CLINICAL REVIEW

Association between Provider-Patient Relationship, Communication, Accessibility Convenience, and Perceived Quality of Care from Patients Living with HIV before and during SARS-Cov-2 Pandemic

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ABSTRACT

OBJECTIVE

This study aimed to investigate the perspective of people living with HIV (PLWH) with respect to their relationship with their provider, provider communication, accessibility, and perceived quality of care before and during the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic.

DESIGN

Primary data were collected from an infectious disease clinic outpatient setting using the PSQ-18 short form. The data were collected between February and March 2021. The study population included (a) non-institutionalized individuals, (b) individuals aged 18 years and older, (c) individuals living with HIV/AIDS, and (d) individuals who had had a provider visit in the past 12 months at an infectious disease clinic.

METHODS

Multiple regression was used to assess the relationship between the dependent and independent variables using a cross-sectional quantitative analysis.

RESULTS

The study revealed a statistically significant relationship between PPR and perceived quality of care from the perspective of patients living with HIV before and during the SARS-CoV-2 pandemic.

CONCLUSION

The study results indicated that overall provider-patient relationship (PPR), communication, accessibility, and convenience were related to perceived quality of care. The study findings also revealed that PPRs can uniquely impact perceived quality of care. Provider accessibility was also found to uniquely impact a patient's perceived

quality of care. Finally, the study results demonstrated that HIV patients who have a good relationship with healthcare providers and a high level of satisfaction tend to perceive high-quality healthcare.

KEYWORDS

Provider-patient relationship; Access; HIV; SARS-CoV-2; Quality of care

INTRODUCTION

The relationships between patients living with HIV and their care providers have long been studied in the medical literature; however, this association and its impact on health outcomes are unclear. Some researchers have found a positive association between patient-provider relationships (PPR), whereas others have been inconclusive [1-3]. Similarly, communication and accessibility to care as measures of patient satisfaction have gained attention in the last two decades as a metric to evaluate healthcare facilities' performance. Perceived quality of care, on the other hand, builds on the foundation of how patients conceive and relate to their healthcare providers. The perception of the quality of care is a health system factor that influences patients' decision-making regarding their health status. Patients' perception of their health status determines how they examine their care providers and the services they receive. In this study, the provider-patient relationship is a measure of the constructs of provider interpersonal manner, and the two terms are used interchangeably. By contrast, perceived quality of care is measured by the construct of technical quality, and both terms are used interchangeably.

The imbalance between patients as consumers who need help and doctors as skilled professionals who provide critical care, medical goods, and services has gained much attention over the last two decades. Patients' perceived quality of care is as important as the providers' medical diagnoses. The paternalistic view that portrays the doctor as having the power to take control of the patient's treatment has shifted to mutual relationships [4-6]; thus, the demand to investigate how patients perceive care, their relationships with providers, and provider communication through multiple encounters has become increasingly inevitable. Integrating feedback from patients - specifically feedback from patients living with HIV/AIDS [7] - into the decision-making process [8] is associated with better health outcomes [9] and promotes patients' access to quality health care.

The transformation of HIV from a highly life-threatening disease to a manageable chronic disease [10-12] has confronted patients with HIV/AIDS and their care providers with social and cultural realities [11,13]. HIV care researchers have emphasized randomized controlled trials, clinical-based research, and evaluation of biomedical and behavioral interventions and treatment in pursuit of care, whereas sociological researchers have advocated approaches that influence cultural factors and individual behavioral outcomes [13]. A dearth of systematic research has examined provider communication and accessibility to care and satisfaction with the healthcare system and services from the perspective of HIV- positive patients despite the 37.8 million [7,14-16] people who live with the disease worldwide. The WHO reported that 27% of the world's population does not know their HIV status (as cited in [7]). Research has cited stigma as one of the underlying causes preventing individuals from being tested, disclosing their HIV status, or taking antiretroviral drugs [7]. Stigmatization can cause a person living with HIV to become disengaged from healthcare services at any level, and those who perceive a high level of stigma are over four times more likely to report poor access to care [7]. Listening to patients and incorporating their feedback into medical decisions is crucial for improving patients' access to healthcare.

