

The Determinants of Access to Healthcare: A Review of Individual, Structural, and Systemic Factors

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Abstract

This study argues that there are various determinants of access to healthcare that may be classified into three types: individual, structural, and systemic factors. Individual characteristics include socioeconomic position, level of education, and health awareness. People with low socioeconomic status, a lack of education, and a lack of health literacy may face challenges to healthcare access. These hurdles may include a lack of mobility, a lack of awareness about the healthcare system, and a failure to recognize the value of preventative treatment. The availability and accessibility of healthcare professionals and facilities are included in the structural issues. Geographic location, population density, and the allocation of healthcare resources within a specific area might affect the availability and accessibility of healthcare professionals and facilities. Government laws and regulations, healthcare expenditures, and healthcare systems are aspects of systemic factors. Government rules and laws can have an impact on healthcare access by determining who is eligible for specific programs or services and how those programs are delivered. Healthcare funding can also influence access to healthcare by deciding who can and cannot afford to pay for care. This study used a primary dataset of 230 individuals to check the impact of individual, structural, and systemic factors on healthcare access. Various policies were also discussed, including the implementation of universal healthcare coverage, the expansion of primary healthcare services, the improvement of healthcare infrastructure, the implementation of regulations and quality standards, the expansion of public health education, the address of social determinants of health, and the overall design and funding of the healthcare system. This research underlined the importance of addressing these variables, and that governments, healthcare providers, and communities must collaborate to ensure that all individuals have access to healthcare. These variables can have a cumulative influence on a person's access to medical care, so it is critical to address all levels of factors in order to increase overall healthcare accessibility. Knowing these determinants can help shape policies and activities to increase access to healthcare for people who face difficulties.

Introduction

It is necessary to have access to healthcare in order to preserve the physical, mental, and social well-being of people as well as communities. It is a fundamental right that ought to be extended to all people, irrespective of their socioeconomic standing, race, or ethnicity, and wherever they may be geographically located [1]. People may be unable to obtain preventative care or proper intervention for illnesses if they do not have access to healthcare, which can result in more serious health issues and higher costs for healthcare in the long run. In addition, not having access to healthcare can have a considerable negative effect on an individual's quality of life. If an illness is not treated, it can lead to discomfort, disability, and even death.

Access to medical treatment is another factor that plays a significant role in determining a community's overall health and level of wellbeing. When individuals have access to medical care, they are more likely to seek treatment for illnesses and preventative care, which can help to avoid the spread of disease and enhance the health of the community as a whole. This is of utmost significance in view of the ongoing public disease, which has brought to light how essential it is to have access to medical care in order to safeguard the health of the general population [2]. Access to healthcare can also serve to enhance social and economic outcomes for individuals and communities [3]. This is because having access to healthcare can help individuals maintain their health and continue to be productive, which, in turn, adds to the economy of the country.

The issue of healthcare disparities is one of the most urgent challenges associated with access to medical care. There may be differences in access to medical care depending on characteristics such as a person's race or ethnicity, their social standing, or their geographic location. These gaps can not only result in worse health outcomes for individuals and communities that do not have access to healthcare, but they can also perpetuate cycles of poverty and inequality. Studies have revealed, for instance, that people who belong to minority ethnic groups, or low-income origins, have less access to excellent healthcare services and are confronted with greater rates of chronic disease and mortality [4], [5]. In addition, people who live in rural locations frequently encounter major challenges when attempting to gain access to healthcare services. These challenges can include a lack of transportation options and a restricted number of healthcare providers.

In addition, access to medical care is not just a problem at the individual level; it is also a problem at the systemic and international levels. In many nations, the healthcare systems are not intended to provide all citizens with access to high-quality medical treatment, and individuals frequently confront financial obstacles while attempting to receive medical treatment. Many people have a considerable concern regarding the high expense of healthcare, which can be a significant hardship for individuals and families, particularly those with lower incomes. In addition, the insufficient funding in primary healthcare and mental health services, the lack of transparency in pricing, the rising cost of prescription pharmaceuticals, and the high cost of chronic illness management are some of the other key difficulties that are faced by many nations that restrict people from getting health care [6], [7]. These are some of the reasons why people in many countries are unable to receive medical treatment.

Determinants

Individual determinants

Individual determinants of access to healthcare are the characteristics that influence an individual's ability to obtain healthcare services, such as income, education level, and health literacy. These issues can have a substantial impact on an individual's ability to obtain the treatment they require to preserve their physical, mental, and social well-being. Understanding the individual factors of healthcare access is critical for resolving healthcare inequities and ensuring that all people have access to quality healthcare services.

