KNOWLEDGE, PERCEPTION, AND ATTITUDE TOWARDS SPECIALIZING IN NEUROPHYSIOTHERAPY AMONGST PHYSIOTHERAPY INTERNS IN SELECTED HEALTH INSTITUTIONS IN SOUTH-SOUTH NIGERIA

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SCHOOL OF BASIC MEDICAL SCIENCES

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A PROJECT SUBMITTED TO THE DEPARTMENT OF PHYSIOTHERAPY, SCHOOL OF BASIC MEDICAL SCIENCES, COLLEGE OF MEDICAL SCIENCES, UNIVERSITY OF BENIN, BENIN CITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF BACHELOR OF PHYSIOTHERAPY (B.PT) DEGREE

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CERTIFICATION

This dissertation by **MICHAEL OTUMU OSEMENOR** is accepted in its present form as satisfying the dissertation requirement of the degree of Bachelor of Physiotherapy of the School of Basic Medical Sciences, College of Medical Sciences of the University of Benin.

SUPERVISOR **SIGNATURE**

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EXTERNAL EXAMINER **...……...……**

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DEDICATION

This research work is dedicated to God almighty, my parents Mr. & Mrs. Elijah and Mary Otumu, Mr. & Mrs. Lucky & Ijeoma Otumu and Mum Sarah Akinrimisi for their support, prayers and unending love.

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ABSTRACT

Background: Nigeria requires more physiotherapists and specialized training to improve care quality. A mandatory one-year internship bridges the gap between education and practice, enhancing skills and confidence.The quality of internship training, including supervision, learning opportunities, and a supportive environment, plays a crucial role in influencing interns' satisfaction and their specialization choices.

Aim: The aim and purpose of this research is to explore physiotherapy interns' knowledge perceptions, and attitude towards specializing in neurophysiotherapy in south-south, Nigeria

Methods: The study employs a cross-sectional design using a proportionate sampling technique, with a calculated sample size of 126 physiotherapy interns distributed across seven hospitals in South-South Nigeria.Data collection will be conducted through a self-adapted questionnaire divided into four sections: socio-demographic information, knowledge, perception, and attitude towards specializing in neurophysiotherapy.Data analysis will involve descriptive statistics and inferential tools, such as chi-square tests, using SPSS version 22 at a 0.05 significance level.

Result: The study revealed that most participants were male (68.2%), over 30 years old (59.1%), single (93.2%), and Christian (81.8%). A majority of interns (81.1%) rated their knowledge of neurophysiotherapy and its components as "good" or "very good," with all identifying key neurological conditions suitable for rehabilitation. Exposure to neurology units (75.8%) and treatment modalities (72.7%) significantly influenced their decision to specialize, though many (76.5%) found neurophysiotherapy challenging. Overall, interns expressed curiosity (79.6%) and a willingness to enhance their knowledge through clinical experiences.

Conclusion: The findings showed that most interns had strong foundational knowledge of neurophysiotherapy, with high confidence in their ability to specialize. However, challenges and uncertainties about managing neurological conditions persisted. Despite this, participants maintained a positive attitude and perception toward specializing in neurophysiotherapy.

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF STUDY

Nigeria requires additional physiotherapists in order to keep up with the country's increasing demand but, in addition to the need for more physiotherapists to enter the field and work in Nigeria, there is also a need for these professionals to specialize in order to improve the caliber of care they provide (Ojukwu et al., 2022).

A clinical specialist in physiotherapy is defined by World confederation for Physiotherapy (WCPT) as a medical practitioner who can demonstrate advanced clinical competence in physiotherapy by satisfying the prerequisites of pertinent procedures for formal knowledge and skill recognition by an association or its accredited representative (Bury and Stokes,2013). Physiotherapists' knowledge, psycho motor, and clinical reasoning skills are improved by specialization through clinical residency in physiotherapy, which inevitably makes way for improved patient care outcomes and general health care delivery (Cunningham and McFelea, 2017). In 1980, the term specialization was introduced to physiotherapy and as at the time there were five (5) areas; orthopaedics (divided into manipulative and sports), neurology, cardio-thoracic, obstetrics, and gynaecology, and paediatrics(Bennett and Grant, 2004) but this has developed over time as other areas of specializations has been added neurology/mental health, paediatrics, geriatrics, musculoskeletal, cardiopulmonary, community-based, Ergonomics, sports and recreation, women's health, orthopaedics and sports, HIV, oncology and palliative care (Ojukwu et al. 2022).

The structure and content of the physiotherapy programs in Nigeria is designed and reviewed by the Medical rehabilitation therapists board of Nigeria (MRTB), and within neurological practice there is specific critical analysis required to determine the site and nature of the neurological

damage to which there are a number of neurological conditions which will cause damage to the nervous system.(Walker, 2013; Abaraogu et al.,2019). The context for neurological patients could be argued as one of the most complex. In many instances the patient's whole life has been affected by the neurological condition, influencing their family and social network. There are often difficult decisions to be made about prognosis, return to work, and home re-structuring to name just a few. The context and expectation of the physical therapists is also often very great, as patients and their families place a lot of hope and responsibility with the therapists (Burton et al. 2021).

According to the American Board of Physical Therapy Specialties (ABPTS), choosing to pursue a specialization in physical therapy helps physiotherapists raise their competency level, advance their career, earn professional recognition and be at the forefront of developments in research and practice (APTA, 2024).

One of the few steps to update the standards and knowledge of aspiring physiotherapists in Nigeria is the relatively recent introduction of a one-year internship training program, which is a mandatory clinical training program that lasts for one year after graduation from the university under the supervision of clinicians. The main goal of the new policy is to encourage the acquisition and use of new skills while also enhancing the skills and confidence that were developed during undergraduate studies (Onigbinde, 2016).

Internships are supervised work experiences where students or graduates get engaged in work-related programs during which they are closely supervised by experienced job incumbents and making the transition from being a student into the world of practice as a graduate could be difficult and stressful as graduates often found out that they were not prepared for the realities of practice(Eden et al., 2019). The direction of physiotherapy interns' area of specialization may be influenced by Interns' satisfaction with training which may vary widely with different clinical rotations and institutions (Gillard et al. 2023). Determinants of effective training that may

influence specialization and may be associated with an interns' perception and satisfaction include quality of supervisors, effective supervision, adequate opportunity in experiential learning, conducive environment, good support system, personal attributes, and reasonable workload(Sien and Tumbo, 2022).

1.2 STATEMENT OF THE PROBLEM

Neurological disorders continue to be the leading cause of disability worldwide, and their contribution to the overall burden from all health conditions is increasing. The bulk of the burden from neurological disorders continues to be in low-income and middle-income countries (Feigin et al, 2019) such as Nigeria and hence the need for more physiotherapists specializing in neurophysiotherapy.

It is common practice that Nigerian physiotherapists frequently grant clinical specialist titles to those who have worked a significant number of years in their specialty based on their years of experience, without a rigorous examination procedure. However, some people believe that a postgraduate degree, such as a master's or doctoral degree, qualifies them for a specialty in physiotherapy and because duties are not clearly defined, the majority of these "presuming" experts and other general practitioners who have not assumed any expertise try to treat every ailment, particularly younger physiotherapists finishing internship and national youth service programs, which essentially leaves little space for specialization(Ojukwu et al, 2022). As a result of this, some fields of physiotherapy are lacking in specialists, and there are no clear standards for physiotherapists who want to specialize in these areas, especially neuro-physiotherapy having one of the least numbers of specialists (Feigin et al, 2016) even with the increasing number of patients suffering from neurological conditions. This raises the question of fresh graduates level of knowledge in neurophysiotherapy and if the internship training program they are undergoing increases or alters their level of knowledge, attitude and perception to specializing in

neuro-physiotherapy. Evidence is accumulating that medical house officers have particular difficulty in neurology and have neurophobia. However, little is known about attitudes toward neurology in physiotherapy interns (Abasıyanık et al. 2024). The physiotherapy internship programme is more than a decade old in Nigeria (Onigbinde, 2016) and according to the researcher's best knowledge, there is no known study that has evaluated the attitude and perception towards specialization in neurophysiotherapy by physiotherapy interns hence the need for this study.

1.3 RESEARCH QUESTIONS

This research study will examine the following questions.

