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Mediating role of patient trust in the impact of perceived physician communication on treatment adherence and its implication in healthcare industry

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ABSTRACT

This study investigated the relationship between perceived physician communication and treatment adherence and the mediating role of patient trust in the relationship. Although various studies on the influence of modifiable factors on treatment adherence have been carried out, the specific pathways via, which such communication promotes adherence, are less known. Data was collected from 231 outpatients via an online survey and analyzed through regression analysis using Hayes process macro. Although the results showed no statistically significant direct effect between perceived physician communication and treatment adherence, patient trust was shown to fully mediate the indirect effect of the relationship. The study highlighted the importance of trust in patient–physician relationships and how it influenced treatment adherence. The findings emphasized the need for patient-centered communication approaches that enhance mutual understanding and shared decision-making. It also underscored the need for further research on the ways through which patient trust is influenced by physician communication and how to develop and implement effective communication interventions that enhance trust and improve treatment adherence among patients. Patients' feedback on their perceptions of physician communication could be gathered and used to identify areas for improvement and target training efforts.

Keywords: therapeutic alliance; treatment adherence; patient trust; patient-centered care; physician-patient relations

1. INTRODUCTION

Healthcare institutions place a major focus on communication as a result of its impact on clinical outcomes and patient experience. It is the fundamental method for diagnosing and treating diseases, managing illnesses, and avoiding a wide range of health problems (Barden et al., 2019). Targeting the quality of physician–patient communication has become crucial since there is a shift in medical care to a patient-centered approach. Effective questioning and

information transmission (task-oriented behavior), demonstrations of compassion and kindness (psychosocial behavior), and cooperation and inclusive decision-making are all essential parts of the physician–patient relationship (Dalma et al., 2020). Since patients rely on physicians for precise diagnosis and treatment, effective communication becomes a critical component of a successful relationship and positive health outcomes.

Trust and communication are referred to as instruments for enhancing patient care and satisfaction in healthcare settings. To foster an environment conducive to honest communication, some amounts of trust must be established. When patients seek medical treatment, their level of trust in their physician is extremely important as it is required at every stage of the process, from having patients share personal and sensitive health information to agreeing to medical testing and prescribed treatments (Kwame and Petrucka, 2020). Mazor et al. (2008) analyzed factors affecting the choice of rejecting or accepting pharmacologic treatment for hypertension. It was revealed that trust and satisfaction with communication had a strong correlation. Using both normative and empirical analyses, research studies have linked the degradation of doctor–patient interactions to the deterioration of physician trust. Patients who trust their physicians are more likely to divulge personal information, feel less apprehensive about their treatments, and adhere to prescribed medication.

Non-adherence is one of the most prevalent reasons for treatment failure and can have a significant financial impact on the healthcare industry (Meluch and Oglesby, 2015). Patient adherence to prescribed drugs is critical for best results, particularly in the prevention and management of chronic diseases. When patients do not adhere to their treatment plans, they may require additional medical services, such as hospitalization or readmission, which can increase healthcare costs (Azizam and Shamsuddin, 2015). According to a study by Rosen et al. (2017), patients with poor or moderate adherence had a 20% readmission rate within 30 days, compared to around 9% for those with high adherence. Non-adherence is predicted to cost the US healthcare system between $100 billion and $289 billion each year. Meanwhile, according to the Centers for Disease Control and Prevention, 20–30% of prescriptions are never filled, and only half of the patients with chronic conditions take their drugs as recommended (Brown and Bussell, 2011). Non-adherence is expected to cost the European Union 1.25 billion euros per year in missed health gains and bad health consequences (Chan et al., 2020). Furthermore, the WHO has outlined five types of non-adherence factors: patient and family-dependent factors, illness-related, treatment-related, healthcare system-related, and socio-demographic and economic variables. Communication and treatment satisfaction are related aspects of the healthcare system (Lee et al., 2022). The relationship between physician-patient communication and treatment adherence contends that physician-patient communication can improve adherence through a variety of processes. Communication helps patients understand their condition and the dangers and benefits of treatment. Support, empathy, collaborative partnerships, and patient-centered discussions all necessitate good communication and improve adherence (Gilligan et al., 2017). Doctors may also assist patients in understanding why they are taking specific prescriptions by addressing what medications are recommended (and why) as well as the risk factors associated with non-adherence. This is especially true for drugs used to treat illnesses with no obvious symptoms (Oates et al., 2020). Asymptomatic patients may believe that they do not need the medication and will instead spend their money on needs. A meta-analysis carried out by Haskard and DiMatteo (2009) revealed that physician communication is positively correlated with treatment adherence, and patients whose physician communicates poorly have a 19% greater chance of non-adherence than those whose physician communicates effectively. The findings of Świątoniowska-Lonc et al. (2020) also revealed that patient satisfaction with physician communication has a major influence on medication adherence.

