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Original Article

Accessibility and Willingness of Patients to Pay for Pharmaceutical Care Services in a Tertiary Health Facility, Benin City, Nigeria

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ABSTRACT

Background: Understanding cost and other barriers to Pharmaceutical Care Services (PCS) delivery in Nigeria is key to improving practice and informed government resource allocation. **Objectives:** This study identifies barriers, perceived value of, and willingness to pay for PCS at University of Benin Teaching Hospital UBTH, Benin City. **Materials and Methods:** A cross-sectional study was conducted among 311 patients who visited the General Practice Clinic (GPC) pharmacy unit of UBTH. Data were analyzed using SPSS version 23. Descriptive and inferential statistics were applied, with significance set at $p<0.05$. **Results:** Most respondents (63%) considered pharmacist-led medication reviews very important, and 65.9% believed pharmacists could significantly improve their health outcomes. Over half (65.3%) of the respondents were willing to receive PCS virtually. The overall satisfaction score was moderate (mean=3.41±1.07). Financial considerations influenced uptake, with 46.9% willing to pay between ₦500-₦2000 ($0.35 to $1.38) per consultation. Employment status, age, and household income significantly influenced perceived value and willingness to pay ($p<0.05$). Higher education and income levels were associated with greater willingness to pay for PCS. **Conclusion:** The study highlights a strong recognition of the value of pharmaceutical care services among patients, but cost and limited pharmacist availability hinder access; telepharmacy and flexible payments may improve uptake.

Keywords: Accessibility, Nigeria, Patient satisfaction, Pharmaceutical care services, Telepharmacy, Willingness to pay.

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INTRODUCTION

Pharmaceutical Care Services (PCS) are an essential part of healthcare delivery, particularly in the management of chronic diseases, drug therapy optimization, and patient education. Pharmaceutical care is defined as "The responsible provision of drug therapy to achieve definite outcomes that improve the patient's quality of life (Hepler and Strand, 1990, WHO, 2006). The aim of pharmaceutical care is to enhance patients' health-related quality of life and attain favourable clinical outcomes, while keeping healthcare costs within practical limits (Amibor *et al.*, 2018).

Given the high prevalence of a wide range of chronic illnesses and poor medication adherence, the World Health Organization (WHO) and the International Pharmaceutical Federation have stressed the significance of shifting pharmacists' traditional role from one that is product-oriented to one that is patient-centred (Hasen and Negeso, 2021). Pharmaceutical care services components include medication reconciliation, adherence and knowledge assessments, medication optimization and patients' counselling. According to the Institute of Medicine's Preventing Medication Errors report- Every day, the typical hospitalized patient experiences at least one drug error (Barnsteiner, 2008).

Barriers to pharmaceutical care encompass a wide range of adverse circumstances that impede the seamless advancement of pharmaceutical care (Gao *et al.*, 2024). Geographic and Socioeconomic barriers such as high medication costs, lack of health insurance coverage, and inadequate reimbursement for pharmaceutical care services can deter patients from seeking or adhering to treatment plans. Cost is a well-established barrier to medication adherence; Cost related non-adherence is associated with worse patient outcomes, unnecessary hospitalizations, as well as billions of dollars of avoidable healthcare costs, particularly among people with low income (Rohatgi *et al.*, 2021). The high rate of patient insurance under-coverage against unexpected medical expenses is a critical factor limiting service uptake (Kazibwe *et al.*, 2024).

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A significant number of women in Nigeria face challenge in accessing healthcare, due to financial constraints, distance or transportation difficulties (Oluwaseun *et al*., 2023). Also, resource-related obstacles, including inadequate availability of medical supplies or services (Anosike *et al*., 2019) limits access. Accessibility to pharmacies is a major issue, as having to travel great distances to health care facilities might threaten elderly access to medicines and healthcare advice (Padeiro, 2018). Lack of access to medicines can result in increased preventable morbidity and mortality, loss of economic income and increased poverty.