1. What is the knowledge of physiotherapy interns in institutions in south-south Nigeria towards specializing in neurophysiotherapy?
2. what is the perception of physiotherapy interns in institutions in south-south Nigeria towards specializing in neurophysiotherapy?
3. What is the attitude of physiotherapy interns in institutions in south-south Nigeria towards specializing in neurophysiotherapy?

1.4 AIM OF STUDY

The aim and purpose of this research is to explore physiotherapy interns' knowledge perceptions, and attitude towards specializing in neurophysiotherapy in South-South, Nigeria.

1.5 SPECIFIC OBJECTIVES

General Objective

The general objective of this study is to assess the knowledge, perceptions, and attitude of physiotherapy interns towards specializing in neurophysiotherapy in the South-South Nigeria.

Specific Objectives

1. To assess the level of the knowledge of physiotherapy interns towards specializing in neurophysiotherapy in the south-south Nigeria.
2. To explore the factors influencing the perceptions, and attitude physiotherapy interns towards specializing in neurophysiotherapy in the south-south Nigeria.
3. To examine the correlation between knowledge, perception and attitude physiotherapy interns towards specializing in neurophysiotherapy in the south-south Nigeria.

1.6 HYPOTHESES

H_{01}: There is no significant relationship between level of knowledge physiotherapy interns towards specializing in neurophysiotherapy in the south-south Nigeria

H_{02}: There is no significant relationship between perception physiotherapy interns towards specializing in neurophysiotherapy in the south-south Nigeria.

H_{03}: There is no significant relationship between attitude physiotherapy interns towards specializing in neurophysiotherapy in the south-south Nigeria.

1.7 SIGNIFICANCE OF THE STUDY

1. This may increase the level of evidence available for evidence based practice (EBP), refuting or substantiate previously available knowledge.
2. The study will highlight areas where knowledge, and clear perception are lacking, thereby guiding the development of targeted institution initiatives. These initiatives can focus on increasing knowledge about neurophysiotherapy as an area of specialization
3. To know the root cause and determinants to career specialization path among physiotherapy interns specializing in neurophysiotherapy.

1.8 SCOPE OF STUDY

The study is delimited among physiotherapy interns in south-south Nigeria who are currently undergoin g internship training or just concluded their internship program. A self-adopted questionnaire will be administered via google forms to the participants.

1.9 OPERATIONAL DEFINITION OF TERMS

KNOWLEDGE: Refers to an understanding of factual information, familiarity with individuals and situations of specializing in neurophysiotherapy by physiotherapy interns.

PERCEPTION: A belief or opinion, often held by physiotherapy interns about specializing in neurophysiotherapy

ATTITUDE: A feeling or opinion about specializing in neurophysiotherapy

PHYSIOTHERAPY INTERN: A fresh physiotherapy graduate undergoing a compulsory one-year clinical training post-graduation from the university under the supervision of the clinicians(Onigbinde, 2016)

NEUROPHYSIOTHERAPY: This is a specialist branch of physiotherapy dedicated to improving the function of patients who have suffered physical impairment caused by neurological conditions.

CHAPTER TWO

LITERATURE REVIEW

2.1 THEORETICAL FRAMEWORK

This study is anchored on three interrelated theories: the Health Belief Model (HBM), the Theory of Planned Behavior (TPB), and Social Cognitive Theory (SCT). These theories collectively provide a robust framework for understanding the factors influencing physiotherapy interns' knowledge, perception, and attitude towards specializing in neurophysiotherapy.

The Health Belief Model (HBM) postulates that individual behavior is influenced by perceptions of susceptibility, severity, benefits, and barriers, as well as self-efficacy and cues to action (Rosenstock, 1974). In the context of this study, the HBM explains how interns' knowledge and perception of neurophysiotherapy are shaped by their awareness of the specialty's relevance in addressing neurological conditions (perceived severity) and the potential career benefits of specialization (perceived benefits). Barriers, such as limited exposure or institutional support, might deter interest in the specialty, while effective mentorship and role models could act as cues to action, motivating interns to consider neurophysiotherapy as a viable career path.

The Theory of Planned Behavior (TPB) emphasizes that intention is the primary determinant of behavior, driven by three key constructs: attitudes, subjective norms, and perceived behavioral control (Ajzen, 1991). This theory provides a framework for examining how interns' attitudes towards neurophysiotherapy, whether they view it as an essential and rewarding field or are influenced by their beliefs and personal values. Furthermore, subjective norms, such as the expectations of peers, mentors, or the physiotherapy community, may play a critical role in shaping their perception. Perceived behavioral control, reflecting their confidence in successfully pursuing specialization despite potential challenges, is another vital component of this framework.

The Social Cognitive Theory (SCT), developed by Bandura (1986), highlights the interplay between individual factors, environmental influences, and behavior. This theory is particularly relevant in understanding how exposure to neurophysiotherapy practice through clinical rotations or observational learning affects interns' knowledge and perception of the specialty. Self-efficacy, a core component of SCT, is critical for determining whether interns feel capable of excelling in neurophysiotherapy. Additionally, outcome expectations such as the anticipated professional growth or societal impact of specializing in this field may influence their attitude and decision-making.

Together, these theories offer a comprehensive perspective on the variables of knowledge, perception, and attitude. The HBM provides insight into individual motivators and barriers, the TPB emphasizes the role of intention and societal influences, and the SCT accounts for learning and environmental factors. By integrating these theoretical perspectives, this study aims to explore the complex interplay of factors shaping physiotherapy interns' career choices and their potential interest in neurophysiotherapy specialization.

2.2 OVERVIEW OF NEUROPHYSIOTHERAPY

2.2.1 Definition and Scope

Neurophysiotherapy is a specialized branch of physiotherapy focused on the assessment, diagnosis, and management of individuals with neurological conditions (Kinalski 2008). These conditions often affect the brain, spinal cord, or peripheral nervous system, leading to impairments in movement, coordination, sensation, and functional independence. Neurophysiotherapists employ evidence-based techniques to address issues such as muscle weakness, spasticity, balance deficits, and gait abnormalities (Garcia-Ros et al., 2024). The ultimate goal is to enhance mobility, optimize functional abilities, and improve the quality of life for individuals living with neurological disorders (Kinalski 2008).

2.2.2 Conditions Managed in Neurophysiotherapy

The scope of neurophysiotherapy covers a wide range of conditions, including stroke, traumatic brain injury, spinal cord injury, multiple sclerosis, Parkinson's disease, cerebral palsy, and peripheral neuropathies (Stokes 2004). It also addresses degenerative neurological conditions such as amyotrophic lateral sclerosis (ALS) and muscular dystrophy (Rigby et al., 2008). In pediatric neurophysiotherapy, practitioners often work with children affected by developmental delays, congenital disorders, or acquired neurological impairments (Rigby et al., 2008).

2.2.3 Historical Development and Scope of Neurophysiotherapy

The origins of neurophysiotherapy can be traced back to the early 20th century, when the field of physical therapy began to emerge as a distinct discipline (Lettinga 2002). Initially, physiotherapy interventions focused primarily on managing musculoskeletal injuries and postoperative rehabilitation (Sharma 2012). However, as understanding of the nervous system grew, the need for specialized approaches to neurological disorders became evident (Lettinga 2002).

In the mid-20th century, pioneers like Berta and Karel Bobath developed the Bobath concept, also known as neurodevelopmental treatment (NDT), to address abnormal movement patterns in individuals with cerebral palsy and stroke (Raine 2006). Around the same time, Margaret Rood introduced sensory-motor approaches for neuromuscular rehabilitation (Michealson et al., 2019). These techniques laid the foundation for modern neurophysiotherapy by emphasizing individualized treatment plans and neuroplasticity (Raine 2006). The 1980s and 1990s marked a turning point with advancements in neuroscience, particularly the understanding of neuroplasticity, the brain's ability to reorganize and adapt after injury (Raine 2006).

These discoveries revolutionized neurorehabilitation, leading to the development of evidence-based practices that focus on functional recovery rather than compensation. Interventions such as constraint-induced movement therapy (CIMT) and task-oriented training gained prominence

during this period. More recently, the integration of technology, including robotic-assisted devices, virtual reality, and functional electrical stimulation, has significantly expanded the scope and efficacy of neurophysiotherapy. These innovations enable precise and interactive rehabilitation strategies tailored to individual patient needs.

