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ECONOMIC BURDEN AND POLICY GAPS IN NONCOMMUNICABLE DISEASE MANAGEMENT IN GEORGIA: A HEALTH ECONOMICS PERSPECTIVE

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Abstract: *Noncommunicable diseases (NCDs) present a significant economic challenge for healthcare systems, particularly in low- and middle-income countries such as Georgia. Beyond the health sector, the escalating burden of NCDs has substantial macroeconomic implications, including long-term fiscal pressure on public healthcare budgets, diminished labor market productivity, and increased poverty due to out-of-pocket healthcare expenditures. Collectively, these effects can impede national development and economic growth potential. This study employs a health economics perspective to examine the direct and indirect costs incurred by patients and caregivers, the economic inefficiencies of the current healthcare system, and the broader implications for labor productivity and national development. Utilizing a mixed-methods approach—comprising literature review, qualitative focus group discussions, and quantitative survey—the study identifies key financial barriers, caregiving burdens, infrastructure deficiencies, and policy inadequacies.*
The findings inform economic policy recommendations, including expanded public financing, improved cost-efficiency of NCD care, and enhanced integration of NCD prevention into national development strategies. The study advocates for urgent health system reforms that not only improve health outcomes but also mitigate the long-term economic impact of NCDs.

Keywords: *Noncommunicable disease management, economic burden of NCDs, efficient management of NCDs, healthcare policy gaps in LMICs.*

INTRODUCTION

Noncommunicable diseases (NCDs), encompassing cardiovascular diseases, diabetes, cancers, and chronic respiratory conditions, constitute the predominant cause of global morbidity and mortality. As of 2023, these diseases account for 74% of global deaths (WHO, 2024). Their chronic nature, coupled with associated socio-economic burdens and pronounced disparities in healthcare access, particularly impacts low- and middle-income countries (LMICs), where premature NCD mortality rates are over three times higher than in high-income nations (Ferrana et al., 2023).

The management of NCDs necessitates substantial healthcare resources, long-term treatment plans, and significant financial expenditures, often surpassing the capacities of both patients and national health systems. In LMICs, out-of-pocket spending is a prevalent and significant concern, contributing to poverty and diminished access to essential services. Studies from global and regional contexts underscore that effective NCD strategies require not only medical but also systemic responses, emphasizing the necessity for integrated health services, early intervention, and financial risk protection (Gheorghe et al., 2018).

Mental health challenges, social stigma, and inadequate support systems exacerbate the difficulties encountered by individuals with NCDs. Stigma and social isolation can deteriorate clinical outcomes and diminish treatment adherence. Consequently, comprehensive, patient-

centered approaches that incorporate mental and social support are imperative (Patel & Chatterji, 2015). Advocacy plays a crucial role in addressing policy gaps. Effective advocacy enhances awareness, promotes equitable policies, and encourages community engagement. The 5A Model—Awareness, Acceptance, Action, Audit, and Advocacy—has been established as a framework to facilitate patient-centered reform (Kalra et al., 2023).

Globally, advocacy efforts have increasingly focused on prevention, rights-based access to care, and the meaningful inclusion of patient voices in decision-making processes (Kiknadze & Beletsky, 2013). To inform this study, advocacy agendas from India, Tanzania, Rwanda, Malaysia, the Philippines, Kenya, Ghana, Mexico, and Malawi were analyzed. Across diverse contexts, common priorities emerged: the protection of human rights and dignity of NCD patients, comprehensive preventive measures, equitable access to healthcare, and the inclusion of patients in policy-making.

Georgia bears one of the most significant burdens of NCDs within the European region, with NCDs responsible for 93–97% of all mortalities (Russell et al., 2019). According to the Institute for Health Metrics and Evaluation (IHME), the primary contributors to this burden are cardiovascular diseases, cancers, chronic respiratory diseases, and diabetes. The principal risk factors include high tobacco and alcohol consumption, inadequate diets, physical inactivity, and obesity. In 2013, Georgia introduced a universal healthcare system to enhance accessibility. Nevertheless, challenges remain, including unequal healthcare utilization, substantial out-of-pocket expenditures, underfunded outpatient care, and disparities in disease prevention. The prevalence of obesity, hypertension, and diabetes continues to escalate. As of 2015, Georgia reported 630.7 NCD-related deaths per 100,000 population annually, with an escalating public health crisis attributed to lifestyle and socioeconomic factors (Russell et al., 2019).

Persistent challenges within the country's healthcare system encompass several critical areas. Healthcare access remains limited and fragmented, particularly in rural regions (Gotsadze et al., 2017). Socioeconomic inequities are evident, with mortality rates disproportionately high among lower-income and less-educated individuals, especially women (Lomia et al., 2020). Furthermore, behavioral risks, including smoking, alcohol consumption, and poor dietary habits, are prevalent (Antia et al., 2022). There are significant implementation gaps, as health promotion programs suffer from a lack of coordination and funding. Informal caregivers, predominantly women, experience considerable stress, burnout, and income loss due to the absence of formal support structures. Despite the existence of state-run NCDs programs by the National Center for Disease Control and Public Health (NCDC), prevention efforts are under-resourced. Barriers include low public awareness, weak enforcement of health policies, inadequate screening programs, and insufficient investment in community-based interventions.

In summary, Georgia faces a multifaceted NCD crisis. Although national programs are in place, their implementation remains weak, and the economic burden continues to escalate. This study is guided by the central research question: What are the economic and systemic challenges associated with NCD management in Georgia, and how can targeted policy reforms mitigate their impact? The working hypothesis posits that individuals living with NCDs and their caregivers in Georgia encounter significant financial and access-related barriers, contributing to avoidable economic losses and systemic inefficiencies. These challenges are exacerbated by insufficient policy attention to preventive care, psychological support, and inclusive decision-making. Furthermore, the present study investigates these challenges from an economic perspective to support evidence-based reforms aimed at improving health outcomes and economic resilience.

Methodology

This study utilized a mixed-methods approach to examine the economic and systemic challenges associated with NCDs in Georgia. The research design incorporated both qualitative and quantitative methodologies to ensure a comprehensive understanding of patient and caregiver experiences, healthcare access, financial burdens, and policy gaps.

