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Profile of pediatric out-patients managed by physiotherapists at Federal Medical Center, Abeokuta: a retrospective review

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Abstract

Background: Pediatric physiotherapists help children to achieve their optimal physical development. The present study was aimed to evaluate the out-patient pediatric conditions managed by physiotherapists in Federal Medical Centre, Abeokuta, Nigeria (FMCA).

Methods: The present study included all children attended to at Pediatric Unit (outpatient) of FMCA in the period between the beginnings of May 2021 to the end of May 2022. The clinic runs every Tuesdays and Thursdays. All children below and equals to 15 years of age were included. Complete clinical, socio-demographic characteristics of patients and parents were manually scrapped from the electronic medical records (EMR) of the hospital. Descriptive statistics was used to present the results.

Results: During this period a total of 160 patients presented with different disorders were seen. There were 100 males (62.5%) and 60 females (37.5%). Cerebral palsy which can be classified as a neurological disorder was the most common condition managed (63.7%). Obstetric brachial palsy injury (OBPI), injection palsy, post-immobilization stiffness, congenital talipes equinovarus, and among others were managed during this period. Cerebral palsy was common among males, obstetric brachial palsy injury, and injection palsy. Cerebral palsy patients had late presentation for physiotherapy (1–5 years). Only 2 patients out of 11 with OBPI came for early physiotherapy. There is higher risk for cerebral palsy and OBPI among primiparous mothers.

Conclusions: It was concluded that neurological disorders are the most common pediatric cases managed by physiotherapists in Federal Medical Centre, Abeokuta, with cerebral palsy having higher prevalence.

Keywords: Physiotherapy, Out-patients, Pediatric, Abeokuta

Introduction

Physiotherapy (PT) is a type of treatment that aids in the development, rehabilitation, and enhancement of movement abilities and performance. For the care of pediatric medical and surgical problems, physiotherapy is an important part of the multidisciplinary health team. Gross motor skills such as sitting, standing, and walking,

as well as flexibility, strength, and endurance, are all addressed by physiotherapists. Pediatric physiotherapy is tasked with the examination, physical diagnosis, and treatment of diseases in children, with a particular emphasis on increasing motor function and encouraging independence [1].

In close coordination with other members of the health team, they also provide services for pediatric patients with medical diseases during post-surgical recovery, as well as illnesses related to neurological, orthopedic, cardiac, soft tissue, and malignancies [2–4].

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Early physiotherapy care in children with burns provides a number of advantages, including the avoidance of contractures and limitations in joint mobility caused by hypertrophic scarring and decreased skin elasticity [5].

Physiotherapy improves gross motor performance after a brain injury by improving muscular strength, balance, and movement abilities, making it easier for the child to function and integrate back into the family, school, and community [6–8]. After surgical reduction of fractures [9, 10] and avascular necrosis [11], there is a growing demand for orthopedic physiotherapy to provide high-quality treatment to children [12].

Pediatric physiotherapy is beneficial in the treatment of prenatal problems, early childhood diagnoses, and childhood injuries as well as the transition to adult care. Pediatric physiotherapists have extensive experience treating a wide range of pediatric conditions, including cerebral palsy (CP), developmental coordination disorder, Down syndrome, muscular dystrophy or other neuromuscular challenges, post-immobilization stiffness after a fracture, and injection neuritis. Studies on the profile of pediatric patients being managed are important as they provide insights into the prevalence and characteristics of various health conditions encountered in different geographical locations in this demography of patients [13]. This will provide important data for the allocation of scarce resources within the health sector and also for preventive health purposes. Unfortunately, there is a dearth of studies addressing this knowledge gap in Nigeria and its environs. The study aimed to identify the profile of pediatric conditions managed by physiotherapists on out-patient basis at FMCA.

Methods

A 1-year retrospective case review (May 2021 to May 2022) of children with pediatric conditions was carried out. The setting for this study was the out-patient physiotherapy department of the Federal Medical Centre, Abeokuta, Nigeria (FMCA). The FMCA is strategically located to help patients with health problems within neighboring towns in Ogun State. The following data was manually scrapped from the EMR: socio-demographic characteristics of the children, their parents or caregiver, relevant clinical information such as condition being managed at our department, cause of the disorder, and clinical findings after physical assessment.

Inclusion criteria

The study included all pediatric patients who come for treatment on outpatient basis.

Exclusion criteria

All pediatric patients undergoing treatment in the hospital wards were excluded from the study.

Ethical consideration

The ethical approval for the study was obtained from the Ethics and Research Committee of the FMCA (FMCA/470/HREC).

Data analysis

The data obtained were analyzed using descriptive statistics of frequency and percentages. Analyses were done using SPSS version 26 and Microsoft Excel.