2.3 SCOPE OF NEUROPHYSIOTHERAPY

The scope of neurophysiotherapy encompasses the prevention, assessment, and management of movement disorders and functional limitations arising from neurological conditions. Neurophysiotherapists work with patients across all age groups, addressing a wide range of conditions such as:

1. Acquired Neurological Disorders

- Stroke
- Traumatic Brain Injury (TBI)
- Spinal Cord Injury (SCI)

2. Degenerative Neurological Conditions

- Parkinson's Disease
- Multiple Sclerosis
- Amyotrophic Lateral Sclerosis (ALS)

3. Congenital and Developmental Disorders

- Cerebral Palsy
- Spina Bifida
- Developmental Delays

4. Peripheral Nervous System Disorders

- Guillain-Barré Syndrome
- Peripheral Neuropathies

2.3.1 Importance of Specialization in Physiotherapy Practice

Specialization in physiotherapy practice is becoming increasingly important due to the growing complexity of healthcare needs, the diversity of patient populations, and advancements in medical knowledge and technology. Specialization allows physiotherapists to develop advanced skills and expertise in specific areas, enhancing their ability to provide targeted and effective care. Below are the key reasons why specialization is critical in physiotherapy practice.

1. Improved Patient Outcomes

Specialized physiotherapists possess in-depth knowledge and advanced skills tailored to particular conditions or populations. For instance, a neurophysiotherapist is better equipped to address the unique challenges faced by patients with neurological disorders, such as spasticity or motor control deficits. This focused expertise often translates to improved patient outcomes, as treatment plans are more precise, evidence-based, and aligned with the latest research.

2. Enhanced Professional Credibility and Recognition

Specialization increases a physiotherapist's professional credibility, as it signals a higher level of competence and dedication to the field. Patients, colleagues, and healthcare institutions are more likely to trust and value the expertise of a specialist, leading to greater professional recognition and career advancement opportunities.

3. Alignment with Advances in Healthcare

As healthcare evolves, there is a growing emphasis on interdisciplinary collaboration and tailored interventions. Specialized physiotherapists can work more effectively within multidisciplinary teams, contri buting their expertise to the management of complex cases. For example, a cardiopulmonary physiotherapist plays a critical role in rehabilitation programs for patients recovering from cardiac surgery or chronic respiratory conditions.

4. Addressing the Rising Demand for Specialized Care

The increasing prevalence of non-communicable diseases, aging populations, and conditions like stroke, cancer, and chronic pain has created a demand for specialized physiotherapy services. Specialization enables physiotherapists to meet this demand by offering comprehensive care for specific conditions, thereby filling critical gaps in healthcare delivery.

5. Contribution to Research and Innovation

Specialists often engage in research and contribute to the development of new techniques, technologies, and treatment protocols within their area of expertise. This not only advances the field of physiotherapy but also ensures that clinical practice remains evidence-based and aligned with global standards.

6. Career Satisfaction and Growth

Specialization allows physiotherapists to focus on areas they are passionate about, leading to greater job satisfaction. It also opens doors to diverse career pathways, including clinical leadership roles, academia, research, and consultancy. Physiotherapists who specialize often report a stronger sense of purpose and fulfillment in their work.

7. Enhancing Public Health and Preventive Care

Specialized physiotherapists play a vital role in preventive care and health promotion. For instance, a musculoskeletal physiotherapist may educate patients on ergonomics and injury prevention, while a pediatric physiotherapist may address developmental delays early in a child's life. This proactive approach can reduce the burden on healthcare systems by preventing complications and promoting overall health.

2.4 KNOWLEDGE OF NEUROPHYSIOTHERAPY

Neurophysiotherapy is a specialized branch of physiotherapy that focuses on the rehabilitation of individuals with neurological disorders affecting the central and peripheral nervous systems. It

involves a deep understanding of neuroanatomy, neurophysiology, and the principles of neuroplasticity to design evidence-based therapeutic interventions. Neurophysiotherapists aim to improve motor function, enhance coordination, and restore independence in daily activities. Their expertise extends beyond physical rehabilitation, addressing the psychological and social dimensions of living with neurological conditions. Techniques like motor relearning, task-specific training, and the use of advanced technologies such as functional electrical stimulation and robotics are integral to neurophysiotherapy.

2.4.1 Historical Development and Scope of Neurophysiotherapy

The historical development of neurophysiotherapy can be traced to the mid-20th century when pioneers like Berta and Karel Bobath introduced the Bobath concept to manage abnormal movement patterns in individuals with neurological disorders. This approach laid the foundation for modern neurorehabilitation by emphasizing individualized care and neurodevelopmental principles. Around the same time, Margaret Rood developed sensory-motor techniques, focusing on enhancing neuromuscular control.

The advent of neuroscience research in the 1980s and 1990s further advanced neurophysiotherapy, with the discovery of neuroplasticity revolutionizing rehabilitation approaches. Evidence-based methods like constraint-induced movement therapy (CIMT) and task-oriented training emerged, emphasizing recovery over compensation. In recent decades, the integration of technology, including virtual reality, robotic-assisted therapy, and wearable sensors, has expanded the scope of neurophysiotherapy, enabling more precise and effective interventions.

Today, the scope of neurophysiotherapy spans the management of conditions such as stroke, traumatic brain injury, spinal cord injury, Parkinson's disease, multiple sclerosis, cerebral palsy, and peripheral neuropathies. Neurophysiotherapists work across diverse settings, including hospitals, rehabilitation centers, and community-based programs, addressing both pediatric and adult populations.

2.4.2 Knowledge Levels of Physiotherapy Students/Interns about Various Specialties

Globally, the knowledge levels of physiotherapy students and interns about different specialties, including neurophysiotherapy, vary widely due to disparities in curriculum design, clinical exposure, and access to specialized training resources. Studies from developed countries indicate that students often possess higher levels of knowledge about specialties due to well-structured educational programs and advanced clinical training facilities. For example, in countries like the UK, USA, and Australia, comprehensive physiotherapy programs provide exposure to diverse specialties such as neurophysiotherapy, musculoskeletal physiotherapy, and cardiopulmonary physiotherapy, fostering informed career choices.

In contrast, in many low- and middle-income countries, including Nigeria, the depth of knowledge among physiotherapy students and interns about specialties like neurophysiotherapy may be limited. Contributing factors include insufficient clinical rotations in specialized areas, inadequate mentorship, and limited access to continuing education opportunities. This knowledge gap often results in a lack of interest or confidence in pursuing certain specialties, such as neurophysiotherapy, where advanced training and resources are essential.

Research on knowledge gaps among physiotherapy students and professionals highlights significant disparities in awareness and understanding of various specialties. Studies have consistently identified gaps in knowledge about emerging and niche areas of practice, including neurophysiotherapy. For instance, a study conducted in India revealed that physiotherapy students had limited understanding of specialties like oncology and neurophysiotherapy, which were not adequately covered in their undergraduate curriculum. Similarly, a survey in Nigeria reported that a majority of physiotherapy students lacked comprehensive knowledge of neurophysiotherapy techniques and career prospects, attributing this gap to insufficient clinical exposure and mentorship.

Globally, knowledge gaps are also evident in advanced and evolving specialties like sports

physiotherapy, women's health physiotherapy, and geriatric rehabilitation. Factors such as curriculum limitations, lack of access to specialized educators, and inadequate emphasis on research contribute to these gaps. Addressing these deficiencies through curriculum reforms, increased clinical training opportunities, and targeted workshops can bridge the knowledge gaps and enhance the preparedness of physiotherapy students and interns.

2.5 PERCEPTION TOWARDS NEUROPHYSIOTHERAPY

Perception towards neurophysiotherapy among physiotherapy students, interns, and practicing professionals is shaped by multiple factors, including individual experiences, exposure to the specialty, and societal attitudes. Neurophysiotherapy is often perceived as a highly specialized field requiring advanced knowledge and skills, which can make it both appealing and intimidating to those entering the profession. For many, the perception of neurophysiotherapy as a challenging yet rewarding specialty stems from its focus on improving the quality of life for individuals with complex neurological conditions such as stroke, spinal cord injuries, and cerebral palsy. However, this perception varies widely depending on personal interests, exposure during training, and institutional emphasis on the specialty.

