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Life satisfaction, perceived social support of mothers of children with cerebral palsy, and motor function of their children

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Abstract Cerebral palsy (CP) is a leading cause of long-term disability in children worldwide where severe cases may require complete dependence on caregivers for mobility, self-care, and social participation. The demand for caregiving may negatively impact the level of life satisfaction of the caregivers, especially the mothers. This study was thus carried out to evaluate the level of life satisfaction of mothers of children with CP, its association with perceived social support, and the motor function of their children.

Method The study involved 58 mothers of children with CP and their children. The level of life satisfaction, perceived social support, and socioeconomic status of the mothers were assessed using the satisfaction with life scale, the multidimensional scale of perceived social support, and the modified Kuppaswamy Socioeconomic Scale, respectively. The motor function of the children with CP was assessed using the Gross Motor Function Classification System (GMFCS).

Result About 38% of the mothers of children with cerebral palsy were fully satisfied with their lives. There was no significant association among the level of life satisfaction, perceived social support of mothers of children with CP, and the motor function of their children.

Conclusion Six out of ten mothers of children with cerebral palsy are somewhat dissatisfied with life. It was recommended that measures to relieve factors leading to dissatisfaction with life should be put in place by national health policymakers.

Keywords Life satisfaction, Perceived social support, Cerebral palsy, Motor function

Introduction

Cerebral palsy (CP) is a disorder of the development of movement and posture, causing activity limitations that are attributed to a non-progressive defect or lesion that occurred in the developing fetal or infant brain [1]. It is one of the most common causes of long-term disability in children [2–4]. Due to the long-term consequences of the condition, children with cerebral palsy require the

provision of healthcare services, substantial time, energy, and attention from caregivers to support their functioning [2, 4]. Where some of the severe cases require total dependence on mobility, self-care, and social participation with the sequelae of the condition affecting not only the children but also their caregivers, particularly the mothers, thus increasing the caregiving burden which may potentially decrease the mothers' satisfaction with life [5, 6].

Life satisfaction is described as an assessment of feelings and attitudes about one's life at a particular point in time ranging from negative to positive [7]. Previous studies have shown that mothers of children with cerebral palsy may be subjected to a variety of detrimental

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influences such as reduced quality of life, high levels of parenting stress, and high burnout levels, as a result of caring for their children, which may lead to a decrease in their life satisfaction [8–10]. The concept of social networks is one of the commonly studied variables of life satisfaction [11, 12]. It is more evident in situations where the need for help and protection is present, as in the case of the disability of a child [13]. Notably, a large number of studies conducted in Western countries have indicated that there is a significant positive association between social support and life satisfaction in mothers of children with cerebral palsy [9, 14, 15].

These results indicate that social support is an important social resource for the well-being of mothers of children with cerebral palsy. The study by Wang et al. [16] in China shows that good family and social support improve the life satisfaction of parents of children with disability. Also, social support has been found to play an important mediating role in the association among several personal factors such as depression, emotional intelligence, and life satisfaction in the Chinese and Saudi populations [17–19]. It is worthy of note that most of these studies are from high-income countries with Western philosophies and functional social welfare service policies, and these findings may be different from what obtained in middle- and low-income countries like Nigeria with Afrocentric philosophies and almost a non-existent social welfare service policies. The specific objective of this study was to find out the level of life satisfaction and perceived social support among mothers of children with cerebral palsy in a low-income country like Nigeria. In addition association among life satisfaction, perceived social support of mothers of children with cerebral palsy and motor function of their children was investigated.

Methods

Fifty-eight consenting mothers of children with CP were purposively recruited from the University College Hospital and Oni Memorial Children's Hospital which are the two major referral centers for CP in Ibadan to participate in this cross-sectional survey. Ibadan is the capital and most populous city of Oyo State, in Nigeria, and it is the third-largest city by population in Nigeria. The mothers were included if their children were aged between 1 and 12 years, previously diagnosed with CP, and were currently receiving physiotherapy in either of the study locations. Mothers whose children have other severe comorbidities such as visual impairment and seizure disorder were excluded from the study. In addition, mothers who have more than one child diagnosed with chronic conditions such as CP, autism spectrum disorder, cystic fibrosis, and muscular dystrophy were also excluded. The

children of all the mothers included were also participants in this study.

