

Paediatric Physiotherapy: Experience as Seen at a Tertiary Health Facility in Port Harcourt, Nigeria

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Abstract

Background: The need for paediatric physiotherapy, which has a vital role in health promotion, prevention and treatment of a wide spectrum of disorders, is on the increase as many more children are surviving with chronic illnesses/disabilities, and require it to improve function and promote independence. The objectives was to carry out an audit of the utilization and outcome of paediatric physiotherapy services at the University of Port Harcourt Teaching Hospital (UPTH), Nigeria. **Subjects and Methods:** A retrospective study of cases of children who attended the Outpatient Clinic of the Department of Physiotherapy of the UPTH between January 2017 and December 2019. Their clinical profile and outcome of therapy were analyzed using SPSS version 25.0. **Results:** Four hundred and one cases, 200(49.9%) males and 201(50.1%) females, were analysed. Under-fives constituted 83.3% of them while the most frequent indication for referral was delayed motor milestones (47.8%). Majority of subjects (79.2%) were referred by a physician from within (60%) or outside the hospital (19.2%). The commonest diagnosis of subjects were palsies (89%), of which cerebral (53%) and Erb's (26.3%) topped the list. Subjects benefited from single or combined modalities of therapy. Less than 20% completed the prescribed therapy and were discharged while most subjects (68%) stopped treatment by themselves. **Conclusion:** Neurological conditions, especially cerebral palsy, were the major reason for utilisation of paediatric physiotherapy services, and mostly by children below 5 years of age. High default rate was a contributory factor to poor outcome in most cases, denying many children of the help they can get to improve their continued health, well-being and mobility.

Keywords: Paediatric physiotherapy, Tertiary health facility, Port Harcourt

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Introduction

The World Disability report mentions that 93 million children aged 0-14 years present with a moderate to severe disability and 13 million with a severe disability whereas, prevalence rates ranging from 0.4% to 12.7% has been reported in low and middle-income countries.^[1]

With the myriad of problems faced by children with disabilities, including among others higher risks for illnesses and adverse effects of a sedentary life, the use of physiotherapy becomes so important to their continued health, well-being and mobility. Moreover, enhancing their functionality would enable them get involved in daily activities and provide them with more opportunities for social engagement, significant long-term health benefits, thus improving both the child's and family's quality of life.^[2,3]

With advancements in medicine and technology, the need for physiotherapy continue to rise, as more children are surviving with chronic illnesses and disabilities, necessitating a variety of modalities to improve function and promote independence.^[4] These interventions are targeted at maximising quality of life and movement potential within the spheres of promotion, prevention, treatment/intervention, habilitation and rehabilitation.^[1,5] They focus mainly on improving gross and fine motor skills, balance and coordination, strength and endurance as well as cognitive and sensory processing/integration.

Data suggest that 6.4% of all Africans aged 0–14 years live with moderate and severe disabilities, whose management will include physiotherapy.^[1] Thus, a wide range of infants, children and adolescents can benefit from physiotherapy services when movement and function are threatened by injury, pain, diseases, disorders, conditions and/or environmental factors, with the understanding that functional movement is central

to what it means to be healthy.⁵ Paediatric physiotherapists acknowledge the importance of a multidisciplinary approach in the management of these children, working in partnership with the child, parents/carers, and a wide range of other professionals to maximize a child's physical abilities and independence. Additionally, parents/caregivers are empowered to feel confident and competent to incorporate physical management strategies into daily life.^[6]

In Nigeria, several studies found that neurological disorders, especially cerebral palsy (CP), which has a prevalence between 1.5 and 10 per 1000 live births in Africa, accounted for the majority of paediatric cases managed in outpatient paediatric physiotherapy clinics.^[7-9] Other common conditions included traumatic sciatic nerve palsy, obstetric brachial plexus injury, Central Nervous System infections and Down's syndrome.^[7-9] However, there is a dearth of knowledge among health workers of the roles and scope of physiotherapy, the need to include physiotherapy in the treatment regimen of patients and poor referral practices.^[10,11] These have constituted a hindrance to maximising physiotherapy services.

It was therefore necessary to carry out an audit of the paediatric physiotherapy services at the University of Port Harcourt Teaching Hospital and to evaluate the outcome of therapy for the paediatric population. The findings therefrom will provide valuable information that will be useful in raising awareness amongst healthcare providers on the availability, role and scope of services children could benefit from, and advocate for practice changes that could ultimately contribute to improved patient- and system-related outcomes.