Willingness to pay WTP is essentially the highest amount that an individual is ready to give up to gain utility and satisfaction from the consumption of a particular good or service (Onwujekwe *et al*., 2025, Alabdullah and Arslan, 2024). This kind of Cost-Benefit Analysis (CBA) quantifies the financial value of a health service and its cost (AlShayban *et al*., 2020). Willingness-to-Pay (WTP) studies play a crucial role in planning, designing, and implementing health insurance schemes, particularly in determining the benefits package to be offered to enrollees. A patient's level of satisfaction with a healthcare service reflects the extent to which their expectations align with their actual experience (Osarenmwinda *et al*., 2024) and serves as a key measure of healthcare service quality and often associated with patients' willingness to pay (Alshayban *et al*., 2020).

The amount individuals are willing to pay, combined with their ability to pay, provides insights into the fiscal capacity available for social health insurance funds. A study by Anosike and colleagues found that about 40% of respondents were willing to pay an average monthly fee of ₦915.91±485.49 (US$2.99±1.59) for pharmacist-provided home telemonitoring service among patients with chronic diseases in Enugu metropolis (Anosike *et al*., 2019). Numerous studies indicate that relying heavily on Out-of-Pocket (OOP) payments as the primary means of financing healthcare not only negatively impacts the demand for healthcare services but also exacerbates the financial strain on households, often pushing them into poverty (Ogundeji *et al*., 2019). Creating fair payment strategies in healthcare requires evaluating disparities in current financing systems and healthcare-seeking behaviours, as these can help identify the most effective ways to safeguard vulnerable and low-income populations (Onwujekwe and Uzochukwu, 2005).

There is a notable lack of studies in Nigeria and across the African continent that comprehensively examine both the accessibility to pharmaceutical care services and the willingness of patients to pay for them in a country where access to health care is largely limited. Additionally, this study will contribute to the body of literature on healthcare financing and help policymakers and healthcare providers better tailor services to meet the needs of patients, particularly those in underserved areas.

MATERIALS AND METHODS

Study design and setting

The research employed a cross-sectional descriptive study design to determine the barriers to accessing pharmaceutical care services, perceived value and patient willingness to pay for PCS. The study was conducted at the General Practice Clinic (GPC) Pharmacy unit of the University of Benin Teaching Hospital (UBTH), located in Benin City, Nigeria. Benin City is the capital and largest urban centre of Edo State in southern Nigeria. It is a multi-specialty healthcare centre with over 900 beds space capacity and numerous departments, which renders specialized healthcare services as well as a main referral centre to the people of the State, and other neighbouring states such as Delta, Ondo and Kogi.

The GPC Unit Pharmacy serves as a primary health care unit that specifically caters to patients providing them with access to a variety of medications and pharmaceutical care services.

Study participants and sampling

The study was conducted from August to September, 2025. Consented adult patients visiting the General practice clinic pharmacy unit of the hospital within the period, diagnosed of one ailment or the other were recruited for the study. Convenient sampling method was used to recruit participants for the study, and sample size was determined using the Cochran formula for estimating proportions in a population (Cochran, 1976). A total of 311 samples were calculated. Terminally ill patients and those consider for admission were excluded from the study.

Data collection

Data were collected using a self-administered questionnaire developed based on study objectives and relevant literature. The questionnaire comprised four sections; socio-demographic data (age, gender, education, employment), patients' views and perceived value of PCS, this was measured using a five-point Likert scale; The third section explored availability of pharmacists providing PCS and patients' preferred mode of service (in-person or virtual); and the final section investigated the cost-related questions, including past payments and willingness to pay. The questionnaires were issued to the patients while waiting to collect their medications from the pharmacy. All the 311 questionnaires given out to the patients were completely filled and returned, giving a 100% response rate.

Data analysis

Data collected was coded using Microsoft Excel and then transferred to the Statistical Package for Social Sciences (SPSS) version 23. Descriptive statistics were employed to summarize patient demographics, with results expressed as frequencies and percentages (%). Continuous data were reported as means (X)±Standard Deviations (SD). The mean score for patients' view

and perceived value of PCS was calculated, and the weighted mean score was determined. Individual means above the weighted means were considered high responses. Peason's Chi-square analysis was used to examine the relationship between patient's views and perceived value, willingness to pay, and patient's demographics. Results were considered statistically significant at *p*-value of <0.05, at the 95% Confidence Interval (CI) level.