Ethical approval for this study was obtained from the Research Ethics Committee of the University of Ibadan/ University College Hospital (NHREC/05/01/2008a) prior to the commencement of this study. Permission to conduct the study among the mothers and children in the selected physiotherapy outpatient clinics was sought and obtained from the directors of both outpatient clinics selected for the study. Participants were informed about the purpose of the study, and their informed consent was sought and obtained before participating in the study.

Information on socio-demographic characteristics such as age, gender, marital status, religion, living arrangement, and work situation of the mothers of children with CP was documented. In addition, information such as current age, age when diagnosed with CP, and gender of the children was also obtained.

The Multi-Dimensional Scale of Perceived Social Support (MSPSS) was used to measure the perceived adequacy of social support for the mothers of children with cerebral palsy. It is a 12-item questionnaire developed by Zimet et al. [20]. The instrument consists of three subscales: significant others, family, and friends. There are four items on each subscale scored on a seven-point Likert scale ranging from very strongly disagree (1) to very strongly agree (7). The total scores range from 12 (low perception of social support) to 84 (high perception of social support), the higher the total sum of the 12 items, the higher the level of social support. Findings of various studies have reported that the MSPSS is a psychometrically sound instrument [20–23]. The questionnaire has been found reliable with Cronbach coefficients of 0.93 on the 12 items [21]. In comparison to other instruments used for measuring perceived social support, the MSPSS is less time-consuming and does not require advanced-level reading skills to use. In addition, it is one of the few scales that identifies the support source.

The Satisfaction with Life Scale (SWLS) was used to assess the level of life satisfaction of mothers of children with cerebral palsy. It is a five-item questionnaire developed by Diener and Diener, [24] as a measure of the global cognitive judgment of one's life satisfaction. The questionnaire uses a seven-point Likert scale ranging from very strongly disagree (1) to very strongly agree (7) to score the items. Items of the SWLS are summed to create a total score that can range from 5 to 35, the higher the score the higher the level of satisfaction with one's life. The scale is widely utilized to measure global life satisfaction through five statements related to quality of life and has been reported to be a valid and reliable measure of life satisfaction, suitable for use with a wide range of age groups [24–26]. Diener and Diener [24] reported the

internal consistency of the instrument as 0.87 and the test–retest correlation as 0.82. Similarly, the results of a review of the SWLS showed good internal consistency and construct validity [27].

The Gross Motor Function Classification System (GMFCS) was used to classify children with cerebral palsy into five functional levels. It was developed to rate gross motor function on an age-related five-level scale that describes functional abilities in sitting, walking, and wheeled mobility, in which level I represents the least limitation and level V the most. On the GMFCS, children on the level I walk without restrictions and limitations are seen in more advanced gross motor skills. Level II refers to children who walk without devices with limitations in walking outdoors and in the community. Level III portrays those who walk with mobility devices with limitations in walking outdoors and in the community. Level IV characterizes self-mobility with limitations, and children are transported or use power mobility outdoors as well as in the community. Level V describes those whose self-mobility is severely limited even with the use of support [28]. The GMFCS has proved to be a valid and more reliable tool than other instruments because the rater is making a judgment on functional ability rather than trying to classify by neurological symptoms and has been reported to remain relatively stable over time [28, 29]. The GMFCS has been internationally accepted and is widely used to classify children with cerebral palsy from birth to age 18.

The Modified Kuppuswamy Socioeconomic Scale: 2022 update of India was used to measure the family income of the children with cerebral palsy. The Kuppuswami questionnaire was originally developed by B. Kuppuswami, and it is widely used to measure the socio-economic status of an individual in an urban area. The questionnaire focuses on three main variables namely, the education and occupation of the head of the family and the monthly income of the family, which yields a total score of 3–29 [30]. A modification on the item related to monthly income has been developed yearly to account for devaluation. The Modified Kuppuswamy Socioeconomic Scale: 2022 update of India was therefore developed by Sood and Bindra [31] to provide an updated version of the Kuppuswamy scale for the year 2022. This scale classifies the study populations into five socio-economic groups namely upper class, upper middle class, lower middle class, upper lower class, and lower class. Findings of a study conducted by Sarmah and Hazarika [32] reported that the Kuppuswamy scale is a psychometrically sound instrument and has a reliability coefficient of 0.83 with a validity of 0.91. In comparison to other instruments used for measuring socio-economic status, the Modified Kuppuswamy Socioeconomic Scale: 2022 update of

India was developed for the Indian population which is similar to the Nigerian population in terms of population and economy. With the current GDP per capita (PPP) at US\$ 6997 and US\$ 536,315 for India and Nigeria, respectively, both countries are at similar economic stages and have similar economic structures [33]. For the purpose of this research, the amounts in Rupees under the family income domain of the Modified Kuppuswamy Socioeconomic Scale: 2022 update of India were converted to Nigerian Naira using the current conversion rate at the time of data collection. Data collection lasted for a period of 3 months.

