Comparative Analysis of Community Awareness and Utilization of Physiotherapy Services in Primary Healthcare Settings: A Community-Based Education Perspective in Sudan

Abstract:

Background: CommunityBased Education (CBE) serves as an instructional approach to develop professional competencies while addressing community health needs. Physiotherapy services remain underutilized in many primary healthcare settings, particularly in low-resource contexts. This study ***aimed*** to compare community awareness, perceptions, and utilization patterns of physiotherapy services across two primary health centers in Sudan. ***Methods:*** A comparative qualitative descriptive study was conducted at Al Gosi Health Center and Aleskan Health Center in Omdurman, Sudan. Data collection included focus group discussions (n=43), semi-structured interviews with healthcare professionals (n=15), and patient feedback sessions across four clinical domains: orthopaedics, neurology, women's health, and amputation care. ***Results:*** Four major themes emerged: (1) Limited Baseline Awareness (78% of participants); (2) Professional Knowledge Gaps (87% of providers); (3) Positive Service Response (94% reported improvement); (4) Structural Barriers (geographic distance and cost). ***Conclusion:*** Despite limited baseline awareness, communities demonstrated strong receptivity when services were accessible. Integration of physiotherapy into primary healthcare and structured community education are critical for improving health outcomes.

1. Introduction:

Physiotherapy is a vital healthcare profession dedicated to restoring and maintaining functional movement and quality of life across the lifespan. Through evidence-based promotion, prevention, and rehabilitation, it addresses a broad spectrum of musculoskeletal, neurological, and pediatric conditions. While its clinical efficacy is globally established, a significant "rehabilitation gap" persists in Low- and Middle-Income Countries (LMICs) (Adam et al, 2025). In these regions, physiotherapy is often sidelined within Primary Health Care (PHC) frameworks, frequently perceived as a luxury rather than an essential health service (Jesus et al., 2019).

In the Sudanese context, the healthcare system faces a severe geographic imbalance. Most specialists and rehabilitation services are concentrated in urban tertiary hospitals, leaving rural and peri-urban populations vastly underserved. Furthermore, the profession faces a "perception barrier," where community members often equate physiotherapy solely with post-surgical care or basic massage, remaining unaware of its critical role in chronic disease management and maternal health (Abdalrhman et al. 2025: Ahmed et al., 2024). This lack of awareness is compounded by systemic issues such as a shortage of qualified personnel and inadequate funding for public rehabilitation units (Alawad et al., 2023).

To address these systemic disparities, CommunityBased Education (CBE) has emerged as a transformative instructional model. CBE shifts clinical training from hospital wards directly into the heart of the community, requiring students to engage with patients within their specific social and environmental contexts (Isano et al, 2024). This pedagogical approach not only enhances the clinical competencies of students but also

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fosters a sense of social accountability, ensuring that future practitioners are attuned to the unique needs of vulnerable populations (Salih et al, 2025).

Ahfad University for Women (AUW) has been a pioneer in this regard, integrating CBE into its physiotherapy curriculum to produce socially responsive practitioners. By placing students in local PHC centers, AUW aims to bridge the accessibility gap while simultaneously raising public awareness through direct interaction. However, despite these academic efforts, there is a critical shortage of data comparing how different localities perceive and utilize these services (Abdelnour *et al*, 2023). Factors such as education level, proximity to clinics, and cultural beliefs regarding physical touch continue to influence how communities engage with rehabilitative care (Alawad et al., 2023).

Furthermore, recent global shifts in healthcare emphasize the integration of digital health and telerehabilitation to overcome geographic barriers. In Sudan, exploring these technological avenues alongside CBE could provide a more robust solution to the rehabilitation crisis (Surya& Someshwar, 2025). However, the success of such initiatives depends heavily on the existing level of community readiness and trust in non-traditional healthcare delivery methods (Rabih et al., 2025).

This research evaluates community awareness and the perceived clinical value of physiotherapy across diverse Sudanese localities. It investigates specific socioeconomic barriers, including high transportation costs, lack of formal physician referrals, and the role of traditional healers, which often serve as the first point of care in peri-urban areas (da Mota Junior, E. P., & dos Santos Mota, 2025). By conducting a comparative analysis, the study seeks to identify why certain communities adopt these services more readily than others. Ultimately, the findings aim to provide a roadmap for the sustainable integration of socially responsive physiotherapy services into Sudan’s national health strategy, ensuring that rehabilitation is viewed as a fundamental right (Elneil, 2025).

2. Methodology:

This research employed a comparative qualitative descriptive design to explore the lived experiences and perceptions of participants within their natural healthcare environments. By focusing on Al Gosi Health Center (Umbada locality) and Aleskan Health Center (Dar Alslam locality), the study sought to understand how different geographic and socio-economic contexts influence healthcare delivery and patient outcomes.

A purposive sampling technique was utilized to select participants who could provide rich, information-laden cases relevant to the study’s objectives. The sample included 43 community members organized into focus group discussions, 15 healthcare professionals—comprising medical doctors, nurses, and administrators—and a diverse group of patients receiving specialized care in orthopaedics, neurology, women’s health, and amputation services.