Although various studies on the influence of modifiable factors on treatment adherence have been carried out, the specific pathways via which such communication promotes adherence are less known. Therefore, the objectives of this study were to understand the relationship between perceived physician communication and treatment adherence, and examine the mediating role of patient trust in the relationship.

2. MATERIALS AND METHODS

2.1 Sample and procedure

In this quantitative study, data was collected from a sample of outpatients, who had visited any public hospital in Lagos state. Patients seeking services in these hospitals represent all 36 states since Lagos state is the most culturally diverse state in Nigeria (Adewuya et al., 2016). To be included in the study, one needed to be living in Nigeria and to have consulted a physician at least twice within the last 12 months. Informed consent was sought from each participant with no negative implications for those who refused. All sections of the questionnaire were created using Google Forms, taking about 5–10 min to complete. The study was carried out from November 2022 to January 2023. The study employed a snowball sampling technique. This is a non-probability sampling technique used when a representative sample is difficult to obtain. The researcher began with a small group of participants, who fulfilled the particular criteria linked to the study purpose. Following the survey, the researcher asks these persons to suggest or introduce more qualified participants to the study. The process then repeated, with each new participant providing additional referrals, forming a snowball effect. The total population of Lagos state during the study period according to History of Lagos (2023) was estimated to be 15,946,000 and after a sample size calculation, 385 was achieved as a representative sample of the population. Of the questionnaires sent out, 221 were returned (57.4% response rate). However, 8 questionnaires were eliminated as a result of missing information in them. From the descriptive analysis presented in Table 1, most of the participants (55.9%) were between the ages of 26–44 years, while the least number (13.1%) were between 45–59 years. There was only a slight difference in the number of males (51.2%) and females (48.8%). Most of the participants (53.5%) acquired education up to tertiary level followed by primary level (18.3%), but 12.7% were illiterate.

Table 1. Demographic characteristics of surveyed patients (*n*=213)

Variable	*n*	(%)
Age		
18–25 years	66	31.0
26–44 years	119	55.9
45–59 years	28	13.1
Gender		
Female	103	48.8
Male	110	51.2
Educational level		
None	27	12.7
Primary	39	18.3
Secondary	33	15.5
Tertiary	114	53.5

2.2 Measures

To obtain a more scientific result, this study employed structured questions presented in English since this is the official language in Nigeria. The questionnaire had 4 categories. The first section focused on the demographic information of the respondents. The second category measured patient trust by employing the Abbreviated Wake Forest Physician Trust Scale (A-WFPTS) adopted by Sak et al. (2017) and validated by Dugan et al. (2005), which uses a 5-item scale with response choices ranging from 5 (strongly agree) to 1 (strongly disagree). Negatively worded items were reverse-coded. Internal consistency was high with Cronbach's alpha of 0.87. The perceived physician communication scale adopted by Chandra and Mohammadnezhad (2021) was measured using 8 questions utilizing a 5-point scoring scale. For positive statements such as "My doctor provided me as much information as I wanted", strong agreement scored 5 points regressing down to 1 point for strong disagreement. For negative comments such as "Sometimes I feel the doctor ignores my concern", strongly agree was assigned 1, and strongly disagree 5. The internal reliability was 0.76. Treatment adherence employed the medication adherence report scale-5 (MARS-5) adopted by Koppen et al. (2018), which was validated by Stone et al. (2021). The MARS-5 assesses a patient's typical medical adherence through five questions using a 5-level response format (1 = always, 2 = often, 3 = sometimes, 4 = rarely, and 5 = never). The scale's reliability was 0.86.