Data analysis

Descriptive statistics of frequency, means, and standard deviation were used to summarize the data on age, gender, marital status, academic qualification, work status, and socioeconomic status. Inferential statistics of chi-square test were used to evaluate the association between the level of life satisfaction and each of the perceived social support of mothers of children with CP, the motor function of their children, age of mothers of children with cerebral palsy, academic qualification of mothers of children with CP, and socio-economic status of mothers of children with CP.

Furthermore, the chi-square test was also used to evaluate the association between the perceived social support of mothers of children with CP and each of the motor function of the children with CP, age of mothers of children with CP, academic qualification of mothers of children with CP, and socio-economic status of mothers of children with CP. The level of significance was set at 0.05.

Results

The average age of mothers who participated in this study was 34.2 ± 7.5 years, whereas the average age of the children was 3.3 ± 2.7 years. The majority of the mothers in this study were married ($n=56$; 96.6%). The mothers were mostly in full-time employment ($n=38$; 65.5%). The mothers largely identified as either upper middle ($n=21$; 36.2%), lower middle ($n=19$; 32.8%), or upper lower ($n=15$; 25.9%) socio-economic class. Most of the children were males ($n=39$; 67.2%), while the distribution of the GMFCS revealed that the majority were in level IV ($n=26$; 44.8%) and level V ($n=21$; 36.2%). The socio-demographic characteristics of the mothers of children with cerebral palsy and the physical characteristics of the children are presented in Table 1.

On the satisfaction with life scale, the majority of mothers ($n=44$; 75.9%) agreed with the statement “I am satisfied with my life. The statement “if I could live my life over, I would change almost nothing” was agreed on by over half of them ($n=32$; 55.1%), while 30 (51.7%)

Table 1 Socio-demographic profile of mothers of children with CP and the children with CP (N=58)

Variables	Frequency (n)	Percentage (%)
Age of mother		
Below 30 years	18	31.1
30–40 years	31	53.4
Above 40 years	9	15.5
Highest level of education of the mother		
Secondary	19	32.8
Tertiary	39	67.2
Socio-economic class of the mother		
Upper	3	5.2
Upper middle	21	36.2
Lower middle	19	32.8
Upper lower	15	25.9
Mother's satisfaction with life		
Dissatisfied	36	62.0
Satisfied	22	38.0
Mother's perceived social support		
Low support	4	6.9
Moderate support	26	44.8
High support	28	48.3
GMFCS of child		
Level 1	2	3.4
Level 2	2	3.4
Level 3	7	12.1
Level 4	26	44.8
Level 5	21	36
Gender of child		
Male	39	67.2
Female	19	32.8

reported to have gotten the most important things they want in life, other responses are as displayed in Table 2. About 22 (38%) of the mothers of children with cerebral palsy were completely satisfied with their lives (Table 1).

Twelve items on the questionnaire measured the perception of the level of social support the mothers received while taking care of their children. Half of the mothers (n=29; 50%) agreed that they have friends they can count on when things go wrong. About the same number (n=30; 51.7%) also agreed that they have friends they can share their joys and sorrows with and less than half of the mothers (n=26; 44.9%) agreed that they can talk to their friends about their problems. Most of the mothers (n=47; 81.1%) agreed that there is a special person who is around when they are in need; a summary of their responses is presented in Table 3. Generally, almost half of the mothers perceived high social support (n=28; 48.3%), the responses from the MSPSS were standardized and classified according to Zimet et al. [20], and Table 1 presents the summary of the classification.