Subjects and Methods

The study was conducted at the University of Port Harcourt Teaching Hospital (UPTH), a tertiary health institution and major referral centre serving Rivers State, which has a 2016 projected population of 7,303,924 (41% of which are below the age of 15 years), and the neighbouring states in the southern part of Nigeria.^[12]

At the UPTH, paediatric physiotherapy plays a significant role in the management of children experiencing functional limitation or disability due to trauma, a disorder or disease process. Children are attended to as out-patients or in-patients (in the wards of the various departments), while most patients come with referrals and few without. Those without referrals are scrutinised to rule out underlying pathological conditions that may cause further damage during physiotherapy. However, for every child an assessment to diagnose the problem is carried out, then a treatment program is planned and administered, with the aim to restore function or minimise dysfunction after disease or injury. They are thoroughly reviewed and certified before discharge. At the core of therapy is the child and parents/caregiver's involvement in the child's care through edu-

cation, communication, awareness, empowerment and participation in treatment.

All clients below the age of 18 years who attended the Outpatient Clinic of the Department of Physiotherapy of the UPTH between January 2017 and December 2019 constituted the study population of this retrospective study. Cases were identified from attendance registers and clinic records. Data on each patient were retrieved from hospital notes. Variables studied included among others bio-data, indication for referral, diagnosis, treatment received and outcome. Children who were not seen in the 6 months preceding the study were regarded as having abandoned therapy/cases of self discharge.

Approval for the study was obtained from the Ethics Committee of the hospital.

Data collected were entered into a spreadsheet and analysed with the SPSS version 25 software. Chi-Square test was used to test for significance. P values < 0.05 were considered significant. Results are presented using tables and charts.

Results

In the 3-year period under review, children (401) represented 37% of all clients who utilised physiotherapy services at the Outpatient Clinic of the Physiotherapy Department, consisting of 200(49.9%) males and 201(50.1%) females with M:F=1:1 and a gradual increase in number over the years [Figure 1].

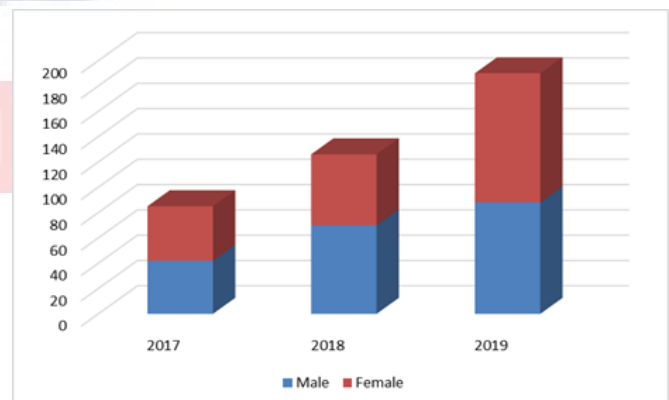


Figure 1: Proportion and gender of children who utilised physiotherapy services each year

The ages of the children ranged from 2 days to 14 years, 83.3% of them were under five years of age. Common indications for referral included delayed motor milestones (47.8%), inability to use hand/limbs properly (29%) and inability to walk (25.6%) [Table 1].

Most subjects (79.2%) were referred by their managing physician from within (60%) or outside (19.2%) the hospital,

Table 1: Age of subjects and indications for referral

Age group	Number (n=401)	Percent
0 - 11 months	156	39
1 - 4 years	178	44.3
5 - 9 years	52	13
10 - 14 years	10	2.4
Not mentioned	5	1.3
Indication for referral		
Delayed motor milestones	192	47.8
Inability to use hand / limbs properly	117	29
Inability to walk	103	25.6
Weakness of one side of the body	33	8.2
Abnormal posture	14	3.5
Congenital limb abnormality	10	2.5
Loss of acquired milestones	7	1.7
Poor balance/frequent falling	4	1
Chronic pain	3	0.7
Inability to talk	3	0.7
Others (enlarged tongue, faecal incontinence, scoliosis, torticollis)	8	2

16% were not referred. The majority of subjects (30.4%) had 6 to 10 visits during their therapy, whereas the highest number of visits recorded was 137 [Table 2].

Palsies (89%) represented the commonest diagnosis, followed by congenital limb deformities (5%) and joint stiffness (2.7%) [Figure 2].

Of all the palsies, cerebral palsy (53%) was the commonest, and accounted for the diagnosis of 47% of the study population. Others were Erb's palsy (26.3%), infantile haemiparesis/haemiplegia (5.6%) and complications of central nervous system infections (3.6%). Among children with CP, 30% were infants while 53.4% were in the 1-4 years age bracket. [Table 3].

