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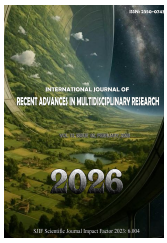

RESEARCH ARTICLE

PATIENTS SATISFACTION WITH PROSTHETICS AND ORTHOTICS REHABILITATION SERVICES AT THE GHANA NATIONAL PROSTHETICS AND REHABILITATION CENTER, ACCRA

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ABSTRACT

In order to improve prosthetics and orthotics service delivery at the National Prosthetics and Orthotics Center (NPOC), the study was carried out to understand patients and health care providers views on services provided to customers. Satisfaction with this aspect of health care delivery at the facility has often not been studied. The aim of this qualitative study was to analyze patients' satisfaction regarding services provided by the facility. Patients were interviewed face to face on services provided by staff. Staff were also interviewed to find out peculiar challenges they face.Total of 7 clients using various orthoses and prostheses and 6 staffs were interviewed. Selection of clients was done conveniently on P&O care receivers. They were sampled for the study based on their availability. The interviews were conducted base on major themes coveringi) types and quality of Prostheses and Orthoses manufactured at the NPOC considering materials and components ii) how these assistive devices or services affect the quality of life of PWDs iv) customer satisfaction with prosthetic and orthotic services at the NPOC. Microsoft Word and Excel was used in analyzing the data qualitatively using manual thematic analysis by first transcribing the responses obtained from the audio taped interviews conducted in comparison with field notes. The results reveal service providers use their experiences and shared responsibilities to deliver care despite challenges with some materials and components. In conclusionclients were quite satisfied with their assistive devices and general service provided, yet some requested government supports in providing modern materials and components. Recommendations were made on Government of Ghana to subsidize the cost of assistive devices, develop standards of operation,and future studies be extended to regional and private centers in the country.

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INTRODUCTION

This chapter is dedicated to the background of study, problem statement as well as research questions and objectives, and the justification for the study.

Background

A billion people globally, most of whom live in low- and middle-income nations, are thought to have some sort of impairment and require health and rehabilitation services (WHO, 2011). Despite how serious the problems are, not enough is being done to prioritize patient satisfaction and monitor progress in order to improve health services for people with disabilities (Tomlinson *et al*., 2009). Patient satisfaction is a broad, multifaceted concept that is acknowledged as being crucial to the delivery of evidence-based healthcare. The idea of patient satisfaction is becoming more widely understood, which indicates that the market for health care delivery is paying growing attention to it (Umar, 2011). Numerous attempts to enhance the delivery of healthcare have been developed, and essential components include patient happiness and healthcare quality (Yeddula, 2012). There has not been a universally accepted definition of healthcare satisfaction because to the perspective, multidimensional, and subjective character of satisfaction, which influences people's expectations, wants, or wishes (Murante, 2010). Relationships with service providers and how patients view their care are important factors in patient satisfaction. According to research, solid customer relationships and high-quality care help businesses attract more clients, keep their costs down, improve their public image, and get more favorable customer feedback. The likelihood of desirable healthcare outcomes is increased by quality healthcare to the extent that healthcare services are provided to people and the population (Aiken *et al*., 2012). The World Health Organization (WHO), which provides a

worldwide perspective, bases its promotion of a quality-focused approach in health systems today on two basic schools of thought: First, it is abundantly obvious that quality is still a severe challenge, even in systems with enough development and funding, as seen by the wide disparities in standards of healthcare delivery both within and between systems and the unpredictability of expected results. Second, the process of upgrading and scaling up has to be founded on sound local quality plans in order to get the greatest results from greater investment where health systems, particularly in developing countries, need to maximize resource utilization and expand population coverage (WHO, 2006). The Ghana National Healthcare Quality Strategy (GNHQS) states that the level of healthcare is determined by how well treatments are client-centered, safe, efficient, timely, equitable, and effective while utilizing the most up-to-date technologies. An empowered staff operating in a supportive environment provides these interventions (GNHQS, 2017). It is significant to emphasize that without taking into account the relationships between people offering healthcare services and the patients using those services, it is impossible to provide care with the necessary quality and patient satisfaction. In the short or long term, the patient-provider connection can help or hurt an individual's access to healthcare for acute or chronic illnesses (Ciechanowski, Katon, Russo, & Walker, 2001). Some patients do express their anger violently occasionally when they believe that their healthcare needs are not being met and that their provider is treating them poorly (Wang *et al*., 2012). Despite increasing efforts to develop and use patient-reported outcome (PRO) measures that are standardized for orthotics and prosthetics (O&P) to assess patient satisfaction with rehabilitation treatments, O&P-related initiatives are less common. It may be difficult to gauge patient satisfaction in O&P because it depends on how they feel about the devices and services they receive. In a similar vein, because orthoses and prostheses may be used for different purposes, patients' experiences with them may vary.

The main objectives of a prosthetist and an orthotist are to improve a patient's general wellbeing by restoring their physical functionality.The American Board for Certification in Orthotics, Prosthetics, and Pedorthics' (ABC) Scope of Practice for Orthotics, Prosthetics, and Pedorthics (OPP) describes the requirements for patient treatment for certified prosthetists and orthotists (Peaco *et al*., 2011). Fundamentally, prosthetic devices are created to replace lost anatomical components. On the other hand, orthoses are advised for a variety of reasons. An orthosis can be used to preserve range of motion, support weak muscles, or rectify abnormalities. Although not as well as prosthetic users who often rely on their equipment to do desired activities, orthotic users can opt not to utilize their device and still operate (Peaco *et al*., 2011). Therefore, if a device's function is not satisfactory, orthotic patients may be tempted to stop using it. In addition, while prosthetic devices are often worn for a lifetime, orthotic devices frequently function as short solutions. Patients may become less invested in their care and less motivated to pursue a fully satisfied outcome as a result of the short duration of their orthotic use, particularly if the device does not match their expectations or needs. Given these variations, it would seem acceptable to assess the satisfaction of orthotic users using outcome measures that take into account particular concerns that are significant to this patient population. Additionally, in the context of client-centered care and evidence-based healthcare, user satisfaction is seen as a key outcome indicator (Federici *et al*., 2011 &Borsci *et al*., 2012). According to Arthanat (2017), In the realm of assistive technology, the five main objectives are patient satisfaction, clinical outcomes, functional status, quality of life, and costs. User satisfaction refers to how someone feels about a service, a product, a service provider, or their health (Chen *et al*., 2014). The rehabilitation procedure for people who have had their lower limbs amputated must include prosthetic services, including the provision of an appropriate prosthesis. The provision of prosthetic services, however, has specific problems on a global scale that are restricting the success of rehabilitation efforts and, as a result, the well-being and socioeconomic standing of those who have lost lower limbs. User satisfaction with orthoses and prosthesis have been the subject of numerous research. In one study, Greetzen *et al*. (2002) evaluated patient and consumer satisfaction with the prosthetics and orthotics institutions in the northern Netherlands. Again, various studies conducted in other developed countries on patients' satisfaction on O&P has proven that patients were quite satisfied or very satisfied with their devices and service, respectively (Chen *et al*., 2014; Durham *et al*., 2016; Kumar, 2021). Other research looked at users' assessments of their satisfaction with particular orthoses (Greetzen *et al*., 2002). Although in most low-middle-income countries there have been a general satisfaction on the use of O&P however there still exists some major gaps. This was made clear by the use of assistive equipment reported in Ghana, Malawi and Sierra Leone, where, despite patient satisfaction, they still felt discomfort and patients had trouble walking on uneven surfaces (Boahen *et al*., 2022; Aduayom-Ahego *et al*., 2016 & Durham *et al*., 2016). Nonetheless, many people mentioned challenges using devices to their full potential and receiving follow-up services. The WHO action plan for 2014–2021 (WHO, 2014) and the multiagency Global Cooperation on Assistive Technology program (WHO, 2016) both have the strengthening and expansion of rehabilitation services as well as assistive technology as a goal. In low-income countries, there has to be an increase in the accessibility of prosthetic and orthotic treatments, which have the potential to increase mobility and foster more societal inclusion for amputees and persons with physical disabilities.

Problem Statement: People with disabilities in low-income countries have the right to personal mobility as well as easily available and fairly priced assistive technology, such as prosthetic and orthotic services, according to the Convention on the Rights of Persons with Disabilities (CRPD) (Borg, Lindström& Larsson, 2009). According to Amoah *et al* (2018), in Ghana, an estimated 145,299 persons have had limbs amputated. However, according to WHO estimates from 2010, only 5–15% of Ghanaians who use assistive technology actually have access to it. The availability of prosthetic and orthotic services, which have the potential to boost mobility and enable greater societal involvement for amputees and people with physical disabilities, has to be expanded in low-income nations. It is required to pinpoint elements that are essential for patients' happiness with prosthetic and orthotic devices used in low-income countries in order to prioritize areas that need additional, inexpensive technical development and improvements in service-delivery systems (Wyss *et al*., 2015). Patient satisfaction is given a lot of weight as an outcome indicator in client-centered care and evidence-based medicine.Numerous studies have examined how well orthoses are used by users. Only a few research have looked into Ghanaian orthoses users' satisfaction (Haig *et al*., 2009; Mock *et al*., 2005 &Asare *et al*., 2011). The importance of identifying and comprehending the difficulties in prosthetics and orthotics (P&O) use, education, and patient satisfaction cannot be overstated (Aduayom-Ahego&Ehara, 2016).

Undoubtedly, orthotic technology and service in Ghana still need to be improved (Aduayom-Ahego&Ehara, 2016). More work has to be done, namely to reduce access obstacles and improve orthotic service, as customer satisfaction with services in low-resource contexts was lower than that of orthotic devices. It is important to consider how orthotic and prosthetic devices may be further improved (Durham *et al*., 2016). User happiness is prioritized as an outcome indicator in client-centered care and evidence-based medicine. User satisfaction with orthoses has been examined in several studies. The study evidence was relied on anecdotal information from personal interviews or online surveys, making the research data uncommon because the majority of user satisfaction research focused on everyday assistance devices rather than orthotic devices. The Ghana National Prosthetics and Orthotics Center in Accra is where this study was conducted in order to evaluate how satisfied patients were with their care there.

Research Questions

- What are the types and quality of prostheses and orthotics manufactured at the NPOC considering materials and components?
- How do these assistive devices or services affect the quality of life of PWDs?
- What is the level of satisfaction of customer with prosthetics and orthotic services at the National Prosthetic and Orthotic Center (NPOC)?

Study Objectives

The main objective of the study is to investigate patient satisfaction with prosthetics and orthotics rehabilitation services at the National Prosthetic and Orthotic Center (NPOC) in the Greater Accra region of Ghana.

