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PREVALENCE OF MUSCULOSKELETAL DISORDERS AND AWARENESS OF PHYSIOTHERAPY MANAGEMENT FOR THE ABOVE AMONG PRIMARY SCHOOL TEACHERS

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ABSTRACT: Background: According to World Health Organization the global prevalence of musculoskeletal disorder ranges from 14% to as high as 42%. Teachers are generally prone to neck, shoulder and low back pain. The work tasks of school teachers often involve significant use of a head down posture, such as frequent reading and marking of assignments. According to World Health Organization working with a heavily bent, extended or twisted trunk can result in an overload of spinal structures and increased activity of the entire muscles. **Objective:** To find out the prevalence of musculoskeletal disorders and awareness of physiotherapy management among the primary school teachers. **Study Design:** Non-experimental. **Subjects:** 340 samples. Permission from the Institutional head along with the concerned teachers was taken initially to conduct the study. Prior information about the study was given. The purpose of the study was explained to all the subjects to take part in the study. The subjects were selected based on the inclusion and exclusion criteria. Then the “Extended Nordic musculoskeletal questionnaire” and the “Physiotherapy Awareness questionnaire” was distributed to them and made sure that the questionnaire is fully completed. **Outcome Measures:** Extended Nordic musculoskeletal questionnaire, physiotherapy awareness questionnaire. **Results:** The prevalence of Musculoskeletal discomfort were Neck (30.6%), Shoulder (30.3%) and knees(30.3%), lower back(28.8%) Upper back (25.0%). Ankle (21.5%), then Elbow(18.5%) Hip (16.8%). wrists/Hand(15.9%). The true answer rates for the questions on Physiotherapy awareness were 40%, 48% and 63% respectively. **Conclusion:** There is a prevalence of musculoskeletal discomfort among primary school teachers, only slightly less half (48%) of 340 teachers were believed to have had some knowledge of physiotherapy.

INTRODUCTION: The term “Musculoskeletal disorders” include a wide range of inflammatory and degenerative conditions affecting the muscles, tendons, ligaments, joints, peripheral nerves and supporting blood vessels.

These include clinical syndromes such as tendon inflammations and related conditions (tenosynovitis, epicondylitis, bursitis), nerve compression disorders (carpal tunnel syndrome, sciatica) and standardized conditions such as myalgia, low back pain, neck pain¹. Musculoskeletal disorders (MSDs) are put into different categories according to pain location. One category is upper limb disorders which include any injury or disorder located from fingers to shoulder or the neck. Another category of musculoskeletal pain disorder is lower limb disorders which include injury and disorders from hips to toes².

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Most musculoskeletal disorders develop over time and are caused either by the work itself or by the working environment. Health problems range from discomfort, minor aches, and pains to more serious medical conditions requiring time off work and even medical treatment³.

Many international studies among school teachers have reported high prevalence of musculoskeletal pain disorders.⁴⁻¹⁰ School teachers relative to other occupational groups, report a high prevalence of musculoskeletal disorders¹¹.

Among different populations studied, the teachers are found to be at higher risk of developing musculoskeletal pain although prevalence among them was not uniform and ranged between 23.7% and 95.1%.^{7, 11-16} Musculoskeletal pain is the main cause of absenteeism and early retirement among school teachers¹⁷. Musculoskeletal pain also leads to stress which will affect school teaching performance¹⁸. The prevalence of musculoskeletal pain disorder is positively associated with female gender^{4, 12, 19}.

The work tasks of school teachers often involve significant use of a head down posture, such as frequent reading and marking of assignments^{19, 20}. According to World Health Organization working with a heavily bent, extended or twisted trunk can result in an overload of spinal structures and increased activity of the entire muscles. Due to continuous bending and twisting of the trunk the risk of spinal injury is considerably increased in teachers¹.

