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HEALTH INEQUALITIES IN CONTEMPORARY PUBLIC HEALTH SYSTEMS: STRUCTURAL AND SOCIOECONOMIC PERSPECTIVES

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ABSTRACT

Health inequalities remain a persistent challenge in contemporary public health systems, reflecting structural, socioeconomic, and demographic disparities across populations. The aim of this study was to synthesize theoretical frameworks, measurement approaches, epidemiological patterns, and systemic determinants of health inequalities, with particular attention to healthcare access, age-related disparities, seasonal and crisis-related barriers, and mental health inequalities.

A narrative review methodology draws on peer-reviewed literature, epidemiological studies, and international health reports published between 2005 and 2025. The analysis integrates major theoretical perspectives, including social causation and health selection hypotheses, and examines commonly applied indicators of socioeconomic status and population health.

The findings suggest that health inequalities are multidimensional and arise from the interaction of socioeconomic position, education, employment conditions, geographic distribution of services, and structural barriers embedded within healthcare systems. Vulnerable populations—including children, older adults, migrants, and low-income groups—experience disproportionate exposure to many factors shaping healthcare inequalities. Seasonal disruptions, economic crises, and public health emergencies further exacerbate disparities in healthcare access and continuity of care. Mental health inequalities, increasingly influenced by digital environments, represent an emerging dimension of structural disadvantage.

The study concludes that reducing health inequalities requires coordinated multi-level strategies integrating clinical interventions, public policy reforms, and structural improvements in healthcare access. Addressing social determinants remains essential for achieving equitable and sustainable health systems.

KEYWORDS

Health Inequalities, Social Determinants Of Health, Healthcare Access, Socioeconomic Status, Vulnerable Populations, Public Health Policy

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Introduction

Despite substantial improvements in medical technology, health financing systems, and life expectancy over recent decades, health inequalities remain a major public health and policy concern, existing both within and between countries. These disparities do not occur randomly within populations but follow a consistent socioeconomic, demographic, and geographic gradient. Individuals with lower income, restricted access to education, unstable employment, or marginalized social status consistently experience poorer health outcomes, shorter life expectancy, and limited access to preventive and specialized healthcare services.

Health inequalities extend beyond measurable differences in morbidity and mortality. They reflect broader structural determinants, including economic conditions, educational systems, labor markets, social protection mechanisms, and the organization of healthcare services. A distinction is commonly drawn between inequalities and inequities, the latter emphasizing avoidable and unjust differences shaped by social and institutional arrangements. This perspective shifts the focus from individual behavior to broader social contexts.

Recent global developments, including economic crises and the COVID-19 pandemic, have further intensified pre-existing inequalities. Vulnerable populations—such as children, older adults, migrants, and low-income groups—have experienced disproportionate disruptions in healthcare access and continuity of care.

Through this integrative perspective, this paper aims to deepen understanding of the mechanisms sustaining health disparities and to inform equity-oriented public health strategies.

Materials and Methods

This study was conducted as a narrative literature review. Scientific articles were identified through international academic databases, including PubMed, Scopus, and Web of Science. Publications addressing theoretical frameworks, socioeconomic determinants, healthcare access, epidemiological patterns, and intervention strategies related to health inequalities were included.

The inclusion criteria comprised peer-reviewed articles published in English between 2005 and 2025, focusing on socioeconomic determinants, healthcare access disparities, infectious and non-communicable diseases, mental health inequalities, and systemic health policy responses. Both empirical studies and systematic reviews were analyzed.

The review followed a narrative and non-systematic approach, with literature selected to capture conceptual diversity and major thematic trends rather than exhaustive coverage. The collected literature was examined using thematic analysis. Key themes were identified, including conceptual definitions, measurement approaches, epidemiological gradients, structural barriers, and intervention models. As the study relied exclusively on previously published data and publicly available reports, ethical approval was not required.

Results

The review reveals several recurring patterns in the conceptualization and distribution of health inequalities. A socioeconomic gradient was observed across infectious diseases, non-communicable diseases, and mental health outcomes. Lower socioeconomic groups repeatedly present higher morbidity and mortality rates, indicating that disadvantage operates systematically rather than episodically. Disparities in healthcare access are linked to financial instability, geographic maldistribution of services, insurance gaps, and organizational barriers within health systems. Age-related differences are also evident, affecting both young and old individuals. Periods of economic recession and public health emergencies intensify existing disparities, leading to increased unmet healthcare needs and service disruptions among vulnerable populations. Evidence suggests that constantly developing digital health innovations may either reduce or exacerbate disparities depending on digital literacy and infrastructure.

