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Research Article

Examining the Barriers Impacting Access and Quality of Physiotherapy Services Among Patients Receiving Physiotherapy Care in Some Selected Facilities in Maiduguri, Borno State, Nigeria

Adam Abba Bukar |

***Corresponding Author:** Adam Abba Bukar, Department of Medical Rehabilitation (Physiotherapy), University of Maiduguri, Nigeria. [ORCID: 0009-0000-2858-7016].

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Abstract

Background: Physiotherapy is a critical component of healthcare, promoting recovery, mobility, and overall well-being. However, barriers such as financial constraints, accessibility, and systemic challenges hinder the delivery and accessibility of these services in conflict-affected regions like Maiduguri Metropolitan Council (MMC), Nigeria. This study explores the barriers impacting access to and the quality of physiotherapy services among patients in MMC, focusing on three facilities: University of Maiduguri Teaching Hospital (UMTH), Federal Neuropsychiatric Hospital, and State Specialist Hospital, Maiduguri.

Methods: Using a cross-sectional survey design, data were collected from 138 patients across the three healthcare facilities through a convenience sampling. Barriers to Treatment Adherence in Physiotherapy Outpatient Clinic Questionnaire (BTAQ) was used, a validated and reliable instrument with a Cronbach's alpha of 0.85 and good construct validity. The data were summarised using descriptive statistics of mean, standard deviation, frequency and percentages, while Chi square test was used to analyse the association between various domains. Descriptive statistics revealed that the participants (70% male, 30% female) had a mean age of 40 ± 12.21years.

Results: Findings revealed financial barriers as the most significant challenge (49%), followed by transportation difficulty (36%). Gender, age, and hospital settings influenced perceptions of these barriers, with older patients, women, and those attending University of Maiduguri Teaching Hospital (UMTH) reporting higher difficulties. Despite these challenges, most participants (85%) expressed satisfaction with the quality of services received. However, findings should be interpreted with caution due to the use of convenience sampling.

Conclusion: This research fills a critical gap in literature by focusing on a conflict-affected region, offering recommendations for policy interventions, and public education to improve physiotherapy access and outcomes in MMC and similar settings.

Keywords: Physiotherapy services, Healthcare access barriers, Conflict-affected regions, Treatment adherence, Maiduguri Metropolitan Council.

Introduction

Physiotherapy, as defined by the World Confederation for Physical Therapy (WCPT), is a healthcare profession concerned with human function and movement, aiming to maximize physical potential. Physiotherapy function in the areas of health promotion, prevention, treatment/intervention, habilitation, and rehabilitation, utilizing physical approaches to promote, maintain, and restore physical, psychological, and social well-being, considering variations in health status. It is science-based discipline, with clinical judgment and informed interpretation at its core [1].

The contemporary practice of healthcare service delivery encompasses a wide range of facilities and settings, each tailored to meet the specific needs of patients at different stages of care and recovery.

From acute and subacute care centers focused on immediate and recovery-phase medical needs, to long-term care, nursing homes, home care and assisted living facilities designed to support individuals with ongoing care requirements, the healthcare system is structured to provide comprehensive and continuous care across various settings [2].

Barriers in healthcare can be defined as any factor that limits or restricts the availability, accessibility, quality, or effectiveness of health services. In the context of physiotherapy, Barriers may include financial limitations, inadequate infrastructure, limited human resources, and sociopolitical factors that impede the delivery of physiotherapy services [3].

Maiduguri's demographics are characterized by a diverse population that has been significantly affected by the Boko Haram insurgency. The city's population is estimated to be approximately 870,201 as of 2024, according to the United Nations World Urbanization 2024 (UN, 2024) and serves as a major economic and social hub for the Borno State. The conflict has led to the displacement of large numbers of people, with Maiduguri absorbing more than a quarter of a million displaced individuals. This has resulted in overcrowded living conditions and increased demand for healthcare services, including physiotherapy [4].

The Boko Haram insurgency presents a unique challenge to Maiduguri compared to other states in Nigeria that do not face such insecurity. The conflict has led to the destruction of healthcare infrastructure, with half of the state's 700 healthcare facilities reported as non-functional. Attacks on healthcare facilities and workers have further exacerbated the challenges, deterring medical professionals from working in the area and limiting access to healthcare services. This situation has a direct impact on the availability and quality of physiotherapy services, as well as on the safety and well-being of both patients and healthcare providers [4].

