. For the social worker, the data reinforce the need for clinical action in case management, where the guarantee of social rights works as a preventive "structural medicine" against

acute complications and avoidable hospitalizations [8,7]. Despite the methodological rigor, this review has limitations inherent to the studies analyzed. A significant heterogeneity was observed in the way SDH is measured: while international studies use complex indices of deprivation, the literature is often restricted to income and education, which may underestimate the impact of factors such as structural racism and noise/visual pollution. In addition, the scarcity of longitudinal studies that monitor the reversal of biomarkers after robust social interventions still makes it difficult to accurately quantify the ROI (Return on Investment) of intersectoral policies [29,3].

As suggestions for future research, it is imperative to develop studies that use Social Precision Medicine, crossing genomic and epigenetic data with vulnerability georeferencing. It is recommended to investigate "Social Prescription" models adapted to the reality of the SUS, evaluating the impact of the real integration between clinical analysis laboratories and social assistance centers (CRAS/CREAS). Finally, there is an urgent need to produce evidence on the impact of artificial intelligence on the prediction of social risks, in order to anticipate the worsening of NCDs before they generate permanent disabilities in the economically active population [28,30].

Conclusion

The present systematic review allowed us to conclude that Chronic Non-Communicable Diseases (NCDs) in Brazil and in the world, in the five-year period 2021-2026, ceased to be seen as mere biological failures to be understood as the embodiment of social inequalities. The data show that the physiological stability of patients with diabetes, hypertension and neoplasms is dependent on the stability of social determinants, such as food and housing security. The main conclusion is that isolated investment in state-of-the-art biomedical technology, without the corresponding basic social protection, results in an inefficient health system that is unable to reduce premature mortality in vulnerable populations [26,2]. The relevance of the social approach to the control of NCDs lies in its ability to interrupt the cycle of "disease-poverty-disease". By considering the Social Determinants of Health (SDH) in the therapeutic plan, the health system moves from a reactive posture to a proactive surveillance. Current scientific evidence shows that the mitigation of social risks, such as environmental stress and job insecurity, has a cardioprotective and metabolic effect superior to late interventions, positioning Social Work not only as a support, but as a strategic clinical axis for the sustainability of public health [7,3].

The need for interdisciplinary actions becomes, therefore, the new gold standard for the prevention of NCDs. The integration between Biomedicine with its diagnostic accuracy and monitoring of biomarkers and Social Work with its expertise in guaranteeing rights and analyzing vulnerability is the only way capable of operationalizing comprehensive care. Protocols that unify laboratory diagnosis with social diagnosis allow health teams to anticipate adherence barriers and customize interventions,

ensuring that medical technology actually reaches the body that needs it [8,12]. As final recommendations, this study suggests that public policies move towards the "Health in All Policies" model, prioritizing the regulation of the food environment and the expansion of income transfer programs linked to chronic monitoring. In health practice, it is recommended the mandatory implementation of the screening of social needs in electronic medical records and the strengthening of interprofessional centers in Primary Care. Only through a science that recognizes biology as a reflection of social justice will it be possible to reverse the trend of worsening chronic diseases in contemporary society [20,28].

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