2.3 Data analysis

Before the mediation analysis was carried out using the SPSS program, a reliability test of the survey items was calculated to generate Cronbach's alpha values. These values were used to determine the acceptability of the items for internal consistency. A rule of thumb is that a coefficient ≥0.6 is considered acceptable (Daud et al., 2018). The factors were extracted using principal component analysis and varimax rotation was applied to improve the interpretability of the factors. Factor analysis is widely regarded as one of the most effective techniques for establishing construct validity (Kang, 2013). Factor loadings, which show the correlations between the factors and the original measurements, were investigated to find which variables were most associated with each factor. Upon fulfilling all the necessary assumptions for mediation analysis, the researcher engaged the eligible dataset for the main analysis of the study. For the correlation analysis, the investigated variables were tested and coefficients generated using the Pearson correlation test to determine the strength and direction of the examined associations. To test for the presence of a significant direct effect between the predictor and outcome variables and a significant indirect effect through the mediator variable, a regression analysis was carried out using Hayes process macro model 4.

3. RESULTS

3.1 Descriptive statistics

Tables 2, 3 and 4 give an overview of responses regarding the individual constructs. The decision rule for analyzing the tables indicates criteria mean of 3.0 derived from the median value in the 5-point Likert scale employed in the study. A general dissatisfaction was revealed with communication effectiveness, trust development and treatment adherence.

Table 2. Descriptive statistics for perceived communication

	n	$\bar{X}$	*SD*
The doctor ignores my concerns	213	2.50	1.254
The doctor clearly explained the medical condition.	213	1.80	1.267
The doctor gave opportunities to ask questions	213	1.76	1.196
I could give my opinion	213	2.07	1.310
The doctor used many technical terms	213	1.84	1.264
The doctor provided a lot of information	213	1.95	1.150
The doctor provided comfortable treatment	213	1.88	1.088
Checked that I understood everything	213	1.97	1.138

Table 3. Descriptive statistics for patient trust

	n	$\bar{X}$	*SD*
The doctor cares more about their own needs	213	2.10	1.147
The doctor was thorough and careful	213	2.07	1.221
I trust the doctor's decisions about medical treatments	213	2.19	1.264
The doctor explained the different treatment options available	213	2.32	1.431
I have trust in my doctor	213	1.95	1.222

Table 4. Descriptive statistics for treatment adherence

	n	$\bar{X}$	*SD*
I forgot to take them	213	3.05	1.564
I altered the dose	213	2.77	1.150
I chose to stop taking them for a while	213	3.32	1.384
I missed a dose	213	2.37	1.331
I took less than instructed	213	2.43	1.530

3.2 Reliability and validity analysis

Findings presented in Table 5 show the validity of the measurement items for PPCOM, PT and TAD had a range of factor loadings from 0.519–0.763. For a factor loading to be significant, authors set a practically significant cut-off threshold of 0.5 (Gupta and Falk, 2017). Extraction values below 0.5 were therefore removed one at a time.

Factor analysis and internal consistency were repeated in each case for the available items until the recommended thresholds were obtained. This led to a reduction of the 8 items for PPCOM to a 6-item construct, and a reduction of the 5 items for PT to 4 items. AD maintained the initial values. As regards to internal consistency, the reliability values obtained were above the threshold suggested by Daud et al. (2018).

Table 5. Validity and reliability

Variable	Indicator	Factor loadings	Cronbach's alpha
Perceived physician communication (PPCOM)	PPCOM 1	0.605	0.746
	PPCOM 2*	0.525	
	PPCOM 3	0.739	
	PPCOM 4	0.530	
	PPCOM 5*	-	
	PPCOM 6*	-	
	PPCOM 7	0.707	
	PPCOM 8	0.651	
Patient trust (PT)	PT 1	-	0.808
	PT 2*	0.667	
	PT 3	0.615	
	PT 4	0.519	
	PT 5	0.737	
Treatment adherence (TAD)	TAD 1	0.750	0.872
	TAD 2	0.653	
	TAD 3	0.580	
	TAD 4	0.763	
	TAD 5	0.603	

Note: *Dropped item as a result of component analysis

3.3 Descriptive statistics and correlations

The analysis represented in Table 6 showed a significant and positive correlation between perceived physician communication and treatment adherence (r = 0.317, p<0.01), perceived physician communication and patient trust (r = 0.558, p<0.01) and patient trust and treatment adherence (r = 0.648, p<0.01). The findings met the criteria for conducting mediation analysis.