Income is one of the most important individual determinants of access to healthcare. Individuals from low-income families are more likely to experience financial hurdles to healthcare access, such as a lack of health insurance or excessive out-of-pocket payments. Furthermore, those living in poverty may be unable to afford transportation to healthcare facilities or may be forced to choose between paying for healthcare and meeting other essential necessities. This might result in people postponing or foregoing critical healthcare services, which can lead to more serious health problems and higher healthcare costs in the long run.

Another major individual predictor of access to healthcare is education level. Individuals with a lower level of education may struggle to navigate complex healthcare systems and may be unable to make educated health decisions. They may struggle to interpret health information and may be unsure how to obtain healthcare assistance. Furthermore, people with less education are more likely to have low-paying occupations and no health insurance.

Health literacy, defined as the ability to comprehend, interpret, and apply healthcare information to make sound decisions, is another important individual factor of healthcare availability. It is critical in assessing a person's ability to obtain and benefit from healthcare services. Individuals with inadequate health literacy may struggle to grasp health information, communicate effectively with healthcare practitioners, or know how to get healthcare services. In addition, poorer health literacy is linked to greater hospitalization rates, worse health outcomes, and higher healthcare expenses.

Language challenges, disability, and cultural views can all have an impact on an individual's capacity to obtain healthcare services. Individuals who do not speak the prevailing language in their nation, for example, may encounter challenges to getting healthcare services and may be unable to effectively communicate with healthcare personnel. Individuals with disabilities, on the other hand, may face difficulties to accessing healthcare services, such as a lack of accessibility in healthcare facilities or a lack of adjustments for their unique needs. Cultural views and behaviors, such as a lack of trust in the healthcare system or a reluctance to seek treatment for certain conditions, can also impact an individual's capacity to receive healthcare services.

In conclusion, individual factors of access to healthcare, such as income, education level, and health literacy, have a crucial impact in determining whether an individual is able to obtain the care they truly require [8]–[11]. Addressing these determinants is critical for ensuring that all people have access to quality healthcare services and for minimizing healthcare disparities. Governments, healthcare providers, and communities must all work together to provide healthcare affordable, accessible, and culturally competent for all people.

Structural determinants

The variables determining the availability and distribution of healthcare services, as well as their physical accessibility, are the structural determinants of access to healthcare. These issues

can have a substantial impact on an individual's ability to obtain the treatment they require to preserve their physical, mental, and social well-being. Understanding the structural determinants of healthcare access is critical for reducing healthcare inequities and ensuring that all people have access to appropriate healthcare services.

One of the most important structural determinants of access to healthcare is the availability of healthcare services. Factors such as the number of primary healthcare facilities in a region or the number of specialists accessible to give care can all have an impact on the availability of healthcare services. Furthermore, the degree of government funding for healthcare and the general quality of the healthcare system may influence the availability of healthcare services. For example, in nations where the government does not invest sufficiently in healthcare, there may be a shortage of healthcare practitioners, particularly in rural and neglected areas, resulting in a lack of accessibility for those who reside there [7], [12], [13].

Another important structural driver of access to healthcare is the distribution of healthcare services. This relates to the geographic distribution of healthcare professionals and facilities, as well as the accessibility of services in various places. The distribution of healthcare services varies widely by country and location. Individuals living in remote locations may face major challenges to accessing healthcare services in nations with inadequate healthcare systems, such as a lack of transportation and a shortage of healthcare providers [14], [15].

Another important structural predictor of healthcare access is access to healthcare services. This refers to the physical and logistical impediments that may hinder people from receiving healthcare. These barriers may include healthcare facility location and hours, public transportation availability, and parking or other accessibility choices for those with disabilities. Access to healthcare facilities and services can be influenced by infrastructure, equipment, and medical materials, which, if insufficient, can have an impact on the quality of care that the facility can deliver.

The quality of healthcare services is another major structural driver of access to healthcare. The effectiveness, safety, and patient-centeredness of healthcare services are referred to as quality. Quality of care varies widely amongst healthcare institutions, providers, and regions, and is influenced by factors such as healthcare funding, the availability of healthcare professionals and facilities, and the overall quality of the healthcare system. Factors such as technological sophistication, the number of clinical procedures, and the availability of evidence-based treatments can all have an impact on care quality.