Discussion

Definitions and theoretical frameworks of health inequalities

Health inequalities, also known as health disparities, significantly influence public health research and policy, as evidenced by persistent gaps in outcomes across socioeconomic groups. For years, attempts have been made to precisely define them, which is challenging due to the multidimensional nature of the phenomenon (Braveman, 2006). This terminology is crucial, as it influences the way the phenomenon is measured and the directions of policy and health interventions.

At a general level, health inequalities are differences in health status between individuals or groups that can be observed within a specific, smaller population or between countries and regions. However, it is important to distinguish between two frequently used, though not identical, concepts: health disparities/inequalities and health inequities. In the scientific literature, "disparities" or "inequalities" are treated as statistical differences in health or its important determinants, while "inequities" emphasize the moral aspect and social injustice of these differences—that is, differences that are avoidable, variable, and unjust, resulting from social and systemic conditions, rather than from biological differences or individual choices that cannot be changed. Understanding how social determinants and health selection interact is crucial for designing nuanced and effective public health strategies. For instance, limited access to quality education can reinforce health selection effects by restricting future employment opportunities, which in turn affects long-term health outcomes.

According to Paul Braveman, health inequalities reflect systematic differences in health and its determinants, with socially or economically disadvantaged groups consistently experiencing poorer health outcomes than their more advantaged counterparts. This definition underscores the ethical imperative to design policies that actively reduce such disparities. "Social advantage" refers to a position in a social hierarchy determined by wealth, power, or prestige. The goal of health policy is to reduce, or ultimately eliminate, these inequalities through actions that can be shaped politically and socially (Braveman, 2006; Marmot, 2005).

It is also important to distinguish between the concepts of "equality" and "equity" in the context of health.

Equality means treating all individuals equally regardless of their level of need, which in practice can lead to perpetuating health disparities if the group with greater needs does not receive proportionately more support.

Equity means providing resources adequate to needs in order to achieve equitable health across the population (WHO, 2013).

Theoretical frameworks for analyzing health inequalities also include various concepts that explain their causes. Classical social theories in this field can be divided into cause-and-effect hypotheses that explain how socioeconomic status (SES) affects health. A review of the literature indicates that health inequalities are not only the result of individual behaviors but are deeply rooted in socioeconomic and political structures (Galobardes et al., 2006).

According to the authors' social causation hypothesis, living conditions associated with lower socioeconomic status lead to negative outcomes, such as poorer health, through limited access to resources, chronic stress, fewer educational and employment opportunities, and greater exposure to risk factors. In contrast, the health selection hypothesis posits that health status influences an individual's social position; that is, healthier individuals are more likely to achieve higher socioeconomic status, while those with health problems are more likely to be in a worse position. While SES clearly influences health outcomes, it is also important to consider individual agency and behavioral factors.

Current approaches to health inequalities also encompass the concept of social determinants of health—the conditions in which people are born, live, work, and age, which are key factors influencing health disparities. The WHO emphasizes that health inequalities can result, among other things, from unequal distribution of resources and life opportunities, and reducing them requires policy actions encompassing education, access to employment, housing, social security, and the elimination of discrimination (WHO, 2013).

Taken together, health inequalities encompass both descriptive differences in health status across populations and normative judgments of fairness that indicate which differences should be avoided or eliminated. Clearly defining these concepts and the theoretical frameworks underpinning their emergence is crucial for constructing effective research and public policies that effectively address the sources of health inequalities. This dual perspective highlights the need not only to measure differences but also to critically evaluate their ethical and social significance in policy design.

Measurement and indicators of health inequalities

To reliably interpret the results of epidemiological studies on health inequalities, it is essential to identify objective measurement indicators. A wide range of indicators is used in the literature to capture both the social determinants of health and their health consequences (WHO, 2014).

The most commonly used indicators of socioeconomic status (SES) include income, education, employment status, and area deprivation. Income and education enable the assessment of an individual's financial situation and social capital, while area-based indicators allow for the identification of structural inequalities related to place of residence, access to infrastructure, and health services (Marmot et al., 2020). At the same time, individual SES measures reflect different dimensions of inequality, which can lead to divergent analytical results and negatively impact their comparability across studies.