3.4 Hypothesis testing

Findings from the analysis presented in Figure 1 reveal that the direct effect (c') of perceived physician communication on treatment adherence was statistically non-significant (H1 not supported) (b = -0.0770, t = -1.0203, p>0.05). However, perceived physician communication had a positive and significant impact on patient trust, which supports H2 (b = 0.6000, t = 9.7761, p<0.001). Patient trust also had a positive and significant effect on treatment adherence (b = 0.7593, t = 10.8186, p<0.001). Consequently, the indirect effect was positive and significant thereby supporting H3 (b = 0.4556, BootLLCI = .3297, BootULCI = 0.6062). A positive and significant total effect of perceived physician communication on treatment adherence was seen (coefficient path c = 0.3786, t = 4.3605, p<0.001). Hence, patient trust fully mediates the influence of perceived physician communication on treatment adherence.

Table 6. Descriptive statistics and correlations among constructs

Construct	$\bar{X}$	*SD*	1	2	3
TAD (1)	2.39	0.95	1		
PT (2)	2.13	1.03	0.648**	1	
PPCOM (3)	2.79	1.14	0.317**	0.558**	1

Note: **Correlation is significant at the 0.01 level (2-tailed). *SD* = standard deviation, TAD = treatment adherence, PT = patient trust; PPCOM = perceived physician communication

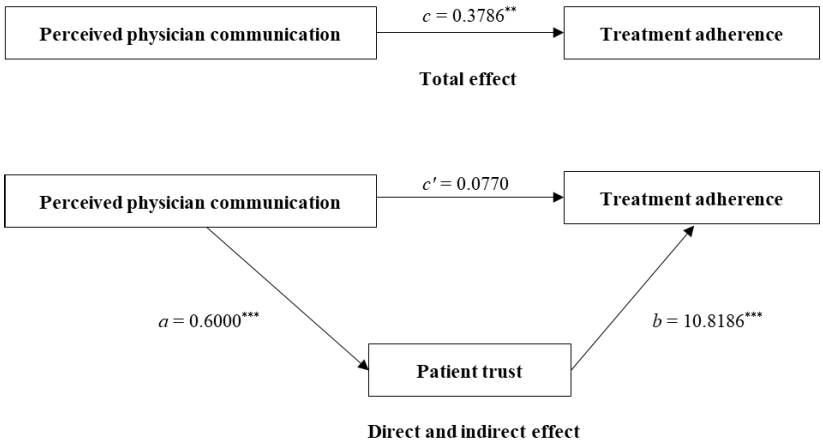

Figure 1. Mediation analysis
Note: n=213, level of confidence = 95%, $^{*}p$<0.05, ** p<0.01, *** p<0.001, number of bootstrap samples for percentile bootstrap confidence intervals: 5000

4. DISCUSSION

One of the major factors influencing treatment adherence is effective physician-patient communication. To the best of our knowledge, this study is the first to examine the mediating relationship between effective communication and treatment adherence in Nigeria's primary healthcare system. This study investigated the relationship between perceived physician communication and treatment adherence and the mediating role of patient trust in the relationship. The findings will help doctors and patients understand the significance of building trust in achieving treatment adherence. Additionally, it will encourage doctors to attach greater importance to communication skills. In this study, it was found that communication had no significant association with treatment adherence in the absence of trust. The findings showed that perceived physician communication had a direct and significant association with patient trust. Patients who trust their physicians are more inclined to comply with medical advice and treatment recommendations. In order to communicate effectively with patients, physicians must not only provide medical knowledge but also actively listen to make patients feel heard and understood; demonstrate empathy to reduce stress and anxiety especially during pain and uncertainty; and participate in shared decision-making to respect patient autonomy. Building trust also requires providing clear and understandable medical information. Patients need information about their medical issues, available treatments, and the justification for recommended treatments. The ability to communicate medical information to patients in simple terms increases the likelihood that they will trust their physicians. This also allows patients to make informed decisions about their health. This finding is consistent with that of Hesse and Rauscher (2019), which revealed that affectionate communication style demonstrated by the physician has a direct association with patients' perceived communication competence and trust. Thus, the findings emphasize the need for providers to meet the desires of patients to be shown care and affection during consultations as this builds trust and influences positive health outcomes. Gudzune et al. (2013) highlighted that empathy, reassurance and support, encounter length, and psychosocial talk played significant roles in care outcomes. It was also pointed out that emphasizing the most important drugs, explaining the treatment, and treating patients with respect can efficiently lower patients' anxiety and enhance trust. Findings from Greene and Ramos (2021) on care providers' behaviors enhancing trust also revealed that active listening, caring and demonstrating competence were significant components of building patient trust.

