

## ORIGINAL ARTICLE

## FREQUENCY OF MUSCULOSKELETAL DISORDERS IN CAREGIVERS OF CEREBRAL PALSY CHILDREN AT AKBAR KARE INSTITUTE PESHAWAR

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### ABSTRACT

**Objective:** To determine the frequency of musculoskeletal disorders in caregivers of cerebral palsy children at Akbar kare Institute, Peshawar. **Material & Methods:** A cross sectional study was conducted at Akbar kare institute, Peshawar, Khyber Pakhtunkhwa. Standard Nordic questionnaire were given to 260 caregivers and 10 Physiotherapists working at Akbar kare institute, Peshawar, Khyber Pakhtunkhwa. Data was analyzed through SPSS, version 20.

**Results:** The frequency of caregiving related to low back pain was 80%, neck pain 56.3%, ankle pain 33.0%, knee pain 31%, shoulder pain 26.7%, wrist/hand pain 17.0 %, hip/thigh pain 16.7% and elbow pain 16.7%. Musculoskeletal disorders among care-givers were by doing heavy lifting and holding the child for prolong duration in different awkward postures and poor ergonomics.

**Conclusion:** The results showed significant prevalence of MSD among caregivers of CP child which creates burden on the caregivers of cerebral palsy children. Therefore, appropriate attention and precautionary measures should be taken to minimize these musculoskeletal disorders.

**Key Words:** Caregivers, Cerebral palsy, Musculoskeletal, Pain.

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### INTRODUCTION

Cerebral palsy (CP) is an umbrella term, consisting of persistent but unchanging disorders of movement and posture due to non-progressive disorders of brain during infancy or early childhood.<sup>1, 2</sup> Globally, CP data show some geographic differences, but overall, population-based reports have shown the rate of 1 to 1.5 per 1,000 live births.<sup>3-6</sup> CP affects about 2 to 3 in 1000 live births in USA and is the main contributing cause of motor impairment in children.<sup>1</sup> From generalize data the incidence of CP at Zimbabwe in rural areas is 1.55/1000 and 3.3/1000 at urban areas.<sup>7</sup> Nearly two-thirds of children with CP require a high need for health care services including caretaking. While caring for the child, the caregivers may be exposed to stress and physical load leading to

musculoskeletal disorders (MSDs).<sup>8, 9</sup> The task of caregivers is to serve the cerebral palsy child in activities such as bathing, dressing, mobility and preparing food.<sup>10</sup> At low income countries, due to poverty and lack of resources, the access to assistive appliances is quite low so the caregivers are exposed to more physical work and risk of MSDs and injuries remain high.<sup>11</sup> These MSDs include spine and extremities problems.<sup>8</sup> The causes is by doing heavy lifting and holding the child for prolong duration in different awkward posture and poor ergonomics and not reporting on time which leads to development of many MSDs.<sup>8, 12</sup>

Despite the fact that caregivers of cerebral palsy patients are prone to develop musculoskeletal disorders but research related to the

epidemiology of MSDs among caregivers of children with CP is scanty. According to authors knowledge no such study has been identified regarding the frequency of MSDs in caregivers of CP children in Peshawar. The objective of the current study was to determine the frequency of MSDs among caregivers of CP children in Akbar Kare Institute, Peshawar, Khyber Pakhtunkhwa.

## METHODS

Descriptive cross-sectional study was used to find out frequency of MSDs among caregivers of CP children. Using convenience sampling technique, data was collected from Akbar Kare Institute, Peshawar, Khyber Pakhtunkhwa in October 2018. Primary caregiver of CP child and health care professionals were included, while participants with any previous history of trauma, chronic metabolic disease and other than primary caregiver of child were excluded from the study. Information sheet, consent form and Nordic questionnaire were distributed among 270 participants. Questionnaire was explained in local language for those participants who could not understand Urdu and English. Data was

analysed through SPSS, version 20. Using descriptive statistical analysis, continuous variables were presented as Mean  $\pm$  SD and that of categorical variables were presented in number (%). Figures and tables were used for data presentation.

## RESULTS

The total sample size of this research study was 270, with the mean age of  $32.23 \pm 8.86$ . Descriptive analysis of the demographic data showed that 207(76.7%) were females and 63(23.3%) were male participants. Seventy-six (28.1%) participants had caregiving time 4 hours per week, 54(20.0%) participants had caregiving time 3 hours per week while 43(15.9%) participants had care giving time 6 hours per week. Out of 270 participants 24(8.9%) had experience of 14 months of caregiving, 23(8.5%) had experience of 6 months, and 14(5.2%) had experience of 4 and 5 months both.