Maiduguri Metropolitan Council (MMC), Nigeria, has endured over a decade of conflict due to Boko Haram's insurgency, displacing millions and crippling healthcare infrastructure [4]. While studies have explored barriers to healthcare in conflict zones [5], physiotherapy, a critical component of rehabilitation remains understudied.

Physiotherapy in Conflict Zones

Physiotherapy requires sustained, long-term care, making it vulnerable to disruptions in conflict settings. For example, in Syria, rehabilitation services collapsed due to staff shortages and facility destruction [6]. Similarly, in MMC, Boko Haram's attacks on healthcare workers and infrastructure have exacerbated barriers to physiotherapy access [7].

Research Gap

Existing literature on physiotherapy barriers focuses on rural or non-conflict settings [8]. This study fills a critical gap by examining how conflict-specific factors (e.g., insecurity, displacement) intersect with systemic barriers in MMC.

Significance of the study

The significance of this study lies in its potential to provide critical insights into the barriers impacting the quality and accessibility of physiotherapy service delivery in Maiduguri Metropolitan Council (MMC). The findings of this study will contribute to a deeper understanding of the unique challenges faced by patients in accessing and receiving high-quality physiotherapy care in the region, which is of paramount importance for improving patient outcomes and community well-being.

The findings have the potential to identify challenges and guide the development of strategies to overcome the identified barriers, ultimately improving access to quality physiotherapy care in MMC. Furthermore, this research addresses a critical knowledge gap in the literature, as no prior studies have directly explored the barriers impacting physiotherapy services in the Maiduguri region.

Materials and Methods

Participants

The participants for this study are patients receiving physiotherapy services in University of Maiduguri Teaching Hospital, Federal Neuropsychiatric Hospital, Maiduguri and State Specialist Hospital, Maiduguri.

1. Inclusion Criteria

The inclusion criteria are as follows:

Patients who are 18 years or older.
Patients who have at least five physiotherapy sessions.

2. Exclusion Criteria

The exclusion criteria are as follows:
Patients with dementia, cognitive impairment, or any condition affecting memory were excluded.
Patients with aphasia that impairs their ability to communicate effectively.

Materials

Instruments

1. Consent form was read and signed by each participant.
2. Socio-demographic form was used to record socio demographic (age, gender, facility visit and frequency of visit) characteristics of the participants.
3. The Barriers to Treatment Adherence in Physiotherapy Outpatient Clinics Questionnaire (BTAQ) was adopted and modified for this study. Originally developed by Smith et al. (2020), the BTAQ is a 21-item self-report instrument designed to assess barriers to physiotherapy service access and treatment adherence in outpatient settings. The questionnaire has demonstrated strong psychometric properties, including excellent internal consistency (Cronbach's alpha=0.85), a seven-factor structure explaining 60% of the variance, good convergent validity, sensitivity and specificity of 80% and 90% respectively, and strong test–retest reliability (r=0.80). The yes/no response format enhances simplicity and suitability for low-literacy populations. Following modification, the questionnaire was reviewed by physiotherapy professor and clinicians to ensure clarity, relevance, and contextual suitability. It was subsequently pilot tested among a small group of patients receiving physiotherapy services to assess understanding and ease of completion. Feedback from the pilot test informed minor adjustments, and the final version demonstrated adequate face validity before use in the main study.

Methods

1. Study site

The study was conducted in University of Maiduguri Teaching Hospital, Federal Neuropsychiatric Hospital, Maiduguri and State Specialist Hospital, Maiduguri.

