


Association Between Perceived Access to Healthcare and the Perception of Illness Among Peruvian Adults with Chronic Diseases During COVID-19 Pandemic

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Abstract

The COVID-19 pandemic has greatly affected the provision of care for patients with chronic diseases. Due to social restrictions and reductions in contact with health services, the negative perception of chronic disease is expected to have increased. The aim of this study was to determine the association between perceived access to healthcare and the perception of illness among Peruvian population with chronic disease. It was a cross-sectional analytical study, with a sample of 987 inhabitants to whom the questionnaires “Coverage of health services” and “The Brief Illness Perception Questionnaire” (BIPQ) were applied. Having health insurance (PRa=0.683; 95% CI=0.613-0.761) acts as a protective factor for a positive illness perception of chronic disease, however, a waiting time greater than 3 months to obtain a medical appointment (PRa=1.417; 95% CI=1.319-1.522) and poor access to health services (PRa=1.435; 95% CI=1.226-1.681) resulted in the probability of a negative illness perception of chronic disease. Thus, there is an association between perceived poor access to healthcare and the negative illness perception of chronic disease in Peruvian population during pandemic COVID-19.

Keywords

health services accessibility, illness perception, chronic disease, COVID-19, cross-sectional studies

What do we already know about this topic?

The COVID-19 pandemic has greatly affected the provision of care for patients with chronic diseases.

How does your research contribute to the field?

An association has been found between perceived poor access to health services and the negative perception of chronic disease in the Peruvian population during the COVID-19 pandemic.

What are your research’s implications toward theory, practice, or policy?

The COVID-19 pandemic has greatly affected the provision of care for patients with chronic diseases, there is an urgent need to develop innovative ways of caring for patients with chronic diseases during the pandemic, so the significant development and integration of digital technology could be the most feasible solution.

Introduction

The COVID-19 pandemic has profound public health implications and has claimed the lives of 6.12 million people worldwide so far.¹ However, not all people are equally affected. One of the main risk groups is people with chronic diseases, who are 2.5 to 3.9 times more likely to contract the severe form of the disease and have a higher mortality rate.² Because these patients can only control their disease but not cure it, regular monitoring by health centers is necessary, either for the delivery of their medications, adjustment of their dose, or for routine tests.³

Chronic diseases are defined as diseases of slow progression, long duration, and characterized by no cure.⁴ The perception of chronic illness construct is the cognitive representation that an individual has of the illness.⁵ With regard to these

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cognitive assessment processes, Leventhal's self-regulation model posits that the way in which a patient deals with the disease is determined by the perceptions he has of it.⁶ Several studies have shown that these perceptions influence how people cope with the disease and adhere to treatment.^{7,8} For example, in kidney patients who required dialysis, it has been found that those who identify more with the disease perceive greater consequences and have better personal control.⁹ Dimensions such as consequences, duration, self-control and treatment control, emotional representations, and coherence are included in the perception of the disease.¹⁰

At the beginning of the pandemic, the Peruvian health system was quickly saturated, and the national state, to prevent the spread of the disease, opted for mandatory social immobilization and the postponement of care through outpatient clinics in the different hospital institutions in the country, thus making it difficult to care for patients with chronic diseases.^{11,12}

According to the latest National Household Survey (ENAHO) carried out in 2019, Peru has 13 million inhabitants who suffer from some chronic disease, of which 31% are older adults and only 44% attend or seek care for their condition.¹³ This situation has worsened with the COVID-19 pandemic, according to the Living Conditions in Peru report,¹⁴ almost half of the people who were treated for some chronic illness in the public hospitals of the Ministry of Health (MINSA) and Social Security Health (EsSalud) have stopped doing so and began to seek care in pharmacies or drugstores. Likewise, for 2021, the state has reduced the budget for the prevention and treatment of chronic diseases by more than 91 million soles, although there is sufficient scientific evidence that this group is more vulnerable to severe forms of COVID-19.¹¹

This problem raises serious concerns about the indirect impact of COVID-19 on the health of the chronically ill population due to limited access to health services and a decline in health care.^{15,16} Access to health services refers to the ease with which people can obtain the necessary health care and is defined as the opportunity to use appropriate services in proportion to the population's health care needs.¹⁷ In the same sense, the perception of healthcare access is an individual's perception about access to health services.¹⁸ This perception of obtaining coverage or effective access to health services considers 4 aspects, perceptions of availability, accessibility, acceptability, and contact.¹⁹ This perception is likely to influence the use of health care services and as a result, the level of access influences the use of medical services and, therefore, the population's health.²⁰ Previous studies have examined the relationship between access to health care and the prevalence of behavioral risks of chronic diseases.^{21,22} It is likely that a negative perception of access to medical care is associated with a negative perception of the health status of patients with chronic diseases.

