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Enhancing Prosthetics and Orthotics Service Delivery in Ghana: A Call for Standardization, Capacity Building, and Systemic Reform

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Abstract; This qualitative study investigates the current state of Prosthetics and Orthotics (P&O) service delivery within the Ghana Health Service, focusing on the challenges and opportunities for improving care in low-resource settings. Conducted in Kumasi, Ashanti Region, the research employed semi-structured interviews with key stakeholders, including technicians and heads of department at a regional P&O center. The study aimed to assess the existence and application of standard operating procedures (SOPs), the adequacy of infrastructure and materials, and the level of professional training and capacity building among P&O service providers. The findings reveal a significant gap in standardized protocols, reliance on individual expertise for decision-making, infrastructural deficiencies, and a pressing need for professional training. The absence of SOPs and the reliance on ad hoc practices compromise the quality and consistency of P&O services, highlighting a broader issue of resource constraints in low- and middle-income countries (LMICs). Based on the insights gained, the study recommends the development and implementation of SOPs tailored to local contexts, investment in infrastructure and equipment, enhanced training programs for healthcare professionals, and the establishment of public-private partnerships to leverage additional resources. These steps are crucial for improving the accessibility and quality of P&O services, ultimately enhancing the well-being and social integration of individuals with disabilities in Ghana. This research contributes to the limited body of literature on rehabilitation services in LMICs and proposes actionable strategies for healthcare policy and practice improvements in Ghana, with potential applicability to similar contexts globally.

Keywords: Prosthetics, Orthotics, Ghana, Rehabilitation, Service Delivery

I. INTRODUCTION

The delivery of Prosthetics and Orthotics (P&O) services in Ghana faces several critical challenges that hinder the provision of effective and accessible care

to those in need. The country's healthcare system, striving to meet the demands of its population, grapples with issues related to infrastructure, training, and policy, which are pivotal for the advancement of

P&O services (Esquenazi et al., 1989). Firstly, the lack of standardized training and education for P&O professionals poses a significant challenge. The World Health Organization (WHO) emphasizes the importance of specialized training for P&O service providers to ensure high-quality care (LeBlanc & LeBlanc, 1988). However, in Ghana, the scarcity of educational programs specifically designed for P&O, coupled with limited access to continuing professional development, restricts the capacity of practitioners to deliver up-to-date and effective treatments (Macfarlane et al., 1997). Infrastructure and equipment inadequacies further exacerbate the situation. The availability of modern and appropriate tools and facilities is essential for the fabrication and fitting of prosthetic and orthotic devices. Yet, many service centers in Ghana lack the necessary resources, impacting the quality of care and the range of services they can offer (Schuch, 1988).

Additionally, the integration of P&O services into the broader healthcare system is crucial for ensuring comprehensive care. However, challenges in policy and strategic planning often lead to the marginalization of P&O services, limiting funding, and support from the health system. This lack of integration hinders the ability of P&O services to reach a wider population and to collaborate effectively with other healthcare sectors (Macfarlane et al., 1997).

To address these challenges, it is imperative to develop targeted strategies that focus on enhancing education and training for P&O professionals, investing in infrastructure and equipment, and advocating for policy reforms that recognize the importance of P&O services within the healthcare system. By tackling these issues, Ghana can improve the accessibility and quality of P&O services, ultimately contributing to better health outcomes and quality of life for individuals requiring prosthetic and orthotic care.

“Rehabilitation is a combination of interventions aiming to optimize functioning and reduce handicap in individuals with health problems in interaction with

their environment,” according to the World Health Organization. It includes diagnosis, treatment, surgery, assistive devices, and therapy. There is a scarcity of data on people's access to rehabilitation services in low- and middle-income countries (LMICs) (Husnain et al., 2023). Globally, an estimated one billion people are disabled, with over 80% of them living in low-resource settings (Zinsstag et al., 2011). Medical rehabilitation services, on the other hand, are still underdeveloped in low- and middle-income countries (LMICs) (Hackney et al., 2021).