Standardized population health indicators are commonly used to assess the health consequences of inequalities. The main ones are disability-adjusted life years (DALYs), quality-adjusted life years (QALYs), and healthy life expectancy (HALE). These indicators enable comparisons between countries and social groups and assess the global burden of disease. However, due to their unidimensionality, they can mask internal variation and the specific experiences of marginalized groups (GBD 2019 Collaborators, 2020; Salomon et al., 2012). For example, DALYs may obscure differences in disability burden experienced by ethnic minorities or rural populations.

The literature also distinguishes between absolute and relative inequalities. Absolute inequalities describe absolute differences in health status between groups, whereas relative inequalities refer to proportional disparities. Both measures are crucial: absolute differences help quantify the real burden of disease, while relative differences highlight proportional disparities that may persist even when overall health improves. The choice of perspective has significant interpretative and policy implications, as different measures may lead to different conclusions about the magnitude and trends of health inequalities (Harper et al., 2010).

Epidemiology and patterns of inequality

Epidemiological studies in the field of health inequalities show that a social gradient is observed in both infectious and non-communicable diseases, as well as in minority and socially excluded groups (Ayorinde et al., 2023). Understanding these patterns is essential for designing effective public health interventions that target the root causes of disparities.

First, we need to consider infectious diseases through the lens of socioeconomic inequalities. When examining this topic, evidence suggests that individuals with lower socioeconomic status (SES) and marginalized populations face higher risks of infection and poorer health outcomes. Research shows that inequalities exist in the incidence of infections, the availability of vaccinations, and the effectiveness of treatment, particularly for diseases such as HIV, tuberculosis, and the hepatitis C and HPV viruses. Key factors include ethnicity, immigrant background, and sexual orientation, which further influence differences in the course and outcomes of infections (Tosas-Auguet et al., 2023).

The COVID-19 pandemic has highlighted these mechanisms in practice. Low SES status, working in high-risk sectors, and limited access to health services have contributed to higher rates of infection and death in socially and racially excluded groups (Khanijhani et al., 2021; Datta et al., 2022). These findings highlight the intersection of social disadvantage and biological vulnerability, emphasizing the importance of equity-focused public health policies.

Similar conclusions can be drawn for noncommunicable diseases such as diabetes, cardiovascular disease, and chronic respiratory disease, which are leading causes of global morbidity and mortality, despite their widespread nature, their burden is unevenly distributed across the population. A systematic analysis of the Global Burden of Disease 2019 study across 30 European countries revealed that the burden of several major non-communicable diseases varies significantly by country and sociodemographic factors, with cardiovascular diseases, digestive diseases, diabetes and kidney diseases, and chronic respiratory disorders exhibiting the highest inequality in disability-adjusted life years (DALYs) between populations (Andrade et al., 2023). Analyses have shown that countries with lower sociodemographic development have higher mortality rates and years of life lost (DALY) compared to more developed countries.

These differences are not limited to these factors but also relate to the risk of complications and the quality of care. A review of the literature suggests that racial and ethnic discrimination increases the risk of cardiometabolic diseases such as hypertension, type 2 diabetes, metabolic syndrome and its complications (Bhuiyan et al., 2024). Furthermore, limited access to prevention and treatment exacerbates inequalities in the course of chronic diseases among minority groups.

The epidemiology of health inequalities shows that socioeconomic and ethnic determinants of health have a significant impact on both infectious and non-communicable diseases. Individuals from lower SES and ethnic groups have a higher risk of infection and poorer access to healthcare. These observed disparities indicate systemic inequities: for instance, low-income groups experience higher COVID-19 mortality due to limited access to healthcare and high-risk occupations (Khanijhani et al., 2021). Recognizing and addressing these determinants is crucial to creating equitable health systems and prioritizing resources for socially excluded groups.

Socio-economic determinants of health

The economic status of an individual or household is one of the most fundamental determinants, which encompasses income, wealth and employment stability. Research shows that individuals with lower incomes are more likely to experience poor health, a higher incidence of chronic diseases, and a higher risk of mortality than those with higher economic status (health-inequalities.eu, 2025). There are multiple mechanisms behind this phenomenon. Low income often limits access to health resources, such as housing quality, healthy nutrition and a safe work environment. At the same time, lack of financial stability can lead to increased stress, which negatively impacts physical and mental health. Some research shows that inequalities in the distribution of socioeconomic determinants contributed to differences in mortality—with determinants such as type of job and access to modern infrastructure having a particularly strong impact on health outcomes (Rój & Jankowiak, 2021).

