



## A COMPARATIVE STUDY OF MUSCULOSKELETAL DISORDERS IN PRIMARY CAREGIVERS OF CHILDREN WITH CEREBRAL PALSY & AUTISM SPECTRUM DISORDER

### Rehabilitation Science

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### ABSTRACT

This study was done with aim to study & compare the magnitude of musculoskeletal disorders (MSDs) in caregivers of children with Cerebral Palsy (CP) and Autism Spectrum Disorder (ASD), to find out the probable risk factors for MSD among caregivers & to assess & compare the depression levels of caregivers. Total 180 caregivers of CP children, ASD children & children with other non-chronic conditions (control group) were studied. Prevalence of MSDs was found to be significantly more in caregivers of CP children than ASD children & control group. Depression levels of caregivers of CP & ASD children were also found to be significantly more than control group. Caregivers of disabled children should be taught proper lifting techniques & should have regular psychological counselling as part of Rehabilitation programme to prevent development of MSDs & clinical depression.

### KEYWORDS

Caregivers, Cerebral Palsy, Musculoskeletal Disorders

### INTRODUCTION

Musculoskeletal Disorders (MSD) such as pain in back, shoulder, knee etc are common in full time caregivers of Cerebral Palsy (CP) children.<sup>1</sup> This has been seen in many studies regarding MSD & low back pain in caregivers of children with CP<sup>2,3</sup>, but there is paucity of such studies in Indian scenario.

Symptoms of Attention Deficit Hyperactivity Disorder (ADHD) are very common in individuals with Autism spectrum disorder (ASD), affecting between 28-74 % of children.<sup>4,5</sup> This puts a lot of strain on the physical health of their caregivers. There is no such previous study which gives proper comparative understanding of risk factors and magnitude of MSD among caregivers of children with ASD. So we decided to undertake this study in our institute.

### Aims & Objectives

- To study and compare the magnitude of musculoskeletal disorders (MSD) in caregivers of children with Cerebral Palsy & Autism Spectrum Disorder.
- To find out the probable risk factors for MSD among caregivers.
- To assess & compare the depression levels of caregivers.

### MATERIALS & METHODS

A cross-sectional case control study was conducted in Department of Physical Medicine & Rehabilitation, Lady Hardinge Medical College & Associated Kalawati Saran Children's Hospital, New Delhi from July 2016 to December 2018 on 180 primary caregivers of children with CP, children with ASD & children attending OPD for other than chronic conditions.

60 primary caregivers each of children with CP (Gross Motor Function Classification System or GMFCS<sup>6</sup> level 3-5), children with ASD and children attending OPD for other than chronic conditions and in age group of 20 to 40 years were included in the study. Primary caregivers with any child < 2 years of age, caregivers other than primary caregiver of child, presence of any pathological condition causing pain in caregivers & primary caregivers having more than one child with disability were excluded from our study.

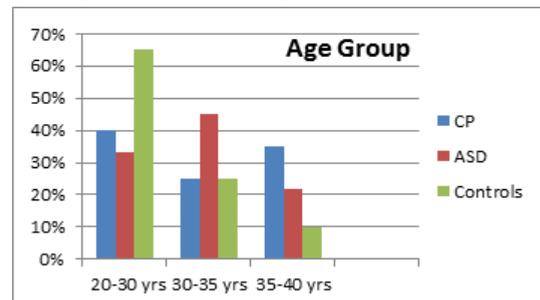
After written informed consent, caregivers were assessed with detailed history & thorough clinical examination. Caregivers complaining of any musculoskeletal pain were adequately investigated as per their needs, based on assessment and were treated accordingly. The depression level of participants was evaluated according to Beck's Depression Inventory<sup>7</sup>. This scale consists of 21 questions in which

answers are evaluated with scores between 0 and 3. High scores indicates the severity of depression.

### RESULTS

Descriptive analysis of demographic data indicated that most of the primary caregivers were in the age group of 20-30 years in CP (40 %) & Control group (65 %) and in age group of 30-35 years in ASD group (45 %).

Graph 1: Age Distribution of caregivers

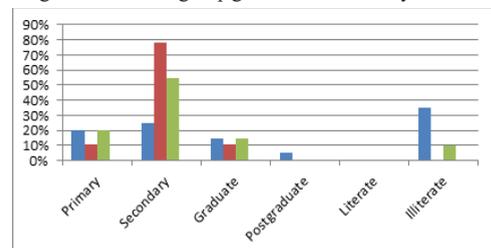


In 100 % of the cases, primary caregivers were mothers of the children. Most of the caregivers in our study were from Urban region (Table 1).

Table 1

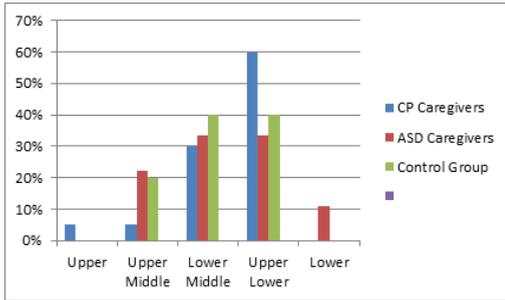
	CP Caregivers	ASD Caregivers	Control Group
Urban	85 %	89 %	80 %
Rural	15 %	11 %	20 %

Most of the CP caregivers were illiterate (35%) whereas most of the ASD caregivers & control group givers had Secondary education.



