Social change and household access to healthcare facilities: insights from selected states in Nigeria

Mudanças sociais e acesso das famílias a serviços de saúde: *percepções de alguns estados da Nigéria*

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Abstract: The intricate web of societal structures and community-level interactions profoundly influences health-seeking behaviors and ultimate outcomes across the nation. Therefore, the purpose of this paper is to look into social change and household access to healthcare facilities: insights from selected states in Nigeria. Specifically, it examined: the effect of social contact, people need and technological change on household access to healthcare facilities. Cross-sectional research design was adopted with a population of 14700 total population of farmers across the three NGOs. 374 sample size were administered structured questionnaire. PLS-SEM was used to evaluate the data collected. Results showed that technological change has the biggest impact on household access to healthcare facilities ($\beta = 0.301$, $t = 5.726$, $p < 0.000$), followed by people need ($\beta = 0.205$, $t = 2.777$, $p < 0.006$), and social contact ($\beta = 206$, $t = 2.518$, $p = 0.012$). It concluded that social change is significantly vital for household access to healthcare facilities in selected states in Nigeria. It therefore strongly recommended that social contract between farmers, healthcare providers, and government agencies should be established to promote access to quality healthcare and reduce poverty levels among farmers by establishing monitoring mechanisms.
Keywords: Healthcare Facilities. Household Access. Social Change. Social Contact. Technological Change.

Resumo: A complexa teia de estruturas sociais e interações em nível comunitário influencia profundamente os comportamentos de busca por saúde e os resultados finais em todo o país. Portanto, o objetivo deste artigo é analisar a mudança social e o acesso domiciliar a instalações de saúde: insights de estados selecionados da Nigéria. Especificamente, examinou: o efeito do contato social, das necessidades das pessoas e das mudanças tecnológicas no acesso domiciliar às unidades de saúde. O desenho transversal de pesquisa foi adotado com uma população total de 14.700 agricultores nas três ONGs. 374 amostras foram aplicadas ao questionário estruturado. O PLS-SEM foi usado para avaliar os dados coletados. Os resultados mostraram que a mudança tecnológica tem o maior impacto no acesso domiciliar às instalações de saúde ($\beta = 0{,}301$, $t = 5{,}726$, $p < 0{,}000$), seguida pela necessidade das pessoas ($\beta = 0{,}205$, $t = 2{,}777$, $p < 0{,}006$) e contato social ($\beta = 206$, $t = 2{,}518$, $p = 0{,}012$). Concluiu que a mudança social é significativamente vital para o acesso das famílias a instalações de saúde em estados selecionados da Nigéria. Por isso, recomendou fortemente que um contrato social entre agricultores, profissionais de saúde e agências governamentais fosse estabelecido para promover o acesso a cuidados de saúde de qualidade e reduzir os níveis de pobreza entre os agricultores, estabelecendo mecanismos de monitoramento.
Palavras-chave: Instalações de Saúde. Acesso ao Domicílio. Mudança Social. Contato Social. Mudança Tecnológica.

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Introduction

The ability of individuals to obtain necessary medical services is a fundamental aspect of a functioning society, yet this access remains a complex challenge in many regions. In Nigeria, the journey from recognizing an illness to receiving appropriate care is often fraught with obstacles that extend beyond the clinical setting. The intricate web of societal structures and community-level interactions profoundly influences health-seeking behaviors and ultimate outcomes across the nation (Okoli, Uchendu; Ishola, 2022). This reality creates a landscape where health outcomes are not merely a product of biological factors but are deeply embedded in the social fabric (Adebayo; Oluwaseun; Iyanda, 2023). Understanding these underlying currents is therefore critical for designing effective public health interventions that are responsive to local contexts.

Examining specific regional contexts within Nigeria reveals significant disparities in how communities engage with the healthcare system. For instance, studies from Enugu State highlight how cultural perceptions of illness can dictate the first point of contact, often prioritizing traditional remedies over formal facilities (Nwosu; Eze; Onyekwelu, 2021). Similarly, research in Kano State demonstrates that gender norms and religious beliefs can significantly delay care-seeking for women, particularly for reproductive health services (Ibrahim; Sani; Bello, 2020). These localized patterns underscore that a one-size-fits-all national health policy is often inadequate for addressing the nuanced realities on the ground (Federal Ministry of Health, 2018).

The decision-making process within family units serves as a critical filter through which all health-related actions must pass. When a member falls ill, the household becomes the primary arena where resources are allocated and care options are weighed. The financial burden of treatment often forces families to make difficult choices, sometimes prioritizing the health of income-earning members over others (Chukwuma; Ekwueme; Adeyemi, 2019). This economic strain is a consistent predictor of whether a household will seek formal care or resort to self-medication and other coping strategies (Adeyinka; Ogunwale; Babalola, 2024). Consequently, the household's socioeconomic position acts as a powerful determinant of health accessibility.