Africa bears 24 percent of the world's disease burden yet only has 3% of the world's health professionals, with a budget of less than 1% of global health expenditure ((Molenda et al., 2019). In Ghana, 3.7 percent of the population is believed to be disabled (Paxton et al., 2022). This disability prevalence rate is about in line with what is seen in Sub-Saharan Africa, and is estimated to be 15% or over 131 million people (Afonso et al., 2023). Limited rehabilitation infrastructure, human resources, and the lack of evidence-based treatments appear to be impediments to improving care in low-resource areas where the burden of trauma-related impairment and crippling chronic diseases is quickly increasing (Boyd et al., 2023).

When a person is experiencing or is anticipated to experience restrictions in everyday functioning as a result of aging or a health condition, such as chronic diseases or disorders, injuries, or trauma, rehabilitation is required (Bonarrigo et al., 2014). The global population is aging, and the number of people suffering from non-communicable diseases is on the rise. Because of violence, growing urbanization, and motorization, more people are living with injuries and injury-related effects. The current demographic and health developments are causing a significant rise in the world population. Rehabilitation is an important health approach for improving daily functioning and ensuring the best possible health and well-being. Exercise, balancing training, housing modifications, sensory integration, community activities, mobility assistance, prosthetics/orthotics, and a variety of

other interventions can all be included (Shuxian et al., 2005). Rehabilitation interventions improve function and well-being by treating impairments, limitations, and constraints in a variety of domains (mobility, vision, and cognition), all while considering personal and environmental factors (Mills, Marks, Reynolds, & Cieza, 2018). Only six rehabilitation physicians (physiatrists) service Sub-Saharan Africa's 1.1 billion population, all of whom are based in South Africa (Yan et al., 2018).

Occupational therapists (OTs) are estimated to number 4,169 in Africa, with 75% of them working in South Africa (Chen et al., 2016). Only 15 African countries have data on the number of physiotherapists (PTs), ranging from 0.1 per 100,000 in Ghana and Ethiopia to 6.7 per 100,000 in South Africa (Anaya et al., 2016). The number of speech therapists in Sub-Saharan Africa outside of South Africa and Ghana is unknown. In low-resource countries, the number of social workers and rehabilitation psychologists ranges from 0.04 to 0.06 per 100,000 people, respectively (Jarow, 2018). In fact, in many parts of Africa, these allied rehabilitation medicine experts are not well-known specialty services. For rehabilitation planning and service provision to lessen the burden of impairment, more evidence about the capacity to administer rehabilitation care is required. Unfortunately, no standardized rehabilitation capacity evaluation methodologies exist, and many LMICs lack internal procedures to measure rehabilitation care capacity. Furthermore, while research in high-income settings has evaluated the demand for rehabilitation services in specific groups, the findings are frequently not generalizable to low-income settings, limiting their utility for policy-making in LMICs.

2. MATERIALS AND METHODS

2.1 Study Design

The qualitative case study design was adopted to achieve the study's objective of assessing the state of Prosthetics and Orthotics rehabilitation services under Ghana Health Services in Kumasi in the Ashanti region of Ghana. The design enabled data collection

on the state of prosthetics and orthotics services based on previous and current shared experiences on the subject which appears to be neglected as far as health and wellbeing in the country is concerned. The case study approach was adopted because the objective of the study was to investigate the state of P&O services at a given time based on the immediate past or current state of affairs.

2.2 Study Population

The study involved all stakeholders in the prosthetics and orthotics center of the Komfo Anokye Teaching Hospital (KATH) who are responsible for the delivery of prosthetic and orthotic healthcare. This comprised of all Prosthetic and Orthotic technicians under the GHS in Kumasi's KATH, head of departments and deputy director in charge of clinical care, prosthetics and orthotics, irrespective of gender age, social class within the selected health facility

As indicated in the paragraph above, the study comprised of only P&O technicians, heads of P&O departments and deputy directors in charge of clinical care in P&O center. Respondents of both genders, all ages that have one year and above experience in the delivery of P&O health care was eligible of inclusion in the study. Anyone available in the facility who did not meet the inclusion criteria was excluded from the study.