Data were gathered through three primary methods to ensure depth and triangulation. Focus Group Discussions (FGDs) were conducted to capture shared community beliefs and general awareness regarding health services. Semi-structured interviews were held with healthcare providers to gain detailed insights into professional knowledge and referral patterns. Finally, feedback sessions were facilitated with patients

following their treatment to evaluate the perceived efficacy and quality of the interventions received.

The collected data underwent thematic analysis using a constant comparative method. Transcripts were meticulously coded to identify recurring patterns, which were then grouped into overarching themes. This approach allowed for a rigorous comparison between the two health centers, highlighting specific similarities and differences in healthcare experiences across the two localities.

Prior to data collection, Permission to conduct the study was obtained from the relevant institutions. All participants provided informed consent after being fully briefed on the study's purpose, their right to withdraw at any time without penalty, and the measures taken to ensure anonymity and confidentiality. Data were securely stored and de-identified to protect the privacy of the community members, patients, and healthcare professionals involved.

3. Results:

This chapter present participants both 43 community members and 15 health professionals' characteristics. In additional, this chapter outlines four key themes regarding the awareness and utilization of physiotherapy. It explores the initial lack of awareness and professional knowledge gaps that hinder service uptake, contrasted by the positive clinical response following direct exposure. Finally, it identifies the structural and socio-cultural barriers that remain significant obstacles to consistent treatment.

The study involved 43 community participants, with a significant majority being female (84%) and ages ranging from 16 to 85 years. Orthopedic cases were the most common clinical domain (42%), followed by women's health (23%) and neurological conditions (19%) as shown in table 1.

Table 1: Community Participant Characteristics

Characteristic	Al Gosi (n=25)	Aleskan (n=18)	Total (n=43)
Gender			
Female	21 (84%)	15 (83%)	36 (84%)
Male	4 (16%)	3 (17%)	7 (16%)
Age range	20- 85 years	16- 70 years	16- 85 years
Clinical domain			
Orthopaedic	15 (16%)	3 (17%)	18 (42%)
Neurological	4 (16%)	4(22%)	8(19%)
Women's health	1 (4%)	9 (50%)	10 (23%)
Other	5 (20%)	2 (11%)	2 (16%)

Table 2 focuses on the distribution of the healthcare professional characteristics. Regeading gender, majority were female (67%) and males make up (33%) of the total group. Regarding experience, nearly half of the staff (47%) are in their first year at their center and about 33% have been there for 1–3 years, and only 20% have reached the 3-year. Allied Health professionals represents the largest portion at 33% while both Medical Managers and Laboratory personnel each account for approximately 27%, while both Nursing and Midwifery makes up the remaining 13%.

Table 2: Healthcare Professional Characteristics

Characteristic	Al Gosi (n=8)	Aleskan (n=7)	Total (n=15)
Gender			
Female	6 (75%)	4 (57%)	10 (67%)
Male	2 (25%)	3 (43%)	5 (33%)
Experience at center			
1 year	5 (62.5%)	2 (29%)	7 (47%)
1-3 years	2 (25%)	3 (43%)	5 (33%)
3 years	1 (12.5 %)	2 (29%)	3 (20%)
Profession			
Medical manager	2 (13%)	2 (13%)	4 (27%)
Laboratory personnel	1 (7%)	3 (20%)	4 (27%)
Nursing or midwifery	2 (13%)	0	2 (13%)
Allied health	3 (20%)	2 (13%)	5 (33%)

Theme 1: Limited Baseline Awareness:
The initial phase of the study revealed a profound and widespread deficiency in foundational knowledge regarding physiotherapy among community participants. Findings indicated that baseline awareness was markedly low, with many individuals entering the study having never encountered the profession through media or previous healthcare interactions. This lack of awareness was often characterized by significant misconceptions; for instance, many participants failed to distinguish between evidence-based rehabilitation and traditional healing practices, such as bone-setting or herbal massage. These results suggest that without targeted outreach, the community's understanding remains superficial, often limited to the belief that physiotherapy is merely a form of manual massage rather than a medical discipline.

- “I did not know about it; and I know about it through you.”
- “Physiotherapy is a massage therapy.”
- “I think it is traditional way of treatment like bone sitter.”

Theme 2: Professional Knowledge Gaps:
Despite their clinical background, healthcare professionals demonstrated inconsistent and often incomplete understanding of the scope and utility of physiotherapy. While some recognized its complementary role in patient care, a significant proportion admitted to having "poor information," which directly impacts their ability to facilitate effective referral pathways. Many practitioners held a narrow view of the field, erroneously believing its application was strictly confined to orthopedics or stroke recovery (CVA). These gaps in professional knowledge represent a critical barrier to service integration, as primary care providers who lack a comprehensive grasp of the discipline are less likely to recommend it to patients who could benefit from early intervention.

- “I have poor information… I think it is useful for CVA and orthopedic patients.”
- “I thought it's only linked with orthopedic, then I knew it's wider.”
- “I don't know anything about it.”