Ultimately, the interplay between community norms and family-level resources creates a multifaceted barrier to achieving equitable healthcare. The persistence of these challenges suggests that infrastructural development alone, while crucial, is insufficient without concurrent social interventions. Efforts to improve health outcomes must therefore be integrative, addressing both the tangible barriers like distance and cost, and the intangible ones rooted in culture and belief systems (Olakunde; Adeyinka; Ojo, 2022). A holistic approach that acknowledges this complex synergy is essential for building a more resilient and accessible healthcare system for all Nigerians.

Social contact, or the lack thereof, can significantly impede household access to health facilities, primarily through the mechanism of social isolation. For vulnerable populations, such as the elderly or those with chronic illnesses, limited social networks directly reduce access to critical resources like transportation and information, which are often facilitated through social ties (Smith *et al*., 2021). During the COVID-19 pandemic, lockdowns and fear of infection severely limited physical social contact, leading to dramatic declines in facility-based care utilization, even for emergency conditions, as households lost the practical and motivational support needed to seek care (Hensen *et al*., 2021). Furthermore, in contexts where care-seeking is a communal decision, strained social relations within a household or community can prevent individuals from accessing necessary services, demonstrating how the quality and structure of social contact are fundamental to health access (Wamoyi *et al*., 2020).

The diverse and competing needs of individuals within a household can create significant barriers to accessing health facilities. When a household faces resource constraints, the health needs of one member are often weighed against other pressing needs, such as food security and educational expenses, leading to the postponement or cancellation of medical visits (Bennett *et al*., 2022). This is particularly true for chronic, non-communicable diseases, where the long-term, recurring costs of care are often deprioritized in favor of more immediate household crises, effectively rationing healthcare access within the family unit (Murphy *et al*., 2023). The situation is exacerbated for women and girls, whose health needs are frequently subordinated to those of other family members, reflecting intra-household power dynamics that dictate whose needs are deemed most urgent (Kabeer, 2020).

While technological advancements promise improved healthcare, they can also create and exacerbate barriers to access for many households, particularly through the digital divide. The rapid shift to telemedicine and digital health platforms assumes a baseline level of digital literacy and reliable internet access, which systematically excludes elderly, low-income, and rural populations who lack these resources (Weber *et al*., 2022). This creates a new dimension of inequality where technologically-mediated care becomes inaccessible to those already marginalized by the traditional health system (Crawford; Serhal, 2020). Moreover, the proliferation of complex digital appointment systems and electronic health records can be intimidating and confusing for individuals with low health or technological literacy, further discouraging them from seeking timely care and widening existing disparities (Nouri *et al*., 2021).

So specifically, the objectives of the study will include: to determine the effect of social contact on household access to health facility, to investigate the influence of people need on household access to health facility and to examine the influence of technological change on household access to health facility.

1 Conceptual review

1.1 Concept of social change

Social change refers to the complex, evolving patterns of interaction, influence, and relationships among individuals and groups within a society. It encompasses the ways in which social structures, norms, power hierarchies, and collective behaviors are formed, sustained, and transformed over time (Bicchieri, 2023). These processes are not static but are constantly negotiated through daily interactions, shaping everything from cultural values to economic opportunities. The study of Social change is crucial for understanding how societies function, adapt to change, and either foster cohesion or perpetuate inequality through mechanisms like social capital and network diffusion (Centola, 2021). Ultimately, it provides a lens for analyzing the fluid and interconnected nature of human social organization (Jackson, 2023).

At its core, Social change investigates the forces that drive social change, including innovation, conflict, and cooperation. It examines how individual actions aggregate to form collective outcomes that are often unpredictable from the behavior of isolated actors, a principle central to complexity theory in the social sciences (Goldstone, 2018). These emergent properties can be observed in phenomena such as the rapid spread of information, the formation of social movements, and the evolution of institutional trust. Understanding these patterns is essential for policymakers aiming to design effective interventions that account for the relational fabric of society (Edmonds, 2020). Therefore, Social change highlights the inherent interdependence within human systems and their capacity for non-linear transformation (Törnberg, 2022).

1.2 Household access to health facility

Household access to a health facility is a multidimensional concept that extends beyond mere geographical proximity to encompass the availability, affordability, and acceptability of healthcare services. It involves the capacity of a household to seek, reach, and obtain appropriate medical care when needed, without encountering prohibitive financial or social barriers (Levesque *et al*., 2023). Key dimensions include the physical distance to a functional health center, the availability of trained personnel and essential medicines, and the hours of operation, all of which directly influence utilization rates. When any of these dimensions are compromised, households face significant obstacles in achieving positive health outcomes (Olatunji *et al*., 2024).