Educational status

Educational status is another fundamental factor that has a big impact on health. A higher level of education is significantly associated with better health, longer life expectancy and lower risk of cardiovascular emergencies and chronic diseases (Nadrowski et al., 2019). It suggests that education not only shapes health awareness but also contributes to health inequalities such as access to health information, health management skills and better economic conditions.

Employment and workplace safety

Employment conditions such as job type, stability, workplace safety and work environment affect health both directly- exposure to risk factors and indirectly- income and social status. Unemployment and unstable labor markets, characterized by rapid and often unpredictable fluctuations such as layoffs and precarious employment, may increase stress levels which may translate into higher morbidity and poor well-being among the population (Róǳ & Jankowiak, 2021).

Taken together, economic position, educational attainment, and employment conditions form an interconnected structure that shapes health trajectories across the life course.

Access to healthcare as a key determinant of health inequalities

Access to healthcare is one of the most frequently analyzed determinants and is widely recognized as a central determinant of health inequalities. It does not only include simple access to basic health benefits, but is a complex set of multiple factors such as quality of healthcare, access to different types of benefits guaranteed by health service, cultural and linguistic diversity, structural conditions (Riley, 2012). The existence of health services within a system does not guarantee equitable access. Rather, access depends on whether individuals are realistically able to obtain timely and affordable care when needed (Levesque et al., 2013). When access is unequally distributed across socioeconomic, racial, geographic or demographic groups, health inequalities are reinforced and intensified.

Conceptualizing Access to Health Care

Access to health care is a multidimensional construct. Andersen's Behavioral Model of Health Services Use provides one of the foundational frameworks for understanding access (Andersen, 1995) in which he distinguished three domains of determinants which influence health care utilization: individual predispositions (for example age, education, ethnicity), enabling factors (for example income, insurance coverage, availability of services), and perceived or evaluated health status. Enabling resources—particularly income and insurance—are crucial to equitable access. When enabling resources are unequally distributed, patterns of health care use follow social stratification rather than medical need. Levesque et al., (2013) proposed a comprehensive framework based on Andersen's model. It conceptualizes access as the interaction between characteristics of health systems- approachability, acceptability, availability, affordability, and appropriateness, and the abilities of population- ability to perceive, seek, reach, pay and engage. This model highlights that access is both a system-level and individual-level phenomenon. Barriers set within the structure of health system such as financial costs, geographic inaccessibility and administrative complexity, often interact with social disadvantages including limited health literacy or linguistic exclusion, thereby intensifying inequities. Thus, access should be understood not simply as service presence but as the alignment between health systems and the social realities of diverse populations.

Financial Barriers and Insurance Coverage

Financial barriers are one of the most significant causes of unequal access. There is a strong association between health insurance and employment or income, thus socioeconomic status strongly predicts health service use. Even in mixed or universal systems, co-payments, deductibles, and indirect costs (e.g., transportation, lost wages) can deter low-income individuals from seeking care. Individuals with stable and guaranteed health insurance coverage were significantly more likely to report having a usual source of care and receiving preventive services. Insurance instability, by contrast, was associated with reduced access and unmet medical needs. This finding indicates that access is not only about coverage status at a single point in time, but about long-term stability within the health financing structure (Shi & Stevens, 2005). Another study found that socioeconomic disadvantage was strongly associated with delayed care and prolonged treatment, particularly for preventive and chronic disease services (Kirby & Kaneda, 2005). Financial barriers disproportionately affect racial and ethnic minority populations in stratified societies. Insurance gaps, underinsurance, and employment-linked coverage contribute to persistent racial and ethnic disparities in care (Derose et al., 2011). However, it is important to highlight that financial factor itself does not fully explain health disparities. Structural racism and systemic inequalities also shape patterns of healthcare quality.