As presented in Table 4, no significant association was found between the level of life satisfaction and perceived social support of mothers of children with cerebral palsy ($\chi^2=12.519$; $p=0.252$). There was also no significant association between the level of life satisfaction of the mothers and the motor function of their children ($\chi^2=11.710$; $p=0.926$). There was no significant association between age, socio-economic status, academic qualification, and perceived social support of mothers of children with cerebral palsy. Likewise, there was no significant association between age, socio-economic status, academic qualification, and level of life satisfaction of mothers of children with cerebral palsy (Table 4).

Table 2 Responses of mothers of children with cerebral palsy to satisfaction with life Scale (N=58)

Satisfaction with Life Scale	Very strongly disagree, n (%)	Strongly disagree, n (%)	Mildly disagree, n (%)	Neutral, n (%)	Mildly agree, n (%)	Strongly agree, n (%)	Very strongly agree, n (%)
In most ways, my life is close to my ideal	3 (5.2%)	1 (1.7%)	11 (19%)	8 (13.8%)	13 (22.4%)	15 (25.9%)	7 (12.1%)
The conditions of my life are excellent	1 (1.7%)	3 (5.2%)	12 (20.7%)	10 (17.2%)	16 (27.6%)	10 (17.2%)	6 (10.3%)
I am satisfied with my life	1 (1.7%)	3 (5.2%)	6 (10.3%)	4 (6.9%)	12 (20.7%)	19 (32.8%)	13 (22.4%)
So far, I have gotten the important things I want in life	2 (3.4%)	3 (5.2%)	15 (25.9%)	8 (13.8%)	16 (27.6%)	8 (13.8%)	6 (10.3%)
If I could live my life over, I would change almost nothing	1 (1.7%)	3 (5.2%)	11 (19%)	11 (19%)	12 (20.7%)	6 (10.3%)	14 (24.1%)

Table 3 Responses of mothers of children with cerebral palsy to multidimensional scale of perceived social support (N = 58)

Perceived social support	Very strongly disagree, n (%)	Strongly disagree, n (%)	Mildly disagree, n (%)	Neutral, n (%)	Mildly agree, n (%)	Strongly agree, n (%)	Very strongly agree, n (%)
There is a special person who is around when I am in need	3 (5.2%)	2 (3.4%)	3 (5.2%)	3 (5.2%)	4 (6.9%)	11 (19%)	32 (55.2%)
There is a special person with whom I can share my joys and sorrows	4 (6.9%)	0 (0%)	2 (3.4%)	4 (6.9%)	13 (22.4%)	33 (56.9%)	4 (6.9%)
My family really tries to help me	1 (1.7%)	1 (1.7%)	0 (0)	14 (24.1%)	14 (24.1%)	22 (37.9%)	1 (1.7%)
I get the emotional help and support I need from my family	1 (1.7%)	2 (3.4%)	0 (0)	15 (25.9%)	12 (20.7%)	23 (39.7%)	1 (1.7%)
I have a special person who is a real source of comfort to me	4 (6.9%)	1 (1.7%)	0 (0)	8 (13.8%)	11 (19%)	33 (56.9%)	4 (6.9%)
My friends really try to help me	16 (27.6%)	3 (5.2%)	3 (5.2%)	4 (6.9%)	11 (19.0%)	9 (15.5%)	12 (20.7%)
I can count on my friends when things go wrong	18 (31%)	2 (3.4%)	4 (6.9%)	5 (8.6%)	12 (20.7%)	7 (12.1%)	10 (17.2%)
I can talk about my problems with my family	9 (15.5%)	1 (1.7%)	1 (1.7%)	0 (0%)	16 (27.6%)	13 (22.4%)	18 (31%)
I have friends with whom I can share my joys and sorrows	17 (29.3%)	3 (5.2%)	4 (6.9%)	4 (6.9%)	13 (22.4%)	6 (10.3%)	11 (19%)
There is a special person in my life who cares about my feelings	2 (3.4%)	3 (5.2%)	3 (5.2%)	0 (0%)	5 (8.6%)	16 (27.6%)	29 (50%)
My family is willing to help me make decisions	7 (12.1%)	2 (3.4%)	1 (1.7%)	4 (6.9%)	12 (20.7%)	22 (37.9%)	10 (17.2%)
I can talk about my problems with my friends	19 (32.8%)	3 (5.2%)	5 (8.6%)	5 (8.6%)	12 (20.7%)	7 (12.1%)	7 (12.1%)

Table 4 Association among the level of life satisfaction, perceived social support of mothers of children with cerebral palsy, selected socio-demographic variables, and the motor function of their children