2.5.1 Factors Influencing Perception of Neurophysiotherapy

1. **Exposure to Neurophysiotherapy:** Early exposure during undergraduate or internship programs significantly shapes perceptions. Students who have opportunities to observe or participate in neurorehabilitation sessions often develop a more favorable view of the specialty. Hands-on experience with patients recovering from neurological disorders allows individuals to appreciate the impact of neurophysiotherapy on patient outcomes, increasing interest and confidence in pursuing the field.
2. **Clinical Experiences:** Positive clinical experiences, such as working under skilled neurophysiotherapists or witnessing significant patient progress, can foster enthusiasm for the specialty. Conversely, limited or negative experiences, such as inadequate mentorship

or challenging cases without adequate support, may lead to unfavorable perceptions.

3. **Cultural and Societal Attitudes:** In some settings, neurophysiotherapy is perceived as less lucrative or prestigious compared to specialties like musculoskeletal physiotherapy or sports physiotherapy. Such perceptions may deter students from considering the field, especially in regions where financial incentives heavily influence career choices.

2.5.2 Comparative Studies of Perception across Different Physiotherapy Specialties

Comparative studies reveal varying levels of interest and perception across physiotherapy specialties. Neurophysiotherapy is often perceived as one of the more challenging specialties due to its reliance on in-depth knowledge of neurological conditions and complex rehabilitation techniques. In contrast, specialties like musculoskeletal and sports physiotherapy are frequently viewed as more accessible and lucrative, leading to higher popularity among students and interns.

For example, a study conducted in South Asia found that physiotherapy students were more inclined towards musculoskeletal and sports specialties due to better financial prospects and higher visibility of these fields in media and society. Neurophysiotherapy, although recognized for its clinical impact, was often overlooked due to a perceived lack of resources and mentorship in this area.

Similar trends have been reported in African countries, where limited exposure to neurorehabilitation facilities during training contributed to reduced interest in neurophysiotherapy. However, in settings where students had access to well-equipped neurorehabilitation units and specialized educators, perceptions were significantly more positive.

2.5.3 Role of Academic and Clinical Training in Shaping Perception

Academic and clinical training play pivotal roles in shaping how physiotherapy students and interns perceive neurophysiotherapy. Comprehensive academic programs that integrate neurophysiotherapy into the curriculum early on can demystify the specialty and emphasize its

importance. Theoretical knowledge combined with practical skills training, such as handling patients with neurological disorders, helps build confidence and interest in the field.

Clinical placements are particularly influential, as they provide real-world exposure to the challenges and rewards of neurophysiotherapy. Positive mentorship from experienced neurophysiotherapists during clinical rotations can inspire students to pursue the specialty by highlighting its potential for professional growth and patient impact. Conversely, inadequate training or lack of clinical exposure can perpetuate misconceptions and deter interest. Workshops, conferences, and continuing education programs focusing on neurophysiotherapy further enhance perceptions by showcasing advancements in techniques, technologies, and research. Institutions that invest in these initiatives are more likely to produce graduates with favorable attitudes toward the specialty, contributing to its growth and recognition.

2.5.4 Overview of Attitude Studies in Medical/Health-Related Specializations

Attitude studies in medical and health-related specializations have provided valuable insights into the factors that influence healthcare professionals' decisions to specialize in a particular area. Research consistently shows that attitudes towards specialization are shaped by a combination of personal interests, career aspirations, academic experiences, and professional environments. In medical and allied health fields, specialization is often seen as a route to career advancement, higher status, and expertise in a particular domain. Studies have found that medical students and healthcare professionals are more likely to specialize in fields that they perceive as rewarding, both intellectually and financially, and where they feel they can make a significant impact on patient outcomes. However, these studies also highlight barriers to specialization, such as the length of training required, financial costs, the availability of mentorship, and concerns about work-life balance. In health professions like physiotherapy, these factors can influence whether individuals are willing to pursue highly specialized fields, including neurophysiotherapy, or prefer to

remain in generalist roles. Overall, a combination of intrinsic motivation, external incentives, and practical considerations influence attitudes towards specialization.

2.5.5 Studies on Willingness or Barriers to Specializing in Neurophysiotherapy

Studies on willingness to specialize in neurophysiotherapy reveal both positive interest and significant barriers to pursuing this field. For example, a study in India found that although physiotherapy students showed interest in neurophysiotherapy due to its potential for making a meaningful difference in patients' lives, several barriers prevented them from specializing. These barriers included limited exposure during academic training, lack of specialized faculty, and the perceived difficulty of mastering the complex rehabilitation techniques associated with neurological disorders. In contrast, a study in the United Kingdom indicated that physiotherapists in advanced clinical settings were more willing to pursue neurophysiotherapy due to the high level of patient engagement and the intellectually stimulating nature of the work. In these settings, the availability of structured postgraduate training and professional support encouraged physiotherapists to specialize. Furthermore, research in Nigeria revealed that while students were motivated to specialize in neurophysiotherapy due to its potential for improving patients' functional independence, a lack of sufficient clinical exposure, poor infrastructure, and limited career opportunities were significant deterrents. Students who had fewer opportunities to work with neurological patients during their internships were less likely to develop an interest in the field.

Factors Influencing Attitudes

Attitudes toward specializing in neurophysiotherapy are deeply influenced by cultural, institutional, and personal factors.

1. **Cultural Factors**:

   Cultural views on the prestige and societal value of different specialties can shape

individual choices. In some cultures, specialties like orthopedics or cardiopulmonary physiotherapy are seen as more prestigious or financially rewarding, leading students and professionals to prioritize these fields. Neurophysiotherapy, despite its potential to significantly improve patients' quality of life, may be viewed as less glamorous or financially lucrative, thus limiting interest in the specialty. Additionally, in some cultures, there may be a stigma surrounding neurological disorders, which can influence attitudes toward neurophysiotherapy as a field.

2. **Institutional Factors**:

   Institutions play a pivotal role in shaping attitudes toward specialization through curriculum design, clinical placements, and mentorship opportunities. Universities or training programs that offer robust neurophysiotherapy courses, internships, and postgraduate certifications can encourage students to pursue the specialty. On the other hand, institutions with limited resources or exposure to advanced neurological rehabilitation techniques may discourage students from specializing. The role of faculty members also cannot be understated, as their enthusiasm for neurophysiotherapy and mentorship can inspire students to specialize.

3. **Personal Factors**:

   Personal attitudes and motivations are crucial in deciding whether to specialize in neurophysiotherapy. Factors such as intrinsic interest in working with patients with neurological conditions, personal experiences with such conditions, and career goals influence an individual’s decision. Physiotherapists with a passion for neurological rehabilitation are more likely to pursue the specialty, especially if they perceive it as offering a rewarding career. However, for others, the challenges associated with neurophysiotherapy, including the long rehabilitation process and the emotional strain of

working with patients facing long-term disabilities, may serve as barriers to pursuing the field.

Physiotherapy Interns in Nigeria

Physiotherapy education in Nigeria is primarily structured as a five-year Bachelor of Physiotherapy (BPT) program, followed by a mandatory one-year internship in accredited healthcare institutions. In South-South Nigeria, universities such as the University of Benin and University of Calabar offer physiotherapy programs that prepare students for clinical practice through a combination of theoretical coursework and clinical rotations. During the internship year, physiotherapy graduates gain hands-on experience in various specialties, including neurophysiotherapy, musculoskeletal physiotherapy, cardiopulmonary rehabilitation, and pediatrics, under the supervision of licensed professionals.

However, the quality of education and internship programs in the region is affected by limited resources, insufficient clinical facilities, and variability in mentorship quality. Interns in South-South Nigeria often rotate across multiple departments within healthcare institutions, but the exposure to certain specialties like neurophysiotherapy may be inadequate due to resource constraints, affecting their readiness to specialize in these fields (Owolabi et al., 2021).

Challenges Faced by Interns in Selecting Specializations

Physiotherapy interns in Nigeria face numerous challenges when it comes to selecting a specialization. One major issue is **limited clinical exposure** to less common or resource-intensive specialties like neurophysiotherapy. Many healthcare facilities in the region lack the advanced equipment and expertise needed to provide comprehensive neurorehabilitation services, leaving interns with insufficient opportunities to explore the specialty.

