

Facilities Available for Cerebral Palsy Children in Different Health Care Setups of Lahore

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Highlights:

- Modalities being used for CP children treatment.
- Comparison between Government and private setups.
- Private setups have better treatment options for CP children.

Abstract:

Multiple medical conditions including childhood disability with sensory and cognitive impairment is known as Cerebral Palsy (CP). It is one of the major diseases among children.

Objective:

To find out the frequency of facilities available for Cerebral palsy children in different health care setups of Lahore.

Methods:

It was a cross sectional study. Data were collected from different setups of Lahore including Government and Private hospitals. All the physiotherapists of selected centers were enrolled in the study. Non-probability convenient sampling technique was used. The procedure was thoroughly explained to the participants. Participants were Physiotherapists. Availability of different Modalities was noted.

Results:

A total of 10 Setups, 4 Government and 6 Private hospitals of Lahore were visited for the survey. The frequency Recorded in 3 setups was with 5-10 patients daily and 3 was with less than 5 Children with CP daily, other 1 (Government setup) setup was with more than 50 patients Daily, 1 setup was with less than 5 children a week, 1 setup was with 20-30 patients daily and 1 setup treats 20-30 patients with CP daily.

Multiple modalities were available in setups; Hydraulic bed, Bobath bed and Cando Hand Web were available in 1(25%) government Setup and 4(67.7%) private setups. Exercise Mats, Tilt Table Stand, Standing Frame, Step and Slop Platform, Putty 2.3Kg, Hand Elbow Wrist Strengthener and Squeezing Balls were available in 3(75%) government setups and 6(100%) private setups. Parallel Bars, Standing Mirror, CP Chair, Balance Board, Exercise straps were available in 4(100%) government setups and 6(100%) private setups. Ring Walker, and Prone Stander were available in 2(50%) government setups and 6(100%) private setups.

Conclusions:

Better treatment modalities were available in the private hospitals as compared to the Government (un-related to expenditure). Most commonly observed type of CP in Lahore was Spastic Cerebral palsy.

Key Words:

Cerebral Palsy, Facilities, physical therapy modalities, cognitive impairment.

Introduction:

Multiple medical conditions including Childhood Disability with Sensory and Thinking (cognitive) Impairment is known as Cerebral Palsy. Many studies show that the Prevalence of CP is 1.8-2.3Cases/1000 children.^{1, 2} It is more prevalent in Lower or Middle Income Countries than in High Income country.³ Most of the cases are due to the factors affecting development of brain after birth or during Intrauterine Development i.e Prematurity, Maternal Cause, Prenatal deprivation of oxygen, neonatal , hyperbilirubinemia, Brain Tumors or any Disruption to the brain), these life risk factors

can lead to CP, and can decrease the disease.⁴ Many previous researches showed that children those who had CP because of premature birth are at higher risk of death than others children with CP, due to some other reasons almost 40% suffer with Cerebral Palsy as per previous researches.^{5,6,7}

A Previous study has showed that the most common Type of CP observed in high income countries Diplopic spasticity, but on the other hand in Pakistan and India most commonly observed Type was Quadriplegic spasticity.⁵ The Studies available in Pakistan for this topic were not enough, so it is recommended to have a detailed research on provisional level and national level in Pakistan in which populations can be studied from all classes available in Pakistan.⁵

In 2015, multiple countries of Africa with 22 representatives among countries of Affrica organized a study on CP. Conducted a study (underdeveloped countries) the data were collected from different hospitals and clinics. The basic data was collected from the government authorities. It was a cross-sectional study type multi stage study technique; the aim was to rule out the prevalence of CP on the basis of level of impairments and movement disorders. There are very few studies available for population based on this population.^{9,8,9}

Ahmad et al studies on prevalence of CP children in Swabi KPK Pakistan and showed similar results as in other underdeveloped countries. Even different researches in Pakistan showed some of the variations in results, but those all were due to uncertain factors e.g. difference in population due to less sample size available in few areas, or it may be due to different type of study designs used in different researches, this was the major reason that there was a need for global research at national or international level. The ratio between male: female was 4:1 in Pakistan, if we talk about India there were also the same results, male are more effected with CP and the ratio recorded was 13:1.3 but males are

67.5% more exposed to CP. Ratio in China is also not much different from others 1.9:1.2/1000live births. In relation with gender and age, male were more prone to CP at the age of 7-8 years around 70%, and female of age 9-10 years were more prone (32.7%). Researches showed similar results from other countries like KSA or Iraq.⁵