The initial phase involved an extensive review of international literature, including peer-reviewed academic publications, national health strategy documents, and advocacy reports. The countries analyzed included Armenia, Ukraine, Moldova, Estonia, as well as India, Tanzania, Rwanda, Malaysia, the Philippines, Kenya, Ghana, Mexico, and Malawi. The objective was to identify global best practices and recurring challenges in NCD management, particularly those related to healthcare financing, equity, and patient-centered advocacy.

In the subsequent phase of the research, five focus group discussions (FGDs) were conducted, encompassing 55 participants, including individuals with NCDs and their caregivers. These sessions were convened in Tbilisi and various regional locations to ensure geographical diversity. A purposive sampling method was utilized to capture variations in gender, age, disease type, and urban-rural residence. The discussions focused on economic barriers, access to healthcare services, caregiving responsibilities, discrimination, and psychological stress. Data from these discussions were recorded, transcribed, and analyzed using content analysis to identify key economic and social themes.

Subsequent to this, a quantitative survey was conducted. Building upon qualitative insights, a structured questionnaire was developed utilizing the NCD Global Alliance framework to quantify the prevalence and intensity of the identified issues. The instrument underwent pilot testing with seven respondents to ensure clarity and reliability. Data were collected from 197 participants, both online and in person. The survey gathered demographic information, disease status, healthcare access, insurance coverage, caregiving responsibilities, and indicators of financial burden.

Quantitative data were analyzed utilizing Microsoft Excel. Descriptive statistics, including frequency distributions and percentage breakdowns, were employed to elucidate patterns in economic burden, service utilization, and the impact of caregiving on employment and income. Ethical approval was secured from the institutional review board, and all participants provided written or verbal informed consent. Anonymity and confidentiality were preserved by de-identifying all personal data and securely storing the dataset.

Limitations: Although the study provides comprehensive insights, it is constrained by the modest sample size for qualitative analysis (55 participants), which may not fully represent the spectrum of NCD experiences in Georgia. The use of purposive sampling may introduce bias, and socioeconomic or ethnic diversity was not systematically assessed. While rural representation was included, it warrants further exploration given the unique challenges faced by non-urban populations.

Moreover, this study predominantly utilized self-reported data, which may introduce recall bias, as well as the potential for underreporting or exaggeration of certain experiences, such as income loss, caregiving burden, or discrimination. Respondents might also have been subject to social desirability bias when responding to sensitive inquiries. While these limitations are prevalent in survey-based research, they underscore the necessity for triangulation with administrative health records or longitudinal data in future investigations.

Table 1. Overview of the Mixed-Methods Design

Phase	Description	Key Output
Literature Review	Review of scientific articles, global and national NCD advocacy and economic impact frameworks	Identified global themes and policy benchmarks
FGDs	5 focus groups with 55 participants in Tbilisi and regional centers	Thematic insights on economic and social burden
Survey	Structured questionnaire to 197 NCD patients and caregivers (online and in-person)	Quantitative evidence on financial and labor impact

By integrating qualitative narratives and quantitative measurements, this methodology facilitated a comprehensive, multidimensional assessment of the economic and social impacts of NCDs in Georgia, thereby establishing a foundation for targeted health policy reforms.

Literature Review

According to the World Bank (2022), public health expenditure in Georgia remains below the regional average, with only approximately 2.7% of GDP allocated to healthcare, in contrast to the Eastern Europe and Central Asia regional average of 5%. The prevalence of high out-of-pocket payments, which constitute over 50% of health expenditures in Georgia, has been linked to financial hardship and decreased healthcare utilization among low-income households. The IMF (2022) underscores that underfunded health systems in LMICs frequently lead to fiscal inefficiencies and increased long-term costs due to delayed disease detection and unmanaged chronic illnesses (Cebotari et al., 2022). Moreover, investment in preventive NCD programs has demonstrated significant returns; estimates from the World Health Organization (WHO) suggest a return of USD 7 for every USD 1 invested in prevention-focused interventions.

NCDs including cardiovascular disease, cancer, diabetes, and chronic respiratory illnesses, represent an escalating health and economic challenge in Georgia and other resource-constrained countries. Evidence from Georgia indicates that the financial burden of managing chronic conditions is frequently prohibitive for individuals and places a significant strain on the healthcare system. A study on multiple sclerosis revealed that the annual direct medical costs exceeded $7,000 USD per patient receiving disease-modifying therapies, with medications constituting the primary cost driver (Gugutsidze et al., 2022).

Furthermore, in cardiovascular care, quality improvement interventions in the Imereti region of Georgia—targeting both primary and secondary prevention—led to significant improvements in treatment adherence and outcomes. For instance, use of multi-drug therapy for secondary prevention of coronary artery disease increased from 6% to 91% in outpatient settings. The intervention also led to over $600,000 in savings by reducing unnecessary treatments and diagnostics (Chitashvili, 2015).

Chronic respiratory diseases, such as COPD, are frequently underreported and likely underestimated in Georgia. A survey revealed that actual prevalence rates are five times higher than official statistics, indicating significant gaps in diagnosis and data collection (Chkhaidze et al., 2016). In resource-deficient countries, cardiovascular diseases represent one of the most substantial NCD-related costs. A global review indicated that the cost per episode of stroke or coronary heart disease can exceed $5,000, while even basic hypertension treatment averages $22 per month, which is disproportionately high relative to household incomes in many countries (Gheorghe et al., 2018).

Similarly, diabetes presents an escalating financial challenge. While specific Georgian data on diabetes costs are limited, global models estimate that diabetes treatment and

complications (e.g., kidney failure, cardiovascular events) substantially raise healthcare expenditures in LMICs. Indirect costs due to reduced productivity are often equal to or greater than direct medical costs, compounding the burden (Bloom et al., 2011). In Pakistan, for example, the economic burden of mental illness was found to be $4.3 billion annually, with 59% attributed to lost productivity—a dynamic likely mirrored in other NCDs like diabetes and heart disease (Malik & Khan, 2016).