The work of teachers does not only involve teaching students but also preparing lessons, assessing students' work, and participating in different school committees. These may cause teachers to suffer adverse mental and physical health issues due to the variety of job functions⁴. Long time sitting in a fixed posture is accompanied by long lasting musculoskeletal problems².

Abnormal muscular activity may lead to an overload within muscular structures. So such working positions should be avoided or the time of working in such positions should be kept to a minimum¹. A profession is a rewarded occupation, especially one that involves appropriate qualification and training to improve quality of an

individual's life. Physical therapy, as a health care profession was formally recognized in the second decade of the 20th century after the World War I (1914-1918). It gained its importance due to the breakout of poliomyelitis after World War II.

World Confederation for Physical Therapy(WCPT) defines Physical Therapy as "A profession which is concerned with identifying and maximizing quality of life and movement potential within the Spheres of promotion, prevention, intervention, habilitation and Rehabilitation. This encompasses social, psychological, physical and emotional wellbeing."

A study conducted by Pratiand Liu in October 2006 showed that the students have a positive attitude towards physical therapy. Awareness of physiotherapy among teachers have less data analyzed, the teachers who are prone for musculoskeletal disorders should be aware of physiotherapy and treatment used in it for getting proper treatment and also it is important in encouraging the students to plan their future with physiotherapy.

There are very few studies that have documented the prevalence of musculoskeletal disorders and awareness of the physiotherapy management among primary school teachers. Thus the aim of this study is to find the prevalence of musculoskeletal disorders and awareness of Physiotherapy management among the primary school teachers

MATERIALS AND METHODS: Permission from the Institutional head along with the concerned teachers was taken initially to conduct the study. Prior information about the study was given. The purpose of the study was explained to all the subjects to take part in the study. Full time Primary school teachers with five years of experience, both male and female, age between 30-45 years and those who are willing to participate in the study were selected. Teachers with pregnancy, deformity (Spinal Deformities, Limb Length Discrepancy, Poliomyelitis, Rheumatoid arthritis), teachers who does daily exercise and yoga, any neurological complaints, metabolic disorders are excluded from the study. Then the "Extended Nordic musculoskeletal questionnaire "

“Physiotherapy Awareness questionnaire” was distributed to them and made sure that the questionnaire is fully completed. Any doubt regarding the questions was cleared at the same time. The answered questions were collected at the end of the session from each teacher. About 340 teachers from private schools in Chennai participated in this study.

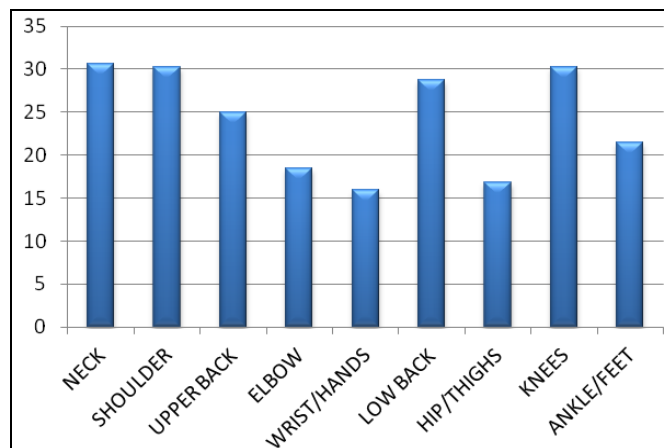
RESULTS:

TABLE 1: THE PREVALENCE OF PAIN IN NECK, SHOULDER, UPPER BACK, ELBOW, WRISTS/HANDS, LOW BACK, HIP/THIGHS, KNEE, AND ANKLE REGIONS AMONG THE PRIMARY SCHOOL TEACHERS

S.no	Region	Total(n=340)	%
1	Neck	104	30.6
2	Shoulder	103	30.3
3	Upper Back	85	25.0
4	Elbow	63	18.5
5	Wrists/Hands	54	15.9
6	Lowback	98	28.8
7	Hip/Thighs	57	16.8
8	Knees	103	30.3
9	Ankles	73	21.5

This table infers the prevalence of pain in neck, shoulder, upper back, elbow, wrists/hands, low

back, hip/thighs, knee, and ankle regions among the primary school teachers.