2. Sampling Technique

Convenience sampling was used

3. Sample size

The sample size for this study was determined using Taro Yamane's formula (Yamane, 1967) which is a statistical sampling technique used to determine sample sizes in research methodology. The formula: $n=\frac{N}{1+N(e)^2}$ where:

n = sample size (?)
N = total population/or estimated population
e = level of significance (0.05)
1 = is the unit constant

A total population of 211 patients receiving physiotherapy care in the selected facilities across MMC. The breakdown of the population by Hospital was as follows:

- University of Maiduguri Teaching Hospital (UMTH): 112 patients (53.1% of the total population)
- Federal Neuropsychiatric Hospital: 43 patients (20.4% of the total population)
- State Specialist Hospital, Maiduguri 56 patients (26.5% of the total population)

Thus, the sample size using Taro Yamane's formula would be: $n=\frac{211}{1+211(0.05)^2}$ n=138

4. Study design

A cross sectional survey.

5. Study Procedure

An introductory letter was obtained from the Department of Physiotherapy, University of Maiduguri. Ethical approval was obtained from the research/ethics committee of University of Maiduguri Teaching Hospital with the reference number OHRP-IRB-FWA 00013572 UMTH/REC/24/132 and Federal Neuropsychiatric Hospital with the reference number (FNPH/062024/REC144) and Borno state specialist hospital. Additionally, administrative permission was also obtained from the Head of Department of Physiotherapy at the relevant facilities. Subsequently, all participants who meet the study's inclusion criteria were recruited during clinic days, and their informed consent was obtained prior to their participation in the study proper.

The questionnaires were administered to prospective participants to collect information on the barriers and challenges impacting physiotherapy service in their respective facility.

Respondents answered questions about the barriers in a close-ended format, a 'Yes or No' response, where a ''Yes'' was graded as 1 point and ''No'' was graded as 0 points for each question. The total and domain scores were obtained by summing item responses, with higher scores indicating greater perceived barriers to physiotherapy service access and adherence. Scores were interpreted descriptively and comparatively across demographic variables, with no predefined cut-off points applied.

The study protocol was thoroughly explained to each of the participants and informed consent was sought and obtained before their participation. Confidentiality and anonymity of the participant was maintained.

Scope and Limitations

The study focuses on public hospital patients only. Public hospitals were prioritized as they are the primary physiotherapy providers in MMC. Convenience sampling was used due to logistical and operational constraints encountered during data collection. Although this approach was practical, it may have introduced selection bias.

6. Data analysis

Descriptive statistics was used to identify patterns and trends in the barriers impacting physiotherapy services in the selected facilities across Maiduguri Metropolitan Council from the patient's perspective. The results were presented in tables, graphs, and charts to facilitate easy interpretation and understanding of the findings.

Chi square test was used to compare the frequency distribution of perceived challenges to physiotherapy service delivery across different setting within the MMC. It was use to access whether there is a no significant association in the perceived barriers reported by individuals based on gender, age, Hospital setting and condition being treated. Statistical Package for Social Science (SPSS) version 20 was used to analysed the data at alpha level of $P<0.05$ significance.

Results

1. Physical Characteristics and Socio-demographic Information of the Participants

A total of 138 participants were included in this study, with 70% male (n=97) and 30% female (n=41). The participants had a mean age of 40 ± 12.21 years. 65% were married, 5% widowed, and 30% single. Education levels varied, with 42% having completed secondary school, 38% having primary education, and 20% having tertiary education. The mean frequency of physiotherapy visits was approximately 2.5 times per week, and the average duration of treatment was reported as 3 months. See Table 1 for details.

2. Perceived Barriers to Physiotherapy Services

Nearly half of the participants (49%) reported financial constraints as a significant barrier to accessing physiotherapy services. The analysis revealed that females were slightly more likely to report financial difficulties compared to males, Transportation issues were reported by 36% of participants. Female participants reported slightly higher transport-related barriers compared to males. Additionally, younger age groups (18-29) reported lower rates of transport-related barriers compared to older participants. Accessibility concerns were reported by 15% of the participants. See Table 2 for details.

3. Perceived Barriers by Gender

Females were slightly more likely to report financial barriers than males. Additionally, Females also reported higher rates of transportation barriers compared to males. See Table 3 for details. A Chi-square test showed a statistically significant association between gender and perceived barriers impacting access and quality of physiotherapy services ($\chi^2 = 6.45$, df = 1, p = 0.042). See Table 9.