In Georgia, the policy and legislative frameworks have encountered challenges in keeping pace with the escalating burden of NCDs. The existing health laws lack standardized definitions for essential terms such as medical malpractice and informed consent, resulting in ambiguity in the delivery of care and the protection of patient rights (Kiknadze & Beletsky, 2013). Additionally, barriers persist in health financing and workforce structure. A study on mental health services identified inadequate funding mechanisms, geographic disparities in service availability, and significant out-of-pocket expenses for medications and transportation (Sulaberidze et al., 2018). These findings align with reports from the World Health Organization and the World Economic Forum, which highlight that weak primary healthcare and fragmented systems are central policy gaps in the NCD responses of resource-constrained countries (Bloom et al., 2011).

To review comparative insights from regional Examining the management strategies for NCDs in resource-constrained countries and neighboring nations offers valuable insights into Georgia's healthcare landscape. For example, in Armenia, despite the accessibility of primary healthcare (PHC) facilities, utilization remains low, with only 4.1 visits per capita recorded in 2017. This underutilization is primarily due to concerns regarding the quality of care and associated costs. Furthermore, a substantial portion of healthcare financing is derived from out-of-pocket payments, resulting in fragmented funding and inefficiencies in service delivery (World Bank, 2024). Another country under review is Ukraine. Prior to the healthcare reforms initiated in 2017, Ukraine's system was characterized by high out-of-pocket expenses and inefficient hospital utilization. The reforms have sought to reduce dependence on hospital care, enhance PHC, and implement payment models that incentivize the effective use of resources (Swecare Foundation, 2022).

NCDs are responsible for approximately 88% of annual deaths in Moldova. Efforts to address this significant health burden have included enhancing access to quality healthcare, reforming public health and primary healthcare (PHC), and improving health system financing. Despite these initiatives, challenges remain, particularly concerning the availability and quality of NCD services at the PHC level (Leon & Xu, 2023). In contrast, Estonia has implemented a comprehensive national strategy for cardiovascular disease prevention (2005–2020), which emphasizes risk factor management, health promotion, and the strengthening of PHC. These efforts have led to a substantial reduction in preventable mortality and serve as a model for integrating public health initiatives into national health plans (European Society of Cardiology, 2020).

The regional experiences highlight the critical importance of robust primary healthcare (PHC) systems, equitable financing mechanisms, and comprehensive national strategies in the effective management of NCDs. Georgia can derive valuable insights from these countries to guide its own healthcare reforms and policy development. Georgia's experience in managing NCDs such as cardiovascular disease, diabetes, and chronic respiratory illness mirrors broader trends observed in LMICs, characterized by a significant economic burden exacerbated by fragmented services and policy inertia. Nevertheless, evidence from both Georgia and other resource-constrained countries indicates that low-cost, evidence-based interventions and integrated care models can reduce costs and improve outcomes. To address these challenges, Georgia must strengthen legal frameworks, enhance financing strategies, and expand integrated prevention and treatment programs nationwide.

Results

Qualitative Findings: Key Challenges Faced by Patients with NCDs in Georgia

Focus group discussions (FGDs) involving 55 participants elucidated a wide array of challenges encountered by individuals living with NCDs and their caregivers in Georgia. Several core themes emerged from the discussions. The foremost theme is stigma and discrimination. Participants reported pervasive stigma associated with obesity, diabetes, and cancer, manifesting in public, healthcare, and workplace environments. Notably, weight-related stigma, misinformation regarding diabetes, and discrimination against cancer survivors—such as perceptions of their incapacity to work and employers and coworkers questioning their productivity—were particularly prevalent. Elderly patients were frequently perceived as burdens within healthcare facilities, and children with type-1 diabetes experienced bullying in school settings. The resultant social exclusion and emotional distress deterred many from seeking essential medical care.

Another key challenge was - psychological and emotional burden. Patients frequently experienced emotional distress, including anxiety, depression, low motivation, and emotional eating behaviors. Cancer patients and caregivers reported limited access to mental health services and a lack of psycho-oncology support. Psychological care was virtually inaccessible in rural areas, and there was a widespread need for structured mental health integration within NCD care.

Furthermore, geographic disparities in care access were widely reported, particularly in rural areas, where patients struggled to consult specialists like endocrinologists and cardiologists. Long waiting times, absence of local rehabilitation services, and a lack of structured follow-up care for post-operative and oncology patients were noted. Rehabilitation services for stroke, bariatric surgery, or cancer were especially scarce.

Financial constraints were still another challenge regarding NCD management. Respondents frequently cited the high cost of diagnostics, medications, and rehabilitation services as barriers to continuous care. Out-of-pocket expenses for obesity, diabetes, and cancer treatments were often prohibitive. State-funded programs covered only a fraction of necessary interventions, and patients with low income were often forced to forgo treatments. Nutritional supplements, physiotherapy, and psychological support remained unaffordable for many.

Distrust in healthcare providers was underscored by the respondents. Patients expressed skepticism about the effectiveness and empathy of healthcare professionals. Many reported generic, non-individualized treatment plans and poor communication. The perception of healthcare providers as dismissive or judgmental—especially towards obese patients—contributed to a lack of engagement in care.

Moreover, Georgia lacks peer support groups or patient advocacy platforms for individuals with NCDs. Many respondents expressed the need for environments where patients could share experiences, build motivation, and advocate for tailored policies. While online platforms exist, they are often commercialized and ineffective.

One of the major problems in NCDs management in Georgia is a lack of multidisciplinary and holistic care. Respondents strongly emphasized the need for integrated care models involving nutritionists, psychologists, and physical activity experts. Patients often had to coordinate their care independently, and post-treatment rehabilitation was seldom available. School environments were reported as unsupportive of children with special dietary needs due to obesity or type-1 diabetes.

Similarly, low public awareness and a lack of accessible screenings contributed to delayed diagnoses and late-stage interventions, particularly for cancers and cardiovascular conditions. Preventive health education in schools and public campaigns were largely absent. Barriers to healthy living included the high cost of nutritious food and fitness services.

The qualitative analysis underscores the systemic, economic, and psychosocial burdens experienced by patients with NCDs in Georgia. These insights provide a foundation for evidence-based policy recommendations aimed at fostering equitable, person-centered, and economically sustainable NCD care.