To date, there is preliminary evidence that racial and socioeconomic disparities have existed in the population

affected by COVID-19, due to a lack of access to health services.^{23,24} Consequently, poor access to health services has exacerbated existing social disadvantages, further straining the health care system. As an alternative to this, telemedicine has attempted to gain more visibility²⁵; however, in Peru, there is a poor regulatory approach, a low technological capability, low social and economic viability, as well as inadequate training for health care workers, it makes difficult to monitor and adequately control patients with chronic diseases.²⁶⁻²⁸

Therefore, the study aimed to determine the association between perceived access to healthcare and the perception of illness among Peruvians with chronic diseases during the COVID-19 pandemic.

Material and Methods

Study Design and Participants

The study was analytical and cross-sectional. It was carried out in the Virgen del Carmen La Era population center in the Lurigancho-Chosica district in Lima, Peru, which has a population of 10 000 inhabitants, according to the latest national census. For the calculation of the sample, a margin of error of 3% was considered, obtaining a minimum sample size for the study of 964 samples. Participants were selected by non-probability convenience sampling. For the selection of study subjects, residents over 18 years of age with a diagnosis of chronic disease and a disease time of at least 6 months were included. Likewise, residents of pediatric age were excluded, as were those who did not reside permanently in the place of study and those who did not agree to participate in the research. The final sample consisted of 987 residents.

Data Collection

Data collection was carried out from May to July 2021, respecting social distancing and using the personal protective equipment required according to government health ministry regulations. The technique used was the survey, and the instrument was the questionnaire. The data collection was in person, complying with the COVID-19 security protocols. Before submitting the questionnaire, the participant was given an informed consent that accredits her voluntary participation and respect for the privacy and anonymity of her answers, this took approximately 20 minutes.

Instruments and Measurements

For the variable perceived access to healthcare, the questionnaire "Coverage of health services," created by Tanahashi¹⁹ in 1978 and replicated by Mancilla²⁹ in Peru in 2016, was used. The instrument showed good internal consistency with a Cronbach's alpha value of 0.738. The questionnaire consists of a total of 25 questions and is divided into 4

dimensions: accessibility (1-7 items), acceptability (8-14 items), contact (15-19 items), and availability (20-25 items). All response scales correspond to a Likert scale: Never (1), Hardly ever (2), Sometimes (3), Almost always (4), and Always (5). The final scoring scale classifies access to health services as “good” (53-105 points) and “deficient” (21-52 points).

For the perception of health status variable, the questionnaire “The Brief Illness Perception Questionnaire” (BIPQ) created by Weinman et al.⁵ and translated and validated in Spain³⁰ and Colombia¹⁰ was used. Reliability of this questionnaire was measured by test-retest with assessments at 3 and 6 weeks in which the lowest correlations were $r = .48$ at 3 weeks on the consistency scale, and $r = .42$ on the personal control at 6 weeks. It consists of 8 items, one for the identity section and 7 for the perception of the disease in general, represented by the consequences, duration, self-control and treatment control, emotional representations, and coherence subscales. It is measured on a scale from 0 to 10, depending on the degree of agreement with the proposed statements. The result can be expressed as the global sum of the 8 items, inverting items 3, 4, and 7. The final scoring scale considers values between 51 and 63 points to be negative perceptions and positive perceptions for values between 39 and 50 points.

Data Analysis

Data analysis was performed using the R program version 4.0.2 (R Foundation for Statistical Computing, Vienna, Austria; <http://www.R-project.org>). For univariate analysis, simple frequency tables were used for categorical variables; and central tendency and dispersion measures were used for numerical variables. For bivariate analysis, contingency tables and the chi-square test were used. To assess the independent association of perception of chronic disease (positive or negative) to perceived access to health services and other general variables, the prevalence ratios (PR) and their respective 95% confidence intervals (95% CI) were determined using Poisson regression models with robust variance. The analysis was adjusted for potential confounders, a $P < .05$ was considered statistically significant.