Specific Study Objectives

- To investigate the types and quality of Prostheses and Orthotics manufactured at the NPOC considering materials and components.
- To examine how these assistive devices or services affect the quality of life of PWDs.
- To explore customer satisfaction with prosthetics and orthotic services at the NPOC.

Justification of the Study: The need for quality prosthetic and orthotic care is an integral part of health but often times patients are denied this quality either through poor service delivery or expensive or inferior prosthetics and orthotics care. According to [1],standard of treatment with quality products for example silicone gel liners for amputations due to diabetes mellitus are expensive. This will obviously make assess a major problem for care recipients. In some situations the environment, structural and systemic conditions makes it difficult for providing adequate care to the satisfaction of clients. The readily availability of durable materials for service delivery becomes a challenge making P&O services not meeting expectations of customers. Often a time, the rich travel outside the region or even the country for the best P&O service. The reason for this is to access quality of service. This can be reduced or stopped if the underlying factors that might be affecting service delivery in the region are unraveled and addressed appropriately. This study is meant to prompt key stakeholders on the need to invest more resource into the profession in terms of material and human resources to meet the needs of client. The current study is relevant to establish the needed relationship between industry and end users for the manufacturing of universal affordable and easy to use prosthetic and orthotic components. There is needed to bridge the research gap required for the investigation of essential P&O products that meets customer satisfaction locally.

LITERATURE REVIEW

This chapter examines the relevant literature from numerous research conducted in relation to the study under consideration. This was done to allow the researcher to properly relate empirical literature findings to field findings in order to make implications for the study. The literature on health seeking behavior for prosthetic and orthotic services is included in this chapter.

Definition of Concepts: Various terminology related to service quality and the healthcare delivery industry are conceptually defined in this subsection.

Patient: People who are waiting in the Out-patient Departments of various hospitals

Patients' Expectations: Expectations are the client's desires or needs. It is the client's expectations of the organization and its variety of products or services, i.e., what the consumer believes the organization should offer them. Most of the time, these expectations differ from what the consumer receives from the firm in real-life scenarios.

Patient's Perception: In this study, client perceptions refer to the act of receiving, organizing, and assigning meaning to information in order to give meaning to the world around the customer. Perceived service quality is a client's judgment (a type of attitude) based on comparisons customers make between their expectations and their perceptions of actual service performance.
Prosthesis (prosthetic device/product): is an externally placed device used to fully or partially replace a missing or damaged limb portion. Examples of frequent prostheses are transradial or transhumeral prostheses for the upper limb and transtibial and transfemoral prostheses for the lower leg.

Orthosis (orthotic device/product): a mechanical aid that is externally applied and modifies the skeletal and neuromuscular systems' structural and functional characteristics. Examples include wrist splints, orthoses for the ankles and feet, custom-made shoes, and lumbosacral braces.

Definition of Rehabilitation: Rehabilitation was defined as "a collection of interventions aimed at optimizing functioning and reducing disability in individuals with health concerns in interaction with their environment" (O'Sullivan *et al*., 2019). Health conditions include disease (acute or chronic), illness, damage, or trauma. As a result, rehabilitation may be required "by anyone with a medical condition who has a functional impairment, such as movement, vision, or cognition. Other factors such as pregnancy, aging, stress, congenital defect, or genetic susceptibility may also be considered health conditions." Rehabilitation is also known for "interventions that address impairments, activity limitations, participation restrictions, as well as personal and environmental factors (including assistive technology) that have an impact on functioning." Rehabilitation is a stage in which a person can begin or continue their education, work, and daily activities.When it comes to prosthetic limbs and amputees, rehabilitation has the power to restore any lost limbs and maintain function over time. Following an amputation, rehabilitation should start during the first 3–4 weeks of wound healing and should include instruction on how to properly use the prosthesis. This raises the possibility of successful and sustained prosthesis usage. After then, the patient's needs will determine if the prosthetic device needs maintenance or alterations (O'Keeffe, 2011). As a result, the patient would need to travel frequently in order to keep his or her equipment in good working order and comfort. To overcome these issues, it is ideal to build prostheses that are functional without being overly technologically difficult, accessible locally, affordable, and capable of being physically made and repaired (Harkins, 2013).

Concept of Service: According to Adjei, 2015, p. 28, the term "service" "encompasses any forms of efforts, actions, or activities offered for sale or delivered in association with the sale or offer of a particular commodity like products," as stated by Bateson and Hoffman (1999, p. 18 as referenced in Adjei, 2015, p. 28). Services, according to Gronroos (2001), are "those economic activities that typically produce an intangible product, such as education, entertainment, food and lodging, transportation, insurance, trade, financial, and real estate and take place in interactions between the customer and service employees and/or physical resources or goods and/or systems of the service provider, which are provided as solutions to customer problems."

Types of Services: Schmenner (1986, as referenced in Gronroos, 2001) divided the sorts of services into two major categories: vertical and horizontal dimensions. The vertical dimension investigates the intensity of labor in relation to labor cost to capital, whereas the horizontal dimension looks at the frequency of customer interactions with an organization and how it affects the sort of service offered. According to Gronroos (2001, p. 27), "services could occur in two main ways: high-touch or high-tech, and that high-touch services are those, whose dependency rate on people is high in terms of their production in the production process."While physical resources, automated systems, and other types of technology are largely reliant on high-tech services. In order to create well-fitting, customer-focused designs, physical resources and technology of this kind often need to be merged (Gronroos, 2010).

Characteristics of Service: Due to the many service types, they also have a wide variety of features. The numerous characteristics of services are discussed in this subsection, with examples provided by Kotler and Armstrong (2010);

Heterogeneity: The distinct natures of each service are a crucial aspect of it. This occurs because services can take many different forms, depending on the provider, the time, and the place, for example.

Intangibility: The intangibility of services is still another crucial aspect. In general, a service's quality cannot be guaranteed until it has been rendered and the client has established its value. This is due to the fact that customers cannot test a service in advance, and businesses cannot determine how much of a service customers will receive until it has been used.

Perishability: When it comes to service delivery, they are frequently perishable because they cannot be put away for later use and must be provided at a specific time. Services are therefore typically given in response to customer requests. Demands exceeding output in this regard means the provider cannot give the extra since it cannot be stored.

The Concept of Quality: The literature on quality demonstrates that numerous scholars and organizations have given the idea definitions in a variety of formats. Various definitions of quality as a concept include; Quality, according to Hardie & Walsh (1994), is defined as "product performance that results in customer satisfaction free from product flaws, which avoids customer unhappiness" (Adjei, 2015). It is "the extent to which the customers or users believe the product or service meets their needs and expectations," according to Juran (1985 as referenced in Adjei, 2015). Gitlow *et al*. (1989, as cited in Adjei, 2015) defined it as "the totality of qualities and attributes of a product that bear on its ability to satisfy stated or implied demands," in contrast to Adjei's definition. It was defined as "the complete composite product and service qualities of marketing, engineering, manufacture, and maintenance through which the product in use would meet the expectations of the consumer" by Feigenbaum (1986 as referenced in Adjei, 2015). The aforementioned definitions highlight quality as a crucial prerequisite for the evolution and expansion of businesses. Quality is defined by the researcher as "the development and institution of certain forms of measures, standards, practices and systems with regards to the production and sale of a particular commodity or service and which meets the set international, domestic standards for the management and consumption of such services or commodities" by juxtaposing the aforementioned definitions and critically examining quality literature. Thus, the researcher's definition is used moving forward in the study's debates and deliberations.

Measuring Service Quality: It's critical to take into account two essential factors when measuring service quality: customer expectations and customer perception. According to Gronroos (2007), for example, consumers frequently evaluate a good or service based on two key criteria: first, "the quality of a service is regarded as low when actual performance is far less compared with the expectations held by consumers before the purchasing while it is regarded as high when actual performance exceeds the expected quality standards held by consumers before the purchasing."

Customers' Expectation of Service Quality: The phrase "customer expectations" describes the "mindset or opinions held by them about a particular commodity or service and which examines the relationship between the actual performance of the products and its set standards and is frequently judged by customers where the provider of service is required and necessary to render and of which service providers must render and which is necessary as against what needs to be offered" (Gronroos, 2007, pg.37; Parasuraman *et al*., 1988, pg. 42). This occurs as a result of their unique requirements and prior interactions with the service provider.

Healthcare: Healthcare is described by the WHO (2008c) as "medical diagnosis, treatment and prevention of disease, illness, injury, physical and other mental disabilities in people." Many nations, researchers, agencies, organizations, and healthcare professionals have embraced this definition from the WHO (2008c). This is especially true given that the majority of scholars, organizations, and agencies agree that the definition of WHO (2008c) includes both tasks connected to public health education and the delivery of primary, secondary, and tertiary care. The provision of healthcare is viewed as playing the most crucial role in boosting people's overall health and welfare worldwide (WHO, 2010).

Quality Service in Healthcare Delivery: The term "quality" has various definitions, according to the WHO (2008), not just in terms of providing healthcare but also in all other areas of service provision. Therefore, it is necessary to establish a single working definition to determine what precisely qualifies as quality in healthcare services. According to the WHO, various terms like "utilization," "access," "coverage," and "availability" are frequently used synonymously when assessing the frequency and volume of high-quality care that patients receive. In order to establish the precise demands and expectations of a patient in respect to a specific healthcare need of the said client and as delivered by the hospital, the patient must be satisfied (Aikins, *et al*, 2014).
Patients are evolving at a faster rate than ever before in terms of knowledge and complexity, and hospitals' outdated management, staffing, and quality assurance plans are now understood to be insufficient to handle this new growth. Such antiquated plans must be updated with considerably more contemporary plans and processes. The majority of healthcare organizations are much more conscious now that improved understanding of what quality is, how it can be achieved, and the role of hospitals and professionals in achieving it is necessary for improving healthcare systems.

Perspectives on Rehabilitation for Disabled People: In a collaborative study on disability, the World Health Organization and the World Bank emphasized the need of considering disability in the context of human rights and the fact that it should not only be assessed from a medical or social standpoint. The International Classification of Functioning of the World Health Organization, which sees disability and functioning as a dynamic interaction of individual and contextual elements (environment), is supported by the CRPD. According to the ICF, prosthetic and orthotic devices are examples of environmental elements that can enhance a person's function. A crucial component of CRPD implementation is determining if assistive technology is actually necessary. The objectives of offering orthotic and prosthetic products and services are as follows: 1) more function and mobility (from a medical viewpoint); 2) increased activity and social engagement (from an ICF perspective).