Quantitative Findings:

To evaluate a degree of impact and importance of identified challenges and needs in the literature review and focus-group discussions, patients with NCDs and/or caregivers were surveyed using structured questionnaire. This article presents an analysis of survey data collected from 197 respondents, focusing on chronic diseases, healthcare challenges, and public perceptions regarding treatment accessibility and caregiving. The insights are based on demographic details, healthcare barriers, and disease types.

To review main aspects of the demographics, gender distribution shows a mix of male and female participants, where 67% of them were female and 33% - male. The median age of respondents is 59 years, indicating that a majority of participants are from middle-aged and older populations (minimum age- 22 years; Maximum age -90 years; Standard Deviation – 13.25 years). Among respondents of the survey, 75% were individuals having one or more NCD and 25% were caregivers of the chronic patients (Table 2).

Table 2. Participants' demographics table

Variable	**Category**	**Percentage (%)**
Gender	Female	67%
	Male	33%
Age (Mean: 59, SD: 13.25)	22–39	14%
	40–59	39%
	60+	47%
Residence	Tbilisi	27%
	Imereti	22%
	Shida Kartli	14%
	Samegrelo-Zemo Svaneti	10%
	Kvemo Kartli and other regions	27%
Status	Person living with NCD(s)	75%
	Caregiver of person with NCD	25%
Ethnicity	Georgian	93%
	Armenian	3%
	Azerbaijanian	3%
	Ossetian	1%

Survey participants identified several areas of health protection and promotion that receive inadequate attention from national authorities. The most commonly cited issues include:

1. Early Disease Prevention and Healthcare Access

- Limited early screening programs
- Geographic disparities in access, especially in rural areas like Javakheti
- Shortage of specialists for complex conditions
- Inadequate support for people with disabilities

2. Neglect of Healthy Lifestyle Promotion
   - Inadequate promotion of healthy diets and exercise among children
   - Widespread availability and advertising of unhealthy foods and beverages
   - Absence of structured programs for encouraging lifelong healthy behaviors
3. Poverty and Health Inequities
   - Recognition of poverty as a root cause of chronic illness
   - Lack of national strategies to mitigate the health consequences of poverty
4. Demand for Stricter Regulations
   - Public support for banning energy drinks, tobacco, and alcohol for youth
   - Calls to enhance safety and infrastructure for walking and cycling
5. Overall Neglect of Public Health
   - Respondents perceive a lack of political will and priority given to prevention
   - Infrequent or ineffective public health campaigns (Diagram #1 & Diagram #2)

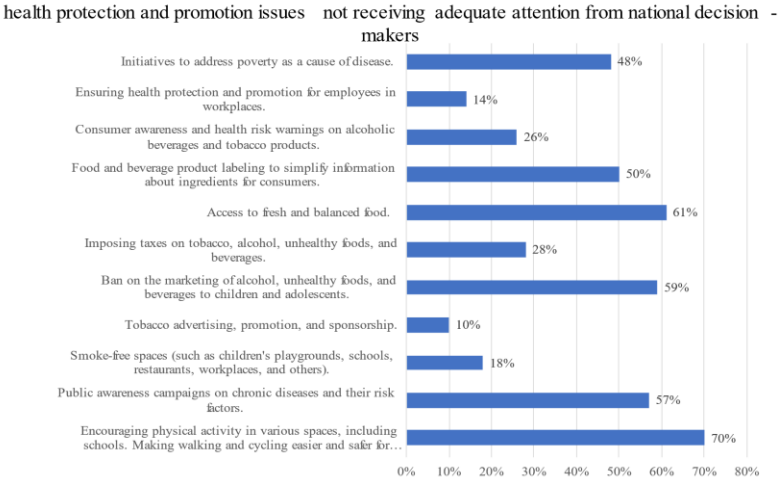

Diagram 1. Health protection and promotion issues not receiving adequate attention from national decision-makers.

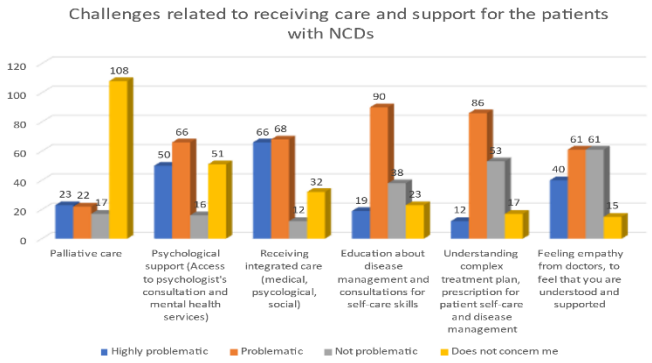

Diagram 2. Challenges related to receiving care and support for the patients with NCDs.

It needs to be emphasized, that - when asked if their NCDs could be prevented at earlier stage- 71% of respondents gave positive answer (Diagram #3).

Those participants who answered, that NCDs would have been possible to prevent, were asked further to select reason for not seeking medical care earlier. Financial difficulties, as a reason for seeking medical care late, when NCD had already worsened – was chosen by 36% of respondents; 17% selected option – "Due to travel difficulties and long distances, I sought medical care late, when my NCD had already worsened"; 15% answered – "I have little trust in my local family doctor and medical facility, so I delayed seeking medical help in other cities until my disease had already progressed" and 32% answered "Other". It should be emphasized that common topics in the comments of respondents, while explaining "other reasons" for not seeking medical care earlier were – lack of education about these conditions / low health literacy and lack of qualification of local, regional doctors (Diagram #4):

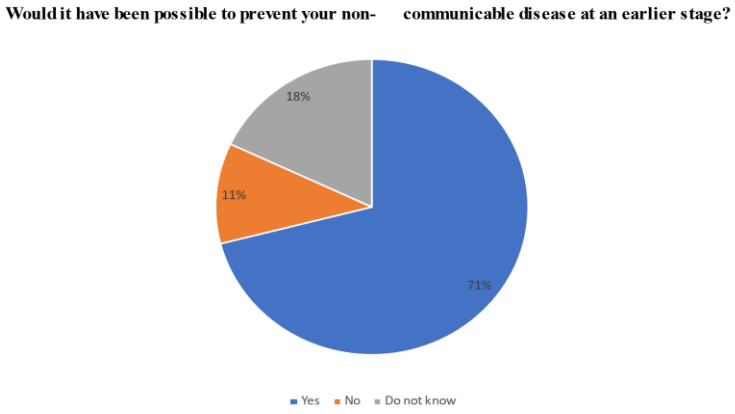

Diagram 3. Respondents' views regarding possibility of prevention of NCDs.