CNS: central nervous system;2 RVD: retroviral disease;3 CVA: cerebro-vascular accident;4 SCD: sickle cell disease

Table 2: Mode of referral of subjects and number of visits during therapy

Mode of referral	Number (n=401)	Percent
Managing physician at UPTH	241	60
Self-referral	64	16
Physician from a private facility	48	12
Physician from a government facility outside UPTH	29	7.2
Not mentioned	19	4.8
Number of visits (n=401)		
1 - 5	85	21.2
6 - 10	122	30.4
11 - 15	51	12.7
16 - 20	26	6.5
21 - 25	16	4
26 - 30	20	5
≥ 31	71	17.7
Not mentioned	12	2.5

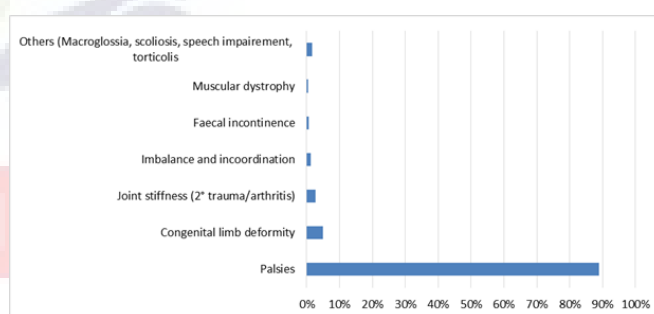


Figure 2: Frequency distribution of physiotherapy diagnosis

Subjects benefited from single or combined modalities of treatment. The most common were mobilisation exercises (96%), strengthening exercises (95.7%) and massage (89.3%). Thermotherapy was offered to 5% of the subjects. Less than 20% of them completed the prescribed therapy and were discharged while the large majority (68%) stopped treatment by themselves [Table 4].

Discussion

This study showed a gradual increase in demand for paediatric physiotherapy services. This may not be unconnected with the

Table 3: Palsy-related diagnosis

Palsy-related diagnosis (n=357)	Number	Percent
Cerebral palsy	189	53
Erb's palsy	94	26.3
Infantile haemiparesis/haemiplegia	20	5.6
CNS ¹ infections (meningitis/cerebral malaria/RVD ²)	13	3.6
Injection palsy	11	3.1
Facial nerve palsy	6	1.7
CVA ³ with background of SCD ⁴	6	1.7
Klumpke palsy	3	0.8
Others (Trauma, Down syndrome, Rubella infection, Spina bifida, Bells's palsy, palsy of unspecified diagnosis)	15	4.2
Age group of children with cerebral palsy (n=189)		
0 - 11 months	57	30.1
1 - 4 years	101	53.4
5 - 9 years	15	8
10 - 14 years	6	3.2
Not mentioned	10	5.3

rising trend in the incidence of chronic diseases and disabilities in many developing countries, as well as the increasing awareness of its role in health promotion, prevention and treatment of a wide spectrum of childhood disorders.^[9,13,14] The practice of physiotherapy as a first contact profession is not common in several countries including Nigeria, as physiotherapy patients are mostly referred from physicians from the different fields of practice of medicine.^[14-16] This pattern was reflected in the present study with most subjects (79.2%) being referred by a physician, while a higher proportion (97.4%) was recorded in a study in Ghana.^[16] On the other hand, while evaluating physicians' mode of referral of patients for physiotherapy in Nigeria, Odebiyi et al found that the majority of physicians who did not receive lectures in physiotherapy during their medical training rarely or never referred patients.^[15] They postulated that good awareness of the role of physiotherapy in health care delivery may be a determining factor for its use.^[15] Thus, enlightening health care providers on the roles and scope of physiotherapy in the management of children with disabilities might result in increase of referral cases.

