

## Original Article

# PREVALENCE OF VARIOUS MUSCULOSKELETAL DISORDERS IN CHILD CARE WORKERS IN DAY CARE SETTINGS

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## ABSTRACT

Child care workers are those who take care of children in the absence of their parents. Child care workers are exposed to various kinds of occupational injuries which include infections, sprains and strains, trauma like bites from children, trip falls and noise exposure. The risks of injury among these workers are due to their nature of the job. One of the common occupational risks found in these workers is musculoskeletal injury, it occurs as a result of working in awkward postures such as bending, twisting, lifting and carrying in incorrect positions, which may result in various injuries like strain, sprain and soft tissue ruptures. Workers with poor physical conditioning may tend to undergo these changes very rapidly. The purpose of this study was to find out the prevalence of various musculoskeletal disorders in child care workers who are taking care of the babies. The study was conducted around various day care centres, among 160 women from who were chosen for the study and were given musculoskeletal analysis questionnaires (Nordic musculoskeletal questionnaire) , The Questionnaires were evaluated using descriptive statistics, analysed using SPSS and the results were computed in percentage. Following the analysis, it was concluded that low back injury was predominant among 44% of workers followed by 18% with neck pain, 11% of shoulder pain, 9% of knee pain, 7% of elbow, 6% of wrist, 4% of others and surprisingly 1 % had no musculoskeletal complaints.

**KEYWORDS:** Child care workers, Day care setting, Musculoskeletal disorders. Low back pain, Nordic musculoskeletal questionnaire.

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## INTRODUCTION

Child care workers take care of children when their parents or family members are unavailable. In India, it happens to be the booming business in the industry. Both men and women of the middle class family belong to the working population and they don't find time to take care of their children and are often forced to prefer child care centres as an alternate option<sup>1</sup>. Day care centres also happen to be a preparatory phase for starting school, where the child care workers play a crucial role.

Work related musculoskeletal injuries are common in most of the occupations. Common areas of involvement are lower back, neck, shoulder and knees. There is a cumulative micro traumas of the musculoskeletal system caused by the repetitive strain during work and usually the pain is neglected or not taken care of which may result in chronicity of the condition (pain).<sup>2</sup> According to Delleman.et al, posture is an unconscious decision made by body to adapt for different environment. Body's complex anatomy aids freedom to make the posture determined

by different dimension and arrangement of work place. Awkward posture is one of the reasons for various musculoskeletal injuries.<sup>9</sup>

Few studies done among the child care workers, found that about 18% of workers suffer with low back pain, where as 30—35% suffered with headaches and 23—36% with fatigue.<sup>3</sup> Another study by Calabro et al., found that 11.5% child care workers suffered with low back pain and 25% of workers spent working in awkward posture in squatting, kneeling or sitting in floor or low couch.<sup>4</sup>

Many hazards are faced by the child care centre workers among which the most common are infections and injuries.<sup>5</sup> Among the various fields which cause work related musculoskeletal disorders, one field that has not brought up sufficient attention for research over a long period of time happens to be the health status of child care workers. There have been researchers of this field focused only on improving the general working environment for adults caring for children in day care settings.<sup>5</sup>

In spite of the increasing number of various occupational related injuries found among the child care centre workers, they are not given much concern in the health field. It was found that there were no regulations for the child care workers. Since there were a rapid number of patients related to day care work, visiting the Physiotherapy Department with various musculoskeletal injuries, this study was focused only to find out the prevalence rate of the various work related musculoskeletal injuries among them.

## Methodology

160 participants from various day care centres around Coimbatore were chosen for the study. This is a Descriptive study design and purposive sampling was used to select the subjects. The study was carried out for 6 months from April 2013 to Sep 2013. The study includes only women who were employed or taking care of day care centres as a full time staff, that is (6—8 hrs per day). Centres which have a minimum of 10 children and more, participants age group of 30—45 years, no history of fever or trauma for the past 6 months, working for more than 2 years, able to comprehend and read English. The