2.3 Sampling size and technique

Being a purely qualitative study, the sample size was not determined with any formula; however, a targeted sample of twenty-five (25) respondents with response saturation as the highest threshold for ideal sample determination. Upon response saturation, a total of 12 respondents were engaged in the study. P&O is deeply technical work. Most healthcare professionals in Ghana have little knowledge about what P&O technicians do. It happened that as at the time of the study, the 12 respondents were the total number of service providers at the facility with in depth knowledge in the field to provide needed information. Purposive sampling technique was used for the study. Selection of health facility was done purposively

because only facilities that render prosthetic and orthotic services were selected for the study (in this case the P&O centre in Kumasi). In the facility, the targeted respondents (technicians, department heads and clinical directors) were purposively selected if they met the inclusion criteria and also consent to participate in the study. This was done until saturation or ideal sample was obtained.

2.4 Study variables

Infrastructure needs

By prudently planning prosthetics and orthotics centers and adjusting the layout and size to the projected workload and the types of services to be provided, individual needs can be met in a total operative, professional way, and the unit can excellently contribute to meeting needs in the region. An accessible, free environment that provides secrecy for every individual during service is important.

Standard operation procedures

The WHO standards can serve as a global guide, Member States should adapt them to their contexts, giving priority to standards that must be in place to safeguard user rights, safety, quality and performance. In countries with limited resources, some of the priorities, particularly those that require technical assistance, technology transfer or capacity-building, could be covered by the international cooperation framework defined in Article 32 of the CRPD.

Quality of service delivery and types

Prostheses and orthoses should be available to all who need them. Their provision positively affects the health and well-being of users and their families and has broader socioeconomic benefits. These devices help people to become more active and to live healthy, productive, independent, dignified lives and to participate in education, the labour market and social life.

2.5 Data collection tools and technique

This research employed an interview approach for data collection. For this reason, a semi-structured

interview guide with open-ended questions were developed and used for data collection. The interview guide was developed in four central themes capturing the specific objectives of the study including socio-demographic information of prospective interviewees. A tape-recorder was used in recording the interview process while field notes were used in recording observed phenomena that were deemed relevant to the subject.

The study explored a central phenomenon by asking participants broad and general questions on the state of prosthetics and orthotics health services. Collection of data was done via open-ended questions' interviews. The interviews conducted detailed major themes covering the standard operating procedures and protocols that guided P&O service delivery, factors and challenges that influence quality of P&O service delivery.

The scope of the interview consisted of demographic characteristics, perceptions, and views of participants on prosthetic and orthotics health delivery. The data collection process adopted a one-on-one interview approach in the English language for all respondents before later transcribed in Microsoft word. A desirable location suitable for participants were selected for the interview with all COVID-19 protocols of face mask-wearing and social distancing fully observed. Considering the times (COVID) we found ourselves, each interview session lasted not more than 30 minutes to reduce excessive human contact. Responses from participants will be audio-recorded, transcribed, and compared with field notes.

2.6 Analysis and Presentation of Results

Data was analyzed qualitatively using manual thematic content analysis by first transcribing the responses obtained from the interviews conducted in comparison with field notes. The data was then organized into various themes (main objectives) and sub-themes (based on respondents' accounts of prosthetic and orthotic service delivery).

The various views and experiences gathered from recorded interviews and field notes were used to

explore, evaluate, and come out with findings on the phenomenon (state of prosthetic and orthotic service delivery). The transcripts were then searched for codes that were related and of interest to the research questions. The codes served as brief expressions that represented the raw data. After coding was completed, it was revised if the organized text represented the code it was given to, searched for connections between the codes and looked to see if the text reference could be given to another code. This process helped to fish out for wider patterns from the codes and identify central themes. These initial candidate themes served to tell the participants story, taking the important themes that answered the research question.