Causes of Poor-Quality Healthcare Delivery

Poor customer Service: Lack of funds, attention, respect, and belief are just a few reasons that come from subpar hospital treatment (Iren *et al*, 2014). Clients are expected to receive good customer service from health facilities that place a high priority on patient expectations. Around 70 patients are unlikely to use the same healthcare institution again for every 100 consumers who had subpar treatment (Irene *et al*., 2014). In addition, of the same 100 patients who received inadequate care, around 75 will report their experiences to an average of 9 family members, acquaintances, and coworkers; 75 disgruntled people who may have been future patients will probably not go to the medical facility (Anthony, 2014).

Inadequate Health Professionals According to Irene *et al*. (2014), research undertaken by WHO in 2006 concluded that Africa accounts for 24% of global sickness, but just 3% of total health staff are to care for them and the flow of health professionals from developing countries to developed ones. This caused widespread concern, a phenomenon known as "brain drain." According to the report, 79,000 people died from lung ailments, with 3.5 million people dying each year (WHO, 2006). According to Turkson (2009), researchers in Ghana prioritize community sectors over illness prevention and treatment. Inadequate health personnel, a lack of ambulances at the hospital, and payment policies were identified as some of the variables that contributed to the study's findings.

Inadequate Resources/Materials: According to Anthony (2014), a health facility's ability to function is undermined by a lack of personnel, equipment, consumable supplies, and some essential medicines. These shortages also harm the facility's reputation, raise patients' out-of-pocket expenses, and foster a culture of distrust and alienation that lowers the satisfaction of its customers with the services they receive.

Untrained Staff: Some of the variables affecting quality and accessibility of health care in Ghana include a lack of available employees to care for patients in the facility. There is insufficient staff training available in Ghana to treat the available ailments,

necessitating the requirement for continual in-service training to develop the capacities of health employees. This can help to bridge the gap of insufficient health experts in Ghana's numerous hospitals (Donkor and Andrews, 2011).

Inadequate funds: The National Health Insurance (NHI) statute (Act 650) has only been implemented in a small number of African nations, including Ghana. Due to the limited population, this was possible. According to Iren *et al*. (2014), the majority of medical facilities have substantial finance issues. Because there is not enough money to buy medical supplies and equipment, the NHIS payment delay has a detrimental effect on the standard of healthcare services. One of the challenges the NHIS in Ghana faces is the institutional structure outlined in the NHIS Act. The framework's implementation has created governance, operational, administrative, and budgetary issues (Anthony, 2014).

Patients' Perception of Patient-Provider Relationship: According to numerous studies (Boateng &Awunyo-Vitor, 2013; D'souza, 2012; Criel *et al*., 2003), patients who perceive their relationships with healthcare providers positively report higher client satisfaction, improved healthcare delivery, and a greater sense of value and trust in the provider. This ultimately affects patients' demand for, decision to use, and recommendation of healthcare services to other patients (Criel *et al*., 2003). Understanding how patients feel about their interactions with their healthcare professionals affects how satisfied they are with the service they receive, which is crucial for service improvement at the hospital level. It has been discovered that patients' impressions directly affect how frequently they utilize or patronize healthcare services. As a result, when patients have a negative perception of physicians' attitudes, they are more likely to engage in domestic activities that reduce their demand (Alderman, Street, & Bank, 2006). Additionally, patients are more likely to avoid obtaining medical care when they believe that their caregivers are acting poorly toward them (Black, & Gruen 2009). Once more, a patient's perception of their treatment may differ based on their connection with their healthcare practitioner (caregiving style). Sometimes, patients will seek out high-quality healthcare facilities instead of those with a reputation for providing subpar services and having unsatisfactory customer service. Jgede and Fayemiwo (2010). The difference in a hospital's financial metrics, such as profitability, net revenue, and asset returns, has been found to be directly related to patients' evaluations of the quality of care (Buttle, 2014). In general, patients' perceptions of high-quality care and a positive relationship with their healthcare providers influence their usage of those services, which raises hospital attendance and revenue returns (Klemick *et al*., 2009).

Patient Satisfaction with Healthcare: Patients' opinions and expectations are now of utmost importance in managing and improving healthcare systems in Ghana and elsewhere. The term "patient satisfaction" relates to how happy patients are with a certain service they received from a specific medical facility (MOH, 2007). In order to do this, the major objective of healthcare institutions and professionals should be to ensure that patients are satisfied (GHS, 2010). It is the main criterion for assessing how effective and efficient a certain healthcare institution has been in providing high-quality healthcare over the course of its existence. According to Swamy (1997, as stated in Adjei, 2015), patient happiness is the cornerstone of whether or not a certain health system and health administration are effective. The identification of a patient's true feeling and whether or not they are satisfied with the service provided is therefore challenging to quantify. Despite this, it is the responsibility of management at every health facility to develop and put into place mechanisms that strive to ensure that patients are comfortable and satisfied while receiving medical care at such facilities (Wensing *et al*, 2012). In some instances, program evaluators use service quality to enhance healthcare's ability to deliver services that satisfy patients' requirements and expectations. In order to achieve this, service providers and consumers agree that it is crucial for both parties to include the client's perspective while evaluating the quality of healthcare. According to Dansky and Milles (2007), patient satisfaction is important for a variety of reasons and was given from the management perspective. First, patient satisfaction increases consumer loyalty and dedication to a particular health organization's service delivery. Second, the ability of a company to satisfy customer expectations and enhance services results from the institution's ability to handle patient demands. Again, achieving competitive advantage in the administration of healthcare institutions is a result of patient happiness, and this gives prospects for the expansion and development of health centers in Ghana and elsewhere. The assessment of patient satisfaction also assists in determining the discrepancy between patient expectations and the quality of services received, which contributes to the overall development of a nation's healthcare system. Patients who are happy with their care are more likely to adhere to the medication schedule recommended by their physicians and the healthcare facility where they received it. In a similar vein, studies by Brent *et al*. (2013), Fekadu *et al*. (2011), and Zineldin (2006) shown that patient satisfaction and its measurement help health institutions satisfy their needs for competitiveness because patient satisfaction leads to the growth of competitiveness. Since patient outcomes and service quality are strongly correlated, how well clients do is another crucial factor in patient satisfaction.

Patients' Satisfaction and Quality Healthcare in the Ghanaian Context: In Ghana, the provision of healthcare services is deemed to be of sub-standard quality if it fails to meet the demands and expectations of the patient, as evidenced by the lengthy wait times for patients at the OPD, frequent shortages of drugs and other supplies, the absence of healthcare professionals on site, the poor behavior of staff, and the absence of emergency medical services (Turkson, 2009). In this way, trust between customers who use a hospital's specific service but decline to use its facilities for medical care is damaged. Despite significant government involvement in the industry, this problem is generally not limited to a small number of institutions but rather is more widespread (Gyapong *et al*, 2007). In this regard, the majority of Ghanaians consider the caliber of service delivery to be subpar, while others also think it to be excellent. Turkson (2009) examined the quality of healthcare delivery services in different districts around the nation and found that services are pretty good. Nevertheless, some segments of the community also believe that the healthcare sector's services are superior. Over 90% of respondents, then, said they were happy or extremely satisfied with the healthcare delivery system. However, study participants cite a lack of ambulances, a high cost of service delivery, and a bad attitude on the side of medical staff as the biggest drawbacks to their experiences. In a different study, Atinga *et al*. (2011) investigated how patient satisfaction in the northern region of Ghana was impacted by hospital environment, communication, and waiting time at

the OPD. They came to the conclusion that factors like environment, waiting time, and support care significantly influenced respondents' levels of satisfaction, as evidenced by the 51% of responses the regression model generated.

Patient (Socio-Demographic/Economic) Factors: According to a previous study, cultural background and the healthcare system are strongly related to the expectations, priorities, and satisfaction of patients across countries (Enaikele, 2013). The socioeconomic and living circumstances of many people have an impact on the evaluation of health care outcomes in the majority of African countries (Ogunfowakan *et al*., 2012). Many sociodemographic characteristics, such as sex, age, education level, marital status, income, religion, poverty, general unease, and inadequate political leadership, contribute to the fact that the majority of people live in insecure socioeconomic conditions (Ogunfowakan *et al*, 2012). The likelihood of receiving medical treatment, particularly in private physicians' offices, group practices, or over the phone, is higher for individuals with higher earnings than for those with lower incomes, according to Cockerham and Wiley (2004). According to Erinosho (2005), patients' socio-cultural aspects have an impact on how they interpret, perceive, and react to their condition. In addition, factors such as age, sex, ethnicity, and socioeconomic status have an impact on how people access and use healthcare services (Erinosho, 2005). Another study found that patients who are less happy tend to be those who are younger, less educated, lower ranking, in worse health, and use more services (Tucker & Adams, 2009). Some researchers also said that the patient's health quality assessment appeared to change when the patient's sociodemographic factors were taken into account, however the effect only caused a 1% variation (Tucker & Adams, 2009).

Influence of Patient- Provider Relationship on Patients' Satisfaction: People visit medical institutions in pursuit of healthcare services that will best meet their medical demands and provide the best customer service, claims Pollack (2008). One of the most crucial success factors and quality standards in healthcare is patient pleasure (Pakdil& Harwood, 2005). In general, a linear association between patient-provider relationship quality and satisfaction is seen, confirming the theory that a better relationship is associated with more satisfaction (Pollack, 2008). The term "patient-provider relationship" refers to the mutually beneficial, consensual, and frequently referred to as "contractual" relationship that develops between a doctor and his or her patient when the patient knowingly seeks the doctor's services and the doctor knowingly accepts the patient as a patient (Carol *et al*., 2007).
When healthcare professionals are cognizant of elements related to compassion, empathy, dependability, and responsiveness while doing their duties, it is viewed as a good relationship and may be taken into account when evaluating patients' satisfaction (Tucker & Adams, 2001). Patient satisfaction is directly correlated with caregivers demonstrating real concern, overall nurses' attitudes, courtesies, and provision of privacy while providing care, according to Oluwadiya *et al*. (2010). According to their survey, 21% of respondents described hearing doctors yell at them, 7% faced rudeness, and 5% came across caregivers who struck these patients.
The degree to which patients are satisfied with their medical staff may play a significant role in determining their level of medical care utilization and health-related behavior (Rizyal, 2012). Unquestionably, Rizyal (2012) added that the nature and caliber of the patient-provider interaction have an impact on health outcomes. Hospital administrators should make an attempt to keep a friendly relationship with patients in order to learn about their preferences and meet their demands for medical care. As a result, it is crucial for healthcare managers to continually assess the variables linked to patients' satisfaction with the care they receive in order to comprehend patients' expectations, how the quality of care is perceived by the patient, and to identify the areas that can be changed or improved upon.