study excluded any neurological complaints of the patients, any previous history of musculoskeletal injury, individuals working for less than 2 yrs and part time workers, individual with any history of fibromyalgia or body ache and subjects who were not willing to participate. A self reported questionnaire was created, the first part of which questionnaire was focused on demographic details and the second part includes the Nordic musculoskeletal questionnaire. Nordic questionnaire has high validity, the other parts of the questionnaires was validated by 3 senior physiotherapists who are involved in occupational health research. The questionnaires were distributed to every individual participant. About 5—10 subjects were approached personally by the researcher and the questionnaires were explained and filled up by them. The participant was given two days of time before completing the questionnaires. Before including the subject a clear explanation was given to every individual participant both orally and written consents were obtained from the individuals. Once the questionnaires were collected from the participants a thank you note was given to everyone. The study has no risk involved, and the ethical concern was approved by the institutional ethical committee.

## RESULTS AND DISCUSSION

The result of the data were analysed using the descriptive statistics, the analysis of which was done using SPSS. 19.1. The demographic representations of the participants are mentioned in Table 1. Age group of the participants varies from 30 years to 45 years of which about 28 % belonged to the 30—33 years age group, 29% belonged to the 34—37 years age group, 21% belonged to the 38—41 years age group, and 22% belonged to the 42—45 years age group. The mean age of the participants is 36 + 4.4.

Education qualification of the participants were analysed in Table 1, which shows that 43% of the individuals have completed Higher Secondary schooling. 22% have completed their Secondary school, 15% have completed their Under Graduation (UG), 12 % were illiterate or have not completed even their Secondary schooling, whereas 8% have completed their Post Graduation (PG).

Food habits of the participants were also analysed and is shown in Table 1, and we found 54% of the participants were pure vegetarians or had adapted to being a vegetarians in recent years, where as 46% were non vegetarians and many participants were occasional non vegetarians.

The prevalence of musculoskeletal disorder analysis is shown in Table 1. The analysis shows that Low back pain ranks first of all the musculoskeletal disorders. 44 % of participants complained of back pain, where as 18% of the participants complained of neck pain. 1% complained of shoulder pain, 9% complained of knee pain, 7% on elbow, 6% on wrist, 4% on others and surprisingly 1 % had no musculoskeletal complaints.

The percentile evaluation of the musculoskeletal injury was analysed for each components, in which the low back pain was 44%, which means that about 71 participants had complaints of low back pain, which represents 28% of the participants in the age group of 42—45 years, 27% of the 30—33 years age group, 25% of the 38—41 years age group, and 20% of the 34—37years age group.

The neck pain evaluation shows 18% of the total population, which means about 29 participants had complaints of neck pain, which represents 31% of the participants within the age group of 34—37 years, 24% of the 30—33 and 42—45 years age group and 21% at 38—41 years age group.

The shoulder pain evaluation shows 11% of the total population which means about 18 participants had complaints of shoulder problems, which represents 33% of participants within the age group of 42—45 years, 28% of 38—41years age group, 22% of 34—37 years age group and 17% of 30—33 years age group.

Analysis of knee pain, elbow, wrist, and others came up with a value of 9%, 7%, 6% and 4% and the numbers of participants were 14,11,9, and 6 respectively. There are 2 participants with no musculoskeletal complaints which represented 1% of the total population selected.

Knee symptoms represented 36% and 29% of 42—45 years and 38—41 years age group respectively. Elbow pain represented 37% and

27% of 42—45 years and 38—41 years age group respectively. Wrist pain represented 34% and 33% of 38—41 years and 42—45 years age group respectively, and others represented 33% in 34—37 years and 38—41 years age group. The 2 participants with no symptoms which represented 1% belonged to the 30—33 years and 34—37 years age group.