Results

In the present study, a total of 160 patients were seen in the Pediatric Physiotherapy Unit of Federal Medical Center, Abeokuta, Nigeria, during the period from the beginning of May 2021 to the end of May 2022. There were 60 females (37.5%) and 100 males (62.5 %). The highest number of children treated was in May 2022. According to Table 1, the age group of 1–5 years constituted the age group with the highest proportion of children seen (68.8%), while children who were 6–10 years accounted for 15.6% of the study population. About 2(1.1%) of the children were 0–3 weeks of age and the mean number of hospital visits by these patients was 7.71 days.

Cerebral palsy (CP) was the commonest pediatric condition managed by pediatric physiotherapists accounting for about 102 cases (63.7%). Birth asphyxia 46(45.1%) was the major etiology for cerebral palsy, followed by neonatal jaundice 30(29.4) and neonatal seizures 17(16.6) (Table 2). The mean age of mothers of the children was (32 ± 5.34). Depicted in Table 3, cerebral palsy was more common in the male gender (67.6%). As shown in Table 3, majority of the patients were 1–5 years of age during first appointment (81.4%). Table 4 revealed that more than 50% of the mothers are above 31 years of age.

Table 1 Socio-demographic characteristics of patients

Variable	N (%)
Gender	
Female	60(37.5)
Male	100(62.5)
Age	
0–3 weeks	2(1.1)
1–11 months	11(6.9)
1–5 years	110(68.8)
6–10 years	25(15.6)
11–15 years	12(7.5)

Table 2 Conditions managed by physiotherapists and etiology

Conditions	Etiology/causes	N (%)	Total (%)
Cerebral palsy	Birth asphyxia	46(28.7)	102(63.7)
	Neonatal jaundice	30(18.7)	
	Neonatal seizures	17(10.6)	
	Febrile seizures	4(2.5)	
	Meningitis	3(1.8)	
	Cerebral malaria	2(1.3)	
Obstetric brachial plexus injury	Shoulder dystocia	10(6.2)	13(8.1)
	Breech	3(1.8)	
Injection palsy	Intramuscular injection on glutes for malaria	11(6.8)	11(6.9)
Post-immobilization stiffness	Humeral fracture	1(0.6)	9(5.6)
	Radial fracture	8(5.0)	
CTEV	Congenital	4(2.5)	4(2.5)
CVA	Sickle cell disease	4(2.5)	5(3.1)
	Unknown	1(1.3)	
Paraparesis	GBS	2(1.3)	2(1.3)
Hip pain	Septic arthritis	2(1.3)	3(1.9)
	Avascular necrosis	1(0.6)	
Genu valgus	Congenital	2(1.3)	2(1.3)

Table 3 Pattern of conditions managed by physiotherapists at FMCA

	Cerebral palsy N(%)	OBPI N(%)	Injection palsy N(%)
Gender			
Male	69(67.6)	8(61.5)	6 (54.5)
Female	33(32.4)	5(38.5)	5(45.5)
Age			
0–3 weeks	0(0.0)	2(15.4)	0(0.0)
1–11 months	6(5.9)	5(38.5)	0(0.0)
1–5 years	83(81.4)	5(38.5)	9(81.8)
6–10 years	9(8.8)	1(7.7)	1(9.1)
11–15 years	4(3.9)	0(0.0)	1(9.1)

About 17 mothers who were 31–36 years of age were primiparous (17.3%).

Another condition with high prevalence was obstetrics brachial plexus injury (OBPI) representing 13 cases (8.1%). Shoulder dystocia and breech presentation accounted for 10 and 3 cases respectively. This study also found out 11 cases (6.9%) were being managed for injection palsy, 4(2.5%) for cerebrovascular accident, 2(1.3%) for Guillain-Barré syndrome, 2(1.3%) for congenital genu valgus, and 5(3.1%) for sickle cell-related complications. Other conditions managed by physiotherapists during this period were Down syndrome, flat foot, monoparesis, traumatic brain injury, Volkmann ischemic contracture, and muscular dystrophy.

Discussion

This study was conducted by physiotherapists from the Pediatric Unit of Physiotherapy in FMCA. The research looked back at the profile of out-patient cases treated by the unit's physiotherapists. A 1-year retrospective case review (May 2021 to May 2022) of children with pediatric conditions was carried out, a total of 160 patients were seen in the unit within the period. Findings revealed most of the patients, being male and of which majority were within the age range 1–5 years. The demographic attributes was comparable with the study of Shora et al., in their study of patterns of neurological disorders in a sample of Egyptian children at the Pediatric Neurology Unit of Al-Azhar University Hospitals [13]. They recruited 536 patients presented with different neurological disorders of which 55.78% and 44.22% between age 1 and 5 years were males and females respectively [13].

