

Prevalence of Musculoskeletal Disorders among Self-Employed Female Tailors in Selected Places of Bengaluru

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Abstract

Background & purpose: Work -related musculoskeletal disorders have been known to affect workers in a wide variety of occupations and are major causes of lost time from work, worker's disability, increase in compensation claims and health care costs. The pattern of work-related musculoskeletal disorders has been reported to vary among different occupational groups. Tailoring involves monotonous, highly repetitive tasks like cutting, assemble, pressing and finishing performed in sitting working posture with upper back curved and head bent over the sewing machine. The aim of this study is to assess the prevalence of musculoskeletal disorders and risk of low back pain among self-employed female tailors.

Methods: A cross sectional study was conducted at selected places of Bengaluru. 70 subjects were selected based on the inclusion and exclusion criteria and were screened for work-related musculoskeletal disorder using Nordic Musculoskeletal Disorder Questionnaire and low back pain using Modified Oswestery lower back disability index.

Results: The results were statistically analyzed. The study found high rate of musculoskeletal disorders among self-employed female tailors. More than 79.2% of tailors suffered from musculoskeletal pain and lower back were the most prevalent site.

Conclusion: The study found high rate of musculoskeletal disorders among self-employed female tailors. More than 79.2% of tailors suffered from musculoskeletal pain and lower back were the most prevalent site. Frequent breaks during work period and back support would reduce the musculoskeletal stress on lumbar region. Based on the observations made, the study concluded that there is ample scope for ergonomic improvement keeping in view the need for maximum comfort to the tailors to promote their health and well-being and enhance their productivity and quality of work.

Key Words: Self-Employed Female Tailors, W-Rmsd, Low Back Pain, Modified Oswestery Lower Back Disability Index, Standardised Nordic Questionnaire.

Introduction

Musculoskeletal disorders (MSD) include a wide

range of inflammatory and degenerative conditions affecting the muscles, tendons, ligaments, joints,

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peripheral nerves and supporting blood vessels. Work related MSDs (WRMSDs) usually occur when there is a mismatch between the requirements of the job and the physical capacity of the human body, depending upon the physical movement characteristics, ergonomics, and mechanical design of work tasks.¹ Work-related musculoskeletal disorders have been known to affect workers in a wide variety of occupations and are major causes of lost times from work, worker's disability, increase in compensation claims and health care costs.² The pattern of work-related musculoskeletal disorders has been reported to vary among different occupational groups.

Tailoring involves monotonous, highly repetitive tasks like cutting, assemble, pressing and finishing performed in sitting working posture with upper back curved and head bent over the sewing machine. Working in this awkward posture for a long duration increases the chance of developing work-related musculoskeletal disorders in them.³ The tailoring industry of India is an unorganized sector, mostly run by private establishments provides employment for both men and women majority from the lower economic classes. The employees of this industry hardly ever benefit from occupational health-and-safety provisions. They lack any type of social security, so their ill-health and poverty go hand-by-hand and create a stupendous pressure from which they can hardly come out.

The present study highlights the burden of musculoskeletal disorder among the females engaged in tailoring occupation as well as their discomfort related to ergonomically deranged workstation. Although majority of musculoskeletal disorders are benign and self-limiting in nature, the consequences of its persistent presence led to chronic (and persistent) disabling pain, sickness absence, work disability and increasing health care costs. If not corrected early, this health problem can seriously undermine their physical capacity hence leading to permanent physical disability. All these can adversely affect their earning power, thus setting a vicious cycle of no work, no money, malnutrition, and weakness. Intervention at work site like providing the workers with improvised workstation combined with ergonomic education and training, frequent short breaks to stretch and/or change position in

between their working hours and jobs/task rotation through tasks that do not require constant leg pressure and awkward leg posture would go a long way in reducing the incidence of musculoskeletal disorders among them. Concerted efforts by the government and nongovernmental agencies as well as the employers to bring them under the umbrella of an organized sector with provision of social security measures and quality health care coverage would be helpful to mitigate their suffering.

Every occupation has its own adverse effects on health. Low back pain is considered to be one of the most common occupational health problems. It is defined by Last JM et al as "a non-specific condition that refers to complaints of acute or chronic pain and discomfort in or near the lumbosacral spine".⁴ Kraemer et al 1985 stated prolonged sitting leads to isometric contractions of back muscles leading to endow muscular pressure restricted blood flow, resulting in ischemia which reduces energy requirements of the muscles causing fatigue.⁵ Prolong flexion of the spine leads to increase intervertebral joint laxity and fluid loss in the intervertebral discs.⁶ and the intra-discal pressure at the lumbar region is high both in sitting and trunk-bent-forward posture.⁷ Insufficient recovery time is the contributing factor to developing low back pain.⁸

Over two decades ago, Kuorinka and colleagues presented the general Standardized Nordic Questionnaire as a screening instrument that comprised just three questions regarding musculoskeletal pain that is been widely utilized in the absence of any other rigorously reliable assessment tool. The Nordic Musculoskeletal Disorder Questionnaire tool used in this study was adapted from Dawson et al⁹ which collects reliable information regarding the point, 12-month, and lifetime prevalence and consequences of musculoskeletal symptoms in nine body regions.