Ethical Approval Statement

The study has the approval of the Ethics Committee of Peruvian Union University (N° 743-2021/UPEU-FCS-CF) and informed consent was obtained before the application of the questionnaire.

Results

Of a total of 987 respondents, 51% were female and 49% were male. Likewise, 73% were older than 60 years, 45.1% were married or cohabiting, and 94.5% had basic education. Regarding work activity, 53.9% said they were unemployed

and 54.7% received a monthly income of fewer than 950 soles (minimum wage in Peru). On the other hand, 54.6% of the residents had health insurance and 77.3% indicated a waiting time of fewer than 3 months to get a medical appointment. The most prevalent chronic diseases were metabolic and endocrine diseases in 29.6% of the inhabitants, followed by cardiovascular disease in 16.5% and respiratory disease in 14.6% (Table 1).

As for perceived access to health services, 70.3% of the inhabitants described it as deficient, as well as in its accessibility, acceptability, contact, and availability dimensions, with 74.7%, 71.5%, 81.7%, and 78.7%, respectively (Figure 1). Meanwhile, for the perception of chronic disease, the residents identified the following as more negative aspects: identity (8.4 ± 1.8), consequences (8.3 ± 1.7), duration (6.8 ± 2.1), self-control (5.9 ± 1.3) and concern (5.9 ± 1.6) due to the disease; and as positive, coherence (2.5 ± 1.9), treatment control (4.4 ± 1.9) and emotional representation (4.9 ± 1.6). In turn, the perception of chronic disease in its global score obtains a value of 47.5 ± 3.3 , which places it in the category of positive perception (Table 2).

On the other hand, significant differences were found for the variables' health insurance ($P = .000$), the time it takes to obtain an appointment ($P = .000$), and perceived access to health services ($P = .016$) with the positive or negative perception of chronic disease (Table 3). Following that, a bivariate analysis with crude prevalence ratio (PRc) discovered an association between the variables age (PRc=1.152; 95% CI=1.011-1.313), health insurance (PRc=0.644; 95% CI=0.576-0.721), time it takes to get an appointment (PRc=0.431; 95% CI=0.347-0.536), and perceived access to health services (PRc=1.156; 95% CI=1.031-1.295) with the perception of chronic disease (Table 4).

Finally, in the multivariate analysis with Poisson adjusted prevalence ratio, the association between health insurance (PRa=0.68; 95% CI=0.61 and 0.761), the time to get an appointment (PRa=1.417; 95% CI=1.319-1.522), and perceived access to health services (PRa=1.435; 95% CI=1.226-1.681) with the perception of chronic disease (Table 4). This means that having health insurance acts as a protective factor for a positive perception of chronic disease. However, a waiting time of more than 3 months to obtain a medical appointment and poor perceived access to health services increases the probability of a negative perception of chronic disease.

Discussion

Access to health services is a fundamental social determinant for improving the availability and opportunity of quality medical care.³¹ Various studies have shown that timely and/or adequate access to these services allows early detection and treatment of diseases, postpones the deterioration of physiological function associated with the disease, restores immune function, and, ultimately, prolongs survival.³² On

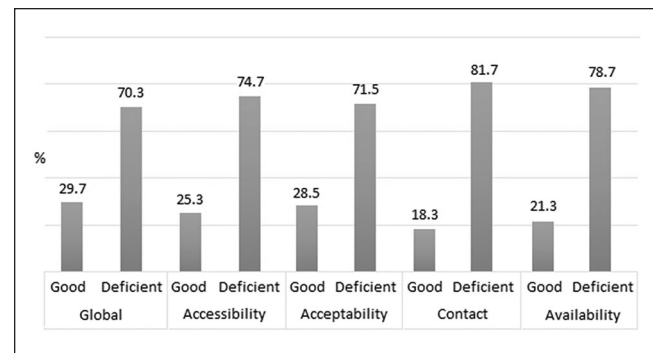
Table 1. General Characteristics of the Inhabitants of a Populated Center in Lima-Peru, 2021.