Beyond physical and economic factors, access is profoundly shaped by socio-cultural perceptions and the quality of care received. A household's decision to utilize a health facility is influenced by their trust in the healthcare system, the perceived quality of services, and the cultural appropriateness of the care provided (Afulani *et al*., 2021). For instance, even if a clinic is nearby, fear of discrimination or poor treatment can deter individuals from seeking care. Thus, genuine access is achieved only when services are not just available but are also deemed acceptable and effective by the community they are intended to serve (Kruk *et al*., 2018). This holistic view is critical for measuring and improving healthcare delivery globally.

1.3 The effect of social change on household access to health facility

Social change profoundly influence household access to health facilities by shaping norms, social networks, and power structures that govern health-seeking behavior. For example, prevailing community norms can either stigmatize or encourage the use of certain health services, such as reproductive health or mental health care, directly impacting a household's willingness to seek help (Rudolph *et al*., 2023). Furthermore, social networks serve as critical channels for disseminating health information and facilitating collective action, such as arranging transportation or pooling resources for medical costs, thereby directly enhancing or hindering practical access (Shirado; Christakis, 2024). The structure of these networks often determines how quickly new health information is adopted and trusted within a community.

Power hierarchies and social inequalities, key components of Social change, systematically determine which households can overcome barriers to access. Gender dynamics within a household, for instance, often dictate whether a woman can seek care without male permission or has control over financial resources for health expenses (Singh *et al*., 2022). Similarly, entrenched social exclusion based on ethnicity, caste, or socioeconomic status can create invisible barriers that make health facilities unwelcoming or effectively inaccessible for marginalized groups, reinforcing health disparities (Hosseinpoor *et al*., 2023). Therefore, interventions aimed at improving health access must account for these deep-seated Social change to be effective and equitable.

1.4 Effect of social contact on household access to health facility

Social contact, encompassing formal and informal networks, serves as a critical conduit for information and resources that can significantly enhance a household's ability to access health facilities. These networks, including interactions with friends, family, neighbors, and community groups, facilitate the dissemination of vital knowledge regarding the quality of services, the reputation of providers, and the navigation of complex health system bureaucracies, thereby reducing information asymmetries that often impede access (Karangwa *et al.*, 2023).

For instance, recommendations and shared experiences within a social network can heavily influence a household's choice of a health facility and their willingness to seek care, particularly for sensitive or stigmatized conditions. Social capital, built through these contacts, can also provide tangible support such as financial assistance for transport and medical costs or direct help with childcare, making the logistical challenges of accessing care more manageable for households (Bisung *et al*., 2021). This is especially crucial in low-resource settings where systemic barriers are pronounced, as strong social cohesion can act as a collective safety net, enabling households to overcome economic and geographic constraints that would otherwise prevent them from reaching necessary healthcare services (Ackerson *et al*., 2020). Thus, we propose the first hypothesis as follows:

H1: *Social contact has a positive influence on household access to health facility*.

1.5 Effect of People Need on Household Access to Health Facility

The perceived and evaluated health needs of individuals within a household are a fundamental driver of the decision-making process to seek care from a formal health facility, yet this relationship is mediated by complex socio-cultural and economic factors. The Health Belief Model posits that the recognition of a health problem, coupled with the perceived severity of the condition and the benefits of action, is a primary trigger for health-seeking behaviour, but this is often tempered by perceived barriers such as cost, distance, and social norms (Fallon *et al*., 2021). For example, while a severe illness like a high fever in a child may be recognized as a significant need, a household's decision to access a facility can be delayed or foregone if the anticipated financial burden of treatment is deemed catastrophic, leading to reliance on self-medication or informal providers (Olayo *et al*., 2022). Furthermore, the "need" for care is not an objective standard but is socially constructed, meaning that cultural interpretations of symptoms and illness can profoundly influence whether a condition is considered worthy of professional medical attention, thereby either facilitating or hindering facility access (Sarker *et al*., 2023). Therefore, the pathway from feeling unwell to receiving care at a health facility is a complex negotiation between the acuity of the medical need and the household's capacity to act upon it within its specific context. Thus, we propose the second hypothesis as follows:

H2: *People need has a positive influence on household access to health facility*.