Outcome measures

The following outcomes were measured; patient's view and perceived value of PCS, pharmacist's availability to offer PCS and willingness to pay for PCS.

RESULTS

Socio-demographics of students

The socio-demographic analysis of the patients in Table 1 reveals that the majority (49.2%) were aged 18 – 25 years, with fewer proportions in other age groups. Females (56.3%) slightly outnumber males (43.7%). Most participants were undergraduates (57.2%), whereas, 42.7% were at other educational levels. For monthly household expenses (30.2%) of participants indicated ₦ 50,000-₦ 100,000 (($34.46-$68.93) followed by ₦ 10,000-₦ 50,000 ($6.89-$34.46) (29.3%).

Patients' view and perceived value of pharmaceutical care service

Most (63%) respondents highly valued pharmacist medication reviews for identifying drug therapy issues or side effects, with only 1.3% considering it unimportant. While over half believed pharmacists could greatly improve their health outcomes, a small fraction (0.6%) disagreed. However, only 15% were satisfied with pharmaceutical care services in Benin (Table 2).

Availability of pharmacists providing pharmaceutical care services and patient preferred medium

The availability of pharmacists who provide PCS is seen in Table 3 below. Only a small number of respondents (10.3%) find it very easy to consult pharmacists that offer pharmaceutical care services while (15%) find it difficult to consult a pharmacist that offers this service. A small percentage find it very difficult to consult a pharmacist. A higher percentage of the respondents (43.7%) were only willing to wait for 15-30 min for a pharmacist and more than

Table 1: Socio-demographics of patients (*n*=311).

Characteristics		frequency n	percentage (%)
Age	18-25	153	49.2
	26-35	59	19.0
	36-45	46	14.8
	46-55	34	10.9
	56-above	19	6.1
Gender	Male	136	43.7
	Female	175	56.3
Education level	No formal education	16	5.1
	Undergraduate	178	57.2
	bachelor's degree	83	26.7
	Master's degree	23	7.4
	Doctorate degree	11	3.5
Employment status	Employed	64	20.6
	non employed	109	35.0
	self employed	96	30.9
	Retired	21	6.8
	Others	21	6.8
Monthly household expenses	₦10,000-50,000 ($6.89-$34.46)	91	29.3
	₦ 50,000-100,000 ($34.46-$68.93)	94	30.2
	₦ 100,000-500,000 ($68.93-$344.65)	89	28.6
	₦ 500,000 and above ($344.65 and above)	37	11.9

Table 2: Result of patients' view and perceived value of pharmaceutical care service

Variables		Frequency	percentage (%)
Pharmacist review of medication	Not Important	4	1.3
	Neutral	7	2.3
	Somewhat Important	28	9.0
	Important	76	24.4
	Very Important	196	63.0
Pharmacists help in improving health outcomes	Not at All	2	0.6
	A Little	6	1.9
	Neutral	34	10.9
	Somewhat	64	20.6
	Very Much	205	65.9
Values of pc services	A Little	6	1.9
	Neutral	17	5.5
	Somewhat Valuable	72	23.2
	Very Valuable	216	69.5
General experience with pcs	I have not used pharmaceutical care services in Benin City.	16	5.1
	Not Satisfied	46	14.8
	Neutral	89	28.6
	Satisfied	113	36.3
	Very Satisfied	47	15.1

half the respondents are willing to receive pharmaceutical care services virtually.

Cost and affordability of pharmaceutical care services

Over half the population have not been charged in previous time for pharmaceutical care services, while others have been charged an approximate mean amount of ₦800 ($0.55) and about (46.9%) are willing to pay between ₦ 500 to ₦ 2000 ($0.35 to $1.38) for pharmaceutical care services and about half the respondent are willing to pay per consultation (Table 4).

Patients' views and perceived value of pharmaceutical care services

The data analysis reveals that most respondents consider pharmacist medication reviews for drug therapy issues or side effects important and believe pharmacists can improve their health outcomes. They value services like counseling, medication adherence support, reconciliation, point-of-care testing, and medication reviews. Overall, their experience with pharmaceutical care services at UBTH was rated as moderate, see Table 5.