Variables		n = 987	%
Sex	Male	484	49.0
	Female	503	51.0
Age	<60 years	266	27.0
	≥60 years	721	73.0
Marital status	Single	88	8.9
	Married/Cohabitant	445	45.1
	Separated/Divorced	308	31.2
	Widow	146	14.8
Level of education	Basic education	933	94.5
	Higher education	54	5.5
Work activity	Unemployed	532	53.9
	Employee	258	26.1
	Pensioner	197	20.0
Monthly economic income (soles)	<950	540	54.7
	≥950	447	45.3
Do you have health insurance?	Yes	539	54.6
	No	448	45.4
Time it takes to get an appointment	Less than 3 months	763	77.3
	More than 3 months	224	22.7
Chronic disease you suffer from	Cardiovascular disease	163	16.5
	Respiratory disease	144	14.6
	Metabolic and endocrine disease	293	29.6
	Osteoarticular disease	126	12.8
	Renal disease	111	11.2
	Neoplasms	100	10.1
	Others	50	5.2

the other hand, inadequate access has been associated with greater psychological distress, lower levels of physical health, higher re-hospitalization rates, and overall higher risks of morbidity and mortality.^{33,34}

The study found that 70.3% of the residents rated perceived access to health services as deficient, as well as its accessibility, acceptability, contact, and availability dimensions (Figure 1). Similarly, a systematic review revealed that during the COVID-19 pandemic there was a 37% reduction in access to health services, with the greatest being people with less serious illnesses.³⁵ On the other hand, it was founded that women and people with chronic illnesses experienced significantly more cancelations of their medical appointments during the COVID-19 quarantine and those ethnic minorities and people with chronic illnesses needed a greater number of hours of care during the appointments.³⁶

Regarding the perception of the chronic disease, the study revealed that the inhabitants had a negative perception of their disease in the dimensions of identity, consequences, duration, self-control, and concern for it, meanwhile, coherence, control of the treatment, and emotional representation had positive perception. In turn, the perception of chronic disease in its global score was positive (Table 2). Similar results were found in a study from Navarra-Spain,³⁷ where most patients with chronic diseases believed that their disease

**Figure 1.** Perceived access to health services for the inhabitants of a populated center in Lima-Peru, 2021.

would last a lifetime, that they had significant control over it, that the treatment was very useful, and that they understood what their disease consisted of. On the contrary, in Medellin-Colombia, a study showed that people with chronic diseases tend to have a high understanding of their disease, in addition to perceiving that their actions and treatment allow them to control it.¹⁰

On the other hand, the study also found that having health insurance acts as a protective factor for a positive perception of chronic disease (Table 4). In contrast, it was shown that

Table 2. Perception of the Chronic Disease of the Inhabitants of a Populated Center of Lima-Peru, 2021.

Perception of the chronic disease	Min.	Max.	Me	SD
Global	39	62	47.5	3.3
Consequences	2	10	8.3	1.7
Duration	2	10	6.8	2.1
Self-control	1	10	5.9	1.3
Treatment control	1	10	4.4	1.9
Identity	2	10	8.4	1.8
Concern	2	10	5.9	1.6
Coherence	1	10	2.5	1.9
Emotional representation	1	10	4.9	1.6

Me = Arithmetic mean; SD = Standard deviation. Higher bases indicate a more threatening disease perception.

Table 3. Analysis of the General Variables and Perceived Access to Health Services According to the Perception of Chronic Illness of the Inhabitants of a Populated Center in Lima-Peru, 2021.