1.6 Effect of Technological Change on Household Access to Health Facility

Technological change, particularly the proliferation of digital health (*eHealth*) and mobile health (*mHealth*) innovations, is radically transforming the landscape of household access to healthcare facilities by bridging traditional barriers of distance and information. The widespread adoption of mobile phones has enabled the deployment of telemedicine services, allowing households in remote or underserved areas to conduct preliminary consultations with healthcare providers, which can triage cases and reduce unnecessary, costly travel while ensuring those who need in-person care are directed appropriately (Ibeneme *et al*., 2023). Mobile health applications and SMS-based reminders have proven effective in improving adherence to appointment schedules and medication regimens, thereby strengthening the continuity of care and ensuring that facility visits are more productive and timelier (Owusu *et al*., 2022). Moreover, digital platforms and

health information systems provide households with unprecedented access to information about service availability, provider quality, and real-time drug stock-outs, empowering them to make more informed decisions about when and where to seek care (Kpessa-Whyte; Oseni, 2024). These technological advancements are thus not merely additive but are fundamentally reshaping the interface between households and the formal health system, making access more efficient, informed, and responsive to patient needs. Thus, we propose the third hypothesis as follows:

H3: *Technological change has a positive influence on household access to health facility*.

1.7 Theoretical Review

1.7.1 Social Capital Theory

Social Capital Theory, propounded by Pierre Bourdieu and expanded by Robert Putnam, provides a powerful framework for analyzing how Social change influence household access to healthcare facilities in Nigeria. The theory posits that social networks, grounded in norms of reciprocity and trust, serve as valuable capital that households can mobilize to overcome healthcare barriers (Bourdieu, 1986; Putnam, 2000). In the Nigerian context, households leverage these networks to obtain crucial information about healthcare providers, secure financial assistance for medical expenses, and arrange transportation to facilities, thereby directly enabling access that would otherwise be constrained by economic and geographic limitations (Uzochukwu et al., 2021; Bamidele *et al.*, 2022). However, the theory also acknowledges its "dark side," where tight-knit networks can sometimes foster exclusion or restrict individual freedoms (Portes, 1998), and critics note it may overlook structural inequalities in favor of blaming communities for deficient social capital (Ajayi, 2020). Despite these criticisms, empirical studies consistently demonstrate that social capital acts as a critical safety net, particularly in states with weak public health systems, where formal resources are scarce and informal Social change become the primary mechanism for navigating healthcare access (Uzochukwu *et al*., 2021).

1.8 Empirical review

Pradhan and De (2025), in their article "Women's healthcare access: assessing the household, logistic and facility-level barriers in India," utilized data from the National Family Health Survey (NFHS-5) involving 108,785 women aged 15–49. Employing multivariate binary logistic regression, they found that 84% of women reported at least one barrier to healthcare access, with facility-level (55%) and logistic (51%) barriers being most prevalent. Key determinants of reduced barriers included higher education, professional employment, access to bank accounts and mobile phones, and higher household wealth. The authors concluded that illiteracy, lack of media exposure, rural residence, and poverty significantly increase perceived barriers, recommending health system strengthening and targeted health literacy interventions for disadvantaged women (Pradhan; De, 2025).

Moeti, Mokhele, and Tesfamichael (2024), in "Associating socioeconomic factors with access to public healthcare facilities using geographically weighted regression in the city of Tshwane, South Africa," applied a geographically weighted regression model to survey data from the Gauteng City-Region Observatory. Their analysis revealed that socioeconomic factors such as income, population group, and health insurance status strongly predicted spatial variation in healthcare access ($R^2 = 0.77$). Black African, low-income, and uninsured populations faced greater barriers, and the strength of these associations varied across different city regions. The study concluded that spatially nuanced, targeted interventions are necessary to address local disparities in healthcare access (Moeti *et al*., 2024).

Shobichah and Astuti (2023), in "Analysis of Social Factors In Improving Access and Utilization of Healthcare Services In the Community," adopted a mixed-methods approach combining quantitative surveys and qualitative interviews. Their findings highlighted that education, income, socioeconomic status, and awareness significantly influence healthcare access and utilization. Cultural factors, stigma, and community communication patterns also played important roles. The authors concluded that understanding these social factors is essential for designing effective interventions to improve healthcare access and utilization (Shobichah; Astuti, 2023).

3 Methodology

A cross-sectional survey was employed in this research to obtain the information they needed from their subjects. The study targeted farmers under poverty reduction agricultural programs in Lagos and Abuja, with operations in Adamawa, Kano, and Oyo States. The population comprised 4,000 Kickstart Agro farmers, 6,000 Technoserve farmers, and 4,700 Alliance for Green Revolution (AGRA) farmers as of 2021. In addition, focus group discussions were held with nine NGO representatives (three from each organization) to complement farmers' responses. This was used to support the response from the farmers.

To obtain proportional representation across the NGOs, proportionate stratified random sampling was employed. The total population of farmers across the three NGOs was 14,700, from which a sample size of 374 was derived using Krejcie and Morgan (1970). Of this, 102 farmers were drawn from Kick Started Agro (27.2%), 120 from Alliance for Green Revolution Farmers (32%), and 152 from Technoserve (40.8%), based on their relative farmer population. The sampling procedure followed a multistage approach, where respondents were first stratified by NGO and then randomly selected on a proportional basis. This ensured that every farmer had an equal chance of selection, thereby improving representativeness, fairness, and reliability of responses.