PURPOSE OF THE STUDY

The researcher conducted a cross-sectional quantitative study to ascertain whether there was an association between PPR, communication, accessibility, convenience (the independent variables), and perceived quality of care (the dependent variable) from the perspective of patients living with HIV before and during the SARS-CoV-2 pandemic. Three research hypotheses were used to examine whether PPR, communication, and accessibility, held constant for other variables, could significantly predict participants' perceptions of quality of care.

RESEARCH QUESTIONS

RQ1: What is the relationship between PPR and perceived quality of care, controlling for communication and provider accessibility, from the perspective of patients living with HIV before and during the SARS-CoV-2 pandemic?

RQ2: What is the relationship between patient communication and perceived quality of care, controlling for PPR and accessibility, from the perspective of patients living with HIV before and during the SARS-CoV-2 pandemic?

RQ3: What is the relationship between accessibility and perceived quality of care from the perspective of patients living with HIV before and during the SARS-CoV-2 pandemic?

Study Population

The researcher obtained quantitative data from 58 respondents and analyzed the data to determine the significance of the research questions. The minimum sample size determined for the study was 128, but due to the SARS-CoV-2 pandemic that did not allow face-to-face data collection and the difficulties in recruiting HIV patients in the study due to stigma, only a 46% response rate was achieved. Although research has indicated that the mean response rate for patient satisfaction surveys in research is 72.1%, nearly 20% of published studies featured a response rate below 50%; therefore, the response rate in this study is similar to that of prior studies [17-18]. Additionally, other researchers have found that the patient satisfaction survey rates can range from 16% to 80% [19]. The study participants who met the recruitment criteria were (a) non-institutionalized, (b) aged 18 years or older, (c) living with HIV/AIDS, and (d) had a provider visit in the past 12 months at an infectious disease outpatient clinic. The infectious disease clinics were in Richmond, Virginia, and these clinics provide medical services to people living with HIV (PLWH). The demographic composition of the study participants was mixed, suggesting that the HIV clinic is client-centred and provides services to a wider segment of the population.

DESCRIPTIVE STATISTICS

First, descriptive statistics were collected from a sample of 58 respondents (Table 1). Seven respondents chose not to provide any demographic information in the survey; thus, the demographic data for only 51 individuals were presented. Most study participants were between the ages of 55 and 64 (27.5%), followed by those aged 35-44 (21.6%), 25-34 (17.6%), 65-74 (15.7%), and 45-54 (13.7%). Of the respondents, 72.5% identified as male and 27.5% identified as female. Most participants had completed at least a 2-year degree or some college (72.4%), and the remaining had completed a high school diploma/GED or less. Ninety-eight percent were identified as non-

Hispanics. Across races, 34.5% of participants were White, 31% were Black or African American, and the remaining were a combination of multiracial, Native Hawaiian or another Pacific Islander, or other.

Table 1: Demographic characteristics of participants.

Category	N	%
Age		
18 to 24	1	1.70%
25 to 34	9	15.50%
35 to 44	11	19.00%
45 to 54	7	12.10%
55 to 64	14	24.10%
65 to 74	8	13.80%
75 or older	1	1.70%
Gender		
Female	14	24.10%
Male	37	63.80%
Race		
Black or African American	18	31.00%
Multiracial	4	6.90%
Native Hawaiian or other Pacific Islander	1	1.70%
Not indicated	7	12.10%
Other	8	13.80%
White	20	34.50%
Hispanic Origin		
No, not Hispanic or Latino	50	86.20%
Yes, Hispanic or Latino	1	1.70%
Education		
Eighth grade or less	1	1.70%
High school graduate or GED	8	13.80%
Some college or 2-year degree	16	27.60%
Four-year college graduate	13	22.40%
More than 4-year college degree	13	22.40%