Main goal for physiotherapist is to educated family or caretakers for use of modalities and to take out Exercises. Physiotherapy is very necessary and useful to prevent muscle Atrophy, tightened Muscles or for the Reduced Joint Movement. Other indications for PT intervention in cerebral palsy child were painful muscle or joints or any joint inflammation and rigidity. Physiotherapist focus for the enhancement of capabilities rather than limitations.^{7, 10} Most Common neurosurgical intervention was Dorsal Posterior Rhizotomy (Partial Rhizotomy of Lumbosacral area) Spasticity can be treated with Decreased input from Dorsal ROOTS OF Spinal Cord. Secondly For the treatment of lower limb spasm the procedure of post lumbar and sacral nerve root transection is used.^{10,11} By using Baclofen which effects GABA receptors Spasm of limb can be reduced it is known as pump Implantation for ITB procedure. And also newly developed procedure available for spasticity treatment continuous infusion of ITB is used.^{6,12,13}

Major elements linked with Cerebral Palsy were considered to be movement, posture, gross motor functions. That leads from damage to an immature Brain. An occurrence of this disease varies from country to country and was the leading cause of developmental delay after birth. Incidence rate in high income countries vary from 1.5-3/1000 premature children. This Ratio is as per a European research by 'Surveillance of Cerebral Palsy in Europe' as per previous studies there is very less work done on CP in Pakistan.^{14,15}

The purpose of this study was to find out the frequency of CP in children, a subset population of Lahore Pakistan. CP child after diagnosis is

referred to the Rehab clinics and majority of Pakistan population is low or middle income class and cannot afford private rehab institutions. So comparison among government and private sector was done for better understanding and decision making to get CP child treated in term of availability of modalities and under proper supervision of experts.

Methodology:

It was a cross sectional study, all the physiotherapist in the selected centers participated in the study. Data was collected from different hospitals/setups of Lahore including Government (Jinnah Hospital, Children Hospital, Gulab devi Hospital, Services Hospital) and Private sectors (UOL Teaching Hospital, Rising son, PSRD, City clinic for CP rehab, Hameed Latif Hospital, Iffat Anwar medical complex), and those were easily accessible and provided the correct information. A mixture of standardized and self-made

variables was included in questionnaire. Study was completed within 3 months after acceptance of synopsis. All the physiotherapists of selected centers were enrolled in the study. Non-probability Consecutive sampling technique was used. After the approval of synopsis by ethical committee and permission of all relevant departments, subjects were questioned to ensure that they meet the inclusion criteria of the study. The testing procedure was thoroughly explained to the participants. Survey questionnaire were filled as per inclusion criteria of research. Data were analyzed using SPSS 21.0.

Results:

A total of 10 Setups, which included 4 Government and 6 Private Setups, of Lahore were visited for the survey.

Among The Study 3 Setups (30%) had Hemiplegia Type of CP commonly, 7 setups (70%) had Quadriplegia Type of CP.

Comparison of facilities available at govt & private Facility

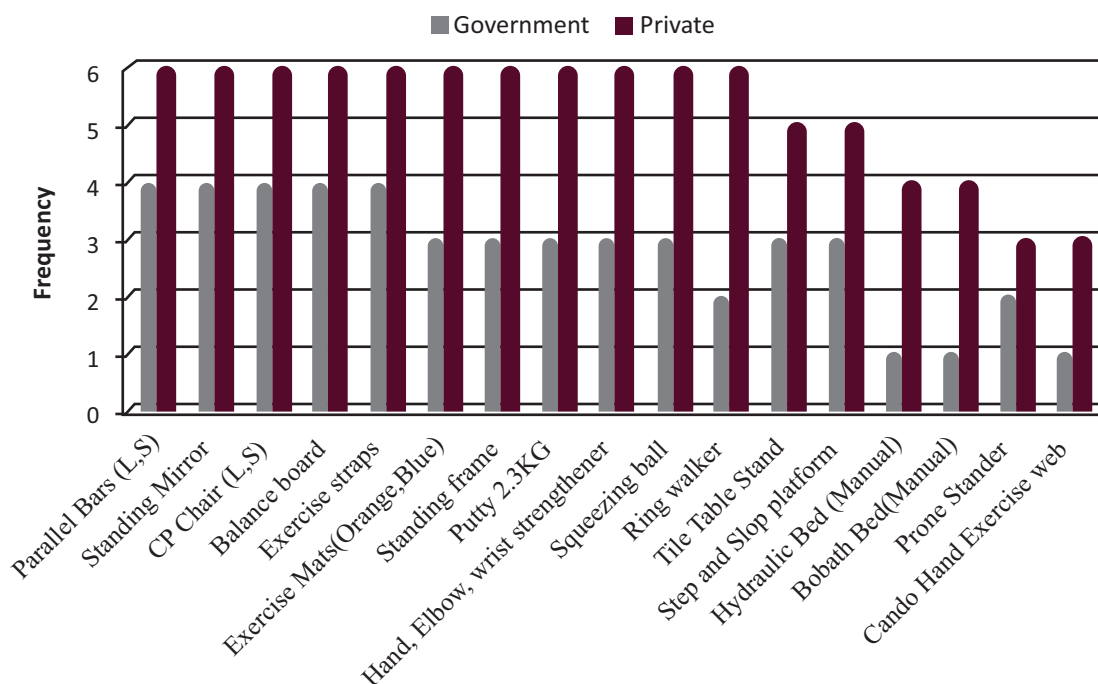


Figure 1: Availability of treatment modalities for CP in private and government sectors.