Structural factors of access to healthcare, such as availability, distribution, accessibility, and quality of healthcare services, play a key influence in deciding whether or not an individual can obtain the care they require. Addressing these determinants is critical for ensuring that all people have access to quality healthcare and for minimizing healthcare inequities. Governments, healthcare providers, and communities must collaborate to ensure that healthcare services are affordable, accessible, and of high quality for all people, especially those in underserved areas. This would entail investing more in healthcare infrastructure, expanding the number of healthcare practitioners, and ensuring the highest quality healthcare facilities and services [16], [17].

Systemic determinants

Systemic determinants of access to healthcare refer to the factors that affect the overall design and financing of a country's healthcare system. These factors can play a significant role in determining whether an individual is able to access the care they need to maintain their physical,

mental, and social well-being [18], [19]. Understanding the systemic determinants of access to healthcare is crucial for addressing healthcare disparities and ensuring that all individuals have the ability to access quality healthcare services.

One of the most significant systemic determinants of access to healthcare is the healthcare system's funding and financing model. This refers to the way in which healthcare services are financed and the role of different stakeholders, such as the government, private sector, and individuals, in financing healthcare. Healthcare systems that rely heavily on private healthcare providers may lead to financial barriers to accessing care for individuals without health insurance. Similarly, healthcare systems that lack government oversight or regulation may lead to unequal access to care and disparities in the quality of care provided [20]–[22].

Another important systemic determinant of access to healthcare is the healthcare system's regulation and oversight. This refers to the way in which healthcare services are regulated and the role of different stakeholders, such as the government, healthcare providers, and insurance companies, in overseeing healthcare. Healthcare systems that lack regulation and oversight may lead to poor quality of care, high healthcare costs, and disparities in access to care.

The healthcare system's reimbursement model, which refers to the way in which healthcare providers are reimbursed for the services they provide, is another systemic determinant of access to healthcare. Reimbursement models that rely heavily on fee-for-service payments may lead to overuse of healthcare services, high healthcare costs, and disparities in access to care. Furthermore, some reimbursement models might not incentivize healthcare providers to provide preventive care services, but to treat already existing chronic conditions, leading to more costly treatments and hospitalizations.

The healthcare system's primary care model is another important systemic determinant of access to healthcare. Primary care refers to the first level of contact between an individual and the healthcare system and plays a crucial role in promoting the health and well-being of individuals and communities. Countries that invest less in primary care, lack well-functioning primary care systems, or prioritize specialists over general practitioners might face disparities in access to healthcare and in health outcomes [23], [24].

Lastly, the healthcare system's human resources, which refers to the number and qualifications of healthcare providers and the way they are distributed across the country, is another key systemic determinant of access to healthcare. Countries that lack enough healthcare providers, particularly in rural and underserved areas, or that don't invest enough in their education and training might face barriers to access to healthcare services, particularly for specialized care .

In conclusion, systemic determinants of access to healthcare, such as healthcare system's funding and financing model, regulation and oversight, reimbursement model, primary care model, and human resources play a significant role in determining whether an individual is able to access the care they need. Addressing these determinants is essential for ensuring that all individuals have the ability to access quality healthcare services and for reducing healthcare disparities. Governments, healthcare providers, and communities must work together to design and implement healthcare systems that are affordable, accessible, and equitable for all individuals, particularly in areas that are underserved.

Hypothesis

This research empirically tests the following hypotheses.

H1: Individual determinants positively impacts the access to healthcare.

H2: Structural determinants a significant effect on the access to healthcare.

H3: Systemic determinants a significant effect on the access to healthcare.

Model

In multiple regression, we assume that our target variable is a linear combination of many predictor variables. If x_{nj} is the j^{th} predictor for observation n , we can describe the model as follows.:

$$y_n = \beta_0 + \beta_1 x_{n1} + \dots + \beta_D x_{nD} + \epsilon_n.$$

This may be written more concisely as

$$y_n = \boldsymbol{\beta}^\top \mathbf{x}_n + \epsilon_n.$$

It is easier to minimize this loss function when dealing with matrices rather than sums. Define \mathbf{y} and \mathbf{X} using [25]–[33].

$$\mathbf{y} = \begin{bmatrix} y_1 \\ \dots \\ y_N \end{bmatrix} \in \mathbb{R}^N, \quad \mathbf{X} = \begin{bmatrix} \mathbf{x}_1^\top \\ \dots \\ \mathbf{x}_N^\top \end{bmatrix} \in \mathbb{R}^{N \times (D+1)},$$

The loss function can be constructed in the same way as:

$$\mathcal{L}(\hat{\boldsymbol{\beta}}) = \frac{1}{2} (\mathbf{y} - \mathbf{X}\hat{\boldsymbol{\beta}})^\top (\mathbf{y} - \mathbf{X}\hat{\boldsymbol{\beta}}).$$

To evaluate the hypotheses, we used the multivariate regression model described in the public healthcare literature [1]–[6].:

$$Access_i = \alpha + \beta_1 Individual_i + \beta_2 Structural_i + \beta_3 Systemic_i + \epsilon_i$$

The basic dataset for this investigation consisted of 230 participants. The descriptions of the variables are provided in table 1.

