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# Ergonomics in work situations of Ayurvedic therapists working in Vaidyaratnam Ayurveda College, Ollur, Trissur

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## ABSTRACT

**Introduction:** Ergonomics is defined as the process of designing or arranging workplaces, products and systems so that they fit the people who use them. Physical, organizational and cognitive are the three types of ergonomics. **Aims and Objectives:** To assess the prevalence of Musculoskeletal Disorders (MSD) in Ayurvedic therapists working in, Vaidyaratnam Ayurveda College, Ollur, Trissur. **Materials and Methods:** A Descriptive cross sectional study was done. 17 therapists in VACH Ollur were surveyed consecutively regarding symptoms of Musculoskeletal disorders mainly LBA, neck pain, shoulder pain, knee pain and heel pain. Data were collected by using questionnaires and were analysed using appropriate statistical methods. **Results:** Out of 17 therapists, 52.9 % were females. Highest frequency of MSD was seen in the age group of 46-55 years. 80 % of the therapists were working more than 20 years. 64.5 % were suffering from LBA, 29.4% were suffering from neck pain, 23.8% were suffering from shoulder pain, 41.2% were suffering from knee pain and 17.6 % were suffering from heel pain. **Discussion:** Present study shows that MSD are common among therapists. Improper posture for different procedure can be the reason. Adhering to the principles of physical and cognitive ergonomics can prevent risk factors of developing MSD.

**Key words:** Ayurvedic therapists, Cognitive ergonomics, Ergonomics, MSD, Organisational ergonomics, Physical ergonomics.

## INTRODUCTION

Ergonomics is the study of aligning the needs of a job with the ability of the worker and work environment to provide the most efficient workspace possible while simultaneously reducing the risk of injury. The primary goal of ergonomics has been reducing the rate of work-related musculoskeletal disorders (WMSDs), but it also

includes the efficiency, quality, quantity, and comfort of the labor being produced with aims for maximizing these components while minimizing worker injury, turnover, and fatigue/overexertion.<sup>[1]</sup> Examples of workplace risk factors include jobs requiring repetitious, forceful, or persistent use of the upper extremity, frequent lifting, pushing, pulling heavy objects, or maintaining prolonged uncomfortable postures for an extended period.<sup>[2]</sup> The reduction of WMSDs is often considered the largest concern for ergonomics. Back, neck, and upper extremity injuries are some of the more common WMSDs, with studies demonstrating correlations between certain specific movements and combination of movements within work (lifting, twisting, prolonged walking/standing, squatting, prolonged standing, and repetitive motions) placing individuals at an increased risk for developing WMSDs.<sup>[3][4]</sup> Physical, organizational and cognitive are the three types of ergonomics. Through workplace design and assessment, including postures, manual

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labour, and repetitive motions, physical ergonomics aims to prevent injuries. The structures, rules, and procedures of any organisation are taken into account by organisational ergonomics. The field of ergonomics that focuses on creating simple, understandable, and user-friendly products is called cognitive ergonomics.

According to *Ayurveda*, *Padachatushaya* is essential for the effective management of the illness.

*Upasthatha*, one of the *Padachatushaya* can be considered as a bystander or *Ayurvedic* therapist who is doing all kind of external treatments including *Abhyangam* (External Application of oil), *Pizhichil* etc. Lack of good quality of work can have an effect on the treatment of the patient. *Ayurvedic* therapists are subjected to do their work in a prolonged standing posture, repetitive motion of 30 minutes to 1 hour duration. So, they are more prone to risk factors of MSDs. So, this study is planned to assess the prevalence of Musculoskeletal Disorders (MSD) in *Ayurvedic* therapists working in, Vaidyaratnam *Ayurveda* College, Ollur, Trissur.

## AIMS AND OBJECTIVES

To assess the prevalence of Musculoskeletal Disorders (MSD) in *Ayurvedic* therapists working in Vaidyaratnam *Ayurveda* College, Ollur, Trissur.

## MATERIALS AND METHODS

### Study Design

A Descriptive cross sectional study was done.

### Study settings

In Patient Department of Vaidyaratnam *Ayurveda* College, Ollur, Trissur.

### Study Population

17 *Ayurvedic* therapists in Vaidyaratnam *Ayurveda* College, Ollur, Trissur were surveyed consecutively regarding symptoms of Musculoskeletal disorders mainly LBA, neck pain, shoulder pain, knee pain and heel pain.

### Inclusion criteria

Therapists who were present on the day of survey were taken for the study.

### Exclusion criteria

Therapist who were absent on the day were excluded.

### Sampling technique

Therapists were randomly selected with inclusion and exclusion criteria.

### Study tools and data collection

Data were collected by using questionnaires and were analysed using appropriate statistical methods.

### Procedure

17 therapists working in Vaidyaratnam *Ayurveda* College, Ollur, Trissur who were present on the day of survey were taken for the study. A structured questionnaire was prepared and filled by the therapists. Based on the data collected, the prevalence of MSD among the therapists was assessed. The purpose of the study was explained to participant before interviewing. Trained health personnel assisted participants who could not read or write in completing the questionnaire.