4. Perceived Barriers by Age Group

Age also influenced the perception of barriers, with older participants (50+) reporting higher rates of financial and transport-related barriers. Participants aged 18-29 reported the least barriers across all categories. See Table 4 for details. A Chi-square test showed a statistically significant association between age and perceived barriers impacting access and quality of physiotherapy services ($\chi^2 = 7.32$, df =3, p = 0.038). See Table 9.

5. Perceived Barriers by Hospital Setting

Participants from UMTH reported the highest financial barriers, while those from Borno State specialist reported the least. See Table 5 for details. A Chi-square test showed a statistically significant association between hospital (likely the facility attended) and perceived barriers impacting access and quality of physiotherapy services ($\chi^2 = 8.89$, df = 2, p = 0.031). See Table 9.

6. Perceived Barriers by Duration of treatment

Participants undergoing longer treatment durations (e.g., more than 6 months) reported higher barriers compared to those with shorter treatment durations. See Table 6 for details.

7. Perceived Barriers by Condition Being Treated

Participants with neurological conditions reported the highest financial and transport barriers, those receiving treatment for post-surgical rehabilitation also experienced notable barriers, especially regarding accessibility. Participants with musculoskeletal disorders reported relatively lower barriers. See Table 7 for details.

A Chi-square test showed a statistically significant association between condition and perceived barriers impacting access and quality of physiotherapy services ($\chi^2 = 9.76$, df = 3, p = 0.029). See Table 9.

8. Satisfaction and Quality of Services

Most participants (85%) reported being satisfied with the quality of physiotherapy services. However, some are not satisfied (15%). See Table 8 for details

Table 1: Socio-demographic Information.

Descriptive Statistics		
Variables	**Mean**	**SD**
Age	40.02	12.21
Gender	1.32	0.47
Facility	1.43	0.69
Treatment Duration	2.40	0.81
Frequency Distribution		
Variable	**Frequency (n)**	**Percentage (%)**
Gender: Male	97	70
Gender: Female	41	30
Age Group: 18–29	30	21.7
Age Group: 30–39	38	27.5
Age Group: 40–49	30	21.7
Age Group: 50 and above	40	29.1
Marital Status: Single	41	30
Marital Status: Married	90	65
Educational Level: Primary	52	38
Educational Level: Secondary	58	42
Educational Level: Tertiary	28	20
Key: SD = Standard Deviation		

Table 2: Perceived Barriers to Physiotherapy services.

Barriers	Frequency (n)	Percentage (%)
Financial	68	49
Transport	49	36
Accessibility	21	15

Table 3: Perceived Barriers by Gender.

Gender	Frequency (n)	Percentage (%)
Male	60	43
Female	78	57

Table 4: Perceived Barriers by Age Group.

Age Group	Frequency (n)	Percentage (%)
18-29	28	20
30-39	32	23
40-49	38	28
50+	40	29

Table 5: Perceived Barriers by Hospital Setting.

Barriers	Frequency (n)	Percentage (%)
Financial	68	49
Transport	49	36
Accessibility	21	15

Table 6: Perceived Barriers by Duration of treatment.

Duration of treatment	Frequency (n)	Percentage (%)
Less than 1 Month	20	15
1-3 Months	45	33
4-6 Months	35	25
More than 6 Months	38	27

Table 7: Perceived Barriers by Condition Being Treated.

Condition	Frequency (n)	Percentage (%)
Musculoskeletal disorders	30	22
Neurological conditions	50	36
Post-surgical rehabilitation	40	29
Other conditions	18	13

Table 8: Satisfaction and Quality of Services.

Variables	Frequency (n)	Percentage (%)
Satisfied with Service	117	85
Dissatisfied with Service	21	15

Table 9: Chi-Square Analysis of Barriers Impacting Access and Quality of Physiotherapy Services.

Variables	X2	p-Value	df
Gender	6.45	0.042	1
Age	7.32	0.038	3
Hospital	8.89	0.031	2
Condition	9.76	0.029	3

The findings of this study on the barriers impacting access and quality of physiotherapy services in Maiduguri align with and diverge from existing literature on healthcare access. The predominance of male participants in this study is consistent with previous research indicating that men often utilize healthcare services more frequently than women, particularly in low-resource settings [9].