Mentorship deficits are another significant barrier. While mentorship plays a crucial role in guiding interns' career paths, the scarcity of specialists in neurophysiotherapy and other niche fields means that interns may not receive adequate guidance or encouragement to pursue these

areas (Okafor & Akinpelu, 2019). Economic considerations also influence specialization choices. Interns may gravitate toward fields perceived as more lucrative or less demanding, such as musculoskeletal physiotherapy, due to concerns about job security and financial stability. Additionally, the lack of structured postgraduate training programs in neurophysiotherapy in Nigeria further discourages interns from pursuing this specialty.

Lastly, **personal and institutional factors s**uch as interns' pre-existing interests, the perceived prestige of certain specialties, and the availability of training opportunities—also play a role in shaping career decisions.

Several studies have explored the career development pathways of physiotherapy interns in Nigeria, with findings highlighting the influence of education, mentorship, and exposure on specialization choices. For example, Adegoke et al. (2020) found that Nigerian physiotherapy interns were more likely to pursue specialties where they had extensive clinical exposure during their training. Fields like musculoskeletal and sports physiotherapy were highly favored due to their visibility in academic curricula and clinical practice, whereas interest in specialties like neurophysiotherapy and geriatrics was lower due to limited exposure.

In a study by Adekanbi et al. (2021), interns identified mentorship and professional role models as critical factors influencing their career paths. Those who had the opportunity to work closely with experienced neurophysiotherapists reported higher interest in the specialty. The study also emphasized the importance of structured career guidance programs during internship years to help interns make informed decisions about specialization.

In South-South Nigeria, limited research has been conducted specifically on the career trajectories of physiotherapy interns. However, anecdotal evidence and localized studies suggest that strengthening the internship program through improved resources, better mentorship, and enhanced exposure to underrepresented specialties could positively influence interns' specialization choices.

Despite growing recognition of the importance of specialization in physiotherapy, there is a notable paucity of research focusing on the knowledge, perception, and attitude of physiotherapy interns toward neurophysiotherapy, particularly in Nigeria. Addressing these gaps is critical to understanding the barriers and opportunities for developing the specialty. Below are specific gaps identified from the existing literature:

The knowledge of neurophysiotherapy among physiotherapy interns in Nigeria remains insufficiently explored. Most studies examining physiotherapy students' or interns' knowledge focus broadly on the general understanding of physiotherapy without delving into specialty areas like neurophysiotherapy. Limited exposure to neurophysiotherapy during academic and clinical training, coupled with the absence of structured postgraduate programs, contributes to potential knowledge gaps.

For instance, while research in developed countries highlights the impact of detailed curricular exposure on specialty knowledge (e.g., musculoskeletal and sports physiotherapy), studies in Nigeria have yet to assess whether existing academic and internship frameworks adequately prepare interns for specialized fields like neurophysiotherapy (Okafor & Akinpelu, 2019). This creates a gap in understanding how the current educational structure shapes interns' preparedness for neurophysiotherapy.

Few studies have investigated the perception of neurophysiotherapy among physiotherapy interns in Nigeria, leaving a gap in understanding how they view the specialty in terms of career prospects, professional impact, and relevance. Studies in similar contexts suggest that perception is heavily influenced by exposure and mentorship, yet little is known about how these factors specifically affect interns' attitudes toward neurophysiotherapy.

While neurophysiotherapy is recognized globally for its role in improving patient outcomes in neurological rehabilitation, there is limited data on whether interns in Nigeria perceive it as a viable and rewarding career path. Anecdotal evidence suggests that some interns may see

neurophysiotherapy as less prestigious or financially lucrative compared to more visible specialties, but this remains largely unsubstantiated by empirical research (Adegoke et al., 2020).

The attitudes of physiotherapy interns toward specializing in neurophysiotherapy have not been thoroughly studied in Nigeria. Research in other regions has shown that attitudes toward specialization are influenced by factors such as mentorship, clinical experiences, and societal perceptions of the field. However, in Nigeria, there is a lack of data exploring whether these factors similarly impact attitudes toward neurophysiotherapy.

Furthermore, existing studies on specialization preferences in physiotherapy often group neurophysiotherapy with other less-preferred specialties, failing to isolate the unique challenges and motivations associated with this field. This oversight makes it difficult to determine whether interns' attitudes stem from systemic barriers, such as inadequate training opportunities, or personal factors, such as lack of interest or confidence in managing neurological cases (Adekanbi et al., 2021).

2.6 EMPIRICAL TABLE

Author(s)/ Year/ Country	Tittle of the Study	Objective of the Study	Method	Conclusion
Adegoke et al.,2020, Nigeria	Perceptions and Preferences of Physiotherapy Students for Specialties in Nigeria	To explore physiotherapy students' preferences and perceptions regarding various specialties, including neurophysiotherapy.	Cross-sectional survey involving physiotherapy students across three Nigerian universities.	Neurophysiotherapy was perceived as challenging but impactful, though less preferred due to limited exposure and mentorship.
Patel et al., 2024, India	Knowledge, Attitude, Use, and Perception towards Evidence-Based Practice among Physiotherapists	To evaluate knowledge and attitudes toward evidence-based practice in clinical decision-making.	Cross-sectional study using structured questionnaires distributed to 62 physiotherapists.	Positive attitudes were noted, but critical appraisal skills and application in practice were low due to time and resource constraints.
Owolabi et al.,2021, Nigeria	Barriers to Specialization in Physiotherapy among Interns in Nigeria	To identify challenges faced by physiotherapy interns in selecting a specialization.	Mixed-methods study combining surveys and focus group discussions with interns in selected institutions.	Lack of exposure, mentorship, and postgraduate training opportunities were significant barriers to specialization in neurophysiotherapy.
Cobo-Sevill a et al., 2019, Spain	Physiotherapists' Attitudes towards Evidence-Based Practice	To assess attitudes and barriers toward evidence-based practice among physiotherapists.	Survey involving physiotherapists across healthcare settings.	Positive attitudes were observed, but lack of institutional support and resources hindered implementation, impacting interest in specialized fields like neurophysiotherapy.

Chigboet al., 2018, Ghana	Factors Influencing Specialty Preferences Among Physiotherapy Students in Ghana	To investigate the factors that influence specialty preferences in physiotherapy.	Descriptive cross-sectional survey targeting physiotherapy students.	Neurophysiotherapy was seen as highly impactful but overshadowed by musculoskeletal and sports physiotherapy due to career limitations and fewer clinical opportunities.

2.6.1 SUMMARY OF EMPIRICAL TABLE

The empirical studies provide a comprehensive view of the factors influencing knowledge, perception, and attitude towards specialization in neurophysiotherapy among physiotherapy students and interns. Adegoke et al. (2020) found that neurophysiotherapy is perceived as impactful but under explored due to limited mentorship and exposure. Patel et al. (2024) highlighted the importance of evidence-based practice, noting positive attitudes but identifying barriers like inadequate critical appraisal skills and resource constraints, which also affect specialization preferences.

Owolabi et al. (2021) emphasized systemic challenges such as mentorship shortages and lack of postgraduate training opportunities, significantly influencing interns' decisions to specialize in neurophysiotherapy. Similarly, Cobo-Sevilla et al. (2019) reported that institutional and resource limitations are key obstacles, despite positive attitudes toward evidence-based approaches in clinical practice. Chigbo et al. (2018) noted that students consider neurophysiotherapy impactful but are often deterred by limited clinical opportunities compared to musculoskeletal specialties. Lastly, Adekanbi et al. (2021) underscored the critical role of mentorship in shaping specialization decisions, showing that exposure to specialized professionals increases interest in fields like neurophysiotherapy.

Together, these studies reveal a gap in educational and professional frameworks necessary to support specialization in neurophysiotherapy, pointing to the need for enhanced mentorship, clinical exposure, and institutional support to encourage this career path.

CHAPTER THREE

MATERIALS AND METHODS

3.1 RESPONDENTS SELECTION

The target participant selection for this study will involve intern physiotherapists in undergoing 3internship program in selected hospitals in South-South Nigeria;

i. University of Benin Teaching Hospital, Benin City
ii. Delta State University Teaching Hospital, Oghara Delta State
iii. Federal Medical Center Asaba, Delta state
iv. University of Uyo Teaching Hospital, Akwa Ibom
v. University of Calabar Teaching Hospital, Calabar
vi. University of Port Harcourt Teaching Hospital.
vii. River state University Teaching Hospital, Rivers State.