A standardized questionnaire was used to collect data. The construct validity was evaluated using convergent and discriminant methods, while internal consistency of the instrument was validated using Cronbach's Alpha coefficient. Partial least squares structural equation model analysis (PLS-SEM) was used as an inferential statistical approach to assess the extent to which the dependent variable varied as a result of changes to the independent variable in the study.

3.1 Model Specification

Household access to healthcare facilities is the dependent variable in this study report, whereas Social change is the independent variable. Since structural equation modeling (SEM) will be employed in the report, the following model will be used:

AHF = f (Social contact [CN+ SG+LL] + People need [HE+ ES+ FS] + Technological change [DR+ MI+ HA])

Where:

AHF = Household access to healthcare facilities

CN = Community Networks

SG = Support Groups

LL = Local Leaders

HE = Health Education

ES = Emotional Support

FS = Financial Support

DR = Digital Records

MI = Medical Innovations

HA = Health Apps

4 Results

4.1 Response rate

In this study, questionnaire was used to obtain the needed data from the staff of the selected farm NGOs in Nigeria. The total of 14700 farmers in the selected farm NGOs for the study represent the population of the study. From this population, sample size of 374 was drawn through the use of Krejcie and Morgan (1970) sample size determination formular. Questionnaires were filled and returned to the researcher. At the end, 19 of the filled and returned questionnaire were discarded due to incomplete response, failure to meet the criteria set by researcher. Finally, 355 questionnaire responses were used for the analysis as shown in the table 4.1.

Table 1 – Summary of response rate of the respondents

S/N	Name of NGOs	Total Distribution	Total Respondents	Total Usable	Response Rate
1	Kick Started Agro	4000	102	97	27.3
2	Alliance for a Green Revolution Farmers (AGRA)	4700	120	117	33.0
3	Technoserve	6000	152	141	39.7
Total		**14,700**	374	355	100

Source: Field Survey (2025).

Table 2 – Issues related to social change

Social Change							
S/N	**Social Contract**		**SD**	**D**	**U**	**A**	**SA**
1	The farmers' NGO has helped me to come in contact with more experienced farmers.	F	22.0	83.0	110.0	109.0	31.0
		%	6.2	23.4	31.0	30.7	8.7
2	The NGO has helped me to meet fellow farmers and learn and study farming seasons together.	F	23.0	72.0	106.0	128.0	26.0
		%	6.5	20.3	29.9	36.1	7.3
3	The NGO programs has enabled farmers to be recognized by the government and assess government assistant towards poverty reduction.	F	36.0	81.0	126.0	93.0	19.0
		%	10.1	22.8	35.5	26.2	5.4
S/N	**People's Needs**		**SD**	**D**	**U**	**A**	**SA**
4	The NGO has always provided my basic farming needs.	F	34.0	65.0	101.0	110.0	45.0
		%	9.6	18.3	28.5	31.0	12.7
5	My NGO always provide my needs in terms of farming support to sustain my farm.	F	22.0	83.0	110.0	109.0	31.0
		%	6.2	23.4	31.0	30.7	8.7
6	NGO program provide high yielding seedlings to farmers in order to increase their revenue.	F	10.0	66.0	128.0	115.0	36.0
		%	2.8	18.6	36.1	32.4	10.1
S/N	**Technological Change**		**SD**	**D**	**U**	**A**	**SA**
7	Advanced technologies I learnt during training and used in growing food product has enhanced my performance as a farmer.	F	47.0	78.0	139.0	78.0	13.0
		%	13.2	22.0	39.2	22.0	3.7
8	Change in the production technology I adopted due to my experience during training has helped me to produce standardized farm products.	F	30.0	86.0	104.0	111.0	24.0
		%	8.5	24.2	29.3	31.3	6.8
9	New farming apparatus provided by the NGOs has enhanced the level of technological changes among the farmers.	F	23.0	54.0	152.0	110.0	16.0
		%	6.5	15.2	42.8	31.0	4.5

Source: Field Survey (2025).

The concept of social change in the form of social contract, people's needs and technological change is encouraged by the NGO because there is need for farmers to create meaningful change in the community in which they exist by providing people's needs and contributing to farming technological changes in the community to ensure that trained farmers are change in the community in which they exist. The farmers' NGO has helped farmers to come in contact with more experienced farmers. This is supported by 61.7% of the respondents. The implication of this is that the farmers' NGO has helped farmers to come in contact with more experienced farmers and contribute towards reducing poverty level in the community.

The concept of the NGO has helped famers to meet fellow farmers and learn and study farming seasons together. This is supported by 66.0% of the respondents. This implies that the NGO has helped farmers to meet fellow farmers and learn and study farming seasons together which help reduce poverty level in the community.