In this current study, the most prevalent condition was CP (63.7%) which was followed by OBPI (8.1%). CP which can be classified as a neurological disorder was also reported to be the most common condition managed at Obafemi Awolowo University Teaching Hospital Complex(OAUTHC) by Omole et al (2013) with a prevalence of 50.3%. The findings of this current study was also in tandem with the study of Badaru et al., where the most common pediatric disorder that was managed by physiotherapists in Kano State was CP which had a prevalence of 41.2% [14]. With respect to this study, birth asphyxia, neonatal jaundice, and neonatal seizures were the identifiable causes of CP among the patients, with birth asphyxia being the most common. Birth asphyxia being the major cause of CP was also observed in the study conducted by Mohamed et al., in their study of pattern of neurological disorders among Sudanese children where birth asphyxia constituted a major cause of chronic morbidity in the pediatric age-group [15]. Omole et al. also identified neonatal jaundice, neonatal seizures, and trauma as causes of CP in children [16]. With

Table 4 Cross tab between mother's age and position of patient in family

Mother's age (years)	Position of patient in family					Total N(%)
	1 N(%)	2 N(%)	3 N(%)	4 N(%)	5 N(%)	
< 25	6(6.1)	1(1.0)	0(0.0)	0(0.0)	0(0.0)	11(11.2)
25–30	5(5.1)	6(6.1)	5(5.1)	0(0.0)	1(1.0)	20(20.4)
31–36	17(17.3)	8(8.2)	11(11.2)	2(2.0)	0(0.0)	50(51.0)
> 36	0(0.0)	3(3.1)	6(6.1)	4(4.1)	2(3.1)	17(17.3)

respect to gender, CP was found to be more prevalent among the males than females. This finding was similar to that of Badaru et al., in their study of in-patient pediatric conditions managed by physiotherapists in Aminu Kano Teaching Hospital (AKTH) where majority of the patients were male (59.38%) within the age ranges of 6–10 years [14]. About 81.4% of the patients with CP presented late for physiotherapy (1–5 years). This could be ascribed to the low level of knowledge of the mothers about developmental milestones. Hospitals are also not the first point of contact for some of these patients as some visited traditional healers, spiritual homes, and used herbal concoctions before presenting to our facility. This present study revealed that majority of the mothers (31 years and above) were primiparous, and this implies a relationship between maternal age and CP risk factors. The relationship between maternal age and the occurrence of CP is still controversial. Many epidemiological studies have shown a significant correlation between advanced age (over 35 years of age on average) of the mother and risk of developing CP [17–22].

The OBPI was the second most common condition seen at our unit (8.1%). Males had a higher prevalence and the patients presented mostly at 1–11 months and 1–5 years of age (38.5%). This indicates late presentation for physiotherapy as only 2 out of 11 patients presented early (0–3 weeks). In contrast, Ogwumike et al. reported a higher prevalence in their 10-year review. They reported early presentation for physiotherapy among the patients (0–4 weeks) and higher male prevalence [23]. Also in this study, primiparous women had the highest frequency of children with OBPI as majority were above 30 years of age. This observation is in agreement with that of Tandon and Tandon [24] in which brachial plexus injury was more prevalent in neonates from primiparous women, especially in the presence of shoulder dystocia.

Injection palsy was the third most common condition managed at our unit (6.9%). Retrospective reviews from literature reported higher cases of Injection palsy [25, 26]. Studies reported males were more affected than females [27–29], and this is similar to our finding. Other conditions managed in pediatric unit of physiotherapy department of FMC, Abeokuta, were post-immobilization

stiffness from fractures, cerebrovascular accident in sickle cell diseases, Guillain-Barré syndrome, congenital genu valgus, Down syndrome, flat foot, monoparesis, traumatic brain injury, Volkmann ischemic contracture, and muscular dystrophy.

Limitations

This research was not without flaws. Thirty-five cases were excluded due to incomplete documentations on the EMR, resulting in a complete loss rate of 17.9%. In addition, FMCA started using electronic medical records mid-2021. This placed a cap on the volume of past medical records that could be obtained from it.

Conclusion

It was concluded that neurological disorders are the most common pediatric cases managed by physiotherapists in Federal Medical Centre, Abeokuta, with cerebral palsy having higher prevalence.

Recommendations

Based on the findings of this study, many of the affected children require specialized care and rehabilitative services and multidisciplinary team management. In our locale, despite the high incidence of cerebral palsy, limited facilities exist for the adequate care of these patients. Therefore, the physiotherapy department in collaboration with the hospital authority should ensure necessary facilities and equipment required for the treatment and rehabilitation of this group of patients are made available. Also, improving facilities, manpower recruitment, collaboration with NGOs, and political stakeholders will significantly improve pediatric healthcare in our country. Lastly, there is a need for more community awareness programs to be organized by all health care professionals to educate parents on preventive measure that can be taken to protect their children from sustaining injuries that could hamper their brains while growing up.

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Authors' contributions

AOF, OPS, and AOD made substantial contributions to the conception and design of the study. KKM, BOM, and AAM participated in the data collection on EMR. AOF and OD analyzed and interpreted the data. OPS and AOD revised the article critically for important intellectual content. The authors read and approved the final manuscript.

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Availability of data and materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate

The Health Research Ethics Committee of the Federal Medical Centre Abeokuta (FMCA) (FMCA/470/HREC) granted approval for the study. Official permission was also obtained from the Head of Physiotherapy Department FMCA.

Competing interests

The authors declare that they have no competing interests.

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