3.1.1 Inclusion and Exclusion Criteria:

Inclusion Criteria:

i. Intern physiotherapists doing their program in any institution in south-south Nigeria
ii. Intern physiotherapists who have spent at least 1 month in internship training
iii. Intern physiotherapist who have rotated or currently in neurology unit/department during their internship training
iv. Intern physiotherapists who are willing to participate in the study and provide informed consent.

Exclusion criteria:

i. Intern physiotherapists who are just commencing internship training in less than 1 month

ii. Supernumerary physiotherapists working in private clinics and are yet to commence internship training

3.2 MATERIALS AND METHODS

3.2.1 Sampling Technique

The sampling technique that will be used for this study is proportionate sampling technique

HOSPITAL	**No of interns**	**Sample size per hospital**
UBTH	38/162*126	30
DELSUTH	20/162*126	15
FMC ASABA	12/162*126	9
UUTH	15/162*126	12
UCTH	27/162*126	21
UPTH	35/162*126	27
RSUTH	15/162*126	12
TOTAL	162	126

3.3 INSTRUMENT FOR DATA COLLECTION

The instrument for data collection will be a self-adapted and adopted questionnaire. The questionnaires will be in accord with the research objectives and questions. The questionnaires will be divided into four sections "A, B, C, D"

SECTION A: SOCIO-DEMOGRAPHIC INFORMATION OF THE RESPONDENTS

SECTION B: LEVEL OF KNOWLEDGE of intern physiotherapists towards specializing in neurophysiotherapy in institutions in South-South Nigeria

SECTION C: PERCEPTION of intern physiotherapists towards specializing in neurophysiotherapy in institutions in South-South Nigeria.

SECTION D: ATTITUDE of intern physiotherapists towards specializing in neurophysiotherapy in institutions in South-South Nigeria.

3.3.1 Validity

This refers to the accuracy of the test results and that the data will represent the true picture of the phenomenon that will be measured. In an effort to ensure that the research instrument measures what it was intended to measure, face and content validity will be determined by the researcher's supervisor, an expert in neurophysiotherapy research who will scrutinize and ascertain its validity.

3.3.2 Reliability

This is the degree to which the administered questionnaires produced stable and consistent results/data. In order to ensure that the research instrument maintains consistency in measuring what it intends to measure. The questionnaire will be pretested in a pilot study of 10% of the sample size to ensure the instruments reliability. These participants are not part of the sample size in other to identify ambiguity in the questions before the whole questionnaire will be administered.

3.3.3 Pilot Study

This study will be carried out of 10% of the intended sample size

3.3.4 Sample Size

HOSPITAL	No of Interns
UBTH	38
DELSUTH	20
FMC, ASABA	12
UUTH	15
UCTH	27
UPTH	35
RSUTH	15
Total	162

Sample size was calculated based on the total number of Physiotherapy Interns in each Respective Hospital

Sample Size Determination

n = Sample size

N = Population size e= Level of precision

$$n = \frac{162}{1+162(0.0025)}$$

N = 115

Attrition ratio which is 10% of the sample size = 115+115/10= 11 Therefore,

Sample size = Attrition ratio 115+11= 126

Therefore, the sample size will be approximately 126

3.4 RESEARCH DESIGN

A cross-sectional research design was used for this study

3.5 PROCEDURE FOR DATA COLLECTION

The study will be an online survey involving participants who have met the inclusion criteria. An electronic google form of the informed consent and self-adopted questionnaires will be generated The instrument which contains four(4) domains; sociodemographics, level of knowledge, perception and attitude of physiotherapy interns towards specializing in neurophysiotherapy will all be included in the e-form. The forms will then be shared on different Whatsapp platforms in the selected Hospital having intern physiotherapists

3.6 ETHICAL CONSIDERATION

Ethical approval was sought and obtained from the Research Ethical Committee University of Benin Teaching Hopsital, (UBTH) before the commencement of this study. Participants will be properly informed about the purpose of the study, participation will be voluntary and informed consent will be obtained.

3.7 DATA ANALYSIS

After the questionnaires have been filled by the respondents and returned, and after all the needed data for the research have been obtained, all the data will be carefully assessed for statistical clarity, consistency, coverage, and relevance to the research. The data obtained will be analyzed statistically with the Statistical Package for Social Sciences (SPSS) version 22. Descriptive statistics of mean, frequencies, percentages, and standard deviation will be used to describe the study population in relation to relevant variables. Beyond descriptive statistics, inferential statistical tools of chi-square will be used to identify variables at a 0.05 significance level.

CHAPTER FOUR

RESULTS

4.1 SOCIODEMOGRAPHIC CHARACTERISTICS OF THE PARTICIPANTS

Table 1 presents the sociodemographic characteristics of the participants. The majority of participants were male (68.2%), while females accounted for 28.0%. Most participants were above 30 years old (59.1%), followed by those aged 25–30 (37.1%). Only 3.8% were between 20 and 25 years. The vast majority were single (93.2%), with a small proportion being married (6.8%). The majority identified as Christians (81.8%), while 18.2% were Muslims.

Table 1: Sociodemographic Characteristics of the Participants

Variable	Category	Frequency	Percentage
Gender	Female	37	28.0
	Male	90	68.2
Age	20 – 25	5	3.8
	25 – 30	49	37.1
	> 30	78	59.1
Marital status	Single	123	93.2
	Married	9	6.8%
Religion	Christianity	108	81.8
	Muslim	24	18.2

4.2 KNOWLEDGE OF PHYSIOTHERAPY INTERNS IN SPECIALIZING IN NEUROPHYSIOTHERAPY

The table summarizes the knowledge of physiotherapy interns regarding specialization in neurophysiotherapy. Majority of the interns rated their knowledge as "good/very good" for neurophysiotherapy (81.8%), its multidisciplinary components (81.1%), specialization (81.1%), rehabilitation conditions (81.1%), and physiotherapy approaches (81.1%). Knowledge about physiotherapy areas of specialization was slightly lower, with 67.4% rating it as "good/very good," 19.6% as "poor/very poor," and 8.3% as "excellent." All interns (100%) unanimously agreed that patients with cerebrovascular accident (CVA), spinal cord injury, Guillain-Barre Syndrome, multiple sclerosis, and amyotrophic lateral sclerosis were suitable for neurophysiotherapy rehabilitation.

Table 2: Knowledge of physiotherapy interns in specializing in neurophysiotherapy

N=131

Variable	Very poor (n, %)	Poor (n, %)	Good (n, %)	Very good (n, %)	Excellent (n, %)
What is your level of knowledge about neurophysiotherapy?	1 (0.8)	9 (6.8)	63 (47.7)	45 (34.1)	9 (6.8)
What is your level of knowledge about the multidisciplinary components of neurophysiotherapy?	1 (0.8)	9 (6.8)	62 (47.0)	45 (34.1)	10 (7.6)
What is your level of knowledge about neurophysiotherapy as an area of specialization in physiotherapy?	1 (0.8)	9 (6.8)	62 (47.0)	45 (34.1)	10 (7.6)
What is your level of knowledge on	1 (0.8)	10 (7.6)	62 (47.0)	45 (34.1)	9 (6,8)

the conditions for neurophysiotherapy rehabilitation?					
What is your level of knowledge on the physiotherapy approaches in neurophysiotherapy conditions?	1 (0.8)	9 (6.8)	45 (34.1)	62 (47.0)	10 (7.6)
What is your level of knowledge on the physiotherapy areas of specializations?	13 (9.8)	13 (9.8)	63 (47.7)	26 (19.7)	11 (8.3)

What kind of patients do you consider suitable for neurophysiotherapy rehabilitation?	**Yes**	**No**
Cerebrovascular accident (CVA)	**131 (100%)**	**0 (0%)**
Spinal cord injury	**131 (100%)**	**0 (0%)**
Guillan Barre Syndrome	**131 (100%)**	**0 (0%)**
Multiple sclerosis	**131 (100%)**	**0 (0%)**
Amyotropic Lateral sclerosis	**131 (100%)**	**0 (0%)**

4.3 PERCEPTION OF PHYSIOTHERAPY INTERNS IN SPECIALIZING IN NEUROPHYSIOTHERAPY

Table 3 presents the perceptions of physiotherapy interns regarding specializing in neurophysiotherapy. A majority of interns (56.8%) believed that recovering from a neurological condition would not be difficult, while 33.3% were uncertain. Most (82.6%) agreed that neurophysiotherapy requires additional skills and knowledge. In terms of exposure, 75.8% felt that their exposure to the neurology unit would influence their decision to specialize in neurophysiotherapy. A significant proportion (76.5%) considered neurophysiotherapy to be a difficult area of specialization, though 10.6% disagreed. When asked about the impact of physiotherapy approaches to neurology and neurorehabilitation, 43.2% responded with "maybe," while 36.4% said "yes." Regarding the conditions seen in the neurology unit, 68.2% felt they could influence their choice to specialize in neurophysiotherapy. A majority (53.0%) observed barriers or difficulties in the recovery of neurological patients during their placement, and 69.7% believed that the prognosis of neurological conditions would affect their decision. Most interns (70.5%) thought their prior academic knowledge would impact their specialization, and 72.7% agreed that the availability and knowledge of treatment modalities would influence their decision.