The results showed that the prevalence of body region discomfort was common among caregivers of cerebral palsy patients, but was significantly higher for cervical, upper back and lower back. (Table 1)

**Table 1: Regional body pain of the participants**

Body region		Male		Female		Total	
		Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Neck	No	29	46%	89	43.00%	118	43.70%
	Yes	34	54%	118	57%	152	56.30%
Shoulders	No	38	60.30%	108	52.20%	146	54.10%
	Yes Right Shoulder	4	6.30%	28	13.50%	32	11.90%
	Yes Left Shoulder	7	11.10%	13	6.30%	20	7.40%
	Yes Both Shoulders	14	22.20%	58	28.00%	72	26.70%
Elbows	No	45	71.40%	153	73.90%	198	73.30%
	Yes Right Elbow	5	7.90%	10	4.80%	15	5.60%
	Yes Left Elbow	5	7.90%	7	3.40%	12	4.40%
	Yes Both Elbows	8	12.70%	37	17.90%	45	16.70%
Wrists/Hands	No	45	71.40%	143	69.10%	188	69.60%
	Yes Right Wrist/Hand	7	11.10%	16	7.70%	23	8.50%
	Yes Left Wrist/Hand	5	7.90%	8	3.90%	13	4.80%
	Yes Both Wrists/Hands	6	9.50%	40	19.30%	46	17%
Upper Back	No	26	41.30%	92	44.40%	118	43.70%
	Yes	37	58.70%	115	55.60%	152	56.30%
Lower Back	No	15	23.80%	39	18.80%	54	20%
	Yes	48	76.20%	168	81.20%	216	80%
Hips/Thighs	No	54	85.70%	171	82.60%	225	83.30%
	Yes	9	14.30%	36	17.40%	45	16.70%
Knees	No	45	71.40%	140	67.60%	185	68.50%
	Yes	18	28.60%	67	32.40%	85	31.50%
Ankle/Feet	No	42	66.70%	139	67.10%	181	67%
	Yes	21	33.30%	68	32.90%	89	33%

## DISCUSSION

In this cross-sectional study, 270 questionnaires were distributed and received 270 complete questionnaires back. High frequency of MSDs were found among the caregivers of cerebral palsy at the Akbar kare institute Peshawar. In this study we had 270 as the sample size, out of which there were 260(96.2%) parents and 10(3.7%) physiotherapist. Frequency of care related MSD varies across gender and area wise reported in the previous studies, frequency of care related MSD in caregivers is at peak. It is reported in this study that 207 (76.7%) females and 63 (23.3%) males were reporting care related MSD. Caregivers have a high frequency of care related MSD because by doing heavy lifting and holding the child for prolong duration in different awkward posture and poor ergonomics.<sup>12, 13</sup> The frequency of some disorders with care related in caregivers is likewise lower in different studies as evaluated high in our study. A study conducted in University of Connecticut Health Centre Farmington, Connecticut showed that Ninety-two percent (92%) of the caregivers were mothers.<sup>14</sup>

A study performed by M.B Byrne, DA Hurley that physical status of female caregivers is effected more as compared to male caregivers.<sup>13</sup> In current study 76% females had MSD which is similar to frequency of females as compared to males in previous studies.

On the basis of gender, out of 270 participants we had 207(76.7%) females and male participants were 63(23.3%). Out of 270 participants 24(8.9%) had experience of 14 months of caregiving, 23(8.5%) had experience of 6 months, and 14(5.2%) had experience of 4 and 5 months both. Lower back region alone stand out to be the most affected area of caregivers account for 216 (80.0%) out of 270 sample. Neck pain was reported by 152 (56.3 %). Out of total 146 (54.0%) was complaining shoulder pain. Ankle reported by caregivers is 89 (33.0%) out of 270. Knees is 85 (31.5%). Wrist hand is reported 82(30.3%) out of 270. Elbow is 72 (26.6%) out of 270 and Hip is 45(16.6%) out of total sample. Sharan D and Manjula M found slightly lower frequency than in our study, with frequency of lower back 55.64

%, shoulder 42.02 %, neck 39.69 % , knees 27.63 % and ankle is 15.95 %.<sup>13</sup>

The frequency of parameters like gender, low back pain, shoulder, knee and neck estimated in this study are similar to the frequency given in previous studies. While the occurrence of ankle pain is comparatively high among the caregivers of the current study that can be attributed to factors like working environment and poor ergonomics.

## CONCLUSION

The results showed significant prevalence of MSD among caregivers of CP child. The most frequently affected area is lower back followed by neck and shoulders. Caregiving related MSD shows substantial burden for caregivers, therefore proper attention and preventive measures should be taken to minimize this burden. Caregivers should be properly trained to adopt good posture during caregiving and even in their rest works.

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