Original Research Paper

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Occupational Therapy

PREVALENCE OF MUSCULOSKELETAL CHALLENGES IN FAMILY CAREGIVERS OF CHILDREN WITH CEREBRAL PALSY.

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ABSTRACT **Background:** Family caregivers of children with cerebral palsy (CP) play a crucial role in providing continuous assistance with daily activities, mobility, and positioning. These physically demanding tasks often involve repetitive lifting, bending, and prolonged postures, which may predispose caregivers to musculoskeletal discomfort and disorders. Understanding the prevalence and contributing factors of such challenges is essential for developing effective preventive strategies. **Objectives**: To assess the prevalence of musculoskeletal challenges among family caregivers of children with cerebral palsy and to identify commonly affected body regions and caregiving-related risk factors. **Methods:** A cross-sectional observational survey was conducted among 196 family caregivers of children diagnosed with cerebral palsy. Data were collected using an online Google Form after obtaining informed consent. The Extended Nordic Musculoskeletal Questionnaire (ENMQ) was used to evaluate the frequency, severity, and distribution of musculoskeletal discomfort. Descriptive statistics and association analyses were performed to identify relationships between caregiving activities and musculoskeletal symptoms. **Results:** A high prevalence of musculoskeletal challenges was observed. Approximately 91% of caregivers reported pain, most commonly mild to moderate in intensity, while 87% experienced fatigue and 83% reported frequent or occasional exhaustion. Physical strain significantly interfered with caregiving in 86% of participants, and 88% reported modifying daily activities due to discomfort. Statistically significant associations were found between prolonged caregiving and discomfort in the shoulders ($P = 0.042$), elbows ($P = 0.002$), wrists/hands ($P = 0.0001$), and lower back ($P = 0.013$). Activities involving bending, lifting, and prolonged standing were major contributors to discomfort. **Conclusion:** Musculoskeletal challenges are highly prevalent among family caregivers of children with cerebral palsy. Ergonomic interventions, caregiver education, and supportive strategies are urgently needed to reduce physical strain and improve caregiver well-being.

KEYWORDS : Cerebral Palsy, Family Caregiver, Musculoskeletal Challenge

INTRODUCTION

Cerebral palsy (CP) is a non-progressive neurological disorder caused by damage to the developing brain, leading to impairments in movement, posture, and muscle tone. The severity of CP varies widely, and individuals may also experience associated conditions such as intellectual disability, epilepsy, and sensory impairments. As a lifelong condition, CP requires continuous medical care, rehabilitation, and assistance with daily activities.

Family caregivers, especially parents, play a central role in caring for children with CP. Their responsibilities include mobility assistance, transfers, positioning, feeding, hygiene, and therapeutic exercises. These tasks are physically demanding and often involve repetitive lifting, awkward postures, and prolonged caregiving, increasing the risk of musculoskeletal challenges. Common problems include low back pain, neck and shoulder pain, muscle strain, and joint disorders. Despite their essential role, caregivers' health needs are frequently overlooked, particularly in the Indian context. Understanding caregiver musculoskeletal challenges is crucial for developing preventive strategies and supportive interventions.

AIMS AND OBJECTIVES

AIM:

To assess the prevalence of musculoskeletal challenges among family caregivers of children with cerebral palsy.

Objectives:

Primary Objective:

To determine the prevalence of musculoskeletal challenges among family caregivers of children with cerebral palsy.

Secondary Objective:

1. To determine the prevalence of specific types of musculoskeletal disorders (e.g., back pain, shoulder pain) among family caregivers.

2. To investigate the relationship between the physical demands of caregiving and the frequency of musculoskeletal complaints.

MATERIAL & METHODOLOGY

Study Design:

An observational, cross-sectional survey study was conducted.

Study Setting:

The study was conducted in an online setting using a web-based survey platform, allowing participation from parents who were primary caregivers of children with cerebral palsy.

METHODS:

An observational, cross-sectional survey study was conducted using an online platform from June 2024 to September 2024. The questionnaire was available in English, Hindi, and Marathi to ensure wider participation. The study included parents who were primary caregivers of children diagnosed with cerebral palsy. The sample size was calculated at 196 participants using a 95% confidence level and a margin of error of 0.07, assuming a population proportion of 0.5. Purposive sampling was employed, and participants were recruited through hospitals, NGOs, cerebral palsy support groups, social media platforms, and caregiving forums. Data were collected using a structured self-report questionnaire, and musculoskeletal challenges were assessed using the Extended Nordic Musculoskeletal Questionnaire (ENMQ), which evaluates discomfort in various body regions over the preceding six months.

Inclusion Criteria

1. Primary caregiver of a child with cerebral palsy
2. Age 18 years or above
3. Child classified as GMFCS Level IV or V
4. Child moderately to fully dependent
5. Willingness to participate and provide informed consent

Exclusion Criteria

1. Secondary or tertiary caregivers
2. Pre-existing musculoskeletal disorders
3. Chronic illness causing generalized weakness
4. Recent musculoskeletal surgery
5. Neurological conditions affecting musculoskeletal function

RESULTS

A total of 196 family caregivers participated in the study.

Most parents experience some level of discomfort when managing the physical demands of lifting or repositioning their child's extremities. The majority (84 respondents) report mild discomfort, while 75

experience moderate discomfort. A smaller group (13 respondents) faces severe discomfort, whereas only 24 report no discomfort at all. This suggests that physical strain is a common challenge for many caregivers.