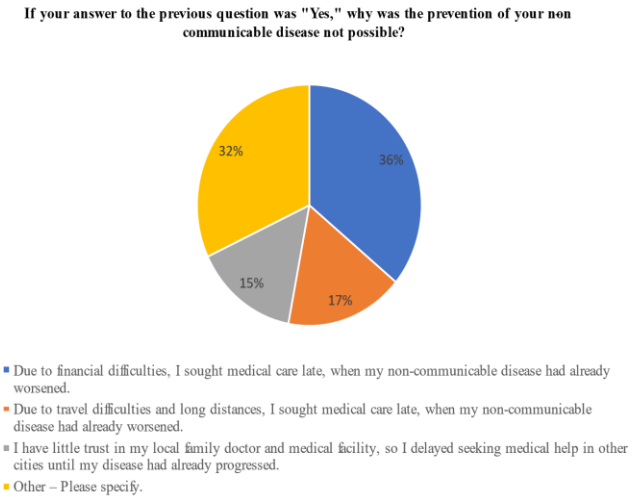

Diagram 4. Reasons why prevention of NCDs was not possible

Another topic of inquiry was public engagement in reducing NCD burden.

Participants were also asked how they would like to be involved in NCD prevention and care efforts. According to the results, 61% would share experiences with peers; 41% supported engaging in discussions with policymakers; 21% - favored contributing to awareness with healthcare providers and community organizations and 20% proposed founding new peer support networks (Diagram 5).

When asked what they needed to become more engaged in community-level NCD response, top responses included access to reliable information, support platforms, opportunities to connect with others, and structured engagement mechanisms.

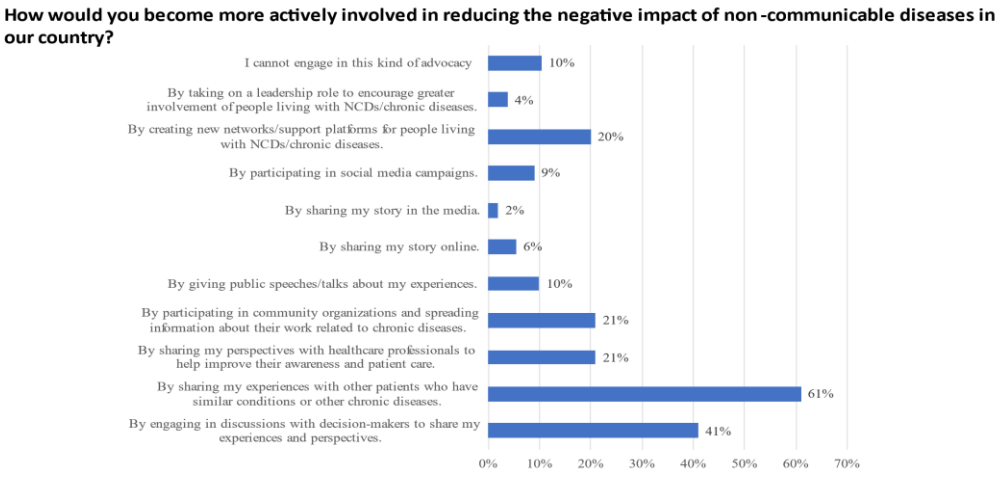

Diagram 5. Opinions of respondents how they would become more actively involved in reducing the negative impact of NCDs in the country.

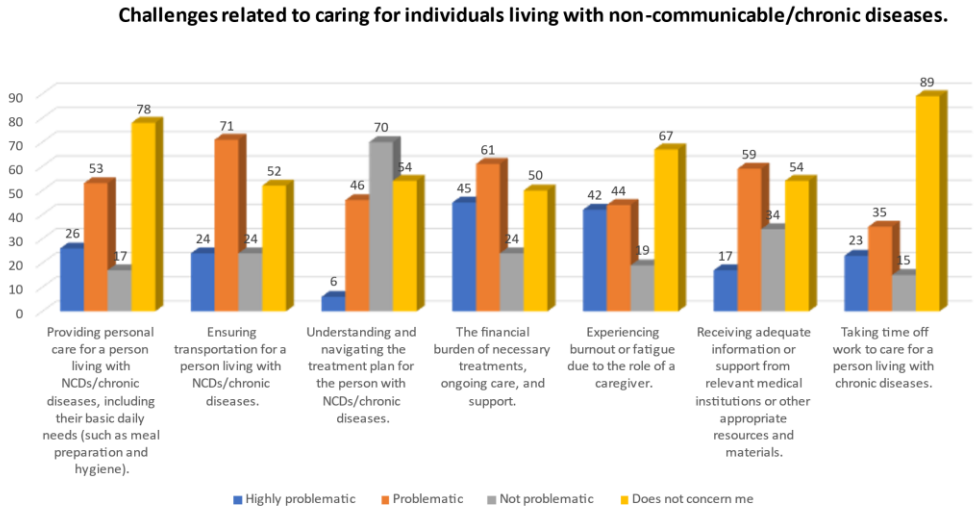

Diagram 6. Challenges related to caring for individuals living with NCDs.

To review caregiving challenges for patients with NCDs. Caregivers reported a broad array of difficulties related to providing care for individuals with NCDs.

The top-rated challenges were - financial burden, burnout, and transportation logistics. Additional concerns included:

- High cost and difficulty of hiring professional caregivers
- Inflexible workplace policies
- Caregivers quitting jobs to provide full-time support
- Lack of caregiver training and resources
- Emotional exhaustion and mental health strain
- Perceived indifference and dismissiveness from healthcare providers (Diagram 6).

Furthermore, when asked which caregiver-related issues were most neglected by government policy - 62% highlighted the lack of caregiver training, consultation, and informational support; 57% of the respondents called for better access to respite care; 42% demanded protected leave policies and 29% emphasized the need for accessible infrastructure and transport for disabled individuals (Diagram 7).