PSQ-18 INSTRUMENT

In the composite of the patients' satisfaction questionnaire (PSQ-18), the global rating for PPR falls within the category of interpersonal manner (Items 10 and 11), a measure of (a) "Doctors acted too business-like and impersonal," and (b) "My doctors treat me in a very friendly and courteous manner." Similarly, the global rating for communication on the PSQ-18 (Items 1 and 13) measures (a) "Doctors are good about explaining the reason for medical tests" and (b) "Doctors sometimes ignore what I tell them while the global rating for accessibility and convenience." Items 8, 9, 16, and 18 measure (a) "I had easy access to the medical specialists," (b) "Where I get medical care, people have to wait too long for emergency treatment," (c) "I found it hard to get an appointment for medical care right away," and (d) "I was able to get medical care whenever I needed it." On the other hand, the construct for perceived quality of care or technical quality has global ratings found in Items 2, 4, 6, and 14, which measure (a) "My doctor's office has everything needed to provide complete medical care," (b) "Sometimes doctors Make me wonder if their diagnosis is correct," and (c) "I have some doubts about the ability of the doctors who treat me."

Individual items in the PSQ-18 were averaged (Table 2). The constructs with the highest mean scores were accessibility (1.89), followed by interpersonal manner (1.40), which suggests that HIV patients' accessibility to care is significant for improving their care. Factors that prevent PLWH from accessing providers, such as logistics, including transportation and location to HIV services, must be improved. Communication had the lowest mean score, indicating that communication in HIV services could be driven by providers' authority with less patient participation.

Table 2: Descriptive statistics.

	N	Mean	SD
Technical quality	58	1.49	0.83
Interpersonal manner	58	1.41	0.83
Communication	58	1.26	0.92
Accessibility	58	1.89	0.98

DATA CLEANING AND SCREENING

The researcher tested this final model to ensure that it met all ordinary least-squares linear regression assumptions. First, to ensure that no nonlinear associations were detected, scatterplots depicting the relationships between each predictor variable and dependent variable were examined. The absence of nonlinear associations was confirmed by a non-significant Ramsey RESET test, which also tests for nonlinear combinations of independent variables to determine whether these variables would create a better fitting model. Thus, the model was correctly specified. Second, all residuals were found to be normal and confirmed via a non-significant Shapiro-Wilk test: $W(56) = 0.955$, $p = 0.11$. The researcher tested for heteroskedasticity using the Breusch-Pagan test and found a non-significant result, $X(21) = 24.985$, $p = 0.25$, indicating no issues of heteroskedasticity. This researcher found no major issues of independence of observations in the data, and the model was specified correctly (e.g., a non-significant Ramsay RESET test). Finally, the researcher found no multicollinearity issues among the variables (e.g., all VIF values below 10.0), and an outlier analysis determined that no observations had an influential or unusual impact on the regression model coefficients (e.g., no standardized residuals greater than +3.0 or less than -3.0).

RESULTS OF THE LINEAR REGRESSION MODEL

After all constructs were created, the researcher used a multiple linear regression model to examine the relationship between PPR, communication and accessibility, and perceived quality of care, controlling for other variables (Table 3). Although the respective research questions were stated to appear as stand-alone, the researcher's intention was to use all predictors in a single model. When regressing the perceived quality of care on PPR, patient communication, and provider accessibility, the R-squared for the overall model was 0.544, indicating that these three variables explained 54.4% of the variation in perceived quality of care in the model summary. The overall model was also statistically significant ($F [3, 54] = 21.467$, $p < 0.001$).

Table 3: Regression analysis summary for predicting technical quality (Coefficients).