Examples of findings for a major theme or sub-theme as indirect quotes of respondents were presented in support of the main findings. This was done for all the objectives outlined for the study. Piloting of the instrument was done at the National prosthetics and orthotics center in Accra among 5 staff. This enabled the restructuring, clarification and correction of ambiguous questions before the main data collection exercise. Being a purely qualitative study adequate control measures were kept in place to ensure the overall quality of the study. This ranged from the selection of the appropriate study settings, ideal study participants, data collection tools, and processes. Data collectors were well trained to ensure quality data is gathered while due diligence is made to ensure data processing for analysis. Methods for data analysis were properly selected to produce the desired results. All human ethics were adequately considered.

Steps in the analysis

In the current study, the responses from the participants individual interviews were analyzed by means of the following steps detailed below;

Selection of the subtext: Relevant texts or parts of the narrative were selected for each of the questions asked and placed in new subtexts. For example, whether there are required operating procedures and protocols that guide P & O health delivery at the facility?

All predefined categories, however, were read openly to define further content categories, or themes.

Sorting materials into the categories: Actual sentences or quotations were allocated to relevant categories/themes, which included relevant material from the same narrative or across several narratives.

Drawing conclusions from the results: The sentences or sections of text were processed descriptively, to generate a clear representation of the content.

Themes identified

The study on Prosthetics and Orthotics (P&O) service delivery in Ghana has identified and analyzed issues under four key themes: standard procedures guiding P&O service delivery, routine examination of clients, acquisition of materials and components, and factors influencing the quality-of-service delivery. The lack of standardized operating procedures (SOPs) emerges as a critical gap, leading to inconsistencies in care and potential risks to clients. SOPs are essential for ensuring that services are uniformly high in quality, safe, and effective across various settings. Additionally, the routine examination of clients is paramount for personalized care, yet challenges such as insufficient skilled personnel and inadequate examination time compromise service effectiveness. The acquisition of high-quality materials and components is hindered by financial limitations, supply chain inefficiencies, and a dearth of local manufacturing capabilities, impacting the durability and effectiveness of prosthetic and orthotic devices. Lastly, the quality-of-service delivery is influenced by a myriad of factors including practitioner expertise, resource availability, and infrastructure adequacy. Addressing these issues necessitates a comprehensive strategy encompassing policy reforms, investment in infrastructure, capacity building for healthcare professionals, and fostering partnerships to ensure a robust P&O service delivery system. Such efforts are vital for improving the accessibility, efficiency, and overall quality of P&O services, ultimately enhancing the lives of individuals in need of these essential services.

3. RESULTS

This paper covers the steps involved in decoding the responses of the interviewees, interpretation and discussion of the findings and the findings based on the objectives. The qualitative data gathered from the field are analyzed and presented based on the study objectives in this chapter. Upon response saturation, a total of 7 technicians were interviewed in addition to one head of department were interviewed. The results are presented based on the specific research objectives and questions that were asked for each objective. The table I below gives a brief description of the respondents. A total (7) respondents were interviewed for the study with (5) of them been males. The minimum years working experience was 2years while the maximum working experience was 42 years. The table includes seven respondents, with a gender distribution of two females and five males, highlighting a male-dominance in the sample. The roles of these respondents vary significantly, ranging from biomedical engineers to technical officers, heads of P&O departments, and specialists in orthotic shoe making, caliper making, and corset specialization.

The years of experience among the respondents also vary widely, from as few as 2 years to as many as 42 years. This range suggests a mix of relatively new entrants to the field and highly experienced professionals, indicating a depth of knowledge and expertise within the group. The presence of professionals with decades of experience, such as the caliper maker with 39 years and the corset specialist with 42 years, suggests a long-standing tradition and evolution of P&O service delivery within the context being studied. Conversely, the inclusion of professionals with only a few years of experience, such as the female biomedical engineer with 2 years and the male technical officer with 3 years, reflects the ongoing entry of new talent into the field, which is essential for introducing innovative practices and sustaining the workforce.