Table 4: Frequency distribution of treatment received and outcome of therapy

Treatment received	Number (n=401)	Percent
Mobilisation exercises	385	96
Strengthening exercises	384	95.7
Massage	358	89.3
Splinting	114	28.4
Electrotherapy	94	23.4
Balance & coordination training	30	7.5
Gait training	13	3.2
Manipulative therapy	11	2.7
Thermotherapy	5	1.2
Positioning	4	1
Others (assistive devices, advice on rest,)	2	0.5
Outcome of therapy		
Completed therapy and discharged	74	18.5
Still undergoing therapy	45	11.2
Patient stopped therapy/self-discharge	273	68.1
Not mentioned	9	2.2

Neurological conditions are major cause of chronic morbidity in childhood as affected children may experience difficulties with physical functions such as mobility, strength, range of motion or balance, which can negatively impact on a child's development.^[7,9,16,17] In the present study, while motor dysfunction was indication for referral for the large majority of cases, 89% of subjects had neurological conditions. Although such finding has been previously reported, the figure in this series was higher than 76.9% recorded by Nolan et al in Ghana, whose study was over a short period and had a smaller sample size, and 72.9% reported by Adelugba et al in a rural setting in Ekiti State, it was similar to 86.3% reported by Peters et al in Ibadan, an urban setting as ours.^[7,9,16]

Cerebral palsy, a non-progressive chronic infantile encephalopathy, was the most frequent diagnosis of children who utilised physiotherapy services in this study and this is consistent with reports from other parts of the country and Africa.^[7-9,13,16] It occurs due to an injury that affects the central nervous system, manifests in early childhood and adversely affects the child's normal development.^[17,18] It is thus not surprising that more than 80% of subjects in this study were under five years of age, which is in consonance

with previous reports.^[7,8,13] Though the aetiology of CP in the present study was not explored, previous surveys in Nigeria, including one in our facility reported that birth asphyxia was its leading cause.^[8,13,17] This is sad as in our environment, the south south part of Nigeria only 50% of deliveries take place in a health facility, thus exposing a large number of newborns to substandard management of complications of delivery and early neonatal illnesses which are risk factors for the development of CP.^[19]

Contrary to reports of Peters et al and Adelugba et al, in which cases of traumatic sciatic nerve palsy were the second most common cause of physiotherapy attendance, 35.5% and 29% respectively, it represented only 3.1% in the present series, whereas obstetric brachial plexus injury (26.3%) was the second most common neurologic condition, as was found in Ghana.^[7,9,16] The difference may be due to the recent protocol of paediatric pain management in which gluteal intramuscular injections, a major cause of sciatic nerve injury, are no longer recommended.^[20]

Though intervention strategies in paediatric physiotherapy vary with different injuries/ pathologies, the main aim is to enhance motor ability and improve capacity so that the child can perform the tasks necessary to participate actively in everyday life.^[10,21-24] They are suited to the child's needs, age and abilities, are implemented and modified in order to reach agreed goals, and many of them involve a combination of activities to be performed in the home with regular visits at the health facility for a better overall motor performance. Thus, compliance with the instructions given to the patient and/or caregiver becomes essential to the success of therapy.^[18,25] This was also reflected in a study in Brazil, where informed mothers of children with CP tended to participate more actively in the rehabilitation process, which impacted intervention outcomes.^[18] Unfortunately, many of these disorders are chronic, frustrating to caregivers/parents and require adequate understanding to cope with management, which may be long, often lasting over months to years and making room for a high rate of default from follow-up. Thus, identifying reasons for non-compliance and working closely with caregivers to educate them about the importance of their participation in the treatment program become important steps to improve adherence.

Discharge, an important part of the physiotherapy process, occurs at the end of the interventions when agreed treatment goals have been achieved or effectiveness of therapy is no longer evident.⁵ In this series however, a high level of default was found. Such has been previously documented and is of great concern. While half of our subjects accessed treatment not more than 10 times, Okenwa et al found that majority of their patients (59%) accessed treatment less than 5 times and were subsequently lost to follow up, which they postulated, might be related to inability to afford the cost of therapy.^[13] Though reasons for abandoning therapy were not explored

in this study, a subject for future research, it is possible that parents/caregivers did not see improvement after few sessions and got discouraged. But, non-affordability of services should also not be overlooked as in our environment, physiotherapy services cost about 15,000 Naira (39 USD) monthly while the national minimum wage is 30,000 Naira (\$78.00) per month. On the other hand, though the National Health Insurance Scheme (NHIS) covers the costs of physiotherapy services, less than 5% of population is enrolled to the scheme, leaving the large majority to deal with out of pocket expenses for health care.^[26,27]

Conclusions

There has been a progressive increase in children requiring physiotherapy. Cerebral palsy constituted a major part of the neurological disability and accounted for the greater proportion of children who accessed physiotherapy services in our hospital, while the level of abandonment of treatment was high.

Continued advocacy for better perinatal medical care to curb the menace of CP and its attendant disabilities, enlightenment of health workers on the benefits and scope of physiotherapy for children, and review of the cost of physiotherapy services to enable wider access are recommended.

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