	B	SE	*B*	*t*	*p*
Interpersonal manner	0.403	0.155	0.403	2.608	0.012
Communication	0.099	0.13	0.109	0.759	0.451
Accessibility	0.259	0.112	0.303	2.308	0.025

In the first research question, the results of the hypotheses included a p-value of (< 0.05), indicating a statistically significant relationship between the PPR and perceived quality of care from the perspective of patients living with HIV before and during the SARS-CoV-2 pandemic. When controlling for patient communication and provider accessibility, PPR significantly predicted perceived quality of care ($p < 0.05$). Specifically, every unit increase in PPR was associated with a .403 unit (Likert score) increase in perceived quality of care ($p < 0.001$). This finding suggests that PPRs influence patients' satisfaction with their level of access to health care. In addition, the mean score for interpersonal PPR was high (1.4), which demonstrated that spending time with PLWH and treating patients in a friendly and courteous manner could improve the level of care among PLWH.

For the second research question, the results were not statistically significant. Findings from the regression model showed a p-value (0.451) greater than 0.05; thus, no significant relationship was found between patient communication and perceived quality of care, holding constant for PPR and provider accessibility from the perspective of patients living with HIV before and during the SARS-CoV-2 pandemic.

In the third research question, provider accessibility significantly predicted perceived quality of care (p <0.05). There is a significant relationship between provider accessibility and perceived quality of care, holding constant for PPR and patient communication from the perspective of patients living with HIV before and during the SARS-CoV-2 pandemic. Each unit increase in provider accessibility was associated with a 0.259 unit (Likert score) increase in perceived quality of care (p <0.05). Provider accessibility had the highest mean score, demonstrating that accessibility, such as convenience and access to medical specialty, waiting time, and appointment for medical care, among others, were factors that PLWH considered when choosing their care providers.

DISCUSSION

Advances in HIV treatment and prevention should help every PLWH overcome the challenges of structural barriers in PPRs, provider communication, accessibility, and quality of care. Structural barriers in the health care system that undermine access to care, patient satisfaction, and quality of care, such as health literacy deficits, stigma, and challenges navigating the complex health system, can hamper any effort in the HIV epidemic response [20]. As reported by the CDC, of those living with diagnosed or undiagnosed HIV in 2018, nearly 56% received some form of HIV care, 50% were retained in care, and 56% were virally suppressed or lived with undetected HIV [21]. Research has revealed that white people are six times more likely to be prescribed PrEP than black people and that healthcare providers are less likely to discuss PrEP with black clients [22]. Thus, advances in HIV treatment and prevention tend to have a lesser benefit on people from ethnic, racial, and sexual minority groups [20].

This study revealed a significant relationship between PPR, provider accessibility, and high-quality care. Healthcare providers in HIV care, treatment, and prevention should incorporate PCCMs that engage patients living with HIV; doing so may require more than just medical intervention. For example, the national strategy of ending the HIV epidemic initiative by 2030 [20] would require overcoming social and structural barriers in HIV care by allowing patients to participate in the care process. As this study shows, incorporating patients' viewpoints into care must include a strategy-based biomedical intervention from social and psychological perspectives. A significant amount of effort has been put into HIV prevention and treatment in the United States, which has resulted in a 69% reduction in mortality and a 48% reduction in new diagnoses since the mid-1990s [20]; however, these efforts have been made solely through biomedical strategies. Shifting the focus to incorporating health education and promotion into an HIV prevention strategy framework that engages healthcare providers and patients would be more effective in eliminating structural barriers for PLWH. For example, research has found that only 55% of white physicians agree that patients with HIV from minority groups received less quality care than white patients [23].

The demographic characteristics of the study participants showed that the majority (24.1%) were aged between 55 years and 64 years, followed by participants aged 35 years - 44 years (19.1%) and participants aged 25 years - 34 years (15.5%). Providers should make efforts to remove systematic barriers to education and care among these

populations. To improve the health outcomes of patients living with HIV, providers should deliver healthcare services across these age categories to increase the likelihood of retention in care and the viral suppression rate. The study results revealed that 27.6% of participants had attended some college or obtained 2-years degree, 22.4% reported having a 4-years degree, and 22.4% indicated having more than a 4-years college degree. Although communication was not significantly related to perceived quality of care, providers involved in HIV care, treatment, and services should be aware of the various educational backgrounds of patients living with HIV. This information could help develop a communication network that engages patients in active communication, thus minimizing the likelihood of patients being lost to care.