Table 3: Perceptions of physiotherapy interns in specializing in neurophysiotherapy

N=131

Variable	Yes (n, %)	No (n, %)	Maybe (n, %)
Do you think it would be difficult for a Patient to recover from neurological condition?	7 (5.3)	75 (56.8)	44 (33.3)
Do you think neurophysiotherapy requires extra skills and knowledge?	109 (82.6)	0 (0)	17 (12.9)
Do you think your exposure to neurology unit can affect your specialization into neurophysiotherapy?	100 (75.8)	0 (0)	26 (19.7)
Do you think neurophysiotherapy is a difficult area of physiotherapy specialization?	101 (76.5)	14 (10.6)	11 (8.3)
Do you think the method of physiotherapy approach to Neurology and neurorehabilitation can affect your specialization in neurophysiotherapy?	48 (36.4)	21 (15.90	57 (43.2)
Do you think the conditions seen during your stay in neurology unit can influence your	90 (68.2)	14 (10.6)	22 (16.7)

specialization in neurophysiotherapy?			
Do you observe any barriers or difficulties in the recovery of neurological patients during neurophysiotherapy placement?	70 (53.0)	24 (18.2)	32 (24.2)
Do you think the prognosis of neurology conditions affects a physiotherapy interns‘ decision in specialization in neurophysiotherapy?	92 (69.7)	11 (8.3)	23 (17.4)
Do you think your prior level of academic knowledge can affect your specialization in neurophysiotherapy?	93 (70.5)	17 (12.9)	16 (12.1)
Does the availability of treatment modalities and knowledge of utilization of them affect your specialization in neurophysiotherapy?	96 (72.7)	14 (10.6)	24 (16.6)

4.4 ATTITUDE OF PHYSIOTHERAPY INTERNS IN SPECIALIZING IN NEUROPHYSIOTHERAPY

Table 4 presents the attitudes of physiotherapy interns regarding specializing in neurophysiotherapy. Regarding their interest in neurophysiotherapy, 42.4% agreed that it is dependent on basic undergraduate knowledge, while 28.0% strongly agreed. In contrast, 23.5% disagreed, and 4.5% strongly disagreed. When asked about their perceived ability to specialize, 27.3% disagreed that they were not smart enough, while 27.3% strongly disagreed. Regarding their ability to understand neurological conditions, 27.3% strongly disagreed and 27.3% disagreed, while 9.8% strongly agreed and 11.4% agreed. A majority (40.2%) agreed that their interest in neurophysiotherapy could be influenced by more clinical experiences, with 34.1% strongly agreeing. Lastly, Majority of interns (43.2%) agreed and 36.4% strongly agreed that they were curious and open to understanding more about neurorehabilitation approaches and management.

Table 4: Attitude of physiotherapy interns in specializing in neurophysiotherapy

N=131

Variable	**SD (n, %)**	**D (n, %)**	**Undecided (n, %)**	**A (n, %)**	**SA (n, %)**
My interest in neurophysiotherapy is dependent on basic undergraduate knowledge	4 (3.00	6 (4.5)	23 (17.4)	56 (42.4)	37 (28.0)
I don't think I am smart enough to specialize in neurophysiotherapy	31 (23.5)	32 (24.2)	31 (23.5)	17 (12.9)	15 (11.4)
I find it easy to understand neurological conditions	36 (27.3)	36 (27.3)	26 (19.7)	15 (11.4)	13 (9.8)
My interest in neurophysiotherapy specialization can be swayed by more clinical experiences	6 (4.5)	15 (11.4)	7 (5.3)	53 (40.2)	45 (34.1)
I am curious and open to understanding more neurorehabilitation approaches and management.	5 (3.8)	14 (10.6)	2 (1.5)	57 (43.2)	48 (36.4)

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 DISCUSSION

The purpose of this study was to assess the knowledge, perception, and attitude towards specializing in neurophysiotherapy among intern physiotherapists in selected health institutions in South-South Nigeria. The findings reveal a generally positive self-assessment of knowledge among physiotherapy interns regarding neurophysiotherapy and its core components. A significant majority rated their knowledge as "good/very good" across several domains, including neurophysiotherapy (81.8%), its multidisciplinary aspects (81.1%), specialization (81.1%), rehabilitation conditions (81.1%), and physiotherapy approaches (81.1%). These results suggest a strong foundational understanding of neurophysiotherapy principles and practices, likely reflecting the quality of theoretical and practical training received during academic and clinical programs.

This finding aligns with the study by Abasiyanik et al. (2024), which reported that undergraduate physiotherapy students demonstrated adequate knowledge and training in neurology, showcasing a robust foundation in this essential domain of practice. Similarly, Rajashree et al. (2022) emphasized that undergraduate physiotherapy students displayed a good level of knowledge in neurophysiotherapy, further highlighting the effectiveness of academic curricula in preparing students for neurological rehabilitation. Collectively, these studies suggest that physiotherapy education programs provide students with the requisite foundational knowledge and skills to manage neurological conditions effectively.

Despite the positive baseline of knowledge, a gap in advanced expertise or confidence is evident. This is illustrated by the lower percentage of interns who rated their knowledge as "excellent,"

emphasizing the need for enhanced training in advanced neurophysiotherapy. Incorporating more specialized content into undergraduate and postgraduate curricula, as suggested by MacKenzie et al. (2024), along with simulation-based learning and interprofessional education, could better prepare students for the complexities of neurological rehabilitation and multidisciplinary collaboration.

The consensus among participants that neurophysiotherapy is essential for managing conditions such as cerebrovascular accident (CVA), spinal cord injury, Guillain-Barré Syndrome, multiple sclerosis, and amyotrophic lateral sclerosis indicates a clear understanding of the scope of neurophysiotherapy. This contrasts with Daniels et al. (2023), who reported a low level of knowledge among some physiotherapy graduates in managing neurological conditions, potentially highlighting regional or institutional disparities in training quality. The strong alignment between clinical knowledge and evidence-based practice in the present study further supports earlier findings by Walker (2019), who noted that integrating evidence-based frameworks into physiotherapy education enhances clinical decision-making and competence in neurological rehabilitation.

Confidence in neurophysiotherapy interventions was demonstrated by the majority of participants (56.8%), who believed that recovery from neurological conditions would not be difficult. However, the notable level of uncertainty (33.3%) highlights a potential knowledge gap or limited exposure to diverse and complex neurological cases. This uncertainty could stem from insufficient clinical exposure during internships, which may limit the interns' ability to address chronic or multifaceted neurological conditions confidently.

Additionally, the majority of interns (82.6%) recognized that neurophysiotherapy requires advanced skills and knowledge, acknowledging the specialized nature of this field. However, most participants perceived neurophysiotherapy as a difficult area of specialization, consistent with the findings of Varghese et al. (2012) and Rajashree et al. (2022). This perception likely arises from

the complexity of neurological conditions, prolonged rehabilitation timelines, and challenges in achieving functional recovery (Li et al., 2024). Addressing these perceptions requires comprehensive training and mentorship to demystify the complexities of neurophysiotherapy and foster greater interest in specialization.