Variables		Perception of the chronic disease						P-value
		Total		Positive		Negative		
		n=987	%	n=552	%	n=435	%	
Sex	Female	503	51	277	50.2	226	52	.580
	Male	484	49	275	49.8	209	48	
Age	<60 years	266	27	142	25.7	124	28.5	.328
	≥60 years	721	73	410	74.3	311	71.5	
Marital status	With couple	445	45.1	242	43.8	203	46.7	.376
	Without couple	542	54.9	310	56.2	232	53.3	
Level of education	Basic education	933	94.5	519	94	414	95.2	.430
	Higher education	54	5.5	33	6	21	4.8	
Work activity	Unemployed	258	26.1	145	26.3	113	26	.405
	Employee	532	53.9	305	55.3	227	52.2	
	Pensioner	197	20	102	18.5	95	21.8	
Economic income (soles)	<950	540	54.7	290	52.5	250	57.5	.122
	≥950	447	45.3	262	47.5	185	42.5	
Do you have health insurance?	Yes	539	54.6	241	43.7	298	68.5	.000*
	No	448	45.4	311	56.3	137	31.5	
Time it takes to get an appointment	Less than 3 months	763	77.3	490	88.8	273	62.8	.000*
	More than 3 months	224	22.7	62	11.2	162	37.2	
Perceived access to health services	Good	293	29.7	181	32.8	112	25.7	.016*
	Deficient	694	70.3	371	67.2	323	74.3	
Accessibility	Good	250	25.3	95	17.2	155	35.6	.000*
	Deficient	737	74.7	457	82.8	280	64.4	
Acceptability	Good	281	28.5	194	35.1	87	20	.000*
	Deficient	706	71.5	358	64.9	348	80	
Contact	Good	181	18.3	114	20.7	67	15.4	.034*
	Deficient	806	81.7	438	79.3	368	84.6	
Availability	Good	210	21.3	123	22.3	87	20	.384
	Deficient	777	78.7	429	77.7	348	80	

*Statistical significance $P < .05$.

the lack of health insurance is associated with lower rates of preventive care, delays in care, abandonment of treatment, medical bankruptcy, and increased mortality, which translates into a worse perception of the disease.³⁸

This study also showed that a waiting time of more than 3 months to obtain a medical appointment and poor access to health services increase the probability of a negative perception of chronic disease (Table 4). A study in China

Table 4. Poisson Regression Analysis of the General Variables and Perceived Access to Health Services According to the Perception of Chronic Disease of the Inhabitants of a Populated Center in Lima-Peru, 2021.

Variables		Bivariate analysis			Multivariate analysis		
		PRc	IC 95%	P-value	PRa	IC 95%	P-value
Sex	Female	1	(Reference)		1	(Reference)	
	Male	0.969	0.868-1.083	.580	0.989	0.895-1.094	.835
Age	<60 years	1	(Reference)		1	(Reference)	
	≥60 years	1.152	1.011-1.313	.033*	1.065	0.936-1.212	.337
Do you have health insurance?	Yes	1	(Reference)		1	(Reference)	
	No	0.644	0.576-0.721	.000*	0.683	0.613-0.761	.000*
Time it takes to get an appointment	Less than 3 months	1	(Reference)		1	(Reference)	
	More than 3 months	0.431	0.347-0.536	.000*	1.417	1.319-1.522	.000*
Perceived access to health services	Good	1	(Reference)		1	(Reference)	
	Deficient	1.156	1.031-1.295	.013*	1.435	1.226-1.681	.000*

PRc = crude prevalence ratio; PRa = adjusted prevalence ratio; CI 95% = 95% confidence interval.

* $P < .05$, statistically significant.

revealed that urban patients who received medical attention for no more than 2 weeks perceived their quality of life and health better, especially in patients with poor health.³⁹ Similarly, a Canadian study (33) reported that patients with chronic medical conditions are more likely to report an unmet need for medical care, which could impact the perception of their illness.⁴⁰ The COVID-19 pandemic has greatly affected the provision of care for patients with chronic diseases.⁴¹ So, there is an urgent need to develop innovative ways of caring for patients with chronic diseases during the pandemic. Significant development and integration of digital technology could be the most feasible solution.

This study has some limitations, the cross-sectional design prevents establishing causality and convenience sampling does not allow to generalize the results, so these should be interpreted with caution. The study was carried out during the second wave of the pandemic in the country, so the information collected reflects the early stages of the pandemic. In addition, it was not asked if services have recovered to pre-pandemic levels of care. Future studies should delve into the changes related to the pandemic that have influenced access to health services (fear and socioeconomic difficulties), depending on the context and throughout the different stages of the pandemic.

Conclusion

Finally, we can conclude that the majority of participants had a poor perception of access to health services during the COVID-19 pandemic. This perceived poor access to health services was associated with the negative perception of chronic disease. A negative impact was also observed with waiting time for an appointment greater than 3 months. On the other hand, having health insurance is significantly associated with a positive perception of chronic disease.

Declaration of Conflicting Interests

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The study has the approval of the Ethics Committee of Peruvian Union University (N° 743-2021/UPEU-FCS-CF) and informed consent was considered before the application of the questionnaire.

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