The NGO programs has enabled farmers to be recognized by the government and assess government assistant towards poverty reduction. This is supported by 61.7% of the total respondents. The NGO programs has enabled farmers to be recognized by the government and assess government assistant towards poverty reduction and enhancement of poverty reduction.

The NGO has always provided farmers basic farming needs. This is supported by 59.5% of the respondents. The implication of this is that the NGO has always provided farmers basic farming needs, therefore, reduce their poverty level.

The concept of NGO always provide farmers needs in terms of farming support to sustain their farm. This is supported by 61.7% of the respondents. This implies that NGO always provide farmers needs in terms of farming support to sustain their farm, thus, reducing poverty level among farmers.

NGO program provide high yielding seedlings to farmers in order to increase their revenue. This is supported by 68.5% of the total respondents. NGO program provide high yielding seedlings to farmers in order to increase their revenue and enhanced poverty reduction among farmers.

Advanced technologies farmers learnt during training and used in growing food product has enhanced their performance as a farmer. This is supported by 61.2% of the respondents. The implication of this is that advanced technologies farmers learnt during training and used in growing food product has enhanced their performance as a farmer, hence, contribute to poverty reduction among farmers.

Change in the production technology that farmers adopted due to their experience during training has helped them to produce standardized farm products. This is supported by 60.6% of the respondents. This implies that change in the production technology that farmers adopted due to their experience during training has helped them to produce standardized farm products, therefore, reducing poverty reduction among farmers.

New farming apparatus provided by the NGOs has enhanced the level of technological changes among the farmers. This is supported by 73.8% of the total respondents. New farming apparatus provided by the NGOs has enhanced the level of technological changes among the farmers and enhanced poverty reduction among farmers.

Table 3 – Issues related to access to quality healthcare facilities

S/N	Access to Quality Healthcare Facilities		SD	D	U	A	SA
1	The farming programs of my NGO also include access to quality health treatment in the NGO selected clinics and/or hospitals.	F	38.0	67.0	100.0	95.0	55.0
		%	10.7	18.9	28.2	26.8	15.5
2	The quality farm food I now produce and eat from enhances my health.	F	26.0	69.0	107.0	95.0	58.0
		%	7.3	19.4	30.1	26.8	16.3
3	I now have access to quality health through the health programs and seminars of my NGO.	F	24.0	54.0	126.0	105.0	46.0
		%	6.8	15.2	35.5	29.6	13.0
4	The NGO programs has helped me have the capability to afford good health facility.	F	17.0	52.0	105.0	101.0	80.0
		%	4.8	14.6	29.6	28.5	22.5

Source: Field Survey (2025).

The concept of access to quality healthcare facilities in the form of quality healthcare treatment, quality farm food and health programs is encouraged by the NGO because there is need to ensure that trained farmers have access to quality healthcare facilities to improved their health and wellbeing. The farming programs of farmers NGO also include access to quality health treatment in the NGO selected clinics and/or hospitals. This is supported by 42.3% of the respondents. The implication of this is that the farming programs of the NGO also include access to quality health treatment in the NGO selected clinics and/or hospitals which contributes towards reducing poverty level and wellbeing in the community.

The concept of quality farm food farmers now produce and eat from enhances their health. This is supported by 43.1% of the respondents. This implies that the quality farm food farmers now produce and eat from enhances their health, thus, ensure that farmers and the community live healthily and reduce their level of poverty as money spent on health is reduced.