Table 1. Variables and descriptions

Dependent variable	Variable name	Description
	access to healthcare	It refers to the ability of individuals to obtain necessary medical services and treatment. This includes access to preventative care, emergency care, and ongoing treatment for chronic conditions. It also includes the ability to afford these services and treatments, and the availability of providers and facilities in a person's area. In general, it means the availability, accessibility and affordability of health care services to the individuals.
Independent variables	<i>Variable name</i>	Description
	Individual determinants	They refer to the factors that influence a person's ability to access necessary medical services and treatment. These can include socioeconomic factors such as income, education level, and occupation, as well as demographic factors such as age, race, and gender. Other individual determinants can include factors such as insurance coverage, language barriers, and transportation availability. Additionally, certain factors such as chronic health conditions, disability or disability status, can also play a role in determining access to healthcare. In general, these factors determine the accessibility, affordability and availability of the healthcare services to the individual. Socio-economical factors such as poverty, lack of education and low-income jobs can greatly affect individuals' ability to access health care.
	structural determinants	They refer to the broader societal and economic factors that influence a person's ability to access necessary medical services and treatment. These can include factors such as the availability and distribution of healthcare resources within a community, the organization and financing of the healthcare system, and the policies and regulations that govern the healthcare system. In general, structural determinants are the broader factors that shape the healthcare system and the accessibility and affordability of healthcare for people. These factors can either facilitate or hinder the access to health care for people.
	Systemic determinants	They refer to the systemic factors that shape the broader healthcare system and influence a person's ability to access necessary medical services and treatment. These can include factors such as healthcare financing, reimbursement policies, and healthcare delivery system. These factors shape the way healthcare is provided and the access that people have to it, creating barriers or facilitators to accessing healthcare services. It also includes broader factors such as economic policies, political and administrative regulations and overall policies of the country. In summary, systemic determinants of access to healthcare are the broader factors that shape the healthcare system and influence the accessibility and affordability of healthcare for

	people. It's related to how healthcare is financed, delivered, and organized and how it is impacted by broader systemic issues such as economic, political and administrative policies of the country.
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Results

The correlation heatmap of all variables is shown in Figure 1. The graph indicates that healthcare access and other independent variables are substantially connected. The relationship is good. This suggests that when individual determinants, structural determinants, and systemic determinants increase, so does access to healthcare. The t-statistics and p-values show that the correlation connection is all positive and significant. This study suggests that governmental actions be taken to improve access to healthcare.

Figure 1. correlation heatmap of all variables

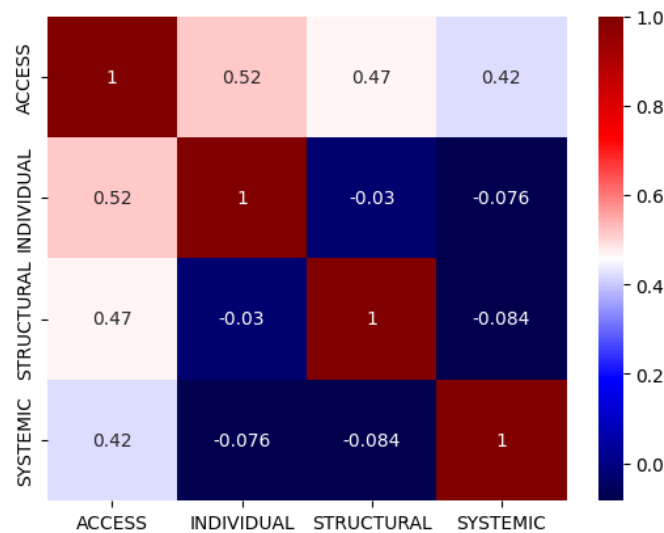


Table 2 summarizes the findings of the multivariate regression analysis. According to the table, individual variables, structural determinants, and systemic determinants all improve access to healthcare. The table also displays the t-statistic and probability values. All of the factors are significant and have a positive sign, as can be observed. Figure 2 depicts the plots of our regression model's standardized residuals. It signifies that the study model meets the residual normality condition.