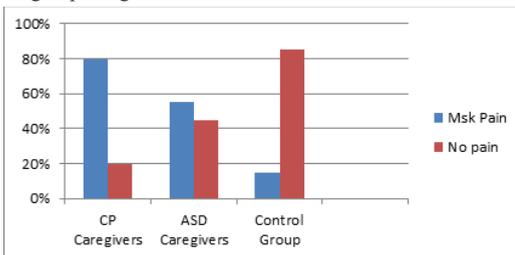
Graph 2: Education

According to Kuppuswamy classification, most of the CP caregivers were in upper lower group (60 %) followed by lower middle group (30 %); whereas caregivers in ASD and control group were equally distributed in lower middle & upper lower group.



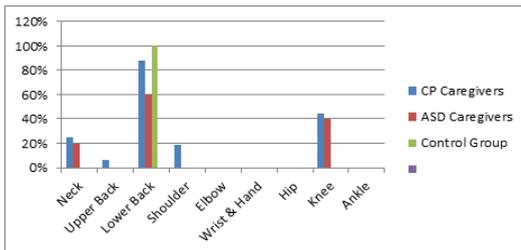
Graph 3: Socio Economic Status

Amongst the 3 groups, prevalence of musculoskeletal pain disorders was found to be highest among primary caregivers of CP children (80 %). In contrast, only 55 % of ASD primary caregivers & 15 % of control group caregivers had MSD.



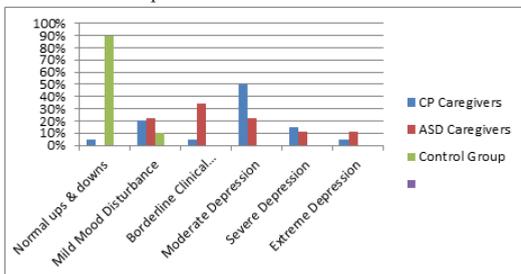
Graph 4: Prevalence of Musculoskeletal pain

In all the 3 groups, low back pain was found to be most common followed by knee pain & neck pain.



Graph 5: Regionwise Distribution of Pain

On comparing the depression levels amongst the 3 groups as per Beck's Depression Inventory, prevalence of depression was found in 75 % CP caregivers (5 % borderline clinical depression, 50 % moderate depression, 15 % severe depression and 5 % extreme depression) and 79 % ASD caregivers (35 % borderline clinical depression, 22 % moderate depression, 11 % severe depression & 11 % extreme depression). On the other hand caregivers of control group only experienced normal ups and downs & mild mood disturbances.



Graph 6: Prevalence of Depression

DISCUSSION

In this study, prevalence of MSD was found to be highest amongst primary caregivers of CP children (80%) as compared to caregivers of ASD children (55%) and the control group (15%), which is statistically significant (p value ≤ 0.05). In a similar study done by Ghalamghash

Reza<sup>2</sup> et al on mothers with disabled children in Iran, more than 90 % participants had multiple musculoskeletal pains with more than one involved site. Terzi and Tan<sup>3</sup> studied 85 mothers of children with cerebral palsy & 42 mothers of healthy children (control group); and found Musculoskeletal system pain of the treatment group was significantly higher than those of control group.

In our study, low back pain was found to be the most common followed by knee pain & neck pain. On further analysis, it was found that higher number of repetitions with faulty posture of lifting the child by bending at the back was the most common cause of back pain. Similar to our findings, in studies by Ghalamghash<sup>2</sup> et al & Terzi and Tan<sup>3</sup>, low back pain was found to be most prevalent. In only other study done in India by D. Sharan<sup>8</sup> et al, in which prevalence of MSDs in caregivers of children with cerebral palsy following multilevel surgery was studied, low back pain was found to be most common. In study of Kaya<sup>9</sup> et al also, musculoskeletal pain was evaluated in 81 mothers of children with CP & 60 mothers of healthy children, low back pain was found to be most common.

We found that prevalence of depression was 75 % in CP caregivers and 79 % in ASD caregivers, the difference was statistically insignificant. But the average score of Beck's Depression Inventory (or severity of depression) was found to be more in CP caregivers as compared to ASD caregivers. In comparison, control group experienced only normal ups & downs and mild mood disturbances. In other studies by Terzi & Tan<sup>3</sup> and Kaya et al, Beck's depression scores were significantly higher in treatment group as compared to control group.

CONCLUSION

Magnitude of MSD was found to be more in caregivers of CP children than caregivers of ASD children as they have to carry their children and do most of their Activities of Daily Living (ADLs). They should be taught proper lifting techniques as part of the Rehabilitation programme for caregivers of disabled children to prevent development of musculoskeletal disorders. Psychological counselling should also be a regular part of rehabilitation of caregivers for prevention, early identification & treatment of clinical depression in caregivers of disabled children.

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