GRAPH 1: THE PREVALENCE OF PAIN IN NECK, SHOULDER, UPPER BACK, ELBOW, WRISTS/HANDS, LOW BACK, HIP/THIGHS, KNEE, AND ANKLE REGIONS AMONG THE PRIMARY SCHOOL TEACHERS

This Graph infers the prevalence of pain in neck, shoulder, upper back, elbow, wrists/hands, low back, hip/thighs, knee, and ankle regions among the primary school teachers.

TABLE 2: AWARENESS OF PHYSIOTHERAPY MANAGEMENT AMONG PRIMARY SCHOOL TEACHERS

Topic question	Sub question	Right answer		Wrong answer		Don't know	
		N=340	%	N=340	%	N=340	%
1. Physiotherapy is,	A. Practised by physiotherapist	297	87.4	3	0.9	40	11.8
	B. A branch of acupuncture	60	17.6	148	43.5	132	38.8
	C. Practised by massage therapist	149	43.8	80	23.5	111	32.6
	D. An indigenous treatment method	38	11.2	143	42.1	159	46.8
2. Physiotherapy unit includes	A. A gymnasium with exercising machines, gym balls and other equipment	206	60.6	57	16.8	77	22.6
	B. Electrical modalities	185	54.4	56	16.5	99	29.1
	C. A section for manual treatments using bandages, tapes and splints.	165	48.5	73	21.5	102	30.0
	D. A therapeutic pool	98	28.8	38	11.2	204	60.0
3. Places where the physiotherapy services can get	A. Private clinics	281	82.6	26	7.6	33	9.7
	B. Government hospitals	210	61.8	37	10.9	93	27.4
	C. Private hospitals	260	76.5	33	9.7	47	13.8
	D. NGO'S	108	31.8	51	15.0	181	53.2
4. Physiotherapy treatments include	A. Exercise therapy	295	86.8	10	2.9	35	10.3
	B. Ice or heat therapy	133	39.1	83	24.4	124	36.6
	C. Hydrotherapy	94	27.6	45	13.2	201	59.1
	D. Electrotherapy	216	63.5	46	13.5	78	22.9
5. Do you know when to meet a physiotherapist?	A. When you have an injury	90	26.5	206	60.6	44	12.9
	B. When there is pain arising in any body part with or without a known cause.	184	54.1	121	35.6	35	10.3
	C. When you feel pain or discomfort in any sporting technique	169	49.7	124	36.5	47	13.8
	D. When you have fever or flu.	12	3.5	289	85.0	39	11.5

This table infers the number of teachers and the percentage of awareness and unawareness of physiotherapy among the primary school teachers.

DISCUSSION: This study is done on the prevalence of musculoskeletal disorders and physiotherapy awareness among primary school teachers.

Focusing on school teacher's occupational health is important, but little recent research is available. Thus, the musculoskeletal discomforts confronted by school teachers in most countries are relatively unknown. In the present study, it was aimed at investigating the prevalence of musculoskeletal disorders among the teachers with a questionnaire survey.

Sunisa and Pornnapa pointed out that among workers including teacher's prolonged posture, static works and repetition are the cause of repetitive strain injuries (RSIs), which is one type of musculoskeletal discomforts that directly affect the area of upper limb, neck, shoulder and low back.

Work activities that involve heavy lifting, awkward postures, bending, twisting or stooping, prolonged sitting or standing and repetitive motions may contribute to the development of musculoskeletal disorders. Activities of sustained sitting of frequent reading, marking of assignment and in front of computer, standing up teaching in class, repetitively overhead writing on board are also unsafe act and favourable to the development of Low back pain and upper limb pain which are found high in teachers²¹.