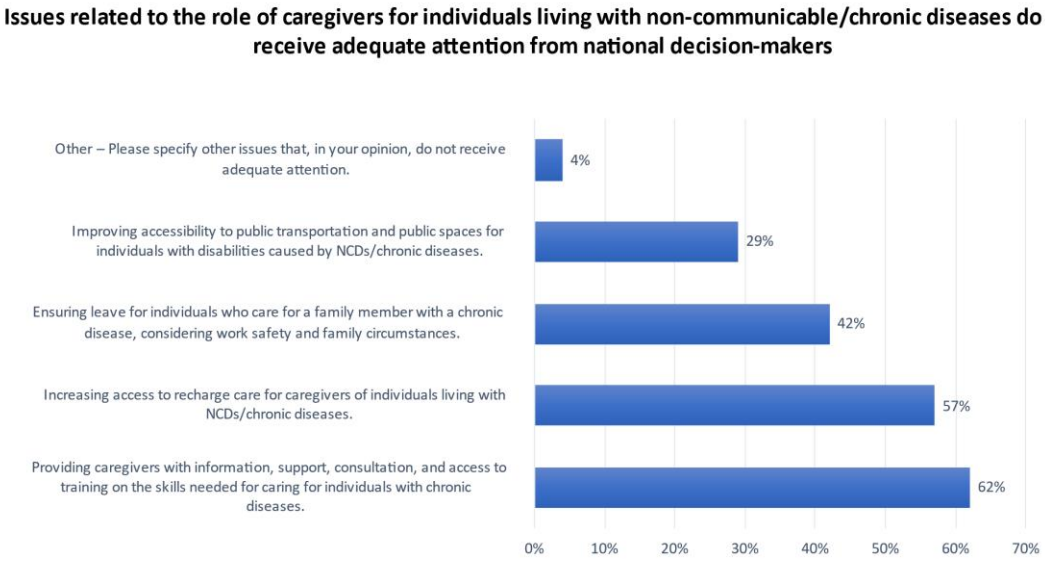

Diagram 7. Issues related to the role of caregivers for individuals with NCDs do not receiving adequate attention from national decision-makers.

These responses confirm that caregivers, like patients, face systemic, emotional, and financial burdens—and are currently underserved in Georgia's NCD response framework. Together, these findings further illustrate the broad scope of challenges faced by NCD patients and caregivers, emphasizing the urgent need for equity-based, multi-level health system reform.

Discussions

Studies in comparable resource-constrained countries have shown that investments in NCD prevention and primary care yield high returns on investment (ROI). For example, the WHO estimates that every dollar invested in strategic NCD interventions generates a return of at least seven dollars in economic benefits due to avoided treatment costs and productivity losses. A cost-effectiveness analysis from India demonstrated that community-based hypertension and diabetes screening programs saved $2–3 for every $1 spent by reducing

complications and hospitalizations. Similar outcomes were observed in Mexico and Kenya, where front-loaded investments in lifestyle interventions led to reductions in future healthcare expenditures and improved workforce stability.

In Georgia's context, delayed detection of NCDs and limited access to affordable care increase reliance on high-cost hospital services, which are financially unsustainable and less effective. This inefficiency in spending not only affects individual health outcomes but also places a long-term fiscal burden on the national healthcare budget.

From a macroeconomic perspective, failure to address NCDs effectively could have severe implications for national development. Chronic illnesses disproportionately affect working-age adults, leading to increased absenteeism, early retirement, and reduced labor market participation. This trend can undermine Georgia's human capital, decrease productivity, and reduce tax revenue, thereby slowing economic growth. Additionally, households facing catastrophic health expenditures are at greater risk of falling into poverty, further exacerbating socioeconomic disparities and weakening the consumer base needed for domestic economic resilience.

While this study does not calculate precise monetary figures for indirect costs, it does identify and contextualize them within the framework of health economics. For example, survey data revealed that many caregivers—especially women—reported job loss, reduced working hours, or inability to work due to caregiving responsibilities. These effects translate into significant productivity losses at the household and national level. Additionally, delays in seeking care due to cost or travel costs increase the long-term economic burden of NCDs through complications and hospitalizations that could have been prevented.

The findings of this study illuminate a significant economic load and structural inefficiencies within Georgia's response to NCDs, resonating with broader concerns in health economics and public finance. The combination of inadequate funding for outpatient and preventive care, inequitable access to services, and high out-of-pocket expenditures underscores the urgent need for more cost-effective health system designs. These issues directly impact economic productivity, with working-age individuals and caregivers bearing financial and psychological strain that translates to lost labor hours and reduced workforce participation.

According to World Bank data, Georgia's public expenditure on health stood at approximately 2.7% of GDP in recent years, which is below the average for Eastern Europe and Central Asia, whereas OECD countries spend an average of around 8.8% of GDP on healthcare, according to OECD Health Statistics (2022). This underinvestment is reflected in gaps in primary care, prevention, and chronic disease management—areas critical to NCD control. Additionally, over 50% of health expenditures in Georgia come from out-of-pocket payments, posing a substantial financial burden on households and leading to care delays or avoidance. The disproportionate burden on low-income and rural populations reflects not only health disparities but also economic exclusion—hindering equitable economic growth.

Investment in early detection, preventive health education, and the integration of cost-effective digital tools like telemedicine and remote monitoring are not merely health-sector improvements but economic imperatives. International evidence shows that investing in prevention and chronic care coordination can reduce long-term healthcare costs and enhance human capital outcomes. Georgia's current underinvestment in such services is a missed opportunity to mitigate future fiscal strain and social costs.

Moreover, the study's findings on the invisibility of caregivers within national policy echo economic studies highlighting unpaid labor's hidden contribution to healthcare and welfare systems. Providing financial and legal support to informal caregivers not only

addresses social justice concerns but also strengthens labor market resilience by reducing premature workforce exit, especially among women.

The observed lack of patient and caregiver inclusion in policymaking also reflects a governance deficit with economic implications. Stakeholder engagement in healthcare decision-making is associated with higher system efficiency, improved outcomes, and greater social return on investment.