This mix of experience levels and roles among the respondents provides a comprehensive perspective on the current state of P&O service delivery,

encompassing both the technical and managerial aspects of the field. It also implies the potential for a rich exchange of knowledge and practices, from traditional methods to modern, evidence-based approaches in P&O care. This diversity is crucial for understanding the various challenges and opportunities in enhancing the quality and accessibility of P&O services, as experienced professionals can offer insights into long-term trends and changes in the field, while newer professionals may bring fresh perspectives and familiarity with recent technological advancements.

Table I Demographic characteristics of respondents

| S/ N | RESPONDENT SEX | YEARS OF EXPERIENCE |
|------|------------------------------|---------------------|
| 1 | A female biomedical engineer | 2 years |
| 2 | A female | 19 years |
| 3 | A male technical officer | 3 years |
| 4 | A male head of P&O | 9 years |
| 5 | A male orthotic shoe maker | 4 years |
| 6 | A male caliper maker | 39 years |
| 7 | A male corset specialist | 42 years |

Standard Operating Procedures and Protocols That Guide P&O Service Delivery

This first objective sought to assess standard operating procedures and protocols that guided P&O service delivery at the regional P&O center in Kumasi. To achieve this objective series of questions were asked. The first was.

What are the required operating procedures and protocols that guide P & O health delivery as a whole? The responses to this question revealed that there were no laid down protocols or procedures that guided the activities of caregivers. According to the participants, the routine thing they do is examine the situation of the client to know the type of P&O assistive to give to a particular client.

For example, a technician 29 years with two years of working experience said

A female Biomedical engineer with 2 years' experience: *"There are no standard protocols that are followed here because we don't have them."*

A male technical officer with 3 years' experience: *"There are no standard protocols that are followed here. Most of the clients we receive are referred to us from doctors or colleagues in other facilities and there is often nothing like standards to follow"*

A male technical officer with 3 years' experience: *"There are no standard protocols given by the GHS that are followed here because we don't have them".*

A female respondent with 19 years' working experience: *"There are no standard operating guidelines protocols that are followed in this facility".*

Routine examination

The purpose of this question was to fine out clinical procedures patients are taking through before prostheses/orthoses are prescribed, designed and manufactured for each patient. For instance, checking for muscle strength, range of motion (ROM)

A male technical officer with 3 years' experience: *"...The patients are only examined to know the types of P&O device they would need with the help of other staff".*

A female Biomedical engineer with 2 years' experience: *"...Based on the type and place of amputation, the patients are examined to know the types of P&O they would need"*

A female respondent with 19 years' working experience: *"..The patients are only examined based on how strong they look physically to us but we do not have standard protocol guidelines to follow".*

Based on the above responses, participants were asked how best they operated to ensure they delivered the best of care to their clients. Services providers indicated they often used their experiences to deliver care, reiterating the absence of standard operating protocols from the Ghana health service (GHS) and partners. Again, because majority of the patients are referred it was expected that any procedure should commence from the referral point.

A male technical officer with 3 years' experience: *"..Majority of the patients are referred from Komfo Anokye Teaching Hospital (KATH), I have not seen any protocol given under the authority of GHS for this center". He further added that,*

A female respondent with 19 years' working experience: *"..For best procedural processes, old clients can suggest to us if there should be a modification in their devices, whereas new clients are guided to choose what best fits their situation".*

A female Biomedical engineer with 2 years' experience: *"...Even though we do their best, the absence of SOPs provided by the GHS in my facility, my staff and I are able to deliver though service delivery is affected".*

A male technical officer with 3 years' experience: *"..I examine the patient and ask whether they've been referred to the facility by a doctor. Based on their referral notes from a doctor we attend to them".*

A female Biomedical engineer with 2 years' experience: *"...There are no SOPs that are followed here; most of the procedures here are conducted mainly through working experiences".*

A female respondent with 19 years' working experience: *"...There are no SOPs that are followed here; most of the procedures here are conducted mainly through working experiences".*

A male technical officer with 3 years' experience: "...There are no standard operating procedures provided by the GHS in my facility but based on our experiences, my staff and I are able to deliver, which mostly affect service delivery, even though we do their best".