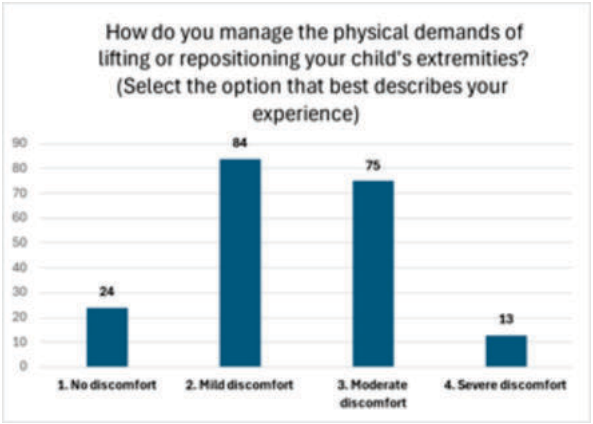

Figure 1:

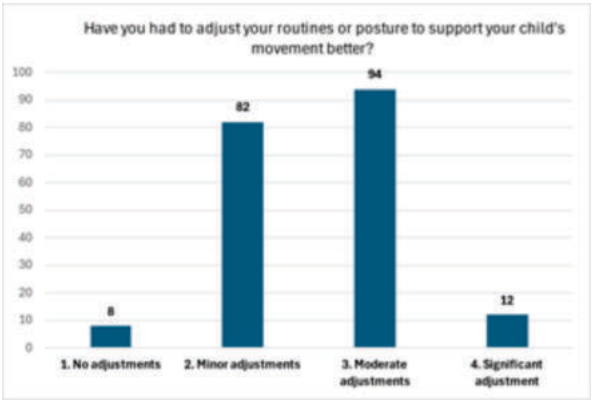

Figure 2:

The majority of parents have had to adjust their routines or posture to support their child's movement. Most respondents (94) have made moderate adjustments, while 82 have made minor adjustments. A smaller number (12) have had to make significant adjustments, whereas only 8 reported making no adjustments. This suggests that supporting a child's movement often requires some level of change in daily routines or posture.

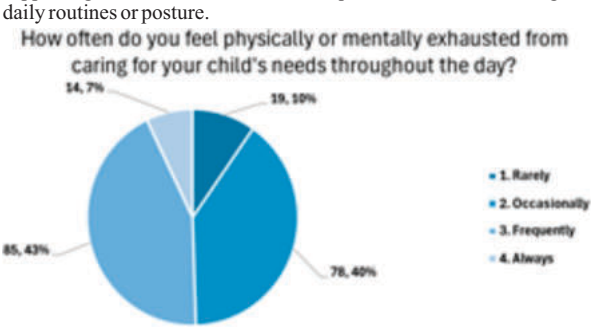

Figure 3:

The majority of parents experience exhaustion frequently (43%) or occasionally (40%), indicating that caregiving is often physically and mentally demanding. A smaller portion (7%) always feels exhausted, while only 10% rarely experience exhaustion. This suggests that most caregivers deal with fatigue to some extent while supporting their child's needs.

The majority of caregivers face significant physical challenges while assisting their children. Most report experiencing fatigue, with nearly half moderately fatigued and 38% slightly fatigued, while only a small fraction feel no fatigue. Physical strain is common, as many caregivers experience mild to moderate pain when lifting or moving their child, and discomfort or injury during painful episodes is reported by 88%, often interfering with their ability to provide care. Additionally, 87% of caregivers struggle to support their child's fine motor skills, highlighting the demanding physical and mental burden of caregiving. Musculoskeletal discomfort was highly prevalent, with 91% of caregivers reporting pain, predominantly of mild to moderate intensity.

Fatigue was reported by 87% of caregivers, while 83% experienced frequent or occasional exhaustion.

Physical strain led to modifications in daily activities for 88% of caregivers. A substantial proportion (88%) reported discomfort or injury during caregiving tasks, and 86% indicated that physical discomfort interfered with caregiving activities.

Significant associations were found between prolonged caregiving and musculoskeletal discomfort in the shoulders ($p = 0.042$), elbows ($p = 0.002$), wrists and hands ($p = 0.0001$), and lower back ($p = 0.013$). Tasks involving lifting, bending, and prolonged standing were identified as major contributors to discomfort.

DISCUSSION

The findings of this study demonstrate a high prevalence of musculoskeletal challenges among family caregivers of children with cerebral palsy. The physical demands of caregiving, particularly lifting and positioning, were strongly associated with musculoskeletal discomfort, consistent with findings from previous studies.

Fatigue and exhaustion were widespread, highlighting the cumulative impact of prolonged caregiving. The need for frequent positioning and spinal care further increased physical workload and contributed to musculoskeletal strain. These findings underscore the importance of incorporating caregiver-focused interventions into CP management programs

CONCLUSION

Musculoskeletal challenges are highly prevalent among family caregivers of children with cerebral palsy and significantly affect their physical health and caregiving capacity. Targeted interventions focusing on ergonomics, caregiver education, and support services are essential to reduce physical strain and enhance caregiver well-being. The study highlights the need for ergonomic education, caregiver training, assistive devices, and rehabilitation programs aimed at reducing musculoskeletal strain. Integrating caregiver health into rehabilitation services can improve both caregiver well-being and quality of care provided to children with CP.

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