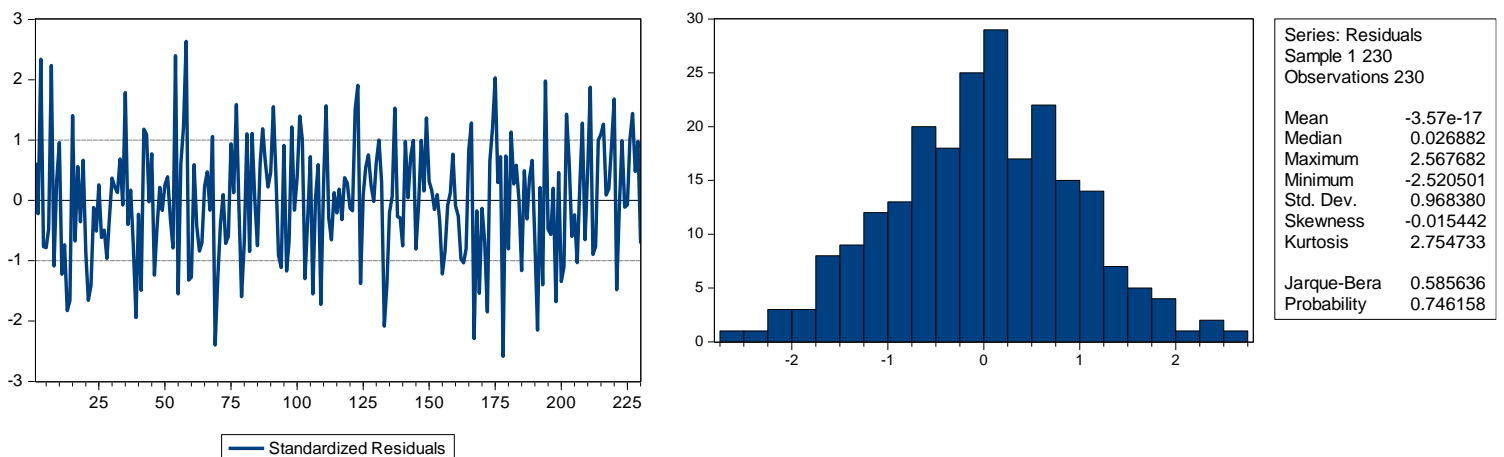
Table 2. Results from Multivariate Regression Analysis

Dependent Variable: ACCESS
 Method: Least Squares
 Sample: 1 230
 Included observations: 230

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INDIVIDUAL	1.083297	0.062630	17.29680	0.0000
STRUCTURAL	0.996002	0.062087	16.04214	0.0000
SYSTEMIC	1.041320	0.067740	15.37241	0.0000
C	-0.025308	0.065077	-0.388892	0.6977

R-squared	0.756168	Mean dependent var	0.144522
Adjusted R-squared	0.752932	S.D. dependent var	1.961104
S.E. of regression	0.974786	Akaike info criterion	2.804040
Sum squared resid	214.7468	Schwarz criterion	2.863833
Log likelihood	-318.4646	Hannan-Quinn criter.	2.828159
F-statistic	233.6231	Durbin-Watson stat	2.036023
Prob(F-statistic)	0.000000		

Figure 2. Residual diagnostic



Recommendations

Individual

Individual determinants of access to healthcare must be addressed in order to ensure access to healthcare for all individuals. This can be accomplished by enacting laws that aim to increase citizens' financial, educational, and health literacy, regardless of socioeconomic background, race, ethnicity, or geographic location.

The adoption of universal health insurance coverage is an important policy that can be undertaken to address individual determinants of access to healthcare. Universal health insurance coverage means that everyone, regardless of income, has access to high-quality

healthcare services. This can be accomplished by establishing a comprehensive healthcare system that provides access to high-quality care for all people, including those with modest incomes, using various models such as single-payer systems or a combination of public and private healthcare providers. Furthermore, governments can provide subsidies to make healthcare more inexpensive for low-income people.

Investing in public health education and outreach programs is another crucial step toward tackling individual determinants of access to healthcare. These programs can assist in educating persons about healthcare services, how to obtain them, and how to make educated health decisions. Public health education can also help to improve health literacy, which is required for people to comprehend and use healthcare services. These programs can be tailored to vulnerable areas, such as low-income and minority communities, who may have limited access to health education.