This study aims to estimate the prevalence of work-related musculoskeletal disorders among female tailors and the severity of the disability due to low back pain among female self-employed tailors populations.

Objectives of the Study

- To estimate the prevalence of musculoskeletal disorders among self-employed female tailors.

- To assess the prevalence of severity of disability due to low back pain among self-employed female tailors.

Methodology

Materials and Methods

Source of Data: Self-employed female tailors

Definition of study subjects: Female tailors from selected places of Bengaluru based on inclusion and exclusion criteria.

Inclusion Criteria:

- Age of respondents > 18 years
- More than 8 hours of work
- Subjects willing to participate and ready to sign consent form.

Exclusion Criteria:

- Subjects with neurological dysfunction, musculoskeletal dysfunction, psychiatric disorder
- Subjects with gynecological conditions
- Subjects who had already participated in similar kind of study.
- Pregnant women and lactating mother
- People with disabilities

Method of Collection of Data

Sampling Method:

Purposive sampling technique

Sampling Size: Subjects matching up inclusion and exclusion criteria.

Materials Required

- Consent form
- Screening form
- Questionnaire form
- Stationaries

Duration of the Study:

Data was collected over a period of in 3 months' time.

Procedure

Investigator personally contacted the self-employed female tailors and subjects that fulfilled the inclusion and exclusion criteria and were recruited for the study. Interviewer presented a structured questionnaire along with a pretested checklist for assessment of the seeing workstation that were used. The questionnaire consisted of four sections; the first part included questions on sociodemographic characteristics and background information of the respondents; second part included questions related to occupational variables like working duration, years of work, hours of working per day and days per week and whether her job is part time or full time. The third part of the questionnaire dealt with the presence and pattern of musculoskeletal disorder which was assessed by Nordic Musculoskeletal questionnaire. The fourth part was to assess the severity of lower back pain by using Modified Oswestry Lower back disability Index.

Result Analysis

Descriptive statistics:

All the categorical variables were presented in the form of frequency tables and graph wherever necessary. The quantitative variables were summarized using.

Mean \pm standard deviation with 95% confidence interval.

Inferential statistics:

The prevalence of work-related musculoskeletal disorder among self-employed female tailors from selected places of Bengaluru.

Statistical software:

The data was entered using statistical software namely SPSS Version 25.0, Microsoft Excel 2016 and Microsoft word 2016 was used to draw tables and graphs.

Table 1: Distribution of SNQ Neck

Pain and Disability	Nature of musculoskeletal disorder	Number (n=70)	Prevalence (%)
Trouble in last 12 months (such as ache, pain, discomfort, numbness)	Yes	33	47.1
Trouble during last 7 days	Yes	35	50
ADL affected in last 12 months (Eg. job, housework, hobbies) because of this trouble	Yes	39	55.7

Table 2: Distribution of SNQ Shoulder, Elbow, Wrist

Pain and Disability	Nature of musculoskeletal disorder		Number (n=70)	Prevalence (%)
Trouble in last 12 months (such as ache, pain, discomfort, numbness)	Right Shoulder		32	45.7
	Left shoulder		32	45.7
	Both Shoulders		1	1.4
	Right Elbow		39	55.7
	Left Elbow		30	42.9
	Both Elbow		1	1.4
	Right Wrist		38	54.3
	Left Wrist		29	41.4
	Both Wrist		3	4.3
Trouble during last 7 days	Right Shoulder		43	61.4
	Left shoulder		26	37.1
	Both shoulders		1	1.4
	Right Elbow		56	80.0
	Left Elbow		14	20.0
	Both Elbow		53	75.7
	Right Wrist		40	57.1
	Left Wrist		29	41.4
	Both Wrist		1	1.4
ADL affected in last 12 months. (Eg. job, housework, hobbies) because of this trouble	Shoulder	Yes	38	54.3
	Elbow	Yes	17	24.3
	Wrist	Yes	45	64.3

Table 3: Distribution of SNQ Upper back, Lower Back

Pain and Disability	Nature of musculoskeletal disorder		Number (n=70)	Prevalence (%)
Trouble in last 12 months (such as ache, pain, discomfort, numbness)	Upper Back	Yes	41	58.6
	Lower Back	Yes	15	21.4
Trouble during last 7 days	Upper Back	Yes	34	48.6
	Lower Back	Yes	30	42.9
ADL affected in last 12 months. (Eg. job, housework, hobbies) because of this trouble	Upper Back	Yes	50	71.4
	Lower Back	Yes	30	42.9