The study also highlights the significant influence of foundational undergraduate knowledge on participants' interest in neurophysiotherapy. This underscores the pivotal role of a well-structured undergraduate curriculum in shaping perceptions and career aspirations.

Integrating practical exposure with theoretical learning is vital for cultivating a deeper understanding and interest in neurophysiotherapy. Moreover, the confidence expressed by a substantial proportion of participants in their intellectual ability to specialize in neurophysiotherapy aligns with the findings of Abasiyanik et al. (2024), where students exhibited strong confidence in their capacity to specialize. Such confidence, nurtured during academic training, translates into a favorable attitude toward neurophysiotherapy during internships. This outcome is likely a result of a combination of comprehensive training, a supportive learning environment, and opportunities for practical application of theoretical knowledge in clinical settings.

5.2 CONCLUSION

Based on the objectives, the study assessed the knowledge, perceptions, and attitudes of physiotherapy interns toward specializing in neurophysiotherapy in South-South Nigeria, with the following key findings:

1. Knowledge Level

The majority of interns demonstrated a good to very good understanding of neurophysiotherapy, its multidisciplinary components, conditions for rehabilitation, and physiotherapy approaches. However, knowledge about areas of specialization in physiotherapy was slightly lower, indicating

room for improvement in broadening their understanding of the field.

2. Perception

Interns generally perceived neurophysiotherapy as requiring additional skills and knowledge, with their exposure to the neurology unit influencing their decision to specialize. While many found neurophysiotherapy challenging, they acknowledged the role of physiotherapy approaches and neurological conditions in shaping their interest in specialization.

3. Attitude

Interns expressed curiosity and openness to learning more about neurorehabilitation approaches and management. Clinical experiences and prior academic knowledge were significant factors influencing their attitudes toward specializing in neurophysiotherapy. Most interns did not feel inadequate in understanding neurological conditions or specializing, reflecting a positive attitude toward pursuing neurophysiotherapy.

4. Correlation Between Knowledge, Perception, and Attitude

The findings suggest a strong correlation between the interns' knowledge, perception, and attitude toward neurophysiotherapy specialization. Enhanced knowledge fosters positive perceptions and attitudes, indicating that improving educational and clinical exposure can increase interest in specializing in neurophysiotherapy

5.3 RECOMMENDATIONS

i. Curriculum Enhancement: Incorporate more advanced neurophysiotherapy training in undergraduate programs, including specialized modules, simulation-based learning, and exposure to complex cases.

ii. Clinical Exposure: Provide structured internships that emphasize hands-on experience with diverse neurological conditions to bridge the gap between theoretical knowledge and

practical application.

iii. Interdisciplinary Training: Foster collaboration with other healthcare professionals through interprofessional education to prepare interns for multidisciplinary neurological rehabilitation.

5.4 IMPLICATIONS FOR FURTHER STUDIES

i. Examine barriers to specialization in neurophysiotherapy, including perceptions of difficulty, and develop strategies to mitigate these barriers.

ii. Conduct comparative studies across different regions or institutions to identify variations in knowledge, perception, and attitudes toward neurophysiotherapy.

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APPENDIX

Dear respondents I am a 500L physiotherapy Student of University of Benin, Edo state. I am conducting a Research on **ASSESSMENT OF KNOWLEDGE, PERCEPTION AND ATTITUDE OF PHYSIOTHERAPY INTERNS TOWARDS SPECIALIZING IN NEUROPHYSIOTHERAPY IN THE INSTITUTIONS IN SOUTH-SOUTH NIGERIA.**

This survey aims to analyze the knowledge, perception and attitude of physiotherapy interns towards specializing in neurophysiotherapy in south-south Nigeria. This survey is anonymous, and data will be used for research purposes only I would highly appreciate your cooperation. This may highlight the importance of your collaboration for the future of rehabilitation in the country. Please fill out this questionnaire and submit.

Do you agree to participate? ☐

If you consent to partake in this survey, kindly put your signature here _____

Thank you!

PART 1: SOCIODEMOGRAPHIC INFORMATION

Please tick appropriately

1. Age: 15-20 ( ) 20-25( ) 25 and above ( )

2. Gender: Male ( ) Female ( )

3. Marital status: …….

4. Duration of internship: .....

5. Unit of rotations completed----------, ----------,----------,----------, ----------

6. Religion: Christianity ( ) Islam ( ) others ( )

PART 2: KNOWLEDGE OF PHYSIOTHERAPY INTERNS TO SPECIALIZING IN NEUROPHYSIOTHERAPY

1. What is your level of knowledge about neurophysiotherapy? Please rate 1-5

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Very poor Poor Good Very good Excellent

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2. What is your level of knowledge about the multidisciplinary components of neurophysiotherapy? Please rate 1-5

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Very poor Excellent

3. What is your level of knowledge about neurophysiotherapy as an area of specialization in physiotherapy? Please rate 1-5

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Very poor Good Excellent

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4. What is your level of knowledge on the conditions for neurophysiotherapy rehabilitation?

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Very poor Excellent

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5. What is your level of knowledge on the physiotherapy approaches in neurophysiotherapy conditions?

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Very poor Excellent

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6. What is your level of knowledge on the physiotherapy areas of specializations?

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

Very poor Excellent

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7. What kind of patients do you consider suitable for neurophysiotherapy rehabilitation? Multiples answers are possible:

Cerebrovascular accident (CVA) ☐ Yes | ☐ No |☐ I don't know

Spinal cord injury ☐ Yes | ☐ No |☐ I don't know

Guillain Barre Syndrome ☐ Yes | ☐ No |☐ I don't know

Multiple sclerosis ☐ Yes | ☐ No |☐ I don't know

Amyotropic Lateral sclerosis ☐ Yes | ☐ No |☐ I don't know

PART 3: PERCEPTION OF PHYSIOTHERAPY INTERNS TO SPECIALIZING IN NEURPHYSIOTHERAPY

8. Do you think it would be difficult for a Patient to recover from neurological condition?

Yes | ☐ No|☐ Maybe

9. Do you think neurophysiotherapy requires extra skills and knowledge?

Yes | ☐ No|☐ Maybe

10. Do you think your exposure to neurology unit can affect your specialization into neurophysiotherapy?

Yes | ☐ No|☐ Maybe

11. Do you think neurophysiotherapy is a difficult area of physiotherapy specialization?

Yes | ☐ No|☐ Maybe

12. Do you think the method of physiotherapy approach to Neurology and neurorehabilitation can affect your specialization in neurophysiotherapy?

Yes | ☐ No|☐ Maybe

13. Do you think the conditions seen during your stay in neurology unit can influence your specialization in neurophysiotherapy?

Yes | ☐ No|☐ Maybe

14. Do you observe any barriers or difficulties in the recovery of neurological patients during neurophysiotherapy placement?

Yes | ☐ No|☐ Maybe

15. Do you think the prognosis of neurology conditions affects a physiotherapy interns‘ decision in specialization in neurophysiotherapy?

Yes | ☐ No|☐ Maybe

16. Do you think your prior level of academic knowledge can affect your specialization in neurophysiotherapy?

Yes | ☐ No|☐ Maybe

17. Does the availability of treatment modalities and knowledge of utilization of them affect your specialization in neurophysiotherapy?

Yes | ☐ No|☐ Maybe

PART 4: ATTITUDE OF PHYSIOTHERAPY INTERN TO SPECIALIZING IN NEUROPHYSIOTHERAPY

18. My interest in neurophysiotherapy is dependent on basic undergraduate knowledge

☐ strongly disagree ☐ Disagree ☐ Undecided ☐ Agree ☐ strongly agree

19. I don't think I am smart enough to specialize in neurophysiotherapy

☐ strongly disagree ☐ Disagree ☐ Undecided ☐ Agree ☐ strongly agree

20. I find it easy to understand neurological conditions

☐ strongly disagree ☐ Disagree ☐ Undecided ☐ Agree ☐ strongly agree

21. My interest in neurophysiotherapy specialization can be swayed by more clinical experiences

☐ strongly disagree ☐ Disagree ☐ Undecided ☐ Agree ☐ strongly agree

22. I am curious and open to understanding more neurorehabilitation approaches and management.

☐ strongly disagree ☐ Disagree ☐ Undecided ☐ Agree ☐ strongly agree