A third idea is to enhance funding for low-income and underserved populations' healthcare providers. This would contribute to an increase in the availability of healthcare services in these communities, making it easier for people to get the treatment they require. Furthermore, by offering financial incentives or subsidies, these providers can be incentivized to make their services more affordable to low-income individuals. Another key step that can help to overcome individual factors of access to healthcare is to provide language translation and cultural competency training for healthcare providers [34], [35].

Structural

To ensure access to healthcare for all persons, the structural determinants of access to healthcare must be addressed. This can be accomplished through enacting laws aimed at improving the availability, distribution, accessibility, and quality of healthcare services regardless of an individual's geography or socioeconomic situation.

The development of basic healthcare services and the rise of healthcare professionals in rural and underserved areas are two major policies that can be undertaken to address structural determinants of access to healthcare. This would contribute to an increase in the availability of healthcare services in these communities, making it easier for people to get the treatment they require. This can be accomplished by establishing primary healthcare clinics and mobile health clinics, as well as offering financial incentives to healthcare providers who work in these locations. Furthermore, telemedicine can be employed to provide remote access to healthcare services.

Improving healthcare infrastructure is another strategy that may be done to address structural determinants of access to healthcare. This can include renovating existing healthcare facilities, building new healthcare facilities in underserved areas, and making healthcare facilities accessible to people with impairments. It can also entail investment in transportation infrastructure to make it simpler for people to get healthcare services, as well as facilitating the use of technology to connect patients with doctors [36], [37].

Another key policy to address structural determinants of healthcare is to adopt rules and quality standards that ensure all healthcare providers, regardless of geography, provide the same level of service. Accreditation processes, criteria for healthcare practitioner qualifications, and standards for the quality of care provided are all examples of this. It can also refer to the use of data and technology to monitor and measure the quality of care provided in various sectors, as well as to promote healthcare transparency.

Furthermore, employing cost-cutting strategies can aid in addressing structural determinants of access to healthcare. Adopting price limitations on pharmaceuticals and medical treatments, promoting competition among healthcare providers, and implementing a more efficient healthcare system are all examples of this. Furthermore, addressing social determinants of health by giving access to food, shelter, and jobs might help to reduce healthcare expenses.

To summarize, addressing structural determinants of healthcare access necessitates a multifaceted approach that focuses on the availability, distribution, accessibility, and quality of healthcare services. Governments, healthcare providers, and communities must collaborate to ensure that healthcare services are provided, accessible, and of high quality for all citizens, particularly in underprivileged areas, and that healthcare costs are decreased without sacrificing care quality.

Systemic determinants

To ensure access to healthcare for all persons, the systemic determinants of access to healthcare must be addressed. This can be accomplished by enacting regulations and taking efforts to improve the overall design and finance of a country's healthcare system.

The introduction of universal healthcare coverage is an important policy that can be done to address systemic determinants of access to healthcare. Universal healthcare coverage implies that all individuals, regardless of ability to pay, have access to high-quality healthcare services. This can be accomplished by establishing a comprehensive healthcare system that ensures access to quality care for all people, including those with low incomes and those living in rural or underserved areas. Different methods, such as single-payer systems or a combination of public and private healthcare providers, can be used to attain universal healthcare coverage.

Increasing government funding in basic healthcare services is another critical step toward addressing systemic determinants of access to healthcare. Primary healthcare services play an important role in promoting individual and community health and well-being, and investment in these services can assist to guarantee that all individuals have access to the treatment they require. This can involve the provision of preventive care services such as immunizations, screenings, and public health education campaigns, as well as the development of primary healthcare institutions' infrastructure and human resources.

Regulation and monitoring of the healthcare system are also critical in addressing systemic determinants of healthcare access. Governments can enact policies and regulations to hold healthcare professionals accountable for providing excellent care and to avoid system abuse. Setting standards for the quality of care delivered and implementing accrediting systems for healthcare facilities are examples of such efforts. Furthermore, governments can enact legislation to increase the transparency of healthcare service costs, allowing people to make more informed decisions and controlling the rising costs of pharmaceuticals and treatments. A reimbursement model that incentivizes healthcare professionals to provide preventative treatment and focus on chronic condition management can also serve to address systemic determinants of healthcare access.

Conclusion

Individual determinants of access to healthcare include factors such as an individual's income, education level, and health literacy. Individuals from low-income families, for example, are more likely to experience financial hurdles to receiving healthcare services, such as a lack of health insurance or high out-of-pocket expenses. Individuals with lesser levels of education and

health literacy may also struggle to navigate complex healthcare systems and make informed health decisions.