### Data collection

The following data were collected from the questionnaire

1. Socio demographic characteristics of the therapists including age and gender
2. Working experience
3. Musculoskeletal disorder symptoms

The data were entered and analyzed using appropriate statistical methods.

### Statistical analysis of collected data

The collected data were recorded and analysed under the following headings:

1. Socio demographic data
2. Working experience
3. Musculoskeletal disorder symptoms

In this study, socio demographic data of age, gender, working experience and symptoms of MSD were recorded. The data was grouped and entered in a

master excel sheet. Frequency distribution of the different variables was statistically analysed.

#### Ethical consideration

An informed consent was obtained from each patient before study.

### OBSERVATIONS AND RESULTS

The total number of therapists in this study distributed between the age of 27 years and 53 years with mean of 42.176 with standard deviation 8.0174. Female predominance (52.9) was seen in the study. Working experience distributed between 1 year and 32 year with mean of 13.235 with standard deviation of 12.0288. 80% of the therapists having a working experience of more than 20 years.

**Table 1: Age descriptive**

Minimum	Maximum	Mean	Std. Deviation
27.0	53.0	42.176	8.0174

**Table 2: Distribution according to gender**

	Frequency	Percent
Female	9	52.9
Male	8	47.1
Total	17	100.0

**Table 3: Working experience descriptive**

Minimum	Maximum	Mean	Std. Deviation
1.0	32.0	13.235	12.0288

Among the 17 therapists, 64.5 % were suffering from LBA, 29.4% were suffering from neck pain, 23.8% were suffering from shoulder pain, 41.2% were suffering from knee pain and 17.6 % were suffering from heel pain.

**Table 4: Presence of LBA**

LBA	Frequency	Percent
No	6	35.3
Yes	11	64.7

Total	17	100.0
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**Table 4: Presence of Neck pain**

Neck pain	Frequency	Percent
No	12	70.6
Yes	5	29.4
Total	17	100.0

**Table 5: Presence of Shoulder pain**

Shoulder pain	Frequency	Percent
No	13	76.5
Yes	4	23.5
Total	17	100.0

**Table 6: Presence of knee pain**

Knee pain	Frequency	Percent
No	10	58.8
Yes	7	41.2
Total	17	100.0

**Table 7: Presence of heel pain**

Heel pain	Frequency	Percent
No	14	82.4
Yes	3	17.6
Total	17	100.0

### DISCUSSION

This study was undertaken to assess the prevalence of MSD in Ayurvedic therapists working in Vaidyaratnam Ayurveda College, Ollur, Trissur. From the above findings it is clear that MSDs are common among therapists. As the working hours and patient allotted to each therapist are equal so we can say that organisational ergonomics are satisfied. Improper posture for different procedures can be the reason.

Each Ayurvedic external procedures including *Abhayanga* (External Application of oil), *Pizhichil* (Pouring oil over the body) etc requires time duration of 30 minutes to 1 hour. Prolonged standing posture around one hour can be the reason for heel and knee pain. A crucial factor in these MSDs is the height of the therapist and the treatment table. In order to effectively treat patients, a short therapist must apply greater pressure on the knee and heel. All procedures are performed with a small forward bend in posture. The lower back and spine are positioned incorrectly during all treatments, which may be the cause of low back discomfort. Shoulder pain could result from the majority of procedures that need repetitive motions of the shoulder joint. Another significant aspect influencing the therapists' health status is receiving continuous therapy one after the other. A 20–30 minute break should be permitted following every procedure to prevent stressing out the muscles and joints. MSD affects a person's social, psychological, and physical well-being, which eventually lowers their productivity and quality of life. Repetitive motions, bad illumination, mental stress, physical conditioning, incorrect posture, age, and genetic predisposition are risk factors for MSDs. The physical and mental health of therapists can be enhanced by providing them with enough rest after each procedure, calming exercises, height adjustable treatment tables, *Panchakarma* treatments, *Yoga*, and meditation techniques. To design and implement a complete strategy to reduce the chances of a work-related injury, a thorough understanding of the physiological mechanisms underlying these issues is required. There are certain researches which have already established connection between RSI (Repeated strain injury) and MSDs.<sup>[5,6]</sup>

## CONCLUSION

*Upasthatha* is one among the *Padachathushtaya* plays an important role in *Chikitsa*. Present study shows that MSDs are common among therapists, which will affect their quality of work and productivity. Lack of good quality of work can also have an effect on the

treatment of the patient. As the working hours and patient allotted to each therapist are equal so we can say that organisational ergonomics are satisfied. Improper posture for different procedures can be the reason. Height Adjustable treatment tables can prevent the extra pressure given to heels and knees. Adhering to the principles of physical and cognitive ergonomics can prevent risk factors of developing MSDs.

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