Geographic Distribution of Health Services

Another critical aspect of health access is geographic inequality. Rural populations, residents of medically underserved areas and individuals living in socioeconomically deprived neighborhoods often encounter shortages of primary healthcare services, specialists, and health infrastructure, which leads to long travel distances to the hospital and long waiting time to get help. When primary health care centers are concentrated in affluent urban areas, socially disadvantaged communities experience delayed care, which translates into poorer well-being and higher morbidity. In the United States, studies have shown that counties with higher poverty rates are more likely to experience physician shortage and limited access to specialty services (Kirby & Kaneda, 2005). Similar patterns have been documented internationally, where rural and remote populations experience higher avoidable mortality due to constrained access to timely interventions. Geographic inequality is not only about physical distance but also about transportation infrastructure, digital connectivity (in the context of telemedicine), and the spatial segregation of marginalized populations. These factors collectively influence the ability to “reach” services, as conceptualized by Levesque et al., (2013).

Racial and Ethnic Disparities in Access

Racial and ethnic disparities in health care access are deeply set within broader systems of social inequality. Residential segregation, labor market discrimination and unequal insurance coverage create patterned barriers to access long before individuals seek care. Even when access appears formally equal, quality and continuity of care may differ. Research has consistently shown that minority populations are less likely to have a regular source of care, more likely to experience unmet medical needs, and more likely to delay treatment due to cost (Shi & Stevens, 2005). Structural racism also affects the distribution of health care facilities. Segregated neighborhoods often have fewer high-quality hospitals and clinics and residents may rely on overburdened safety net providers. Some studies have found that higher income does not always protect against limited access to high quality healthcare in marginalized racial groups, for example, black individuals experienced more limitations than white people, regardless of income level. Conversely, higher income provided better healthcare for white people, but not for black individuals (Rokicki & McConnell, 2024).

Organizational and Cultural Barriers

Limited health literacy, language barriers and mistrust of institutions reduce individuals’ ability to seek help from health centers when needed. Some research highlights the “ability to engage” as a core dimension of access. Patients must not only reach services but also meaningfully participate in care processes. Cultural incongruence between providers and patients can undermine communication, reduce adherence, and diminish care effectiveness (Levesque et al., 2013). Another study emphasizes that immigrant populations often encounter compounded barriers: language limitations, lack of insurance, fear related to immigration status and limited familiarity with health systems (Derose et al., 2011). All these barriers illustrate that access to healthcare is broadly linked to social structures rather than confined just to clinical settings.

Age Inequalities and Vulnerable Population Groups

Age constitutes a fundamental dimension of health inequality. It interacts with other aspects such as socioeconomic status, gender, race, disability, and migration status. Health inequalities manifest differently at various stages of life, reflecting cumulative exposure to social and structural disadvantages. The life-course perspective emphasizes that early-life conditions significantly shape long-term health trajectories, with disadvantages compounding over time (Marmot et al., 2010).

Early Life and Childhood

Childhood is a particularly sensitive period of life, during which social and psychosocial factors may have a substantial impact on future well-being and health. Children growing up in poverty face higher risks of low birth weight, developmental delays, respiratory illnesses, and mental health problems (Braveman & Gottlieb, 2014). Access to preventive pediatric services, immunizations, and early developmental screening remains unequally distributed. Moreover, socioeconomic and racial disparities in childhood healthcare use persist even in high-income countries, often reflecting structural inequities rather than individual-level choices (Halfon et al., 2010). These early disparities contribute to cumulative inequality, reinforcing health gradients throughout the lifespan.

Working-age Adults

Among working-age adults, health inequalities are mainly linked to labor market conditions, job security, and access to insurance systems. Precarious employment and unstable income increase psychological distress and limit preventive healthcare use. Additionally, gender-based inequalities related to reproductive roles and caregiving responsibilities further shape access to healthcare coverage.

Older Adults

The older population constitutes one of the most vulnerable groups exposed to healthcare limitations. They face multiple forms of inequality related to multimorbidity, functional limitations, and long-term care needs. While many high-income countries provide broader health coverage for older adults, disparities persist in access to specialized services, rehabilitation, and high-quality long-term care (WHO, 2008). Frailty and disability can limit the ability to seek help and reach services, especially in areas with limited transportation infrastructure. Moreover, digitalization of healthcare—such as telemedicine platforms and online appointment systems—may widen inequalities for older individuals with limited digital literacy or technological access. Thus, technological innovation, while potentially expanding access, may also reinforce age-based disparities. These findings suggest that age-related health inequalities are not solely the result of biological aging but are deeply embedded in social and institutional arrangements that determine access to resources and care.