Ultimately, the Georgian case demonstrates the need for a comprehensive economic strategy that integrates health sector reform with broader social protection, gender equity, and labor policy. Such an approach would move beyond siloed budgeting to a model where health investment is seen as a lever for national productivity and inclusive growth.

Conclusions and Policy Recommendations

Present study highlights the complex and interrelated challenges faced by individuals living with NCDs and their caregivers, in Georgia. Key issues identified include inadequate healthcare access, systemic inefficiencies, high financial burden, stigma and discrimination, lack of psychological support, and insufficient caregiver assistance.

Healthcare Accessibility and Infrastructure problems are one of the central findings. Patients—especially in rural areas—face prolonged waiting times and limited access to specialized care. Rehabilitation services for post-treatment recovery are underdeveloped, and the absence of a multidisciplinary approach results in fragmented and ineffective care pathways.

Financial Barriers should be emphasized as key challenge hindering seeking earlier care and prevention for the individuals living with NCDs. State health programs provide limited coverage for medications, diagnostics, and post-treatment support. Many patients face prohibitive out-of-pocket costs that delay or prevent access to timely care. Preventive services are similarly underfunded, deterring early intervention.

Widespread Social and Mental Health stigma, especially for obesity, cancer, and diabetes, impairs treatment-seeking behavior and worsens mental health outcomes. Psychological services are largely inaccessible, particularly in non-urban settings.

Lack of Prevention and Education is a common cause of delayed diagnosis. Poor public awareness and low engagement with preventive health services emerged as major barrier for the prevention and early treatment of NCDs. Schools and workplaces lack robust health promotion programs. To reduce long-term economic strain and prevent avoidable mortality, Georgia must prioritize equitable funding mechanisms and scalable preventive services at the PHC level.

Caregivers face emotional exhaustion, job loss, and lack of formal support mechanisms. Protected/paid caregiver leaves, financial aid, and respite services are currently absent from policy frameworks.

Exclusion from Policy Making. There is little to no formal involvement of patients or caregivers in the creation of health policies. Peer support networks and advocacy groups are scarce, limiting public engagement.

According to the revealed challenges and situational analysis, as well as on the basis of reviewed best practices, Policy Recommendations are as follows:

<u>In order to enhance healthcare access and infrastructure</u> - expansion of telemedicine services is highly recommended, as well as, implementing structured follow-up and rehabilitation plans.

<u>Financial Support needs to be strengthened.</u> Broadening state coverage of diagnostics, medications, and rehabilitation, provision of subsidies for lifestyle interventions and healthy food and creation of financial aid programs for low-income patients and caregivers is advised.

To Combat Stigma and Expand Mental Health Support, launching national campaigns is recommended, to normalize NCDs and reduce stigma. Moreover, it is crucial to train healthcare providers in empathy and patient-centered care and to integrate psycho-oncology and general psychological counseling into NCD programs.

For the purpose of improving Preventive Healthcare, national health education and early screening campaigns need further promotion. Furthermore, to enforce regulations on alcohol, tobacco, and unhealthy food marketing and to incorporate NCD education into school curricula should be considered.

To Support Caregivers, introducing respite care services, and policies for paid caregiver leave should be thought. Moreover, workplace flexibility and provision of caregiver training and informational support are strongly recommended.

Still another important area of focus is Facilitation of Patient Advocacy and Participation. For this purpose, creating formal mechanisms for patients and caregivers to shape policy and to support the development of peer-led support and advocacy groups should be considered, ensuring the inclusion of individuals with lived experiences in national planning.

Table 3. Summary of key challenges, impacts and recommended policy responses for NCD management in Georgia

Challenge	**Observed Impact**	**Policy Recommendation**
High out-of-pocket (OOP) expenditures	Delayed care-seeking; financial hardship; increased disease burden	Expand state insurance coverage; subsidize essential NCD medications
Rural access gaps	Inequitable access to diagnosis and treatment; geographic disparities	Strengthen PHC infrastructure in rural areas; deploy mobile/telemedicine units
Weak preventive service delivery	Late-stage disease detection; avoidable complications	Integrate NCD screening into routine PHC; fund public awareness campaigns
Caregiver burden and lack of protections	Income loss, burnout, informal/uncompensated care	Introduce caregiver leave policies and social protection mechanisms
Fragmented health information systems	Poor continuity of care; inefficiencies in tracking and planning	Implement interoperable electronic health records (EHR) systems
Low provider incentives for prevention	Overemphasis on treatment rather than prevention	Reform provider payment models to reward preventive care and early intervention

To enhance strategic planning and resource allocation, the following recommendations were analyzed and organized by timeframe and scope: short-term vs. long-term and low-cost vs. systemic reform.

Short-Term and Low-Cost Recommendations consist of:

- Launching national awareness campaigns to reduce stigma and promote early detection.
- Training healthcare providers in delivering empathetic, patient-centered care.
- Providing informational support and virtual peer platforms for patients and caregivers.
- Expansion of telemedicine services, particularly for rural communities.
- Strengthen school-based health education and prevention programs.

The following three reforms were prioritized based on their scope of feasibility and immediate impact:

1. Increasing funding for outpatient care and essential medications, particularly targeting low-income and rural populations;
2. Establishing structured caregiver support programs to address growing informal care burdens;
3. Expansion of telemedicine and digital health services to bridge access gaps and improve cost-efficiency.

Moreover, other recommendations concerning Medium to Long-Term Systemic Reforms include:

- Investing in rehabilitation services and multidisciplinary chronic disease management centers
- Formalizing patient and caregiver inclusion in policy development and health governance
- Implementing national NCD prevention and care strategy with integrated financing mechanisms
- Developing national NCD registry and digital health information system to enable better surveillance, outcome tracking, and policy evaluation. Robust data infrastructure is critical for designing effective interventions, monitoring program performance, and informing equitable health financing decisions.

By implementing these recommendations, Georgia can strengthen its response to the growing burden of NCDs, enhance system-wide efficiency, and significantly improve the health and wellbeing of patients and caregivers.