Variable	χ^2	p value	χ^2	p value
	Level of life satisfaction		Motor function	
Perceived social support	12.519	0.252	6.167	0.629
Motor function	11.710	0.926		
	Perceived social support		Level of life satisfaction	
Age	1.505	0.826	7.384	0.689
Socio-economic status	7.017	0.319	18.529	0.819
Academic qualification	10.186	0.424	3.454	0.630

Discussion

This study was conducted to assess the association among the level of life satisfaction, perceived social support of mothers of children with cerebral palsy, and the motor function of their children. The majority of the mothers identified as an upper-middle-class

socioeconomic group, this could be due to the fact that this study was conducted in an urban area and typically variable as a cosmopolitan city. The findings of this study also indicated that a larger proportion of the children with cerebral palsy were males, this aligns with previous research that has identified the male gender as

a risk factor for cerebral palsy, as established in previous studies [34, 35].

The Gross Motor Function Classification System distribution indicated that a large proportion of the children with cerebral palsy were in levels IV and V, and this predominance can be attributed to the common etiological factors that have been reported in the study location, such as birth asphyxia, neonatal jaundice, and meningitis [36]. These perinatal and neonatal causes have been associated with an increased risk of severe motor impairments and higher GMFCS levels. This suggests that the majority of the children who sought medical attention at the selected outpatient physiotherapy clinics had severe symptoms of CP. This observation is in consonance with that of Fatudimu et al. [37] in Ibadan, Nigeria. This consonance may be attributed to the similarity in the study locations. However, this finding is at variance with some researchers in Sweden who reported a predominance of level I among children with cerebral palsy [38]. A possible explanation for this variance is improved access to healthcare and early intervention services that may be obtained in those parts of the world.

This study found that the majority of the mothers were not completely satisfied with their lives. This may be a result of the demanding nature of providing medical care and daily assistance for their children which could place a huge demand on the mothers' time and energy, resulting in less personal time, limited social interactions, and increased stress levels, all of which may affect their overall life satisfaction. Also, financial burdens associated with raising a child with CP such as medical expenses, specialized equipment, and therapies can play a significant strain on family finances, potentially leading to financial stress which could contribute to their lower levels of full life satisfaction. This result obtained is in agreement with the findings of Dalhbeck, [9] who reported that the majority of mothers of children with cerebral palsy were not fully satisfied with their lives.

The majority of the mothers perceived high social support which may suggest that the mothers were quite satisfied with the social support received. The cultural context of Nigeria may play a role in fostering social support networks, close-knit communities, extended family systems, and communal values that are often prevalent in Nigerian society. These factors can contribute to a strong support structure for mothers of children with cerebral palsy, creating a good sense of perception of the social support they receive. This result is consistent with the findings of Pfeifer et al. [39] who also reported that mothers of children with cerebral palsy in Brazil had a good perception of the social support they received. However, a study in Turkey conducted with 103 caregivers of children with disabilities, of whom 51 were mothers of children with

cerebral palsy, reported that less than half of the population reported a good perception of the social support that they received [40]. This variance in results may be due to the culture of the environment where the study was carried out and the mixed population of participants in the study which included mothers of children with autism, Down syndrome, and spina bifida. These other conditions may have specific debilitating effects on the perception of the mothers on the social support that they receive.

The result of this study also revealed that even though the mothers may experience a high perception of the support they receive from their social networks, this support may not have translated into increased life satisfaction. A possible explanation for this finding is that the challenges associated with caring for a child with cerebral palsy may be too great for even a high level of perceived social support to have a significant impact on life satisfaction. Mothers may need more practical assistance with caring for their child, such as respite care or financial assistance, rather than social support as assessed in this study. However, this contradicts the findings in some studies which reported that mothers who reported high perception of social support had high life satisfaction [14–16]. The disparity in the result obtained may be due to the presence of high relationship satisfaction and high levels of positive affect that were also assessed and reported among mothers in the study.