In a follow up question, participants were asked to share in details how service was delivered standard protocols and procedures were absence of standard operating protocols. However, as indicated earlier everything done at the center hinged on experiences and shared responsibilities.

For instance

A female respondent with 19 years' working experience: "..We look at the strength of the patient to make our judgments and conclusions, but we may not be right always".

A male head of P&O unit with 9 years' experience: "..Together with my team we examine the client to know which device will best fit their amputation".

A male orthotic shoemaker with 4 years' experience: "...At times I just have to presume with my little experience and help out a patient when the need arises. Sometimes in addition, we do most of our measurements manually. We don't have the required equipment".

A male caliper maker with 39 years of experience: "..With my experience of 39 years, I make sure even though no standard procedures are followed but I give out my best on what will meet the needs of the client".

A female respondent with 19 years' working experience: "...With my experience of 19 years, I give out my best on what will meet the needs of the client".

Purchase of materials and components

To find out how materials and components are provided for work and storage system.

A male caliper maker with 39 years of experience: "...We allow the clients themselves to buy the materials for the prostheses/orthoses"

A male head of P&O unit with 9 years' experience: "..Patients are made to pay for service delivery which is used to purchase the devices for work to be done".

Responses from the participants further indicate that service delivery was not much affected due to non-existence of standard protocols. However, compromised service delivery can only be attributed to non-availability of raw materials and machines for the manufacture assistive devices and facilitation of work.

A female biomedical engineer with 2 years' experience: "..Yes, service delivery is enhanced even though we do not operate under any protocols".

But for lack of required materials, for example we don't have PVA for lamination".

A male head of P&O unit with 9 years' experience: "..Yes, service delivery is affected because we lack the equipment to work with".

A male corset specialist with 42 years working experience: "..Service delivery is quite on the low now, because we don't have the materials and machines to facilitate our work."

A male P&O technician with 4 years' experience: "...Service delivery is not the best over here in this facility because we lack machines and other materials to work with".

A male technical officer with 3 years' experience: "..Service delivery is not as I have always envisaged".

A male P&O technician with 4 years' experience: "The services provided is not what I had always expected".

4. DISCUSSION

The exploration of Prosthetics and Orthotics (P&O) service delivery within the Ghana Health Service (GHS) reveals critical insights into the operational challenges and opportunities for enhancing care quality in low-resource settings. The qualitative case study, centered in Kumasi, Ashanti Region of Ghana, underscores a significant gap in standardized protocols and a reliance on the experience and judgment of healthcare professionals (Baronio et al., 2016; Hall et al., 2010; Smith et al., 1995).

Despite the World Health Organization's emphasis on rehabilitation and assistive technologies as means to optimize functioning and reduce handicap (Anaya et al., 2016; Liu et al., 2019), the study findings align with the broader narrative of resource constraints in low- and middle-income countries (LMICs). The scarcity of rehabilitation services data in LMICs exacerbates the challenge of addressing the needs of the disabled population, which is predominantly situated in low-resource settings (Konrad et al., 2019).

The study's qualitative analysis highlights the absence of standardized operating procedures (SOPs) within P&O services, echoing participants' reliance on experiential knowledge for decision-making. This situation is further complicated by the inadequate infrastructure, human resources, and the lack of evidence-based treatments, which are pivotal in addressing trauma-related impairments and chronic diseases in these settings (Curran & Hambrey, 1991; Pillet & Didierjean-Pillet, 2001; Raichle et al., 2008).

Moreover, the demographic and health transitions, including aging populations and the rise in non-communicable diseases, necessitate a robust rehabilitation framework. Rehabilitation interventions, encompassing a broad spectrum of activities from exercise and mobility assistance to prosthetics/orthotics, play a crucial role in improving function and well-being (Ganesan & Ranganathan, 2023; Rodrigues da Silva et al., 2023). However, the study uncovers that the current P&O service delivery model, hindered by the lack of SOPs and reliance on

individual expertise, may not be adequately equipped to meet these growing demands.