REFERENCES

1. Antia, N., Berg, C. J., Sturua, L., Gagnidze, N., Lomidze, G., & Goodman, M. (2022). Research capacity training on environmental health and noncommunicable diseases in the country of Georgia: Challenges and lessons learned during the COVID-19 pandemic. *International Journal of Environmental Research and Public Health, 19*(13), 8154. https://doi.org/10.3390/ijerph19138154
2. Bloom, D. E., Cafiero, E. T., Jané-Llopis, E., Abrahams-Gessel, S., Bloom, L. R., Fathima, S., & Weiss, J. (2011). *The global economic burden of noncommunicable diseases*. World Economic Forum. https://www.weforum.org
3. Cebotari, A., Garrido, L., Kangur, A., Tiffin, A., & Vtyurina, S. (2022). *Financing vaccine equity: Funding for day zero of the next pandemic* (IMF Working Paper No. 2022/099). International Monetary Fund. https://www.imf.org/-/media/Files/Publications/WP/2022/English/wpiea2022099-print-pdf.ashx
4. Chkhaidze, I., Maglakelidze, T., & Mirtskhulava, V. (2016). Chronic respiratory diseases at primary health care level in Georgia: Results of survey and spirometry testing. *Public Health of Georgia, 3*(1), 20–25.
5. Chitashvili, T. (2015). Rationale for improving integrated service delivery: reduced cost and improved care in Georgia / Justificación de la mejora en la prestación de servicios integrados: reducción de costos y mejora en la atención en Georgia. *International Journal of Integrated Care*,15. https://doi.org/10.5334/IJIC.2333.
6. European Society of Cardiology. (2020). *EAPC Country of the Month – Estonia*. Retrieved from https://www.escardio.org/Sub-specialty-communities/European-Association-of-Preventive-Cardiology-(EAPC)/Advocacy/Prevention-in-your-country/Country-of-the-Month-Estonia
7. Ferranna, M., Cadarette, D., Varghese, B., & Bloom, D. E. (2023). The macroeconomic burden of noncommunicable diseases and mental health conditions in South America: A modelling study. *PLOS ONE, 18*(6), e0285267. https://doi.org/10.1371/journal.pone.0285267

8. Gheorghe, A., Griffiths, U., Murphy, A., Legido-Quigley, H., Lamptey, P., & Perel, P. (2018). The economic burden of cardiovascular disease and hypertension in low- and middle-income countries: A systematic review. *BMC Public Health, 18*, 975. https://doi.org/10.1186/s12889-018-5806-x
9. Gotsadze, G., Tang, W., Shengelia, N., & Zoidze, A. (2017). Determinants analysis of outpatient service utilisation in Georgia: Can the approach help inform benefit package design? *Health Research Policy and Systems, 15*, Article 36. https://doi.org/10.1186/s12961-017-0197-5
10. Gugutsidze, T., Gigineishvili, D., & Kutateladze, T. (2022). Economic burden of multiple sclerosis in Georgia. *Health Economics and Policy, 4*(1), 55–64.
11. Kalra, S., Verma, M., & Sahay, R. (2023). The 5A model for non-communicable disease advocacy. *JPMA: The Journal of the Pakistan Medical Association, 73*(5), 1132–1133. https://doi.org/10.47391/jpma.23-35
12. Kiknadze, N., & Beletsky, L. (2013). Overview of the gaps in the health care legislation in Georgia. *Georgian Journal of Public Health Policy, 2*(1), 14–19. https://consensus.app/papers/overview-of-the-gaps-in-the-health-care-legislation-in-kiknadze-beletsky/3d4868e3770e5beabdc74487beb707ae/?utm_source=chatgpt
13. Leon, N., & Xu, H. (2023). Implementation considerations for non-communicable disease-related integration in primary health care: a rapid review of qualitative evidence. *BMC Health Services Research*, 23, 169. https://doi.org/10.1186/s12913-023-09151-x
14. Lomia, N., Berdzuli, N., Pestvenidze, E., Sturua, L., Sharashidze, N., Kereselidze, M., & Stray-Pedersen, A. (2020). Socio-demographic determinants of mortality from chronic noncommunicable diseases in women of reproductive age in the Republic of Georgia: Evidence from the National Reproductive Age Mortality Study (2014). *International Journal of Women's Health, 12*, 89–105. https://doi.org/10.2147/IJWH.S235755
15. Malik, M. A., & Khan, M. M. (2016). Economic burden of mental illnesses in Pakistan. *Journal of Mental Health Policy and Economics, 19*(4), 193–200.
16. Organisation for Economic Co-operation and Development (OECD). (2022). *OECD Health Statistics 2022*. OECD Publishing. Retrieved from https://www.oecd.org/en/data/datasets/oecd-health-statistics.html
17. Patel, V., & Chatterji, S. (2015). Integrating mental health in care for noncommunicable diseases: An imperative for person-centered care. *Health Affairs, 34*(9), 1498–1505. https://doi.org/10.1377/hlthaff.2015.0791
18. Russell, S., Sturua, L., Li, C., Morgan, J., Topuridze, M., Blanton, C., Hagan, L., & Salyer, S. (2019). The burden of non-communicable diseases and their related risk factors in the country of Georgia, 2015. *BMC Public Health, 19*, Article 6785. https://doi.org/10.1186/s12889-019-6785-2
19. Sulaberidze, L., Green, J., Chikovani, I., Uchaneishvili, M., & Gotsadze, G. (2018). Barriers to delivering mental health services in Georgia: A qualitative study. *BMC Health Services Research, 18*, 350. https://doi.org/10.1186/s12913-018-3161-2
20. Swecare Foundation. (2022). *The digital transformation of healthcare – Health by Sweden*. Stockholm: Swecare. https://www.swecare.se/healthbysweden/the-digital-transformation-of-healthcare/
21. World Bank. (2022). *Georgia Human Capital Review*. Washington, DC: World Bank Group. https://documents1.worldbank.org/curated/en/099435008172221325/pdf/P1735300c417d2026096d50dd8d8218cd90.pdf
22. World Health Organization. (2024). *Progress on the prevention and control of non-communicable diseases and the promotion of mental health and well-being: Report of the Secretary-General*. United Nations General Assembly Document A/79/762. https://cdn.who.int/media/docs/default-source/ncds/unsg-report-on-ncds-2025.pdf