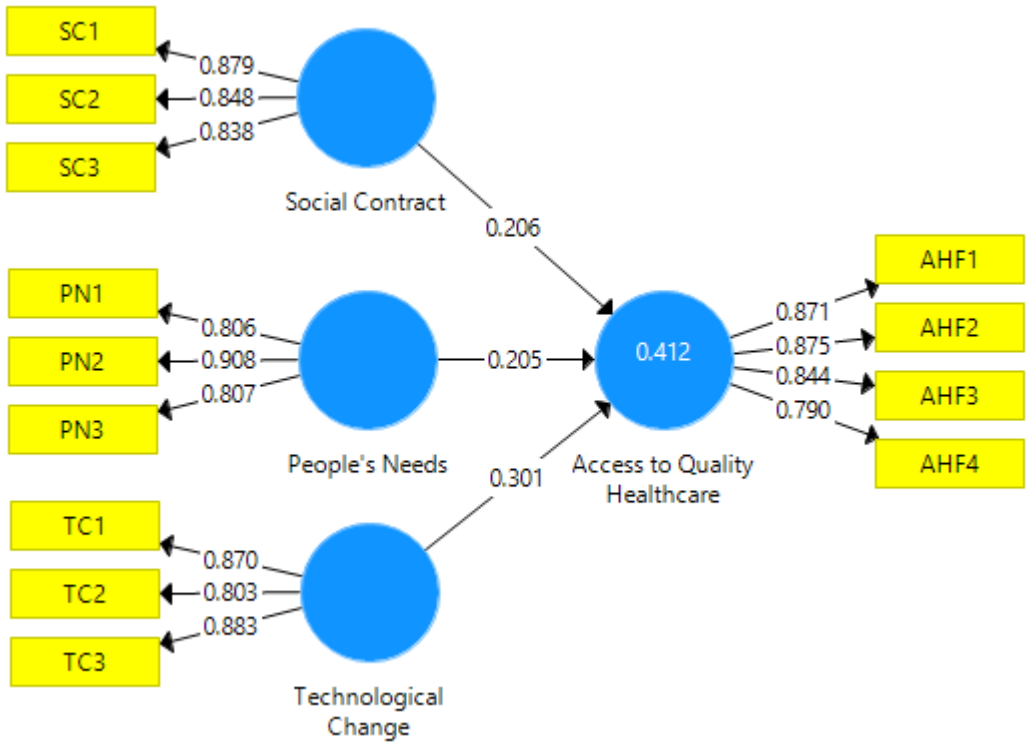
Farmers now have access to quality health through the health programs and seminars of their NGO. This is supported by 42.6% of the total respondents. Farmers now have access to quality health through the health programs and seminars of their NGO and contributes towards poverty reduction.

The NGO programs has helped farmers to have the capability to afford good health facility. This is supported by 51% of the respondents. The implication of this is that the NGO programs has helped farmers have the capability to afford good health facility, therefore, reducing their poverty level.

4.2 Test of hypothesis

In order to evaluate the effect of social change on access to quality healthcare, variables such as social contract (SC), people's needs (PN) and technological change (TC) were the variables considered for the analysis as construct for social change against access to quality healthcare facilities (AQF). The path model of the variables is shown in figure 1.

Figure 1 – A path model of social change and access to quality healthcare



Source: SmartPLS Output (2025).

Figure 1 shows the path model of the social change effect on access to quality healthcare. Social change factors adopted for the study are social contract, people's needs and technological change. These variables were checked against the access to quality healthcare proxies. The figure presents interaction effects where more than single variables contribute to the latent variables. The outer weight model varies from zero to an absolute maximum lower than 1, it has been established that the more the indicators for a latent variable, the lower the maximum and the lower the average outer model weight. The results of outer model weights justify why the weak loading could not be dropped as all the loading weights were greater than or close to 0,50. Also, these variables were major constituents of the latent variables from the literature.

Table 4 – Path Coefficient

	Access to Quality Healthcare	People's Needs	Social Contract	Technological Change
Access to Quality Healthcare				
People's Needs	0.205			
Social Contract	0.206			
Technological Change	0.301			

Source: SmartPLS Output (2025).

From the table above, people's needs, social contract and technological change all showed a positive contribution to access to quality healthcare. The absolute magnitude of the technological change gives a better coefficient about one and half of the people's needs variables. This implies that social contract, people's needs and technological change are good models for the prediction of access to quality healthcare. The identified variables contribute significantly to the prediction of access to quality healthcare in the study sampled.

Table 5 – Discriminant Validity

	Access to Quality Healthcare	People's Needs	Social Contract	Technological Change
Access to Quality Healthcare	0.846			
People's Needs	0.597	0.872		
Social Contract	0.588	0.868	0.855	
Technological Change	0.572	0.640	0.678	0.853

Source: SmartPLS Output (2025).

The Fornell-Larcker Criterion state that the square root of AVE values of each latent variable should be used to establish discriminant validity where the value obtained is greater than other correlation values among the latent variables. The values shown under the corresponding variables for each of the results is greater than any other variables value for each column i.e. access to quality health is 0.846 greater than 0.597, 0.588 and 0.572. This is the same for other variables examined. The values obtained establish and confirm discriminant validity which implies that the structural model's constructs are empirically distinct from one another and valid for analysis and inferences.

Table 6 – R Square

	R Square	R Square Adjusted
Access to Quality Healthcare	0.412	0.407

Source: SmartPLS Output (2025).

The common effect size measure in the path shows the R square of 0.412 which implies that 41.2% of the variance in access to quality healthcare can be explained by the joint model of social change proxies by social contract, people's needs and technological change. Thus, this is a high effect (i.e., the variation is greater than 25%) as the identified variables affect access to quality healthcare which implies that the remaining 58.8% is due to other variables not imputed in the model. Though, R-square greater than 80% suggests a possible multicollinearity problem (Tolerance = 1 - R^2) in this case, there is no multicollinearity problem as tolerance in this data set is greater than 0.25 at the extreme. However, adding predictors to a regression model tends to increase R^2. Adjusted R^2 of 0.407 is close to the unadjusted R square in this model because of the small number of variables involved in the model. This does not have any effect on the findings.