In response to these challenges, there is a pressing need for LMICs like Ghana to develop and implement standardized rehabilitation capacity evaluation methodologies. Such frameworks could enhance the quality of P&O services by ensuring that interventions are consistent, evidence-based, and tailored to the specific needs of the population. Furthermore, international cooperation and the adaptation of WHO standards to local contexts could provide a pathway for improving service delivery quality, safeguarding user rights, and optimizing resource utilization (Kuyper et al., 2001).

This study illuminates the complexities of P&O service delivery within a resource-constrained environment, emphasizing the critical role of standardized practices and the need for systemic infrastructure improvements. As Ghana and similar LMICs strive to address these challenges, the development and implementation of SOPs, coupled with capacity-building initiatives, will be essential for enhancing the quality and accessibility of rehabilitation services, ultimately contributing to the well-being and integration of individuals with disabilities into society.

5. CONCLUSION

Drawing on the comprehensive analysis provided by the study on Prosthetics and Orthotics (P&O) service delivery within the Ghana Health Service, it's evident that there are significant gaps and challenges that need to be addressed. The study highlights the absence of standardized operating procedures (SOPs), reliance on individual expertise, infrastructural deficiencies, and the critical need for capacity building and policy reform to improve the quality and accessibility of P&O services in Ghana. The conclusion of the study underscores the urgent necessity for systemic changes to ensure that individuals with disabilities receive the care and support they need. The findings point to the importance of developing and implementing SOPs tailored to the local context, which would guide healthcare professionals in delivering consistent and quality care. Furthermore,

the study emphasizes the need for investments in infrastructure and equipment to support the provision of comprehensive P&O services.

Moreover, the research advocates for enhanced training programs for healthcare professionals to build their capacity in P&O service delivery. Such initiatives should aim to equip them with the necessary skills and knowledge to meet the diverse needs of their clients effectively. The study also suggests the potential benefits of international collaboration and the adoption of WHO standards to improve service quality and safeguard user rights. The study provides valuable insights into the current state of P&O service delivery in Ghana, highlighting both the challenges and opportunities for improvement. It calls for a concerted effort from all stakeholders, including the government, healthcare providers, and international partners, to address the identified gaps. Through the implementation of standardized procedures, infrastructure development, and capacity building, Ghana can enhance the quality of life for individuals with disabilities, ensuring their full participation in society.

6. RECOMMENDATION

In light of the challenges and opportunities identified within the Prosthetics and Orthotics (P&O) service delivery in the Ghana Health Service, this study proposes a comprehensive set of recommendations to enhance the accessibility, quality, and efficiency of rehabilitation services. Firstly, the establishment and rigorous implementation of Standard Operating Procedures (SOPs), tailored to both global standards and the unique context of Ghana, are paramount. These SOPs will ensure consistent, high-quality care across all service delivery points. Secondly, significant investment in infrastructure and modern equipment is crucial to support the effective provision of P&O services. Thirdly, enhancing the training and capacity of healthcare professionals through continuous education and specialized P&O training programs will elevate the standard of care provided to patients. Additionally, fostering research and data collection initiatives within the P&O field will provide evidence-

based insights to guide policy and practice improvements. The establishment of public-private partnerships can further augment resources and expertise in the P&O sector. Advocacy for policy and legislative support is also necessary to secure the prioritization and sustainable funding of rehabilitation services, including the integration of P&O services into national health insurance schemes. Lastly, engaging communities through awareness campaigns will not only educate the public on the importance of P&O services but also work towards reducing the stigma associated with disability, encouraging more individuals to seek the care they need. Implementing these recommendations will significantly contribute to the advancement of P&O services in Ghana, ensuring that individuals with disabilities receive the support necessary for their full participation in society.

Authors' Note

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Conflicts of Interest

The author(s) declare no conflicts of interest regarding the publication of this paper.

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