Customer Care Satisfaction with Prosthetics and Orthotic Services: The results of a descriptive cross-sectional survey entitled "User satisfaction with orthotic and prosthetic devices and services of a single clinic" conducted in Iran revealed that patients agreed that their devices were well-fitted, and their main concerns were about the appearance, longevity, wear and tear of the clothes, and cost of their devices. Users acknowledged that O & P staff members showed them warmth and respect, but they also felt that the staff did not adequately coordinate services with the users' therapists and physicians. Additionally, limited user involvement in decision-making was assessed (Ghoseiri&Bahramian, 2012). Similarly, it was revealed from a cross-sectional study carried out in Netherlands that majority of clients (78%) rated the services provided by P&O facilities as high and people were satisfied with the product delivered and time of service delivery (Bosmans, Geertzen& Dijkstra, 2009). User satisfaction is given considerable weight as an outcome evaluation in client-centered care and evidence-based medicine. To determine if users of orthoses are satisfied, several research have been carried out. The average satisfaction score for devices was 3.74 and for service was 3.56 according to a cross-sectional survey of 280 individuals who had used orthoses and received support. Regarding the participants, 69.1% and 59.6% were fairly or very happy with their gadgets and services, respectively (Chen *et al*., 2014). Additionally, despite the fact that the majority of the assistive devices were in use at the time of the survey and were reported to be in good condition, many patients in a cross-sectional study using the Quebec User Evaluation of Satisfaction with Assistive Technology questionnaire reported barriers to optimal device use and difficulties in accessing follow-up services, despite this, patients were generally satisfied with the assistive device and services provided (Durham *et al*., 2016). The majority of participants in a cross-sectional study in the United States of America expressed satisfaction with their prosthesis' general functionality, but they were unsatisfied with how their prosthesis affected their clothing and skin, as well as how much their prosthesis cost (Eskridge *et al*., 2022).

METHODOLOGY

Outlined below are the processes, materials and methods adopted in the conduct of the study. As a qualitative study, most suitable methods including adoption of most suitable design, sampling processes, data collection processes and techniques, analysis and ethical considerations among others were considered.

Study Settings: The study was conducted at the National Prosthetics and Orthotics Center (NPOC) in the Greater Accra region of Ghana. It is situated on the compound of the Ghana Health Service Headquarters in Accra Metropolitan Assembly. Prosthetics and Orthotics services were introduced in Ghana in the early 1970's to take care of war veterans from the second world war. Formally known as Limb Fitting Center (LFC), the center provides prosthetic and orthotic rehabilitation services to the physically challenged in society.

Study Design: The study adopted the qualitative case study design to achieve the study's objective of investigating the satisfaction of clients with P&O services at the national prosthetics and orthotics rehabilitation center under Ghana Health Services in the Greater Accra region of Ghana. The design enabled data collection on the types and quality of materials used in the manufacturing of P&O assistive devices and how quality they are in meeting the satisfaction of prostheses and orthoses users based on their previous and current experiences of care they received at the centre. As indicated, the qualitative approach enabled data collection on lived experiences and open views of respondents on the subject (satisfaction with P&O services).

Study Population: The study involved clients who received various forms of P&O services at the NPOC and key staff who are responsible for the delivery of prosthetic and orthotic services. This comprised of all P&O technicians and the head of the center.

Inclusion and exclusion criteria: As indicated in the paragraph above, the study comprised of all P&O devices users irrespective of their age, gender and social class who have been receiving/received care at the center for the past one year. Again, all staff who had worked for at least one year at the center was also interviewed. The head of the center was also included in the study by virtue of his/her status as head. Any other individual who did not fall in any of the categories was not included in the study.

Sampling

Sample Size: A purely qualitative study of this nature did not require any formula for sample size determination; however, a sample size of thirty (30) clients was targeted for the study holding response saturation as the highest threshhold for ideal sample. Similarly, staff sample was determined by response saturation. Upon response saturation a total of 7 clients and 6 staffs including the head of the center were interviewed.

Methods for sampling: Sampling for the current study involved the non-probability sampling approach. Selection of clients was done conveniently because only P&O care receivers were sampled for the study based on their availability at the center at the time of data collection. Again, only clients who met the inclusion criteria and also consent to participate in the study were conveniently sampled. At the centre, the targeted staffs were purposively selected based on their in-depth knowledge and experiences on the subject. This was done until saturation or ideal sample was obtained.

Data Collection

Instruments for data collection: 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 i) socio-demographic information of prospective interviewees ii) types and quality of Prostheses and Orthoses manufactured at the NPOC considering materials and components iii) how these assistive devices or services affect the quality of life of PWD iv) customer satisfaction with prosthetic and orthotic services at the NPOC. Data on the first and second objective ii) types and quality of Prostheses and Orthotics manufactured at the NPOC considering materials and components iii) how these assistive devices or services affect the quality of life of PWD were obtained from service providers (staff) while the third objective iv) customer satisfaction with prosthetics and orthotic services at the NPOC were obtained from clients. Each of these objectives which served as central themes had specific questions that guided the conduct of the interview process for the achievement of the overall objective. A tape-recorder was used in recording the interview process whiles field notes were used in recording observed phenomena that were deemed relevant to the subject.

Data collection Procedures: The study explored a central phenomenon by asking participants broad and general questions on their satisfaction with prosthetics and orthotics health services at the center. Collection of data was done via open-ended questions' interviews. The interviews conducted detailed major themes covering (i) the adopted P&O materials types and quality of Prostheses and Orthotics assistive devices manufactured at the NPOC, ii) how assistive devices or services affect the quality of life of PWD, and iii) factors that influence quality of P&O service delivery for utmost satisfaction of clients. The scope of the interview consisted of demographic characteristics, perceptions, and views of participants on satisfaction with prosthetic and orthotics health delivery. The data collection process involved a one-on-one interview approach in the local (for non-literate clients) or English language before later translated and transcribed for further analyses. A desirable location suitable for participants was selected for the interview with all COVID-19 protocols of social distancing being fully observed. Considering the times (COVID) we found ourselves, each interview session lasted not more than 45 minutes to reduce excessive human contact. Responses from participants audio-recorded, transcribed, and compared with field notes before further analyses.

Analysis and Presentation of Results: Microsoft Word and Excel were manually used to process and analyze the data qualitatively using manual thematic content analysis by first transcribing the audio recorded responses obtained from the interviews conducted Microsoft word in comparison with field notes. Due to its adaptability in terms of data gathering techniques and utility in classifying patterns and interpreting data across several sources, thematic analysis was selected. After that, the

information was arranged into a number of themes (the major goals) and sub-themes (based on the accounts of respondents' satisfaction with the provision of prosthetic and orthotic health services). The various views and experiences gathered from transcribed interviews were used to explore, evaluate, and come out with findings on the phenomenon (main study objectives). Examples of findings as direct quotes of respondents for a major theme or sub-theme were presented in support of the main findings. This was done for all the objectives outlined for the study.subsequently codes that were pertinent to and intriguing to the study issue were looked up in the transcripts. The codes conveyed the raw data as short sentences. After the coding process was finished, it was checked to see if the collected text corresponded to the code, it had been assigned to, linkages within the codes were looked for, and it was assessed to see if the text reference might be assigned to another code. This procedure made it easier to search through the codes for extensive patterns and identify key ideas (themes). These early candidate themes communicated the participants' story by encapsulating key details that addressed the study issue.

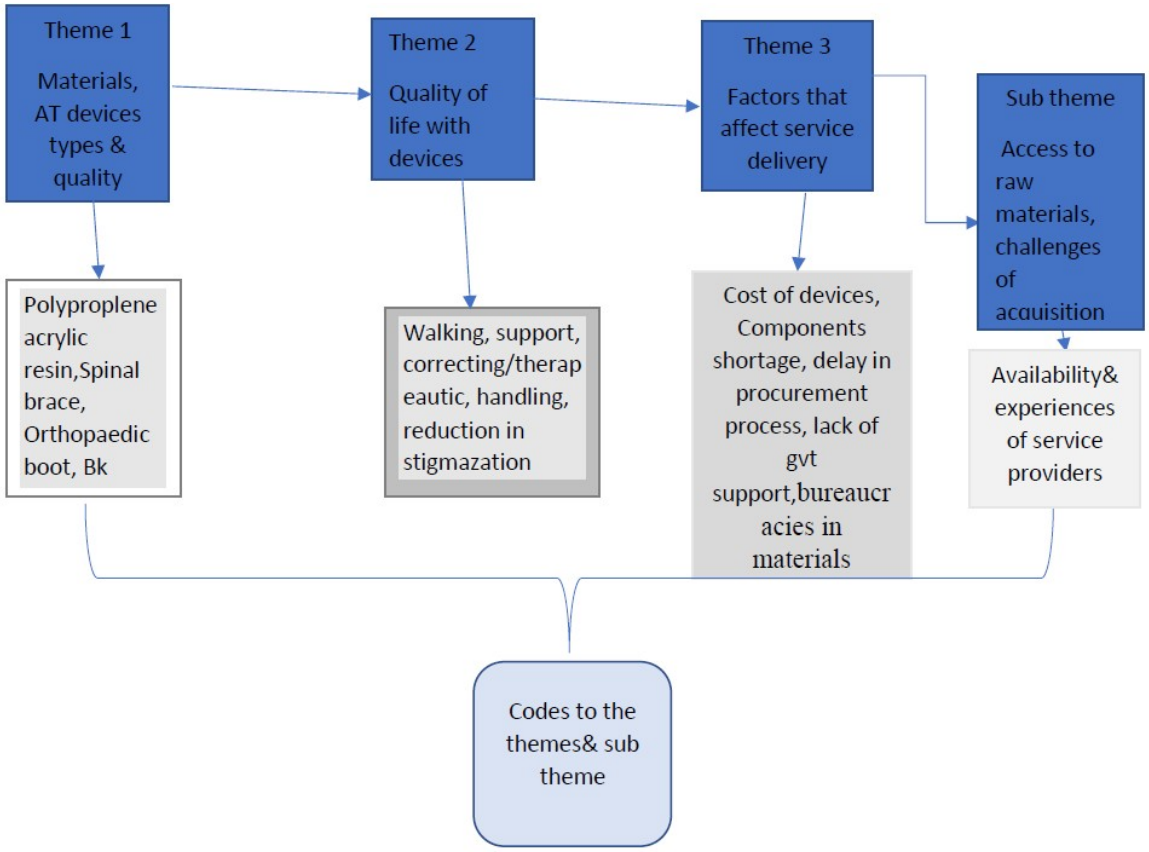

Figure 1. Showing central concepts and codes of the theme development

Quality Control: 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 eligible study participants, design of ideal data collection tools, and processes. A pilot study was conducted among five respondents at the P&O center in Kumasi before the main study in Accra. This gave room for modification and clarification of all ambiguous questions before the main study. A P&O specialist at the center perused and approved of the instruments before it was used for the main study. Data collectors (research assistants) were well trained to ensure quality data was gathered while due diligence was made to ensure data processing for analysis. Methods for data analysis were properly selected to produce the desired results. All human ethics including privacy, confidentiality was adequately considered including seeking verbal and written consent of participants. The voluntary nature of the study and the ability to quit withdraw from the study at any point in time were well communicated to respondents before starting of the study.