The availability and distribution of healthcare services, as well as their physical accessibility, are structural determinants of access to healthcare. Individuals residing in remote areas, for example, may experience access barriers to healthcare services due to a lack of healthcare professionals or limited transportation alternatives. Furthermore, factors such as the number of primary healthcare facilities in a region or the number of experts accessible to give care may influence the availability of healthcare services.

The overall design and finance of a country's healthcare system are examples of systemic determinants of access to healthcare. For example, a healthcare system that is primarily reliant on private healthcare providers may create cost obstacles to care for people who do not have health insurance. Similarly, healthcare systems that are not overseen or regulated by the government may result in unequal access to care and differences in the quality of care offered. Access to healthcare is determined by a complex interaction of individual, structural, and systemic determinants, and addressing these determinants is critical for ensuring that all individuals have access to quality healthcare services. To provide health care services that are inexpensive, accessible, and give equal treatment to all individuals, governments, healthcare providers, and communities must take a multifaceted approach.

To ensure access to healthcare for all individuals, the individual, structural, and systemic determinants of access to healthcare must be addressed. This can be accomplished by implementing policies and measures that target various elements that affect individuals' capacity to obtain healthcare services and aim to enhance the overall design and finance of a country's healthcare system. Individual determinants of healthcare access, such as income, education level, and health literacy, can be addressed through policies and programs aimed at increasing individuals' financial, educational, and health literacy, regardless of socioeconomic status, race, ethnicity, or geographic location. For example, by instituting universal health insurance coverage and providing low-income persons with subsidies, extending public health education and outreach initiatives, and increasing funding for healthcare professionals who serve low-income and underserved communities. Furthermore, offering language translation and cultural competency training for healthcare personnel, as well as addressing social determinants of health, such as giving access to food, housing, and job, can help to address individual determinants of access to healthcare.

Policies and steps that aim to improve the availability, accessibility, and quality of healthcare services, regardless of an individual's location or socioeconomic status, can address structural determinants of access to healthcare, such as availability, distribution, accessibility, and quality of healthcare services. For example, expanding primary healthcare services and increasing healthcare providers in rural and underserved areas, improving healthcare infrastructure, implementing regulations and quality standards to ensure that all healthcare providers provide the same level of care, and implementing measures to reduce healthcare costs are all examples of systemic determinants of access to healthcare. This can involve establishing universal healthcare coverage, boosting government investment in primary healthcare services, implementing healthcare system laws and oversight, introducing a preventative care reimbursement model, and addressing the healthcare system's human resources.

Providing access to healthcare for all individuals necessitates addressing the individual, structural, and systemic determinants of healthcare access. Addressing these determinants is

critical for ensuring that all people have access to quality healthcare and for minimizing healthcare inequities.