A major contribution of this study was the finding that the direct relationship between perceived physician communication and treatment adherence is not significant, which explains the full mediation role of patient trust in the relationship based on the pathway model. This suggests that trust may act as a "mechanism" through which perceived physician communication influences treatment adherence. There are several possible reasons why trust may serve as a mediator in this relationship. One potential reason is that it can facilitate a more collaborative and open communication style between patients and physicians. When patients trust their physicians, they may be more likely to express their concerns, ask questions, and seek clarification, which can improve understanding and facilitate adherence to treatment recommendations. It may also influence treatment adherence by promoting a sense of shared decision-making between patients and healthcare providers. When patients feel that their healthcare providers value their input and take their preferences into account, they may be more likely to feel invested in their treatment and adhere to the recommended plan. This is especially important in situations where treatment decisions involve trade-offs or uncertainty, as patients may be more likely to follow through with a plan that they feel has been tailored to their needs and values. A similar study conducted among people living with sickle cell disease by Haywood et al. (2014) emphasized the mediating role of trust between communication and treatment adherence. Patients who reported experiences of discrimination by their physicians were 53 % more likely to also report non-adherence to treatment recommendations. Trust in the provider was seen to

mediate the relationship, accounting for half of the excess occurrences of non-adherence among people who felt discriminated against. Similarly, a study conducted by Street et al. (2009) found that patient trust mediated the relationship between perceived physician communication and adherence to hypertension medication.

The impact of perceived physician communication on treatment adherence has important implications for future research and practice. It suggests that future studies should examine the ways through which patient trust is influenced by physician communication as well as the role of trust in other healthcare outcomes beyond treatment adherence. It also highlights the need for interventions aimed at improving physician communication and fostering patient trust to enhance treatment adherence. To optimize treatment adherence and improve patient outcomes, managers should take steps to ensure that physicians are effective communicators. Some specific managerial actions that could help to improve physician communication and ultimately improve treatment adherence include providing training and education on communication skills, which could help physicians develop the knowledge and skills to effectively communicate with patients and foster trust and satisfaction. Managers can ensure that physician communication is consistent and effective across different care settings and providers. This could help to prevent confusion and ensure that patients receive consistent and accurate information about their care. Feedback from patients on their perceptions of physician communication could also be gathered and used to identify areas for improvement and target training efforts. For healthcare practitioners, the findings highlight the importance of effective communication in building patient trust and improving treatment adherence. It also underscores the need for physicians to recognize the significance of trust in the patient–physician relationship and work to build and maintain their patient's trust.

It is worth noting that the study had some limitations. The study was conducted with a relatively small sample of patients, which may have limited the generalizability of the findings. Future studies should attempt to replicate these results using larger and more diverse groups of participants to determine the generalizability of the results. This study did not analyze other factors which may influence treatment adherence such as culture-specific barriers, illness-specific barriers, as well as logistic and financial barriers. Further research is needed to determine the relative impact of these factors on treatment adherence. This study explored the mediating role of patient trust between perceived physician communication and treatment adherence, the moderating role of patient (or physician) demographic characteristics between perceived physician communication and patient trust should be explored in future studies.

5. CONCLUSION

This study provides valuable insights into the role of patient trust in the relationship between perceived physician communication and treatment adherence. The findings suggest that patient trust fully mediates this relationship, emphasizing how crucial it is to establish and maintain trust in the physician-patient relationship. Effective communication can lead to increased levels of patient trust, which in turn improves treatment adherence. This study has significant implications for healthcare management and providers as they seek to improve patient outcomes through better communication and trust-building strategies. By putting more emphasis on building trust and improving communication skills, healthcare providers can potentially increase treatment adherence and ultimately improve patient health outcomes. Further research is needed to better understand the complex factors that influence treatment adherence and to develop more effective interventions for improving adherence in clinical practice.

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