Ethical Considerations: Ethical clearance was obtained from the KNUST Ethics Review Committee before the commencement of data collection for the study. Permission was obtained from authorities at the NPOC before commencement of data collection. The purpose, benefits and risks of the study was explained to participants for their consent. The consent of respondents was acquired through a written and signed/thumb printed document. They were made to understand that they had the right to decline participating in the study at any material moment. Study participants were again made to understand they had the liberty to withdraw from the study at any point without any impediment. Privacy in the interview process was adequately guaranteed, names or any traceable form of identity of respondents were not required in the interviews conducted for the study. All information (unanalyzed data) gathered were kept within the jurisdiction of the researcher and were/will not be shared with any third party.

RESULTS

To explore client's satisfaction with prosthetics and orthotics services at the NPOC, data (in-depth interview) were conducted among both service providers (health professionals) and service receivers (clients). The results are presented based on emerging themes. Analysis produced five main themes. Titles for each theme were created using relevant quotes from the participants.

Sociodemographic Characteristics of Participants (Clients and Service Providers)

Sociodemographic characteristics of Clients (7 P&O Care receivers): Concerning sociodemographic characteristics of clients interviewed, 4(57.1%) were males. 1(14.3%) respondent was less than age 20 years. Within the education category, 3(42.9%) of clients had secondary education whereas only 1(14.3) had no formal education. More than half 4(57.2%) of them were unemployed while 2(28.6%) were self-employed. 3(42.9%) client's condition (type of prosthetic user) were lower limb prosthesis.

Sociodemographic characteristics of Clients (7 P&O Care receivers)

Variables	Frequency	Percentage
Gender		
Male	4	57.1
Female	3	42.9
Age		
>20 years	1	14.3
21 to 30 years	2	28.6
31 to 40 years	2	28.6
40= years	2	28.6
Education		
No formal education	1	14.3
Basic (Primary/JHS)	1	14.3
Secondary	3	42.9
Tertiary	2	28.6
Occupation		
Unemployed	4	57.2
Self employed	2	28.6
Civil servant	1	14.3
Condition (type of prosthetic user)		
Lower limb prosthesis	3	42.9
Spinal brace	1	14.3
Calipers	1	14.3
Orthopedic shoe	1	14.3
AFO	1	14.3

Source – Field data 2022

Sociodemographic characteristics of Staff (Service providers): On staff sociodemographic characteristics, all 6(100.0%) respondents were males. 3(50.0%) were within the age range of 31-40 years. More than two thirds 5(83.3%) of them were diploma holders. Within the category of qualification/rank, 4(66.7%) were technical officers (prosthetic and orthotics). Half 3(50.0%) of the participants had about 5-10 years of working experience as prosthetic and orthotics workers.

Sociodemographic characteristics of Staff (Service providers)

Variable	Frequency	Percentage
Gender		
Male	6	100.0
Female	0	0.00
Age		
21 to 30 years	1	16.7
31 to 40 years	3	50.0
40 years	2	33.3
Educational level		
Diploma	5	83.3
Degree	1	16.7
Qualification/Rank		
Technical officer (prosthetic and orthotics)	4	66.7
Technical assistant (prosthetic and orthotics)	1	16.7
Principal Biomedical Engineer (prosthetic and orthotics)	1	16.7
Working experience		
1 to 4 years	1	16.7
5 to 10 years	3	50.0
>10 years	2	33.3

Source – Field data 2022

Types and quality of Prostheses and Orthotics manufactured at the National Prosthetic & Orthotic Center: To achieve this objective series of questions were asked. The themes that emerged as main results for the section were types of Prosthetics and Orthotics (P&O) devices and quality of manufactured devices. Sub themes such as access to raw materials and challenges acquiring raw material also emerged.

Types of P&O devices manufactured: A question on the types of P&O devices manufactured revealed that the P&O devices manufactured were; above or below-knee prostheses mostly. Other prostheses such as through knee and hip disarticulations are not common at the center. Cuff belt, shuttle lock and silicone sleeves are the commonly use suspensions on below knee prostheses by the technicians. On the other hand, total elastic suspension belts, Salesian belt and vacuum with seal liner or KISSs suspensions are used on above knee prostheses at the center. These liners are mostly donated by Non – Governmental Organisations.

Orthoses such splints or braces, orthopedic shoes, lumbar corsets, cervical collars AFO and KAFO are manufactured at the center.

"……We do below knee prosthesis, above knee prosthesis, meaning that both prostheses have suspensions that may be different even though they may all be above or below"(Male service provider 1, individual interview).

"……for orthotics, we have splint or braces, orthopedic shoes, lumbar corset, and cervical collar basically"(male service provider 2, individual interview).

It was found that the center uses acrylic resin for their prosthetic sockets and uses polypropylene for braces.

Access to raw materials and components: With regards to how accessible raw materials and components are for the manufacture of P&O assistive devices, the results revealed that raw materials were often supplied by the government awarding contract to companies and pay them with facility's internally generated funds (IGF), or sometimes donor support. The different sources of raw materials made them often accessible for the manufacture of prosthetics and orthotics devices but causes variation in costing the devices sometimes. Devices manufactured with procured materials and components are costed to break even whilst components are given out almost free.

"**……***For us, at the government centers the purchases are made by the government and at times too through internally generated funds (IGF)". (male service provider, individual interview).*

Another male respondent added,

"……*We make some of the items ourselves and at times from donor support".(male service provider, individual interview).*

Challenges acquiring raw material: As to what prevents service providers from giving their clients' the best P&O services, they attributed it to delays in procurement processes and acquisition of materials from main stores of the Ghana Health Service. It takes a lot of time for contracts to be awarded for procurement.

Taking materials from stores is another hurdle that needs divisions administrators' approval before store approves of giving out material. This process sometimes extends the period for the delivery of devices.

"……There are times that there are delays in the procurement process because approval must be given by four different directors including the Director General of Ghana Health Service". (male service provider, individual interview).

"……*At times the type of materials needed may not be available at the workshop but might be at main store*".*(male service provider, individual interview).*

Quality of assistive devices: The interview responses revealed that the assistive devices manufactured at the NPOC was of the quality standard since it met customer demands. In terms of rating, the service providers noted they would rate their services high. All materials needed for various types for quality of P&O devices are used in manufacturing. For instance, carbon fiber and fiberglass are used in laminating sockets. This enhances the durability of especially the prosthetic sockets.

"……In general, the devices made here are customized and we mostly meet the demands of the customers" *(male service provider, individual interview).*

Another person added

"……*I would rate as 90% because there no P&O device that cannot be manufactured here at this center".(male service provider, individual interview).*

Service providers were further asked how prompt they received and attended to their patients. The service providers said this was dependent on the situation at hand. For instance, a male P&O service provider said,

"……*It varies because at times we do get either referrals or through recommendations by old clients"(male service provider, individual interview).*

Assistive Devices or Services Usage and the Quality of Life of PWDs: To achieve this objective series of questions were asked including the general challenges associated with P&O service delivery, specific health system, or structural factors that impede quality service delivery among others. The themes that emerged were challenges associated

The first question was on the general challenges associated with P&O health delivery in the center, the interview results indicate that bureaucracies in materials acquisition and procurement delays as major challenges.

For instance, a staff with 12 years of experience mentioned,

"…… Bureaucracies in the acquisition of materials from store is an issue to deal with. Sometimes the officer to sign may not be available' (male service provider, individual interview).

Another person added

"…….. *Look, the procurement delays even when IGF is to be used is just too much*" *(male service provider, individual interview).*

When respondents were asked about what were the specific health systems or structural factors that impede quality service deliver, the responses indicate that the fact that the center runs on OPD services and the unavailability of logging facilities makes it difficult for long-distance clients to patronize the service of the center. From the logistics point of view, the results indicate the unavailability or intermittent lack of key materials for the manufacture of assistive devices.

Inadequate staff

The results again show that though there are some senior and junior ranking staff at the facility who serve various functions based on their specializations, they were not adequate to meet the demands of clients. With physical infrastructure and space, respondents noted the availability of spacious working space at the workshops but were quick to add that the area for gait training was small with limited equipment for standard gait training. The absence of alignment jigs and gait analyzers were also recounted by staff who responded to the study.

A female staff with five years of experience said,

"……. *The center runs on the OPD system alone. Therefore, lack of accommodation prevents clients from outside Accra who has no money to lodge in guest houses or no relatives to lodge with in Accra from accessing prosthetics and orthotics service at the center". (male service provider, individual interview).*

From the logistics perspective, a male staff said

"Machines for manufacturing are installed, however materials for splints for example polypropylene, resin, EVA, etc are lacking". Another person added

"Components such as knee joints, feet, and adaptors are sometimes not available".

In connection with the human resource that is P&O specialists and technicians

"There are two senior prosthetics and orthotics at the center. Other technicians hold a diploma in physiotherapy, prosthetics, and orthotics. But we still need more trained staff"

In line with physical space and infrastructure such as working space and other required equipment or logistics, these were some of the responses.

"There is enough working space at the workshops but the area for gait training is small and there is limited equipment for standard gait training'. A senior prosthetist noted.

Another person also noted

"Alignment jigs and gait analyzers are not available and this at times makes the work difficult for us"

The study further probed to investigate how challenges outlined in previous paragraphs affect the quality of service delivered to patients. The results indicate that training sessions for patients had reduced due lack of space and equipment. A male specialist had this to say

"The number of patients to be trained at a time is reduced due to space and number of equipment". He further stressed, "Duration of the period of discharging patient has highly been affected as well".

As professionals, views on how satisfied staff were with services they deliver to clients considering the current state of affairs. The response given revealed that satisfaction may on be achieved if required materials and logistics are made available for the manufacture of assistive devices. In the same regard, the P&O professionals noted that their clients were equally satisfied with the services they give them because they make good use of limited materials to deliver the best of service to clients. Again, customer or clients feedbacks on services were given priority.

Respondent 1 with 4 years' experience said, *"I am satisfied with the work if only there are adequate materials for manufacturing assistive devices".*

"Yes, our pieces of stuff are dedicated to their work; I believe our clients are satisfied with our services" (respondent three with 6 years' experience).

Another person said,

"We make good use of available materials to give our best to clients so I think their ok with our work".

He further added that,
"Considerations are given to the feedback from our clients so it makes them ok with because we improve on our services based on their feedback".