Association between view and perceived value and key demographic factors.

The relationship between patients' demographics and view and perceived value of PCS is as shown in Table 6. Higher education and income correlate with higher perceived value, while employed and self-employed individuals tend to value pharmaceutical services more. Younger respondents (16-25) have the highest perceived value and Higher household expenses ($344.65 +) are the most likely to perceive high value. Lastly most people willing to pay have high perceived value (150 out of 165). The association between Education, Gender and Perceived Value is positive but Not Significant while that of Employment, Age, Willingness to Pay and Perceived Value is positive and Significant ($p<0.05$). Expenses and Perceived Value ($p=0.035$) are Significant, higher household expenses groups have significantly higher perceived value. Lower-income groups have more mixed perceptions (some value pharmaceutical services highly, but others do not).

Association between demographics and willingness to pay

The Chi-Square test revealed a significant association ($p<0.05$) between education level and willingness to pay for pharmaceutical services, with higher-educated individuals (undergraduate and postgraduate) more likely to express willingness to pay compared

to those with lower education levels. Additionally, income levels influenced willingness to pay, as 70.3% of individuals earning ₦500,000 ($344.65) and above were willing to pay, compared to 51.6% in the lower-income group of ₦10,000-₦50,000 ($6.89-$34.46). Uncertainty ("Maybe") was more common among lower-income groups, while 25.2% of the lowest-income bracket were unwilling to pay at all (Table 7).

DISCUSSION

Patient satisfaction and perceived value are regarded as indirect indicators of quality of healthcare service. The study's revealed that most respondents were aged 18-25 years (49.2%), with females constituting 56.3% of the sample. A significant proportion were undergraduates (57.2%), and a notable segment reported monthly household expenses between 50,000-100,000 Naira ($34.46-$68.93) (30.2%). Employment status emerged as a significant factor affecting perceptions of pharmaceutical care. This aligns with findings from other studies in Africa, where employment status has been linked to increased healthcare utilization and a greater willingness to invest in health services (Anosike *et al.*, 2019).

Willingness to pay is a well-established barrier to PC delivery (Okonta *et al.*, 2012). Respondents with higher household expenses were more willing to pay for pharmacist consultation than those with lower household expenses. Although one would expect the opposite, these findings can be explained by the fact that purchasing power increases with income. Additionally, given that payments for these services would most likely be done out of pocket, these findings are to be expected. Most respondents (63%) emphasized the importance of having a pharmacist review their medications for potential drug therapy problems or side effects. Additionally, 65.9% believed that pharmacists could significantly

Table 3: Availability of pharmacists providing pharmaceutical care services and patient preferred medium.

Variables		frequency (n)	percentage (%)
Appointment with a pharmacist	Never	38	12.2
	Rarely	90	28.9
	Sometimes	109	35.0
	Often	49	15.8
	Always	25	8.0
Consulting a pharmacist that offer pcs	Very Difficult	21	6.8
	Difficult	47	15.1
	Somewhat Difficult	89	28.6
	Easy	122	39.2
	very easy	32	10.3
Currently unavailable pcs	No	103	33.1
	Yes	139	44.7
	Maybe	69	22.2
Examples	Nil	103	33.1
	Counselling	66	21.2
	Medication Reconciliation	51	16.4
	Medication Review	48	15.4
	MAS	27	8.7
	Point of Care Test	16	5.1
Waiting time	Less Than 15 min	95	30.5
	15-30 min	136	43.7
	30-60 min	62	19.9
	More Than an hour	18	5.8
Receiving pcs virtually	No	54	17.4
	Yes	203	65.3
	Maybe	54	17.4

MAS: Medication Adherence Support.