References

- [1] R. Baeten, S. Spasova, B. Vanhercke, and S. Coster, "Inequalities in access to healthcare," *European Commission*, 2018.
- [2] M. L. Norredam, A. S. Nielsen, and A. Krasnik, "Migrants' access to healthcare," *Dan. Med. Bull.*, 2007.
- [3] D. Sakellariou and E. S. Rotarou, "The effects of neoliberal policies on access to healthcare for people with disabilities," *Int. J. Equity Health*, 2017.
- [4] M. Dixon-Woods, D. Cavers, and S. Agarwal, "Conducting a critical interpretive synthesis of the literature on access to healthcare by vulnerable groups," *BMC Med. Res. Methodol.*, 2006.
- [5] S. Y. Tang, A. J. Browne, and B. Mussell, "'Underclassism' and access to healthcare in urban centres," *Sociol. Health Illn.*, 2015.
- [6] M. Norredam, "Migrants' access to healthcare," *Dan. Med. Bull.*, 2011.
- [7] S. Zaidi, P. Saligram, S. Ahmed, E. Sonderp, and K. Sheikh, "Expanding access to healthcare in South Asia," *BMJ*, 2017.
- [8] C. Wendt, "Mapping European healthcare systems: a comparative analysis of financing, service provision and access to healthcare," *J. Eur. Soc. Policy*, 2009.
- [9] M. E. Földes and A. Covaci, "Research on Roma health and access to healthcare: state of the art and future challenges," *Int. J. Public Health*, 2012.
- [10] W. Weinlich, "Glasbeni simboli: Podobnost med simboli iz pravadnine in med risbami v zgodnjem otroštvu," *rei.pef.um.si*, 2017.
- [11] W. Weinlich, "Musikalische Symbole," *Journal of Elementary Education*, 2017.
- [12] M. Gold, "Beyond coverage and supply: measuring access to healthcare in today's market," *Health Serv. Res.*, 1998.
- [13] W. Weinlich, "Zur Bedeutung der Hattie-Studie für die Kunsterziehung," *researchgate.net*, 2018.
- [14] K. Sørensen *et al.*, "Health literacy and public health: a systematic review and integration of definitions and models," *BMC Public Health*, vol. 12, p. 80, Jan. 2012.
- [15] N. D. Berkman, S. L. Sheridan, K. E. Donahue, D. J. Halpern, and K. Crotty, "Low health literacy and health outcomes: an updated systematic review," *Ann. Intern. Med.*, vol. 155, no. 2, pp. 97–107, Jul. 2011.
- [16] G. Moscelli, L. Siciliani, and N. Gutacker, "Socioeconomic inequality of access to healthcare: Does choice explain the gradient?," *Journal of Health*, 2018.
- [17] M. Van Herp, V. Parqué, E. Rackley, and N. Ford, "Mortality, violence and lack of access to healthcare in the Democratic Republic of Congo," *Disasters*, vol. 27, no. 2, pp. 141–153, Jun. 2003.
- [18] A. Sulemana and R. D. Dinye, "Access to healthcare in rural communities in Ghana: a study of some selected communities in the Pru District," *European Journal of Research in Social*, 2014.
- [19] T. M. O'Lynnger, S. L. Zuckerman, and P. J. Morone, "Trends for spine surgery for the elderly: implications for access to healthcare in North America," 2015.
- [20] X. Zhang, M. E. Dupre, L. Qiu, and W. Zhou, "Urban-rural differences in the association between access to healthcare and health outcomes among older adults in China," *Biomed. Chromatogr.*, 2017.
- [21] I. Paterson and K. Judge, "Equality of access to healthcare," *Reducing inequalities in health*, 2003.

- [22] J. Michael and A. Richardson, "Healthcare for all: the independent inquiry into access to healthcare for people with learning disabilities," *Tizard Learning Disability Review*, 2008.
- [23] A. Bischoff and P. Hudelson, "Access to healthcare interpreter services: where are we and where do we need to go?," *Int. J. Environ. Res. Public Health*, 2010.
- [24] J. Ubido and J. Huntington, "Inequalities in access to healthcare faced by women who are deaf," *Health Soc. Care Community*, 2002.
- [25] J. Salah and M. Darus, "A subclass of uniformly convex functions associated with a fractional calculus operator involving Caputo's fractional differentiation," *Acta Universitatis Apulensis. Mathematics-Informatics*, 2010.
- [26] H. U. Rehman, M. Darus, and J. Salah, "A note on Caputo's derivative operator interpretation in economy," *J. Appl. Math.*, 2018.
- [27] H. Rehman, M. Darus, and J. Salah, "Coefficient properties involving the generalized k-Mittag-Leffler functions," *tjmm.edyropress.ro*, 2017.
- [28] J. Y. Salah, "A note on gamma function," *researchgate.net*, 2015.
- [29] J. Salah, "Fekete-szegö problems involving certain integral operator," *ijmtjournal.org*, 2014.
- [30] J. Salah, "A note on the modified Caputo's fractional calculus derivative operator," *Far East J. Math. Sci.*, vol. 100, no. 4, pp. 609–615, Sep. 2016.
- [31] J. Salah and S. Venkatesh, "Inequalities on the Theory of Univalent Functions," *Journal of Mathematics and System*, 2014.
- [32] J. Y. Salah, "A note on the Hurwitz zeta function," 2017.
- [33] J. Y. Salah, "CLOSED-TO-CONVEX CRITERION ASSOCIATED TO THE MODIFIED CAPUTO'S FRACTIONAL CALCULUS DERIVATIVE OPERATOR," *Far East J. Math. Sci.*, 2017.
- [34] K. Wahlbeck, K. Manderbacka, L. Vuorenkoski, and H. Kuusio, "Quality and equality of access to healthcare services," *Health QUEST country*, 2008.
- [35] I. I. Kyriopoulos, D. Zavras, and A. Skroumpelos, "Barriers in access to healthcare services for chronic patients in times of austerity: an empirical approach in Greece," *Int. J. Forecast.*, 2014.
- [36] A. Kasthuri, "Challenges to healthcare in India-The five A's," *Indian J. Community Med.*, 2018.
- [37] P. Chauvin, I. Parizot, and N. Simonnot, "Access to healthcare for undocumented migrants in 11 European countries," 2009.