Table 7 – Latent variable covariance

	Access to Quality Healthcare	People's Needs	Social Contract	Technological Change
Access to Quality Healthcare	1.000	0.577	0.588	0.572
People's Needs	0.577	1.000	0.868	0.640
Social Contract	0.588	0.868	1.000	0.678
Technological Change	0.572	0.640	0.678	1.000

Source: SmartPLS Output (2025).

Social change indices contributed to access to quality healthcare in different ways. Technological change proxies contributed 57.2% to components of access to quality healthcare. This implies that technological change such as support from NGO, increased voluntary activities among the farmers, participation in farmers' NGO and the likes influence access to quality healthcare positively. Likewise, people's needs indices affect access to quality healthcare by 57.7%. With this, getting along with other trained farmers, relating well with NGO farmer trainers, and reducing the level of social exclusion have a positive influence on access to quality healthcare. Social contract results positively affect access to quality healthcare by 58.8%. This implies that trust from NGO, trust of not wasting farming products/services, and trust gained through NGO farming program positively affect access to quality healthcare.

Table 8 – F Square

	Access to Quality Healthcare	People's Needs	Social Contract	Technological Change
Access to Quality Healthcare				
People's Needs	**0.017**			
Social Contract	**0.016**			
Technological Change	0.082			

Source: SmartPLS Output (2025).

The weights of these variables are shown in the f square table where the changes in contributions of social change indices were revealed according to their importance. The contribution change of technological change metrics is 0.082, people's needs metrics are 0.017, and social contract metrics are 0.016. The implication of this is that technological change contributes most significantly to the change effect of access to quality healthcare. Thus, the sampled respondents need to take cognizance of these variables.

Table 9 – Bootstrapping path coefficients

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
People's Needs -> Access to Quality Healthcare	0.205	0.205	0.074	2.777	**0.006**
Social Contract -> Access to Quality Healthcare	0.206	0.205	0.082	2.518	**0.012**
Technological Change -> Access to Quality Healthcare	0.301	0.306	0.053	5.726	**0.000**

Source: SmartPLS Output (2025).

The PLS bootstrapping output showing the t and p-value revealed that any t value above 1.96 will be significant at a 95% confidence interval and 5% significance level. From the output result, it was observed that social contract, people's needs and technological change metrics was significant in the prediction of access to quality healthcare. The implication of this is that social contract, people's needs and technological change variables identified in the study were capable of predicting access to quality healthcare which is capable of reducing poverty level. The output of the analysis revealed that for the sampled respondents to achieve access to quality healthcare there is a need strengthen people's needs, social contract and technological change of farming to ensure that the poverty level among the sampled respondents is reduced considerably. All these social change metrics are needed for access to quality healthcare. Likewise, the farmers who are the sampled respondents need to manage social contract, people's needs and technological change results metrics effectively to enhance access to quality healthcare. However, social change metrics influence the access to quality healthcare of sampled farmers.

5 Discussion of findings

The study demonstrated a considerable link between social transformation and the availability of high-quality medical care. All weights in the path analysis were above zero, and it was shown that all proxies utilized in the study gave positive weights. These results are consistent with those of a study by Hossain, Tasnim, and Sultana (2021) who looked at the connection between social transformation and the availability of high-quality healthcare for the poor in rural areas. A good correlation between social progress and availability of high-quality healthcare was discovered in the study.

Access to quality healthcare services among the rural poor was also found to be positively impacted by proxies such as social contract, people's demands, and technological advancement. The study's findings suggest that the variables of social contract, people's wants, and technological change can be used to forecast people's access to high-quality healthcare, which in turn can affect the reduction of poverty. However, farmers' access to high-caliber medical treatment is affected by social change indicators.

Conclusion

The study draws the conclusion that social change indexes affect farmers' ability to obtain healthcare in a variety of ways. This indicates that the availability of high-quality healthcare is affected by technical development, individual need, and the outcomes of social contracts. This suggests that through social transformation, farmers are able to lessen their vulnerability to poverty by gaining access to affordable medical care. This is made possible because rising farm incomes now allow more farmers to afford better medical care.

As a recommendation, we suggest a social contract between farmers, healthcare providers, and government agencies should be established to promote access to quality healthcare and reduce poverty levels among farmers in farm NGOs by establishing clear rights and responsibilities and creating monitoring mechanisms. It's crucial to respond to farmers' healthcare concerns with individualized programmes that take into account individual characteristics like age, gender, and line of work. Healthcare delivery and access can be enhanced by embracing technological advancements like telemedicine, mobile health, and electronic health records.

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