

Internet Connectivity: A New Social Determinant of Health

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According to the World Health Organization (WHO), the social determinants of health (SDH) are the conditions under which people are born, grow, work, live and age, as well as the broader set of forces and systems that shape the conditions of everyday life. These forces and systems include economic policies and systems, development agendas, social norms, social policies and political systems ^[1]. The SDH affects the entire population; it is the progenitor of the social gradient, and this in turn can give rise to a health gradient. People in the middle of the socioeconomic scale have worse health status than those at the top; people further down the scale have even worse health status ^[2].

The expression “social determinants” summarizes the set of social, political, economic, environmental and cultural factors that have a major influence on health status. In 2009, the WHO Commission on Social Determinants of Health concluded that health inequities between and within countries are becoming increasingly acute. There is a difference of more than 40 years in life expectancy between the richest and poorest countries; moreover, in all countries, regardless of their income level, there are large inequalities between different population groups with respect to health status ^[3]. In high-income countries, differences of more than 10 years can be observed in the life expectancy of different groups, depending on factors such as ethnicity, gender, socioeconomic status or geographical area. Such a situation is not an inevitability, but rather a symptom of failed policies and inequities in living conditions, access to power and resources, and participation in society ^[3].

The SDH account for 30% to 55% of health outcomes ^[1], although experts estimate 80% to 90% of an individual’s health status and that such factors are more likely to be a major contributor to premature death ^[4]. The social determinants of health are not a new topic; however, they have gained increasing recognition. Healthy People 2030, a disease promotion and prevention program to improve the health of Americans, also addresses the social determinants of health ^[5].

There are multiple SDH that can influence health equity, the most important being the following: education, housing or living environment, income and its distribution, stress, early life, social exclusion, work, unemployment, social support, addiction, food, and transportation. Also included are the health system, gender, sexual orientation, social safety net, culture or social norms, media, stigma and discrimination, social capital, conflict, rule of law, racism, racialized legal status, immigration, family, religion, colonialism and marginalization, “time”, among others ^{[1][6]}.

Digital literacy and Internet connectivity have been called the “super social determinants of health” because they play a critical role in health care outcomes and influence the traditionally recognized social determinants of health ^{[7][8][9]}.



In 2017, the American Medical Informatics Association urged the Federal Communications Commission (FCC) to consider broadband Internet access (BIA) as a social determinant of health and ensure equitable access to this resource [10]. Access to information is not usually considered a social determinant of health, but it can now be considered as such because access to timely and reliable information is essential^[10].

The application of Information and Communication Technologies (ICT) in the healthcare system has incorporated terms such as e-Health, m-Health, telehealth and telemedicine, which have multiple applications and benefits for both healthcare professionals and healthcare users, and has also given rise to new roles for both actors. In this scenario a new actor emerges, known as the “e-patient”, who actively collects health and disease information, generating a new interaction between the physician and the better informed patient^[11]. Health information on the Internet increases people’s knowledge, participation and competence with respect to health decision-making strategies^[12].

Having BIA means achieving download speeds of at least 25 megabits per second (Mbps) and upload speeds of at least 3 Mbps, allowing data to be transmitted at high speeds^[13]. In 2021, Peru ranked fourth among the six main Latin American economies in terms of fixed broadband internet, reporting a download speed of 40.65 Mbps. Callao and Lima achieved the highest average speeds with 43.87 Mbps and 43.66 Mbps, respectively, while Loreto and Huancavelica reported the lowest speeds with 2.05 Mbps and 6.62 Mbps, respectively^[14].

Globally, the offline population is estimated at 2.6 billion people in 2023, down from an estimated 2.7 billion

unconnected people in 2022^[15]. The number of Americans without access to fixed terrestrial broadband service at 25/3 Mbps continues to decline, dropping by more than 14% in 2018 and by more than 30% between 2016 and 2018. The vast majority of Americans (>85%) now have access to terrestrial fixed broadband service at 250/25 Mbps, an increase of 47% since 2017^[16].

In Peru, the digital divide continues to be considerable and highly disparate, going from 2 million fixed connections in 2015 to 3.13 million connections in 2022. The regions with the highest fixed Internet penetration are Lima (69%), Arequipa (44%), and Tacna (43%), in contrast to the regions of Ucayali (4%), Loreto (2%), and Amazonas (2%), which have the lowest fixed Internet access rates^[17]. Fixed Internet connections usually have a higher connection speed and unlimited data download capacity; however, their overcrowding requires a greater deployment of infrastructure (fiber optics). The amount of optical fiber deployed nationwide increased from 13.4 thousand to 104 thousand km in the period 2013-2022^[17].

In conclusion, connectivity is a new determinant and has an influence on the rest of the determinants. In Peru, broadband Internet access requires investment in infrastructure to expand fiber optic networks or alternative technologies. Significant progress has been made in expanding Internet coverage; however, sufficient economic resources and political will are needed to prioritize it as a social asset. It is essential to have access to appropriate equipment and devices to connect to the Internet, as well as to provide promotion and training to achieve digital literacy, which can help strengthen self-care and reduce inequalities in access to health services.

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