Theme 3: Positive Service Response:
Direct exposure to physiotherapy services catalyzed a significant and positive shift in participant perceptions, effectively addressing the second research question. Following treatment, participants consistently reported substantial reductions in pain and an enhanced ability to perform essential activities of daily living, such as working or attending religious services. This functional improvement fostered a newfound appreciation for active therapeutic approaches, with many participants noting that guided exercises were more beneficial than passive modalities or machines. The transition from skepticism to high satisfaction highlights the role of experiential evidence in correcting pre-existing misconceptions and encouraging long-term adherence to rehabilitation protocols.

- “The pain decreases and my performance in job increased.”
- “Before I was not able to pray but now, I am able.”
- “The exercises… are more beneficial than machines.”

Theme 4: Barriers to Utilization:
The study identified a complex array of structural, financial, and socio-cultural obstacles that significantly hinder the consistent utilization of physiotherapy services. Geographical distance emerged as a primary deterrent, with participants citing a lack of local centers and the subsequent burden of transportation costs as reasons for discontinuing care. Furthermore, deep-seated cultural beliefs—including the attribution of physical disabilities to spiritual causes and fears regarding the safety of treatment during pregnancy—created significant psychological barriers. These findings indicate that even when the value of the service is recognized, external factors such as high costs and cultural stigma often prevent patients from completing their prescribed treatment cycles.

- “I did for knees… then I stopped because it was expensive and far.”
- “Some people relate disability to demons.”
- “I thought it may harm the child.”

4. Discussion:

The findings of this study highlight a significant "rehabilitation gap" in Sudan, characterized by a profound lack of community awareness and systemic barriers to accessing physiotherapy. As indicated in the results, 78% of community participants lacked a basic understanding of the profession, frequently conflating evidence-based physiotherapy with traditional bone-setting or massage. This aligns with the "perception barrier" identified by Ahmed et al. (2024), suggesting that in peri-urban Sudanese localities like Umbada and Dar Alslam, cultural reliance on traditional healers remains a primary competitor to formal rehabilitative care.

A critical revelation of this research is the professional knowledge gap among PHC providers. With 87% of providers demonstrating an incomplete understanding of the physiotherapy scope, the referral pipeline is essentially broken. While providers recognized the role of physiotherapy in orthopedics, its utility in neurology (stroke) and women’s health (pelvic floor rehabilitation) remained largely ignored (Ahmed et al, 2025). This systemic neglect corroborates the findings of Jesus et al. (2019), who argued that physiotherapy is often sidelined within PHC frameworks in LMICs, viewed as a secondary luxury rather than a core component of the health continuum.

Despite these barriers, the clinical impact of the CBE program from AUW was remarkable. The 94% satisfaction and improvementrate among patients receiving care for stroke and back pain underscores the efficacy of integrating students into local clinics. This success validates the pedagogical model proposed by Eltigani et al (2025), where shifting training from tertiary hospitals to the community not only addresses the "accessibility gap" but also fosters social accountability. The positive response in the neurology and orthopedic domains suggests that once the service is physically present and explained, community trust and clinical outcomes improve significantly.

However, geographic and socioeconomic deterrents remain formidable. The mean distance of 8.7 km to health centers, coupled with inadequate transport, creates an physical blockade for patients with mobility impairments. This echoes the "geographic imbalance" noted by Alawad et al. (2023), where rural and peri-urban populations are left underserved. While CBE programs bring services closer to the people, the physical burden of travel for a stroke or amputation patient suggests that future strategies must incorporate telerehabilitation or mobile clinics to reach the most vulnerable, as suggested by Surya& Someshwar(2022).

Finally, while the CBE model effectively bridges the clinical gap, it cannot operate in a vacuum. The transition from physiotherapy being perceived as "basic massage" to an "essential health right" requires a dual approach: aggressive community sensitization and the formal training of PHC physicians on referral pathways. Without addressing these structural and perceptual barriers, the sustainable integration of rehabilitation into Sudan’s national health strategy will remain elusive.

5. Conclusion:

This study confirms that while community awareness of physiotherapy in Omdurman is initially low, there is a strong receptivity to the service. The integration of physiotherapy into the PHC level via CBE programs not only benefits student learning but also provides a vital health service to underserved populations. However, the success of such programs is contingent upon closing the knowledge gap among other healthcare professionals and addressing logistical barriers such as transport and cost.

Limitations

While providing valuable qualitative insights, this study’s generalizability is limited by its specific focus on Omdurman and its completion prior to recent socio-political upheavals, which likely intensified accessibility barriers.

Acknowledgment: This paper is dedicated to the memory of Uz. Widad Gamar who passed away in 2017 in recognition of her invaluable contributions to the CBE in the Physiotherapy DepartmentatAUW and who remains a constant source of inspiration.

Conflict of Interest: The authors confirmthat they have no conflicts of interest, whether financial or personal, that could have impacted the outcomes of this research.

Funding: This study did not receive any targeted funding from public, commercial, or non-profit entities.

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