Also, results showed that no significant association exists between the life satisfaction of mothers of children with cerebral palsy and the motor function of their children. This finding indicates that the motor function of children with cerebral palsy does not necessarily have an impact on the life satisfaction of their mothers. A potential reason is that communal support and spiritual beliefs may play a more prominent role in shaping the life satisfaction of mothers, regardless of their child's motor function or disability. Furthermore, the results showed no significant association between the perceived social support of mothers of children with cerebral palsy and the motor function of their children. This indicates that poor motor function of children with cerebral palsy may not necessarily affect their mothers' perception of social support. One possible explanation for the lack of significant association between these two variables is that the study location was in an African community where communal living is prominent and the mothers may have access to informal support or help. This finding of no significant association between the perceived social support of mothers of children with cerebral palsy and the motor function of their children is in agreement with previous research [39].

The result of this study revealed no significant association between perceived social support and each of age,

academic qualification, and socio-economic status of mothers of children with cerebral palsy; this implies that regardless of the age, academic qualification, and socio-economic status of the mothers in this study, they still perceived a good social support. A possible explanation for this finding may be that the perception of social support may be more influenced by the strength of family ties and community ties rather than the age, academic qualification, and socio-economic status of the mothers. A possible explanation for the lack of significant association between the academic qualification of the mothers and the perception of social support is that mothers of children with cerebral palsy in the study location of Ibadan, Nigeria, may encounter social stigma and discrimination regardless of their academic qualification; this implies that even highly educated mothers may experience similar challenges in receiving social support as mothers with lower academic qualifications. Results from this study also indicated that having a higher socio-economic status does not necessarily lead to a better perception of social support received among mothers of children with cerebral palsy or vice-versa. This could be attributed to cultural and social factors. In some societies, such as where this present study was carried out, families and communities may provide social support to mothers of children with disabilities regardless of their socio-economic status, there is usually a good practice of communal living, in such cases, social support from family members and friends may compensate for the lack of financial resources.

The result of this study revealed no significant association between the level of life satisfaction and each of age, academic qualification, and socio-economic status of mothers of children with cerebral palsy. This finding suggests that age, academic qualification, and socio-economic status of the mothers are not a determining factor in the life satisfaction of mothers of children with cerebral palsy. A possible explanation for this result could be that mothers of children with cerebral palsy face a unique set of challenges that are not necessarily related to their age, academic qualification, or socio-economic status. These challenges could include possible financial burdens, burden of care, and difficulty accessing appropriate medical care for their child, and these factors may have a greater impact on the life satisfaction of mothers than the variables assessed in this study. Also, the finding of no significant association between the academic qualification and the level of life satisfaction of the mothers in this study may imply that academic qualification does not play a significant role in determining the level of life satisfaction of mothers of children with cerebral palsy, as other factors such as positive affect, coping strategies, and religious beliefs may be more important in determining life

satisfaction in this population. Furthermore, it is also possible that the lack of association between academic qualification and life satisfaction among mothers of children with cerebral palsy may be due to the fact that all of the mothers in the sample had comparable levels of education. The mothers in this study were not illiterates; hence, there is a possibility that they all had a good understanding of their children's condition. This finding is consistent with previous research that also found no significant association between academic qualification and life satisfaction among mothers of children with disabilities [41].

Conclusion and recommendation

It was concluded from this study that the majority of the mothers of children with cerebral palsy were not completely satisfied with their lives. However, they had a good perception of the kind of social support they received which is largely from family and friends. It is therefore possible that other factors outside the variables (age, academic qualification and socio-economic status, motor functional abilities of the children) considered in this research may have a greater impact on the life satisfaction of the mothers.

It is therefore recommended that formulation and implementation of policies targeted at helping to alleviate the possible influence of other factors aside from those considered in this study such as possible financial burdens, possible burden of care, and parental stress may in turn improve the level of life satisfaction of the mothers of children with CP. Furthermore, physiotherapists managing children with CP should watch out for signs of dissatisfaction with life in the mothers of children with cerebral palsy and also be prompt to advise on measures to enhance life satisfaction for them.

Further studies exploring additional factors that may influence mothers' life satisfaction, such as psychological support, family dynamics, and the presence of other health conditions in children, are also recommended.

Abbreviations

CP	Cerebral palsy
GMFCS	Gross Motor Function Classification System

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Authors' contributions

Fatudimu MB designed the study and helped in the data collection, analysis, and drafting of the manuscript. Adegoke SA helped in the proposal write-up, data collection, and analysis. All authors read and approved the final version of the manuscript.

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Declarations

Ethics approval and consent to participate

Ethical approval was sought and obtained from the University College Hospital Research Ethics Committee, Ibadan (UI/EC/23/0187).

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

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