The role of government and non-governmental organizations (NGOs) cannot be underestimated in service delivery. The study asked respondents how does support from the government and NGOs affects quality service delivery. Almost all respondents noted that human resource was supplied by the government permanently. They again added that the center does not receive any financial support from the government and that financing activities of the center were strictly through internally generated funds and sometimes donations from NGOs. Respondents were quick to add that support from donor partners and NGOs was not frequent as it comes ones in a while. It was also revealed that philanthropists do pay for the services rendered to poor or needy clients.

For instance, senior ranked staff said,

"……. Government support to the facility is more of human resources. Staff is posted to the facility permanently and sometimes for national service so for that one we have no much problem".

"He added that "Financial support to the facility is absolutely zero. The center runs solely on internally generated funds and donations from NGOs". *(male service provider, individual interview).*

Another respondent said

"…….. *Support from donors and NGOs with regards to P&O components and materials are not constant. It is as and when they are in the position to support that they do so".(Male service provider, individual interview).*

Another participant said,

"……. Locally, some NGOs and corporate bodies pay for the cost of prostheses for needy patients". (Male service provider, individual interview).

Finally, for this specific objective, respondents were asked to share their opinion on what could be done to improve the quality of P&O health delivery to satisfy clients, almost all participants highlighted the need for a constant supply of needed materials and components for the manufacture of assistive devices. Again, the need for constant financial support from the Ghana Health Service/Ministry of Health reiterated male service provider.

A 36-year-old staff said, "

"…… *The need for a public-private partnership to invest in materials and components we use here is urgent".*

He further added that,

"Ministry of Health and Ghana Health Service must give financial support to the facility because we our prices are regulated by them".

Customer Satisfaction with Prosthetics and Orthotic Services at the National Prosthetic & Orthotic Center

To achieve this objective from the perspective of P&O users (clients) Theses questions included how easy it was getting in contact with or acquire P&O health services, satisfaction with how caregivers receive and attend to you patient, satisfaction with information provided on ideal P&O information, treatment advice given and respect clients receive from caregivers among other questions.

On easiness getting in contact with or acquiring P&O health services

The responses from the interviews, first of all, highlighted the client's knowledge of the location of the center and also that they easily get access to health professionals. Clients said it was easy locating the center because of referrals from relatives or friends. Others too indicated they had been visiting the facility for a long hence their familiarity. In connection with getting access to health professionals, they indicated it was very easy.

For example, a client said

"…… I got to know this place through a friend who also did her AK prosthesis here and was ok with their services".

"……It was very easy to locate this place since it is at the headquarters of GHS and opposite main Tema station in Accra, my dad actually made those inquiries".

"……*My leg got amputated after a snake bite. I was introduced to this place by a friend; initially I used to visit Nsawam for my prosthesis. (Female patient, individual interview).*
"……..I was referred here based on a doctor's advice at the hospital. I was encouraged by the personnel here before the procedure after two years".

"…….. *I suffered polio during childhood, and I have known this place for almost two decades". "Anytime I come around they are always available to attend to me"(female patient, individual interview).*

"……*I came here for a prosthesis as a result of a motor accident and was referred here by my doctor". "I have known this place for 6 years now and anytime I come, getting the attention of the caregivers has always been easy" (female patient, individual interview).*

"……*I stay around so I always come in with a "trotro". I've been coming to this place for the past 28 years and I don't have any difficulty meeting the caregivers" (female patient, individual interview).*

On satisfaction with caregivers' reception and attention the results showed that clients were generally satisfied with the reception and attention they received from caregivers. This is largely attributed to the long years of encounters with caregivers.

"…… *I am very satisfied. It was my own decision to work on myself so they received me well and worked on me as I desired*" *(female patient, individual interview).*

"…….. I am satisfied with all the services they render to patients over here. Waiting time here is short and I can walk in any time I have problem". (male patient, individual interview).

"……*Yeah, I was happy, personally. I haven't regretted it after more than two years after getting the prosthesis. "My experience with them was just ok"(male patient, individual interview).*

"…….. Oh yeah personally, I was satisfied. It's been over a year after the orthosis was fitted and it's been fairly good".

"……..I am happy with the services provided here. They are always in contact me. (female patient, individual interview).

"……. *I am satisfied with all the services they render to patients over here. They are friendly and welcoming". (male patient, individual interview).*

In line with how satisfied patients were with the information provided on ideal P&O, the results again show that clients were satisfied with the information provided regarding treatment especially with keeping safe with the assistive devices. Patients also indicated they received adequate treatment advice, especially on how to take care of the assistive devices.

"……*I was given enough information to help me keep safe and also maintain the device I was assisted initially with wearing it".(Female patient, individual interview).*

"……*I received enough education to keep myself safe. They measured me before doing the braces for me. (Male patient, individual interview).*

" ……*I received sufficient information to keep me safe. My leg's measurements were taken prior to the treatment.*

"…….. I was provided with sufficient information to enable me to maintain my safety from the beginning."

"……..I was given enough information to help me keep safe. I have not had any problems ever since I got my prosthetic shoes". (male patient, individual interview).

"…….. I have not had any problems ever since I got my prosthetic shoes. I think it all has to do with the information they give out here. It's been very helpful". (female patient, individual interview).

In connection with treatment advice

"…….. Yeah, I was asked not to soak the prosthesis in water but just clean it with the sponge and dry it". (female patient, individual interview).

"……..Yeah, I was given enough treatment advice. I was told to only remove my braces when eating or taking my bath". (male patient, individual interview).

"…… Yes, I received sufficient therapy guidance. They provided me with cleaning tips for my shoes". (male patient, individual interview).

"……Yeah, I received sufficient guidance on how take care of my device. Also asked to inspect my skin after use for scratch".(male patient, individual interview).

"……Yes, I was given enough treatment advice".

"……..I am advised on how to care for my assistive device".

"……I am advised on how to care for the amputated leg to prevent any further injuries. I only come here when the shoes are wearing off". (Male patient, individual interview).

Again, clients were asked how well they were treated by P&O professionals in terms of the respect given to them by the technicians and the competencies they exhibit. The discussion revealed that patients were well treated with respect and lots of competencies except for a few cases where participants said they were disrespected by a few staff. Participants attributed their continuous visits to the facility to the respect and competencies of the staff.

"……Yes, they treated me with so much respect, and they were very competent, perhaps the reason why I always keep coming here. The whole procedure was very swift too". (male service provider, individual interview).

"……*Yes, am treated well over here, they treated me with so much respect, and they were very competent, perhaps the reason why I always keep coming here". (female patient, individual interview).*

"……*Yes, am treated well over here, but at times some of the staff do shout at me" (male patient, individual interview).*

"……Yes, am treated well over here. They are very respectful". (male service provider, individual interview).

Participants were further asked how difficult it was getting the desired services on time, and above all the confidentiality associated. Generally, confidentiality was not a problem for clients. It was again evident that most patients usually get the desired services they desired from the P&O technicians.

For example, a client said

"…… I don't know for others, but for me I got all the desired services I required and over the years I have confided so much in them and the services they render". (Male caliper user, individual interview).

"……*I am not bothered about issues of confidentiality, because am not sure the staff here would want to do that generally. I am not also so bothered about the services so far as I get my orthopedic shoes". (Male patient legal practitioner, individual interview).*

"…… With issues of confidentiality, I don't think they'll give out patient information to any third party". (Male patient, individual interview).

"…… I am not bothered about issues of confidentiality".

When asked about time spent to receive service, some clients noted that getting the desired services depended on the problem one presents to the center for attention. For example, a client said.

"……...*It depends on the kind of problem a client brings. If it's a complex situation you spend more time (female patient, individual interview).".*

While some spent some time in the facility before getting their desired services, other*: "I don't spend so much time here whenever I come to get my new shoes".***:** *"I spend almost an hour here before am been attended to because there are other clients". (male patient, individual interview).*

Clients were asked if they had a decisive influence over the planning of P&O care given to them. Some participants said they were involved in the whole process of care while others said they were not. Those who were not involved acknowledged they were told what to know despite their non-involvement.

"……..*Yes, I was involved in the whole process, I got an appointment for my prosthesis to be fixed and I walked all day for them to know how comfortable I was in the prosthesis". (male patient, individual interview).*

"……I am involved in the whole process, and that's one thing I love about this facility"

"….. Yes, I was involved in the process. They told me of the probable pains that may likely occur during the process".

"……Yes, I am involved in the whole process. They make me report any occurrences of inconveniency whenever I am trying on new shoes". (male patient, individual interview).

Contrarily, another respondent said,

"……. *I wasn't involved in the whole planning process, but then they told me what I needed to know".*

"…….. *No, please I have never in any way influenced the sort of device that I wanted*". *(Female patient, individual interview).*

Regarding the rightfulness of outpatient services received and cooperation among staff, while giving care, the study participants generally expressed positive remarks about processes and cooperation that existed between the staff.

"…….. There was excellent cooperation and everything is done here was really satisfactory". (Male patient, individual interview).

"…….. *Everything done here was very satisfactorily, and there was good cooperation". (Patient, individual interview,)*

"…….. The cooperation was excellent, and everything done here was acceptable". (Patient,individual interview).

Again, participants were asked if the services they received made them function better in their daily lives. Positive views expressed by clients indicate that all was well with the specific P&O assistive given to clients, though a majority of them indicated challenges and discomforts at the initial stages.

For instance

"…….. ……. *Initially, I wasn't comfortable with the hallux jacket but with time I got used to it". (Male patient, individual interview).*

"…….. Initially, I wasn't comfortable with time I got used to it". (Female patient, individual interview).

"…….. I am more confident now that I have the prosthesis. I still drive by myself". (Male bk patient, individual interview).

*"……With the above knee prosthesis, I can wear anything I want without showing the skeleton and take part in any activity I want". (**35** years male AK patient, individual interview).*

"Yes please, I am very okay and do almost everything by myself". (16 years old male patient,individual interview).

"…….. Yes please, I am very okay and do almost everything by myself except for things which I can't carry then I call for support. But I haven't had any major challenges after my prosthesis was fitted". (Female patient, individual interview).
"……Everything done here was very satisfactorily, and there was good cooperation". (Male patient, individual interview).

Generally, participants expressed high satisfied with the services they received from the NPOC with some participants rating services rendered at the NPOC as 100%.

"……Generally, I have been so satisfied with the services they render here" (male patient, individual interview).

"……Generally, I am very satisfied". (Male patient, individual interview).

"…….I am quite satisfied in general". (Male patient, individual interview).

"…….. Generally, I am satisfied with the services they render here. On a scale I would put them on a 100%. (male patient, individual interview).

"…….. Yes please, I am very okay and do almost everything by myself except for which I can't then I call for support". (Male patient, individual interview).