Table 4: Result of Cost and Affordability of pharmaceutical care services

Variables		Frequency	Percentage (%)
Consultation fee	No	223	71.7
	Yes	88 (x=789.08)	28.3
Willingness to pay	No	75	24.1
	Yes	166	53.4
	Maybe	70	22.5
Amount	Nil	45	14.5
	500-2000 ($0.35-$1.38)	146	46.9
	2000-4000 ($1.38-$2.76)	69	22.2
	4000-6000 $2.76-$4.14)	33	10.6
	6000 and above ($4.14)	18	5.8
Duration of payment	Nil	45	14.5
	per consultation	156	50.2
	Monthly	59	19.0
	Quarterly	29	9.3
	Yearly	22	7.1

Table 5: Responses on patients' view and perceived value of pharmaceutical care services

Items	Mean±SD	Decision
How important is it for you to have a pharmacist review your medication for potential drug therapy problem or side effects?	4.46±0.85	High
To what extent do you believe a pharmacist can help you improve your health outcome?	4.49±0.82	High
How valuable would you find services such as counselling, medication adherence support, medication reconciliation, point of care test and medication review?	4.60±0.68	High
What is your general experience with pharmaceutical care services in Benin city?	3.41±1.07	Moderate

SD: Standard Deviation; Cutoff=4.24.

improve their health outcomes. These findings underscore a strong recognition of the value of pharmaceutical care among patients. This is supported by a research carried out by (Erah and Chuks-Eboka, 2008) hypertensive patients studied perceived that pharmacists contribute to the reduction in hypertension-related problems.

Over half, 51.4% of respondents were satisfied with the pharmaceutical care service delivered, though this is higher compared to those obtained by the research carried out by Oparah *et al.* (2004) at UBTH with a satisfaction of 49%. This result shows that pharmacy practice has improved over time. The mean satisfaction score from the study (3.41), this is in line with research carried out to assess the level of satisfaction of patients with the quality of pharmacy services rendered at the staff clinic of the University of Ilorin Teaching Hospital by Osarenmwinda *et al.* With a mean score of 3.31 (Osarenmwinda *et al.*, 2024).

Accessibility to pharmacists providing pharmaceutical care services remains a challenge. Only 10.3% of respondents found it very easy to consult such pharmacists, while 15% found it difficult. This limited accessibility can hinder the effective delivery of pharmaceutical care and may contribute to the observed dissatisfaction among patients. The willingness to wait for pharmacist consultations was moderate, with 43.7% of respondents wanting to wait for 15-30 min. Additionally, more than half of the respondents expressed openness to receiving pharmaceutical care services virtually. This indicates a potential avenue for improving accessibility through telepharmacy initiatives, which could bridge the gap caused by geographical or logistical constraints.

Financial factors play a pivotal role in patients' willingness to pay for pharmaceutical care services. Over half of the respondents had not been previously charged for such services, yet 46.9%

expressed a willingness to pay between 500-2000 Naira ($0.35 to $1.38) per consultation, this supported by a research carried out in 15 community pharmacies in Uyo metropolis, Akwa Ibom State, between August and September 2021 to assess WTP for pcs in diabetic patient in which respondents were willing to pay between US$0.12-US$24.27 which is currently 120-24,270 naira in 2024 (Jackson *et al*., 2023).

Education level was significantly associated with willingness to pay, with individuals possessing higher educational qualifications more inclined to pay for pharmacist consultations. This trend suggests that education enhances awareness of the benefits of pharmaceutical care, thereby increasing the propensity to invest in these services. Similar findings have been reported in other studies (Njie *et al*., 2023), where higher educational attainment correlates with a greater willingness to pay for enhanced healthcare services and health insurance.

The findings underscore the need for tailored strategies to enhance the accessibility and affordability of pharmaceutical care services. Improving public awareness about the benefits of pharmaceutical care, especially among less educated and unemployed populations, could foster greater appreciation and willingness to pay for these services. Additionally, implementing flexible payment models or subsidized programs may help accommodate individuals with financial constraints, thereby promoting equitable access to pharmaceutical care. The study is however, not without limitations, The responses from the patients in this study, were self-reporting, and cannot be free from bias. In addition, the lack of awareness among many patients regarding the expanded role of pharmacists beyond medication dispensing, may affect the responses provided. The study was only conducted in single health facility, in Edo State; the findings cannot be

Table 6: Association between view and perceived value and key demographic factors.