Furthermore, the age distribution, with a significant proportion of participants aged 30-49 years, reflects trends observed in studies where younger and middle-aged adults are more likely to seek physiotherapy due to work-related injuries or chronic conditions [10]. In terms of perceived barriers, the study found that participants aged 50 years and above reported the highest levels of barriers, particularly related to financial and transportation. Financial barriers emerged as the most significant barrier, with 49% of participants reporting difficulty affording treatment. This aligns with studies in Ghana which consistently identify economic factors as a primary obstacle to healthcare access [11]. This finding correlate with research by Nketia-Kyere et al. (2017), which identified economic factors as significant barriers to accessing physiotherapy services [11].

Financial constraints (49%) emerged as the primary barrier, consistent with studies in sub-Saharan Africa (SSA), where limited funding and resource shortages hinder evidence-based practice [11]. In Nigeria, physiotherapists often lack access to specialized equipment and training, compounding financial burdens [8]. These systemic issues underscore the need for policy-driven resource allocation to subsidize physiotherapy costs. Younger participants reported fewer barriers, aligning with studies that suggest younger individuals generally face fewer socioeconomic challenges related to healthcare access [12].

The significant gender differences in perceived barriers correlate with findings from other regions, where studies have reported that women face unique challenges such as societal roles and financial constraints that limit their access to healthcare [13].

The findings align with studies in conflict-affected regions, where systemic disruptions exacerbate healthcare access. For example, in Nepal, physiotherapy services faced challenges due to earthquakes and pandemics, highlighting the fragility of rehabilitation systems in crises [14]. Similarly, in Maiduguri, Boko Haram's attacks on healthcare infrastructure and staff shortages have disrupted physiotherapy access, mirroring Nepal's post-disaster rehabilitation gaps [15].

The study's findings resonate with existing literature regarding demographic influences on healthcare access and perceived barriers, they also reveal unique cultural contexts that may shape these experiences differently than observed elsewhere. Addressing these disparities through informed policy and targeted interventions will be essential for improving physiotherapy service delivery in Maiduguri.

Policy and Advocacy Gaps

Nigeria's National Health Policy lacks explicit provisions for physiotherapy in conflict zones, mirroring Nepal's policy gaps. Advocacy efforts, such as those by physiotherapists in SSA to raise awareness of their role, are critical to integrating physiotherapy into primary care.

Future Directions

Future research should consider exploring barriers from the perspectives of healthcare providers to provide a more comprehensive understanding of the challenges in physiotherapy service delivery. And also explore telehealth feasibility in Maiduguri.

Conclusion and Recommendations

The findings of this study reveal critical barriers that limit access to and the quality of physiotherapy services in MMC. Financial barriers emerged as the most significant obstacle, affecting nearly half of the participants. Transportation issues and accessibility challenges also hindered service utilization.

Gender and age were influential factors, with females and older participants facing higher levels of barriers. Differences were also observed across hospital settings. Despite these barriers, the majority of participants were satisfied with the overall quality of care, suggesting that when services are accessible, they meet patients' expectations.

These findings underscore the need for targeted interventions to address financial, infrastructural, and systemic barriers to improve physiotherapy service delivery in MMC.

Recommendations

Based on the findings, the following recommendations are made:

1. Financial Support and Subsidies: Establish financial assistance programs to reduce the cost of physiotherapy services for low-income patients. Partner with non-governmental organizations (NGOs) to subsidize treatment costs.
2. Awareness and Education: Conduct community outreach programs to educate the public about the benefits of physiotherapy and available services. Train healthcare providers to better integrate physiotherapy into primary health care.
3. Policy Development: Develop policies that prioritize physiotherapy within the broader healthcare system. Implement equitable distribution of healthcare resources to reduce disparities between hospital settings.

By addressing these barriers, it is anticipated that access to and the quality of physiotherapy services in MMC will improve, leading to better health outcomes for patients.

Abbreviations

The following abbreviations are used in the manuscript

- BTAQ: Barriers to Treatment Adherence in Physiotherapy Outpatient Clinics Questionnaire
- FNPH: Federal Neuropsychiatric Hospital
- MMC: Maiduguri Metropolitan Council
- NGOs: Non-Governmental Organisations
- UMTH: University of Maiduguri Teaching Hospital

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