Seasonal and Crisis-Related Barriers to Healthcare Access

Access to healthcare may change in response to seasonal fluctuations linked to weather conditions, changes in climate or agricultural cycle. They can influence healthcare access through multiple mechanisms, particularly in rural and remote regions with limited transportation infrastructure, which can be disrupted by extreme weather conditions—such as winter snowstorms, flooding, or heatwaves. Older adults, people with disabilities and low-income populations are disproportionately affected due to mobility limitations and limited ability to cover the additional transportation costs.

Seasonal labor patterns linked to agricultural cycle may also affect healthcare access. Migrant agricultural workers, for instance, often face interruptions in continuity of care due to temporary residence status in other countries and geographic mobility (Arcury & Quandt, 2007). Seasonal employment discontinuity may additionally influence insurance coverage and financial stability, thereby indirectly shaping access.

Infectious disease seasonality, such as influenza outbreaks, can strain health systems and reduce availability of routine services. Overburdened healthcare facilities may prioritize acute care, leading to postponed elective procedures and preventive care, disproportionately affecting those with limited healthcare alternatives.

Economic Crises

Macroeconomic downturns have well-documented effects on healthcare access and health outcomes. Economic recessions increase unemployment, reduce household income and may lead to loss of insurance coverage (Kentikelenis et al., 2014). During the European financial crisis, austerity measures were associated with reduced public health expenditure and increased unmet medical needs, particularly among low-income populations. Economic crises may also generate psychological stress and increase mental health issues.

Public Health Emergencies and Pandemics

The COVID-19 pandemic illustrates how a global crisis may exacerbate existing health inequalities. Discontinuity and disruptions in routine care, diagnostic services and chronic disease management disproportionately affected socially disadvantaged groups (Moynihan et al., 2021). Racial and ethnic minorities experienced higher infection and mortality rates, reflecting occupational exposure, crowded housing conditions and limited healthcare access (Bambra et al., 2020). Pandemic-related service disruptions also affected maternal and child health services globally, particularly in low- and middle-income countries.

Mental health inequalities

Mental health inequalities constitute an important dimension of broader health disparities and are strongly shaped by various factors, including social, economic, and environmental factors. Evidence consistently indicates that mental health problems are unevenly distributed across populations, with higher prevalence and severity observed among individuals with lower socioeconomic status (SES), limited educational opportunities, and marginalized social standing (Lund et al., 2018; Odgers & Jensen, 2020). These inequalities are evident across the lifespan, but are particularly pronounced during adolescence and young adulthood, periods characterized by increased psychological vulnerability.

The cited systematic reviews and meta-analyses indicate that social media use is an emerging, yet significant, factor influencing existing mental health inequalities. Although digital platforms offer opportunities for social connection, problematic or excessive social media use is associated with higher risks of depression, anxiety, psychological distress, and sleep disturbances among adolescents and young adults (Shannon et al., 2022; Keles et al., 2020; Ahmed et al., 2024). Importantly, in the context of this study, these negative associations do not appear to be evenly distributed. Youth from families with lower socioeconomic status or with pre-existing psychosocial stressors may be more susceptible to harmful patterns of digital media use, potentially exacerbating existing mental health inequalities (Valkenburg et al., 2022).

Social, economic, and structural contexts have also been cited as key factors in shaping inequalities in serious mental health problems. Epidemiological studies in the United States show that increased time spent on social media is associated with higher levels of internalizing and externalizing problems (Riehm et al., 2019). Furthermore, experiences such as cyberbullying, which disproportionately affect socially marginalized youth, are associated with increased risk of depression, self-harm, and suicidal behavior (Viner et al., 2019; Marchant et al., 2021). These findings highlight how digital environments can act as social disempowerments, exacerbating mental health inequalities rather than acting as neutral or universally beneficial spaces. For example, adolescents from low-income households may lack private spaces or parental supervision, making social media overuse more harmful (Shannon et al., 2022).

Disparities in access to care and support also play a role in this study. Adolescents and young adults from disadvantaged backgrounds often face barriers to timely mental health care, including financial constraints, stigma, and limited availability of culturally appropriate care (Lund et al., 2018). As a result, mental health problems in these groups are more likely to go untreated or be inadequately treated, increasing the risk of chronicity and long-term negative outcomes.

Overall, mental health inequalities result from the interaction of social factors, exposure to digital technologies, and systemic barriers within healthcare systems. Coordinated strategies are essential, combining social policies, equitable access to mental health care, and active, targeted initiatives to address these disparities. Without such coordinated strategies, emerging risk factors—such as social media use—may continue to reinforce and exacerbate existing inequalities rather than alleviate them.