According to participants' views on what could be done to improve the quality of P&O health delivery to further satisfy clients, several recommendations were proposed by the study participants. These included subsidy for assistive devices, adoption of modern assistive that could carry out tasks automatically for patients, and upgrade of structures among other things.

"…… .I think if they can subsidize the prices of the assistive devices, it would be easier for most people to seek their services".

"…… Sometimes the prices of the devices are very costly. I would suggest that we could be given subsidies". (Male patient, individual interview).

"……I wish they had tools and equipment that could help with certain tasks to be done instantly, especially the orthopedic shoes. It is a lot of manual work. There should be an upgrade in technology used in the facility". (Male patient, individual interview).

"…… I wish more could be done especially the components they use to make the devices". (Male patient, individual interview).
"…… I think there needs to be structural expansion". (Female patient, individual interview).

Challenges or barriers associated with P&O health delivery

From the perspective of care receivers, challenges related to material (raw materials for the manufacture of assistive devices), support systems for rehabilitation, availability of trained technicians, and staff decimation among others were explored. From the perspective of materials for the manufacture of an assistive device, respondents largely affirmed the need for improvement. For example,

"……I think something much better can be done about that especially when it comes having stock of various sizes of feet" (male patient, individual interview).

"…… some of the knee joints are not functioning well because I was given one first, I couldn't walk properly before the changed it" (male patient, individual interview).

"……I think we need more materials and components. For instance, orthotic and prosthetic knee joints, silicone liners and sleeve, and TES belts" (male staff, individual interview).

Additionally, participants' views on examination beds, other logistics and general work environment revealed the need for drastic improvement.

"…… I think it can still be improved because as we speak there is no proper gait lab for gait training. We have no alignment jigs" (male staff, individual interview).

"……..It still needs improvement, in my opinion. Patient from outside Accra suffer because there are no rooms to accommodate". (Male patient, individual interview).

"……..I believe it still has room for improvement"(female patient, individual interview).

For support systems for rehabilitation below are examples of the recommendations made by participants.

"…… The government can give us subsidies or better still if we could pay a certain percentage for the entire cost during the procedure that will help". (Female patient, individual interview).

"……The government can give us subsidies, or even better if we could cover a certain percentage of the costs in full along the process, that would be really beneficial". (Male patient, individual interview).

"…… I don't have any support system; my parents bear the cost of the device". (Male patient, individual interview).
In connection with adequately trained technicians to attend to clients, the following observations were made.

"…… They are adequately trained, it's just because at times they run out of materials, and it kind of slows the whole process sometimes". (Female patient, individual interview).

Another participant said

"……..There should be training and re-training of personnel to make the work more efficient"

"……For the purpose of increasing productivity, staff members should be trained and retrained". (male patient, individual interview).

Issues of discrimination and disrespect from health professionals appeared to be absent or minimal as confessed by participants (clients), as staff perceived clients to be respectful and treats clients with dignity. Almost all clients said they had never been avoided or insulted by a service provider because of a client's condition (disability)

"……..The personnel there treats us all with dignity and with respect." (male patient, individual interview).

"……the staffs here are very respectful and treat us all with dignity" (female patient, individual interview).
"……We are all treated with honor by the workers there," (male patient, individual interview).

Regarding disrespect and insults, these are a few expressions from clients

"…….. I haven't had any similar experiences, oh no".
"……Oh no, I have not experienced anything as such"

DISCUSSION

Prosthetics and orthotics rehabilitation services play a crucial role in helping individuals with limb loss or mobility issues regain their independence and improve their quality of life. However, the success of these services is not just measured by the functional outcomes, but also by the satisfaction of the patients who use them. Assessing patients' satisfaction with prosthetics and orthotics rehabilitation services provides valuable feedback on the effectiveness of the services and helps identify areas for improvement. This discussion aims to explore different methods of assessing patient satisfaction as well as the importance of incorporating patient satisfaction into the evaluation of prosthetics and orthotics rehabilitation services. The findings were based on qualitative data collected from a study conducted at The Ghana National Prosthetics and Orthotics Center Accra to assess patients' satisfaction with prosthetics and orthotics rehabilitation services.

Types and Quality of Prostheses and Orthoses Manufactured at the NPOC Considering Materials and Components: In the present survey series of questions were asked to achieve this goal. The first required service providers to describe the various types of P&Os produced at the NPOC. The present study revealed that the P&O devices mostly manufactured were; above or below-knee prostheses, splints or braces, orthopedic shoes, lumbar corsets, and cervical collars. Talk about prostheses, the center manufactures prostheses that uses silicone gel liners with shuttle lock and sleeve. KAFO with drop lock and Swiss lock are also manufactured at the orthotic section of the centre. Practitioners have duty to ensure they teach patients to don and doff their AT devices. This finding is linked to the Universal Design Theory, which advocates for designing products and environments that are accessible and usable by as many people as possible, including those with disabilities (Bigman *et al*., 2011). This is why it is important to visit persons community prior to prescription and manufacture of prosthesis or orthosis. The significance of this is that before professionals prescribe P&O devices to their client(s), attention must be paid to whether they can wear the devices by themselves. Also, the environment of the client must be assessed to ensure it friendliness. In the case of prosthesis, even client's professions must be considered in prescribing. For example, BK amputee rice farmer would better use exoskeletal prosthesis. Again, the majority of participants were pleased with the services provided by the various orthotic and prosthetic sections and were pleased with their assistive device. This finding is in tandem with a cross-sectional study carried out in other developing countries like Malawi, and South Africa (Magnusson *et al*., 2017) which participants reportedhigh levels of use and mobility with their prosthesis/orthosis in spite of pain and difficulty walking. The result of QUEST in this study showed participants were quite satisfied with their devices and very satisfied with services received.

How Assistive Devices or Services Affect the Quality of Life of PWDs: Mobility is essential for every human to perform their daily activities. It is even more essential for PWDs to help them participate in activities. P&O devices provide this mobility as well as providing therapeutic effects for corrective purposes. As a result, PWDS without these devices face physical, emotional, and economic challenges on a daily basis, such as navigating hostile terrain, social rejection, and loss of income. In terms of physical, psychological, and environmental sphere, the person with disabilities has a lower quality of life than the general population (Magnusson *et al*., 2019).It was again revealed by majority of the respondents that even though they performed their daily activities normally with these assistive devices, however, they indicated that it affected their quality of life. This finding is further supported and linked to the Social Role Valorization (SRV) theory which has it that the societal value placed on the roles and activities of individuals with disabilities can significantly impact their quality of life (Osburn, 2006). Furthermore, this is asserted by the Normalization Principle that individuals with disabilities should have access to the same opportunities, experiences, and support as those without disabilities, in order to improve their quality of life. It is obvious that using prostheses and orthoses improve the quality of life of PWDs. The present study further indicated a lack of orthotic and prosthetic professionals at the various regions in Ghana and therefore called for training of staff to handle O&P. Aside from that, human resources for health-related rehabilitation services are scarce, with fewer skilled health and rehabilitation professionals available in low and middle-income countries across economic and geographical groups (Gupta *et al*., 2011). Again, the majority of study respondents indicated that the cost of orthotic and prosthetic devices was high because there were insufficient or no raw materials to manufacture the orthotic and prosthetic devices. This finding is consistent with another study by (Marino *et al*., 2015) at Zambia in which the increased cost of prosthetic and orthotic products, as well as service delivery aspects of professional and high-quality products with increasing demand due to increased life expectancy and peripheral vascular diseases (PVD), is a near-future challenge. Furthermore, most of the participants revealed that O&P professionals had positive attitudes towards them whenever they went for examination and there was sort of cohesion identified between patients and caregivers. This finding is reaffirmed in a cross-sectional study (Dorji, & Solomon, 2009), conducted in Bhutan, South Asia where participants indicated that the attitude of rehabilitation and health professionals influences the quality of services provided to the differently-abled. What could account for this may be related to the fact that PWDs need to be encouraged, taken through therapies which help in the recovery process.
The majority of patients in Ghana are from families with lower incomes, as reported by data from the Ghana Statistical Service in 2011 (Aduhene *et al*., 2021, Ghana statistical service, 2019 & Mahama *et al*., 2014). With this revelation, low operational costs, weakened institutional coordination, low fund utilization, poor coverage and records, and poor device maintenance increase the

challenges for prosthetic and orthotic users across the country, particularly those in rural areas. This finding corresponds to a study done in India where most of patients at the O&P centers indicated same (Kumar *et al*., 2012).

Customer Satisfaction with Prosthetics and Orthotic Services at the NPOC

Service provider support: Participants discussed how important it was for service providers to reassure them and encourage them to accept their situation and move forward. The participants reacted positively to this assistance, expressing confidence, motivation, and high levels of satisfaction with their provider. Patient satisfaction is a broad and multifaceted concept that is widely acknowledged as an important component of evidence-based health care. Although there has been an increase in efforts to develop and use standardized, patient-reported outcome (PRO) measures to assess satisfaction with rehabilitation services, similar efforts in orthotics and prosthetics (O&P) are less common. Peaco *et al*. (2011) revealed that measuring satisfaction in O&P can be difficult because patients' satisfaction is influenced by their interactions with both the services and the devices provided. Because of the numerous aspects of care that can influence a patient's level of satisfaction, quantifying satisfaction is particularly difficult. Satisfaction in O&P is also affected by how well patients' experiences with devices and services provided by practitioners and facilities met their expectations (Bettoni *et al*., 2016, & Magnusson *et al*., 2017). Relationships with the prosthetist, a clinician who creates and fits prosthetic limbs, can also have an impact on motivation (Murray, 2013). Positive, supportive experiences with clinicians have been shown in studies to increase engagement and motivation during lower limb rehabilitation (Naidoo *et al*., 2019), whereas professionals can also be a source of frustration and reduce interest in the rehabilitation process (Christensen *et al*., 2018, & Murray, 2013). The present study however indicated that majority of the respondents were quite satisfied with the various services rendered at the NPOC. From client's perspective, NPOC staffs are always available to help. With the exception of myoelectric hand prostheses all other services pertaining to P&O are rendered at the center. Although staff do give clients appointments, when it becomes necessary to attend clinic without appointment, they still provide service to in time. From staff point of view, they are confident in what they do because of experience. They have had several continuous professional development trainings with international Prosthetist & Orthotist from USA and Korea. For example, manufacture of vacuum assisted suspension (VAS), shuttle lock suspension prostheses and the use of various orthotic joints for KAFOs are regularly done at the center. The center is recently upgraded with equipment by Korea Foundation for International Healthcare (KOFIH). The satisfaction of participants with services at the center. is in line with the findings of a cross-sectional study that sought to assess consumer/patient satisfaction with the services provided by prosthetics and orthotics (P&O) facilities in the north of the Netherlands. The majority of patients who received orthopaedic shoes, as well as 217 consumers who received either prostheses or orthoses, were satisfied with the overall services provided to them (Bosmans *et al*., 2009). It is important professionals involve clients in choices of their device. Professionals discussed "firing" prosthetists/orthotist because they didn't listen, limited their device options, and used their clinical experience to set limits. This enraged users who felt doctors should not be seen as superior (Murray, 2013). Perhaps the anonymity afforded by the intern*et al*lows service users to post honestly.