Hydraulic bed, Bobath bed and Cando Hand Web were available in 1(25%) government Setups and 4(67.7%) private setups. Exercise Mats, Tilt Table Stand, Standing Frame, Step and Slop Platform, Putty 2.3Kg, Hand Elbow Wrist Strengtheners and Squeezing Balls were available in 3(75%) government setups and 6(100%) private setups. Parallel Bars, Standing Mirror, CP Chair, Balance Board, Exercise straps were available in 4(100%) government setups and 6(100%) private setups. Ring Walker, and Prone Stander were available in 2(50%) government setups and 6(100%) private setups (Table 1).

Among the Study Setups 6(60%) think that CP child suffers commonly with Mental Retardation, 3(30%) think that it's not common that CP children suffer with Mental Retardation, and 1(10%) think that mental retardation is not related to CP.

Setup category			
Number of Patients Treated	Government	Private	Total
Less than 5	1(25.0%)	2(33.3%)	3(30.0%)
5 to 10 daily	2(50.0%)	1(16.7%)	3(30.0%)
10 to 20 daily	0(0.0%)	1(16.7%)	1(10.0%)
20 to 30 daily	1(25.0%)	0(0.0%)	10.0%
More than 50	0(0.0%)	1(16.7%)	1(10.0%)
Less than 5 a week	0(0.0%)	1(16.7%)	1(10.0%)

Table 1: Number of patients treated on daily or weekly basis

According to table 1, out of all setups 3(30%) setups treated less than 5 patients a day where government setup treated 1 patient and private setup deals 3 patients on daily basis, 3(30%) setups treated 5-10 patients daily where government setups treated 2 patients and private treated 1 patient on daily basis, 1(10%) government setup treated 10-20 patients daily, 1(10%) private setup treated 20-30 patients daily, 1(10%) private setup treated more than 50 patients daily and 1(10%) private setup treated less than 5 patients a week.

Discussion:

A previous study in Pakistan held in Swabi district KPK of Pakistan showed the frequency of 1.22/1000, these results were not so much different from other studies about the under developed countries. In comparison with this the Frequency of CP in Lahore, Pakistan was Almost the Same. We found that there were still many setups which received more than 50 or at least around 10 patients a day in a single setup. Previously Research of Swabi also showed that the most common Type of CP was Quadriplegic spastic type of CP (50%) and we also observed in Lahore that Quadriplegic was the most common type of CP, and the second most common was the Hemiplegic (18%) same as in Lahore. In Swabi they found that majority of Patients were of age 9-10Years and we concluded that from Birth-16Years was the common age group to suffer from CP Lahore. In Swabi it was concluded that Male more suffer more with CP as Compared to Females.^{5,8,14}

In 2017 a Prevalence Survey was made in Uganda which suggested that the frequency of CP in developed countries was 1.8-2.3cases/1000 Births, they concluded that children under the age of 8 years were more liable to suffer with CP but we concluded that all ages or Birth-16Years was the Age group commonly involved, Moreover the more the child is younger the more the chances of death due to CP¹⁰. It also stated that prematurity was also a factor involved in development of CP. They also recorded that Seizures were also common in that population and this study recorded that Mental Retardation was commonly involved with CP. 4-/years was the age group recorded in Uganda that was more prone to CP (17/3975 cases). 43% cases were recorded with Hemiplegia and 43% were recorded with Quadriplegia, these results are significantly same as in Lahore.^{8,13}

There was no such work done on the availability of the Facilities before, which must be considered on the national or provincial level for the

betterment of interventional results and for providing more information to the society. Government must take proper awareness measures and improve the Government Setups of Lahore as well as other cities. As per conclusions private setups are better for the treatment option as for physiotherapy interventions. But still as we are looking in an underdeveloped country Pakistan, people are of low/middle socioeconomic status, they chose to get treated from government setups. Due to lack of availability of modalities, they cannot get proper treatment.

Conclusions:

Better treatment modalities were available in the private setups as compared to Government.

Recommendations:

It is recommended to conduct a national or provincial level survey for more precise frequency results and comparison between different interventions of CP management as almost no previous work is available to date.

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