Category	Subgroup	Low (1.00)	Moderate (2.00)	High (3.00)	Chi-square value	*p*-value
Education Level	No Formal Education	1	0	15	15.142	0.056
	Undergraduate	1	31	146		
	Bachelor's Degree	1	12	70		
	Master's Degree	1	0	22		
	Doctorate Degree	0	0	11		
Employment Status	Employed	0	2	62	18.673	0.017
	Non-employed	0	18	91		
	Self-employed	4	18	74		
	Retired	0	2	19		
	Others	0	3	18		
Gender	Male	1	17	118	0.978	0.613
	Female	3	26	146		
Age Group	16-25	1	20	132	20.172	0.010
	26-35	0	13	46		
	36-45	0	9	37		
	46-55	2	1	31		
	56+	1	0	18		
Monthly expenses	₦10,000-50,000 ($6.89-$34.46)	1	10	80	13.561	0.035
	₦ 50,000-100,000 ($34.46-$68.93)	0	20	74		
	₦ 100,000-500,000 ($68.93-$344.65)	3	12	74		
	₦ 500,000 and above ($344.65 and above)	0	1	36		
Willingness to Pay	Not Willing	3	15	57	14.968	0.021
	Willing	1	14	150		
	Maybe	0	14	57		

Table 7: Summary table of association between demographics and willingness to pay.

Education Level	Not Willing n (%)	Willing n (%)	Maybe n (%)	Total n (%)
No Formal Education (1)	5 (31.25)	9 (56.25)	2 (12.50)	16 (100)
High School (2)	42 (23.60)	87 (48.88)	49 (27.53)	178 (100)
Undergraduate (3)	22 (26.51)	45 (54.22)	16 (19.28)	83 (100)
Postgraduate (4)	5 (21.74)	16 (69.57)	2 (8.70)	23 (100)
Doctorate (5)	1 (9.09)	8 (72.73)	2 (18.18)	11 (100)
Monthly expenses				
₦10,000-50,000 ($6.89-$34.46)	21 (23.08)	47 (51.65)	23 (25.27)	91 (100)
₦ 50,000-100,000 ($34.46-$68.93)	26 (27.66)	43 (45.74)	25 (26.60)	94 (100)
₦ 100,000-500,000 ($68.93-$344.65)	22 (24.72)	50 (56.18)	17 (19.10)	89 (100)
₦ 500,000 and above ($344.65 and above)	6 (16.22)	26 (70.27)	5 (13.51)	37 (100)
Gender				
Male	27 (19.85)	77 (56.62)	32 (23.53)	136 (100)
Female	48 (27.43)	88 (50.29)	39 (22.29)	175 (100)

generalized. Further studies involving large population and multi-centers is necessary.

CONCLUSION

The findings highlight that patient satisfaction and perceived value play critical roles in shaping attitudes toward pharmaceutical care, serving as indirect indicators of healthcare quality. The results demonstrate a strong recognition of the importance of pharmacist services in improving patient health outcomes, yet financial and accessibility constraints remain significant barriers to widespread utilization. Despite the generally positive perception of pharmaceutical care services, accessibility remains a challenge. The study also identified a potential avenue for improving access through telepharmacy services, as many respondents expressed openness to virtual pharmaceutical care consultations. Policy-makers and healthcare providers should focus on increasing public awareness, especially among less educated and lower -income populations, to enhance the uptake of pharmaceutical care services.

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ABBREVIATIONS

PCS: Pharmaceutical Care Services; **WHO:** World Health Organization; **WTA:** Willingness to pay; **CBA:** Cost-benefit analysis; **OOP:** Out-of-pocket.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

ETHICAL ISSUES

Permission to undertake this study was obtained from the University of Benin teaching hospital ethical committee, with protocol number; ADM/E 22/A/VOL.VII/148654912543. Informed consent was also sought and obtained from the participants, anonymity and confidentiality were maintained throughout the study.

SUMMARY

- Over half of the respondents were willing to pay and satisfied with PCS offered by pharmacists.
- Education level was significantly associated with willingness to pay.
- Financial and accessibility constraints were significant barriers to PCS utilization.

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