STUDY IMPLICATIONS

Data from the CDC (n.d.) indicated that as of the end of 2018, an estimated 1.2 million Americans had been diagnosed with HIV; however, diagnoses in the United States have decreased by 7% among adults and adolescents between 2014 and 2018. In 2018, 37,968 people were diagnosed with HIV in the United States; 67% of the diagnoses were among gay and bisexual men, 24% were among heterosexuals, and 7% were among people who inject drugs [15]. Of the new HIV-reported diagnoses in the United States in 2018, 42% were Black or African American, a racial group that represents only 13% of the U.S. population [22]. Fifty-six percent of the new infections reported in U.S. men in 2017 were in Black and Hispanic MSM, a group representing less than 1% of the US population [20].

Despite being a highly contagious disease, the clinical implications of SARS-CoV-2 outcomes in PLWH and AIDS patients have been derived from biomedical interventions. Prior research has highlighted the paucity of published studies on the clinical outcomes of PLWH who are coinfected with SARS-CoV-2 despite 37.9 million PLWH worldwide [24]. Gervasoni et al. observed that many published studies reporting clinical outcomes in patients with HIV infected with SARS-CoV-2 were either case reports or small case series. Gervasoni et al. suggested that the results from these studies indicate that patients with controlled HIV may not be at an increased risk of SARS-CoV-2, unless the patient has a comorbidity that improves their overall risk.

The current study is important because it highlights that patients with HIV are more likely to have equal and better access to medical and non-medical services when structural barriers in healthcare are removed. The study results provide healthcare providers with the tools needed to establish proper care for patients living with HIV. The results of this study show that healthcare providers should be inclusive and provide integrated care for patients living with HIV based on PCCM. The PCCM suggests that patients should be the center of care, and providers should incorporate patient feedback into their care management.

IMPLICATIONS FOR FUTURE RESEARCH

Future researchers could examine the impact of communication and provider accessibility on perceived quality of care in HIV research during SARS-CoV-2 in other parts of Virginia that offer HIV services. Future studies could also broaden the focus of this research to include more than two infectious disease clinics. Although studies have shown that patients living with HIV who are actively on ART with moderate clinical symptoms of SAR-CoV-2 respond to COVID-19 treatment faster than the general population [25], the impact of HIV disproportionately affects people in racial and ethnic minority groups and gay and bisexual men [21]. These structural barriers could

complicate the concept of patient-centred care (PCCM), which could undermine the general level of satisfaction with healthcare services among HIV-infected patients living with HIV.

STUDY LIMITATIONS

This study has several limitations. First, it was challenging to recruit 126 participants to enroll in the study because of (a) the SARS-CoV-2 pandemic, (b) the IRB not allowing face-to-face data collection, (c) the researcher being an external investigator unaffiliated with the study site, and (d) PLWH being hard to recruit in HIV research. Although the results from this study can be used as a benchmark in HIV research, they cannot be generalized to the general population because of the small sample size. Data were collected from two infectious disease clinics in Richmond, Virginia.

CONCLUSION

This study aimed to determine the relationships between PPR, communication, accessibility, and perceived quality of care from the perspective of patients living with HIV before and during the SARS-CoV-2 pandemic. The results indicated that overall, PPR, communication, accessibility, and convenience were related to perceived quality of care. The study findings also revealed that PPRs can uniquely impact perceived quality of care. Provider accessibility was also found to uniquely impact a patient's perceived quality of care. Finally, the study results demonstrated that HIV patients who have a good relationship with healthcare providers and a high level of satisfaction tend to perceive high-quality healthcare.

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