Studies have also confirmed that sitting for more than 3 hours daily could be a risk factor for Low back pain. But Lis and col-leagues, in their systematic review, found that sitting it-self does not increase the risk of low back pain, but sitting for more than half a workday, combined with whole-body vibration and/or awkward postures, does increase the likelihood of having low back pain, and it is the combination of those risk factors that leads to the greatest increase in Low back pain.

The results of this study confirms that musculoskeletal problems are prevalent in primary school teachers, of its Neck (30.6%), Shoulder

(30.3%) and knees (30.3%), Then comes the discomforts in lower back(28.8%) followed by Upper back (25.0%). The next joint affected was Ankle (21.5%), then Elbow(18.5%) followed by Hip (16.8%).The least affected joint according to this study was wrists/Hand(15.9%).

This goes in hand with Thomas T.W. Chiu. Peggo K.W. Lam (2010) concluded that neck and upper limb pain were highly prevalent in school teachers in Hong Kong. Gender, age, head down posture and some psychosocial factors were found to be significant risk factors.

This goes in hand with Nilufer Cetisli Korkmaz, Uur cavlak, Emine Aslan Telci (2011) concluded that pain in neck, upper back and shoulder region were common in female teachers and the pain severity increases with the overhead activities. Gender, age, emotional status and improper posture are significant risk factors in terms of developing musculoskeletal disorders.

In general, the awareness about physiotherapists, structure of a physiotherapy unit and the availability of physiotherapy services was unsatisfactory (Questions 1, 2 and 3). The true answer rates for these questions were 40%, 48% and 63% respectively (**Table 1**).

Interestingly, 86% of teachers are aware that exercise therapy are available at physiotherapy units. In average, nearing a half of the study population (54%) was aware of treatment methods used in physiotherapy (Question 4), and only 34% did know when to meet a physiotherapist (Question 5).

The overall awareness about physiotherapy as indicated by true answers to the questions was approximately 48%. In general, nearing half (52%) of primary school teachers were unaware of physiotherapy profession and its applications in patient management. This finding suggest that the Primary school teachers in India are less aware about the field of physiotherapy.

Many primary school teachers thought that physiotherapy is practiced by masseurs (44%). Also, 48% of teachers do not have an idea if physiotherapy is an indigenous method of treatment (**Table 1**)

Pain management is a most important aspect that should be available in primary care settings. Previously most physiotherapy services are confined to large hospitals, often in private sector and located in urban areas and also now provision in rural or government hospitals appears to be inadequate. The lack of awareness on physiotherapy is alarming. Only slightly less Half (48%) of 340 teachers were believed to have had some knowledge of physiotherapy and also this study emphasizes that there was a high prevalence of musculoskeletal disorders especially neck and shoulder among primary school teachers.

Future studies with interventions for the musculoskeletal discomforts can be done, high school teachers, college lectures can be included. Physical activity questionnaire can be included. Difference in discomforts between male and female teachers can be documented, difference in discomforts between primary school teachers and secondary school teachers can be done in further studies, difference in years of experience can be planned for further studies, difference between urban school teachers and rural school teachers can be taken in to account for further research.

CONCLUSION: This study aims to study on the prevalence of musculoskeletal disorders and physiotherapy awareness among primary school teachers. The results of this study confirms that musculoskeletal problems are prevalent in Primary school teachers, of it the commonest musculoskeletal discomforts are Neck(30.6%), Shoulder (30.3%) and knees(30.3%).

Regarding the Physiotherapy awareness only slightly less Half (48%) of 340 teachers were believed to have had some knowledge of physiotherapy which shows more than half of the population of teachers are not aware of the physiotherapy profession in detail which was quite alarming and that may indirectly hinder the development of this profession, so awareness programmes on physiotherapy should be made to reach the public and school sector for the better growth of the Profession.

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