**Table 1:** Basic information's about the study participants.

S.No	Characteristics	Percentage (%)
<b>1</b>	<b>Age</b>	
	30—33	28
	34—37	29
	38—41	21
	42—45	22
<b>2</b>	<b>Educational Qualification</b>	
	Illiterate	12
	High School	22
	Higher Sec School	43
	UG	15
	PG	8
<b>3</b>	<b>Food habit</b>	
	Vegetarian	54
	Non Vegetarian	46
<b>4</b>	<b>Musculoskeletal problems</b>	
	Low back pain	44
	Neck pain	18
	Shoulder pain	11
	Knee pain	9
	Elbow	7
	Wrist	6
	Others	4
	None	1
<b>5</b>	<b>Management</b>	
	Medical	35
	Physiotherapy	16
	Acupuncture	3
	Sidha /Ayurveda	4
	Others	5
	No treatment	37

The world wide impact of musculoskeletal injuries is about 4<sup>th</sup> in global health population. This has increased to 45% in the past 20 years. Most common musculoskeletal injuries seen are back injuries.<sup>1</sup>

Studies have found that there was more number of spinal related symptoms than the peripheral extremity. Some of the possible factors which contribute to the musculoskeletal injuries are the working postures like forward bending, frequent lifting, repeated bending and repeated twisting of the body and frequent lifting using shoulder and over head lifting, working in awkward postures that lead to various biomech-

anical stress on muscles, ligaments, tendons spinal nerves and disc. Other multiple factors which predisposes to injury, commonly are repetitive activity, awkward postures and maintenance of static posture for long duration. The analysis of descriptive data was shown in the Table 2.

Few other studies showed that 45% among them suffer with low back pain and have had at least a onetime incident of low back injury was noted.<sup>3</sup> Various studies also identified that low back injury was the common in day care workers, the main causative factor for this was poor posture and abnormal use of biomechanics during activities like lifting the child from the floor, sitting on low chair or stoop sitting, frequent bending as well as bending in abnormal positions, and squatting and rising up. During these movements there is a sudden increase of stress to the muscles in the lower back, thigh and upper limbs, which may predispose to various musculoskeletal problems. Repetition of these works may aggravate the injuries which result in severe pain. Lifting, Bending and stooping posture cause stressful task for the child care workers.<sup>5</sup> Biomechanical stressors in the child care centre workers are more stressful which may create various musculoskeletal problems.<sup>7</sup>

Adding to that the job stress, personal stress, and physiological stress may aggravate these injuries.<sup>4</sup> though it was beyond the scope of the study, it was found out that one of the other important reasons for the aggravation of musculoskeletal injuries among day care workers is the poor fitness level of the participants.

This study also found the common treatment method adopted by the participants with musculoskeletal symptoms, the results of which indicated that 35% of participants take medications prescribed by the local physician or obtained from the pharmacy, 37% of participants use local pain relieving gel, home remedies like hot water bath etc.. and 16% are aware of physiotherapy. They visit physiotherapists for their pain and aches, which was either referred by a physician or by the neighbours, 5% underwent treatment with the local doctors for traditional therapy, 4% underwent Sidha and Ayurveda, whereas 3% underwent acupuncture.

**Table 2:** Statistical analysis of the participants.

S.No	Characteristics	Mean	S.D
1	Age	36.92	4.44
2	<b>Educational Qualification</b>		
	Illiterate	41.84	2.69
	High School	38.91	4.85
	Higher Sec School	35.91	3.71
	UG	33.95	3.13
	PG	34.83	3.1
3	<b>Food</b>		
	Vegetarian	35.17	3.81
	Non-Vegetarian	34.52	3.82
4	<b>Musculoskeletal problems</b>		
	Low back pain	36.23	3.9
	Neck pain	37	4.98
	Shoulder	37.16	4.6
	Knee	36.64	4.16
	Elbow	38.81	4.83
	Wrist	38.33	5.36
	Others	38.83	4.67
	No Musculoskeletal injuries	30.5	-

Limitation of the study was bias among subjects, this study is focused on analysing the injury in the subjects and not on the treatment aspect and its effects on the cause of the problem. The study was conducted within a limited geographical location thereby decreasing generalizability, sample size is small and the samples were selected non randomly. A large scale study is needed to make generalizability of the findings. Future studies should cover various other factors like fitness level etc.

## CONCLUSION

The findings of the study states that the low back injury is predominant among occupational related musculoskeletal injuries in child care centre workers which was followed by neck pain, knee pain and shoulder pain. These findings will help both the therapist as well as the day care centre workers to be conscious and lay more emphasis on working posture and ergonomics. By maintaining proper positioning the pain and injuries can be prevented.

**Conflict of interest:** None

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