Clinical and systemic interventions to reduce inequalities

Interventions aimed at reducing health disparities between social groups can be divided into several groups, depending on the scope of action and intervention methods. These include clinical interventions, systemic public policies, strategic models of access to care, and technological innovations. However, only coordinated actions at multiple levels lead to lasting results.

For example, chronic disease prevention and management programs tailored to the specific needs of ethnic minorities or individuals with lower SES. These interventions include culturally appropriate health education, easier access to screening, and behavioral support, which have been shown to positively impact chronic disease management (Bhuiyan et al., 2024).

Another important aspect are activities aimed at improving patient-physician collaboration and the inclusion of cultural mediators in the healthcare system, which can help reduce communication barriers, while also increasing the acceptance of clinical recommendations and improving treatment outcomes. Also, interventions focusing on cardiometabolic risk management among higher-risk groups may also reduce differences in the incidence of complications (Bhuiyan et al., 2024).

Another important pillar for reducing health inequalities is the public policy level. Strategies including health insurance reforms, expanding access to primary care, and community-based programs can significantly improve the health care situation.

A previously mentioned example of an effective strategy is systemic efforts to prevent infectious diseases and increase vaccination rates, particularly in populations with limited access to the system and in

lower SES communities. Implementing programs that eliminate economic and organizational barriers, such as free vaccinations and educational initiatives, significantly contribute to reducing disparities in morbidity and treatment outcomes (Ayorinde et al., 2023).

In the case of noncommunicable diseases, the strategy includes policies that promote health-promoting conditions at the environmental level, such as access to healthy food, spaces for physical activity, and restrictions on the advertising of highly processed foods. This interdisciplinary approach allows for a more effective impact on the social determinants of health and reduces inequalities.

New models, like telemedicine and e-health solutions, hold real potential to overcome geographic and financial barriers, particularly for rural or low-income populations. However, evidence shows that digital health tools may not benefit all groups equally unless digital literacy and access disparities are addressed (Wakeman et al., 2025). It is important to simultaneously address digital inequalities, which can exacerbate disparities if there is a lack of support for digital literacy and access to infrastructure.

Limitations of the review

Although this review provides a comprehensive overview of health inequalities across infectious diseases, noncommunicable diseases, mental health, and other determinants of health, several important limitations should be noted that may impact the interpretation of the findings. First, the review relies primarily on observational studies, including cross-sectional studies and secondary analyses of epidemiological data, which dominate the health inequalities literature (e.g., Ayorinde et al., 2023; Khanijahani et al., 2021), but limit the ability to infer causal relationships between social determinants and health outcomes.

Second, a significant challenge that must be considered is the heterogeneity of the analyzed studies. Differences in definitions of socioeconomic status, indicators of inequality, health measures (e.g., DALYs, disease incidence, self-rated health), and characteristics of the studied populations can make it difficult to direct compare of results. This problem is particularly evident in mental health research, where diverse diagnostic tools and psychometric scales are used (e.g., Shannon et al., 2022; Valkenburg et al., 2022).

Another limitation worth considering is the uneven geographic representation. The vast majority of analyses come from highly developed countries, primarily Western Europe and North America, which limits the generalizability of conclusions to populations in low- and middle-income countries. Groups particularly vulnerable to exclusion, such as migrants without legal status, homeless individuals, and ethnic minorities with complex healthcare needs, are also underrepresented.

The potential impact of publication bias and language limitations should also be considered, as the review primarily considers papers published in English in peer-reviewed journals. This may result in the omission of important data from institutional reports or local studies. Finally, the dynamic changes in healthcare systems and digitalization—especially in the wake of the COVID-19 pandemic—mean that some conclusions may need to be updated in light of future research.

Conclusions

Health inequalities remain embedded within social, economic, labour market and institutional systems. They are shaped by the interaction of socioeconomic position, demographic characteristics, healthcare system organization, and broader contextual factors such as economic crises and pandemics.

The persistence of disparities across the life course and their amplification during systemic disruptions highlights the structural nature of the problem. Although clinical interventions may reduce disease burden, sustainable reduction of inequalities requires integrated public policy reforms addressing education, employment, housing, and healthcare financing.

Future research should focus on longitudinal analyses and comparative international studies to better examine the long-term impact of structural reforms and digital transformation on equity in health systems.

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