The findings from a cross-sectional study carried out in Ethiopia revealed that place of residence, site POC, average hours used per day, and participants who had experienced pain were significantly associated with overall satisfaction among device and service users in Amhara regional state rehabilitation center (Kassa *et al*., 2020). Participants with mild disabilities were the most satisfied with the device and service in our study. The participants with mild disability were more likely to have less impairment, and it appears that mild disability caused by impairment is easier to reduce than moderate or severe disability. A review of the literature and discovered that patients with better health status are more satisfied with their medical care; however, their study did not confirm the causal factors in this relationship (Xiao *et al*., 2009). This figure from this present study is lower than those obtained in Taiwan (65.3%) (Chen *et al*., 2014) and the United States (75.7%) (Pezzin *et al*., 2004). Furthermore, our findings are significantly lower than those of studies conducted among lower limb prosthesis and orthosis users in Vietnam (93% Van Brakel *et al*., 2010) and the Netherlands (78% (Bosmans *et al*., 2009). These differences could be attributed to differences in sociodemographic characteristics, living environment and facility quality, living standards, and participant homogeneity. However, it is higher than the results of studies conducted in Tehran (Iran) (17%) (Durham *et al*., 2016) with their devices and lowers overall satisfaction (74%) with their services. This could be due to the facility, and clients' perceptions or needs could be closely related to their careers. Differences in participant expectations may be due, in part, to contextual influences. Some people have more opportunities to become empowered about their health in high-resource settings.

Challenges or Barriers Associated with Prosthetics & Orthotics Service Delivery

Financial Constraints: In comparison to the general population, people with disabilities have poor health, which leads to secondary complications such as immobility, weight gain, and a lack of environmental access (Rimmer, & Rowland, 2008). Lack of prosthetic and orthotic facilities, as well as insufficient services, not only affect the individual physically, but also poses a significant threat to the nation. From the standpoint of materials for the manufacture of assistive devices, respondents largely affirmed the need for (raw materials for the manufacture of assistive devices), rehabilitation support systems, the availability of trained technicians, transportation cost, and staff decimation were among the major challenges revealed by the participants. Financial factors may be especially motivating for users in studies from low-resource settings, where inadequate public funding does not cover basic needs and physical ability to return to work via prosthesis use is a necessity (Naidoo *et al*., 2019). This finding corresponds to studies done in Malawi and Sierra Leone where approximately half of the patients included in the studies struggled or could not pay for transportation and the costs associated with receiving services; these patients were completely reliant on the generosity of others. Similar findings were revealed from a cross-sectional study carried out in Nepal where assistive technologies services are expensive, frequently unavailable, and, even when available, inaccessible to people living in these rural areas. Repair and maintenance are frequently unavailable locally (Karki *et al*., 2021).

Long distance travel: Long distances and insufficient transportation to rehabilitation facilities posed a challenge for PWD living in both rural and urban areas, potentially affecting their health before they arrived at the health facility. Previous African studies have also confirmed that a lack of transportation and the inability of people with disabilities living in rural areas to pay for transportation reduced access to healthcare and rehabilitation (Munthali *et al*., 2019). Participants stated from the present study that rehabilitation centers lacked the funding and transportation required to provide outreach services. Participants stated that public transportation drivers do not stop for PWD because of their slow pace in climbing into the vehicle. The reason behind this could be that the raw materials for making P&O devices were costly hence making users unable to purchase them Larsson &Lidström, 2019). Because many patients were poor, services were not affordable to all. According to a study that looked into the inclusion of vulnerable groups in African health policy, loss of lower limb mobility and expensive transportation affects access to healthcare (Hussey *et al*., 2017). However, if services are decentralized and appointments are reduced, the value of human interaction and the sense of community gained from a clinic setting should not be underestimated. Although mobile clinics are a cost-cutting initiative, fragmented service delivery has been identified as a potential challenge (Junsaard *et al*., 2018). Perhaps service designers should consider how to improve the experience.

Inadequate skilled personnel and equipment: Again, most of the respondents reported that access to repairs and servicing of their assistive device, as well as the provision of follow-up services and the durability of the assistive device, were the most important issues that contributed to their satisfaction with the assistive devices and services. These findings were consistent with those of a qualitative study conducted in Haiti, which involved interviewing amputees who received rehabilitation services and prostheses. In the Haitian study, amputees who had received a prosthesis were concerned about the availability of long-term follow-up services (Magnusson *et al*., 2017). Contrastingly, a cross-sectional study carried out in Bangladesh indicated that the majority of P&O users were not even aware of the P&O centers and are unaware of the existence of a disabled person's identity card in the country and hence any follow-up services (Karki *et al*., 2021). What possibly account for this could be the study setting and the methodology. These patients were given a three- or six-month follow-up appointment and were told that if they had any problems with their prosthesis, they could return at any time before the six months. This was, however, poorly understood because the majority of participants who experienced pain or discomfort did not request an earlier appointment. Check-ups and regular maintenance of prosthetic and orthotic devices extend device life, and minor repairs are less expensive than replacing the prosthesis/orthosis entirely (Magnusson *et al*., 2017). To provide cost-effective programs and deliver assistive devices and related services, funding must be allocated not only to new assistive devices but also to follow-up services. Aside from that, human resources for health-related rehabilitation services are scarce, with fewer skilled health and rehabilitation professionals available in low and middle-income countries across geographical and economic groups. Evaluating patients' satisfaction with prosthetics and orthotics rehabilitation services is essential to understanding the effectiveness and quality of care. In summary, the number of people with lower-limb amputations is increasing in rural areas, and people are not qualifying for prosthetic fittings due to a lack of rehabilitation services. This study participants described the adjustment to living with an amputation and engaging with prosthesis services as an emotional journey of acceptance and gratitude. Strong clinician-patient relationships, social support networks, community, hope, and self-determination to overcome adversity all aided motivation

CONCLUSION AND RECOMMENDATION

It is not meaningful designing and manufacturing AT devices that clients are not able to use comfortably. For example, an amputee that uses a prosthesis that hurts would prefer sitting in a wheelchair. Patients' satisfaction with prosthetics and orthotics rehabilitation services is an important indicator of the effectiveness and quality of care. As the use of prosthetics and orthotics become more widespread, it is essential to understand the patients' experience with these devices and the rehabilitation services that accompany them.

Customer Satisfaction with Prosthetic and Orthotic Services at the NPOC: Patient's satisfaction with P&O services cannot be mentioned without probing how well devices fit. The patients confirmed their devices were comfortable. Few of them said initially they had skin abrasions and irritations but after reporting to their P&O professionals, all issues were solved. Other areas that were critically delved into had to do with how good the prosthesis/orthosis look externally, weight, durability and how easy it is to repair or replace parts. Responsiveness of professionals at the facility makes life easier with the aforementioned challenges. Apart from perfect fit and comfort which are major issues P&O professionals at the NPOC are keen to provide, other factors affect the use of prostheses/orthoses. For instance, level of amputation or muscle activity of a paralyzed limb, the age at which amputation occurred, patient's weight are major factors needed for satisfactory results of P&O devices use. Even though function is a major consideration, cosmesis is also essential to minimize negative reactions to limb deficient persons using these devices. If they perceive the devices as making them look whole, encourages the use of the devices.

Treatment of Client by P&O Professionals: The results revealed that patients were well treated with respect and lot of competencies except for few cases where participants said they were disrespected by some few staff. The study found the respect and competencies of the staff to be attributed to their continuous visit to the facility. The study revealed some participants were involved in the whole process of care while others were not. Those who were not involved acknowledged they were told what to know despite their non-involvement.

Remarks by Clients towards Treatment Received: The study participants generally expressed positive remarks about processes and cooperation that existed between the staff. Positive views expressed by clients indicates that all was well with the specific P&O assistive given to clients, though majority of them indicated challenges and discomforts at the initial stages.

Challenges or Barriers from P&O Health Professionals' Perspective: Challenges related to material (raw materials for manufacture of assistive devices), support systems for rehabilitation, availability of trained technicians and staff decimation was made mentioned. From the perspective of materials for the manufacture of assistive device, respondents largely affirmed the need for improvement.

Conclusion: To achieve the desire quality for the needed durability, important reinforcement materials such as carbon fiber must be used in laminating especially prosthetic sockets. Selection of components and suspension types are crucial; therefore, it is incumbent on the professionals to involve patients and their families before prescriptions are written. Mostly amputees tend to assume that prosthetic limbs are actual replacement for their natural limbs. The best limbs can be made with the highest quality but in fact, they don't look or work like the real ones. This is why it is essential to involve all parties each patient from the word go and follow ups discharge. The importance of collecting patient feedback cannot be overstated. By regularly evaluating patients' satisfaction with prosthetics and orthotics rehabilitation services, providers can create a more personalized and patient-centered approach to care, leading to higher satisfaction levels, improved outcomes, and a better overall experience for patients. The participants were satisfied with their prostheses/orthoses and saw it as a sign of a brighter future. The devices allowed them to go back to their previous activities, integrate back into society, work and be less dependent on others. This emphasizes the need to consider a wider range of success indicators during service evaluations instead of just relying on objective scoring methods, which may not capture the full picture of a positive outcome. Prosthetic & Orthotic aspect of physical rehabilitation has become so vital to be left with nonprofessionals. Because expectations of patients keep increasing day in and out. The NPOC has experience technicians who are able to handle all cases that come to the facility. Despite the challenges with materials, components and infrastructure, they are able to assess, design and manufacture prostheses and orthoses that satisfy their client's needs.

Recommendations

- The Government of Ghana through the Ghana health service should subsidize the cost of assistive devices to cushion clients and also ensure uniformity in costing devices in all government facilities across the country.
- Ghana Health Service must develop standards of operation, made it available to be followed and order final delivery of devices are made only when certify by chief Prosthetist/Orthotist in-charge of the facility.
- The Government of Ghana in collaboration with the Ghana Health Service should regularly assess patients' satisfaction: Collecting patient feedback regularly is crucial for continuous improvement of rehabilitation services. This helps providers understand the strengths and weaknesses of the services and make necessary adjustments.
- The study is limited to the national center under the Ghana government, it would be helpful if future studies would be done at regional level and private centers in the country.

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