Table 4: Distribution of SNQ Hip, Knee, Ankle

Pain and Disability	Nature of musculoskeletal disorder		Number (n=70)	Prevalence (%)
Trouble in last 12 months (such as ache, pain, discomfort, numbness)	Hip	Yes	35	50.0
	Knee	Yes	31	44.3
	Ankle	Yes	46	65.7
Trouble during last 7 days	Hip	Yes	35	50.0
	Knee	Yes	31	44.3
	Ankle	Yes	47	67.1
ADL affected in last 12 months. (Eg. job, housework, hobbies) because of this trouble	Hip	Yes	31	44.3
	Knee	Yes	28	40.0
	Ankle	Yes	48	68.6

Table 5: Distribution of M-OSW Score: The present study states that the mean score of low back pain is 32.59.

Age (In years)	Years in tailoring	M-OSW Score
44.66	14.2286	32.59
11.913	8.94131	8.697
25	3.00	18
78	46.00	62

Discussion

A cross sectional study was conducted to measure the prevalence of work-related musculoskeletal disorders and to assess the prevalence of severity of disability due to low back pain among self-employed female tailors. The study group included subjects aged above 18 years. The prevalence of low back pain was measured using Modified Oswestery Scale and the prevalence and consequences of musculoskeletal system was measured using Standardized Nordic questionnaire.

A total of 70 subjects participated in this study after signing the informed consent forms. They were assessed for the variables along with the demographic data and the findings were recorded.

Several cross-sectional studies stated that the low back and the musculoskeletal system were the most commonly affected among the garment workers, were at higher risk of developing musculoskeletal disorders and MSDs were highly prevalent especially in the upper extremity among sewing profession population.

The findings of this study confirm the work-related stress on musculoskeletal system on self-employed female tailors. In the present study, it was observed that the prevalence of neck trouble in last 12 months was 47.1%, trouble during last 7 days was 50 % and ADL affected in last 12 months was 55.7%. The prevalence of Shoulder trouble during last 12 months in right shoulder was 45.7%, in left shoulder was 45.7% and both the shoulders was 1.4%. Trouble during last 7 days in right shoulder was 61.4%, left shoulder 37.1% and both the shoulders was 1.4%. 54.3% tailors reported ADL getting affected in last 12 months.

The prevalence of troubles in last 12 months in right Elbow was 55.7%, in left Elbow was 42.9% and both the Elbow was 1.4%. Trouble during last 7 days in right Elbow was 80.0%, left Elbow was 20.0% and both the Elbow was 75.7%. The ADL affected in last 12 months was 24.3 %. The prevalence of trouble in last 12 months in right Wrist was 54.3%, left Wrist 41.4% and both the Wrist was 4.3%. Trouble during last 7 days in right Wrist was 57.1%, left Wrist was 41.4% and both the wrist was 1.4%. 64.3% of tailors reported that their ADL was affected during the last 12 months due to trouble in wrist. Prevalence of Upper back trouble in last 12 months was 58.6%, trouble during last 7 days was 48.6% and ADL affected in last 12 months was 71.4%. The prevalence of Low back trouble in last 12 months was 21.4%, trouble during last 7 days was 42.9% and ADL affected in last 12 months was 42.9%. The prevalence of Hip trouble in last 12 months was 50.0%, trouble during last 7 days was 50.0% and ADL affected in last 12 months was 44.3%. The prevalence of Knee trouble in last 12

months was 44.3%, trouble during last 7 days was 44.3% and ADL affected in last 12 months was 40.0%. The prevalence of Ankle trouble in last 12 months was 65.7%, trouble during last 7 days was 67.1% and ADL affected in last 12 months was 68.6%. The secondary objective was the find out the prevalence of low back pain using Modified Oswestery lower back disability index. The analysis of this study presented a mean score of 32.59.

Scope of the Present Study Was:

A high prevalence of musculoskeletal disorders exists among self-employed female tailors that affects their ADLs, productivity, and quality of work. Further studies are needed to identify the specific risk factors for the ergonomic changes to bring about and to assist in planning management strategy including awareness, education, and treatment to prevent work-related musculoskeletal disorders.

Conclusion

The study found high rate of musculoskeletal disorders among self-employed female tailors. More than 79.2% of tailors suffered from musculoskeletal pain and lower back were the most prevalent site. Frequent breaks during work period and back support would reduce the musculoskeletal stress on lumbar region. Based on the observations made, the study concluded that there is ample scope for ergonomic improvement keeping in view the need for maximum comfort to the tailors to promote their health and wellbeing and enhance their productivity and quality of work.

Limitation

Sample size could have been more in number to give a better result. Study set up can be at rural community to get better understanding of work-related musculoskeletal disorders and lower back pain involvement. Use of questionnaire in regional language could have given better results.

Conflict Of Interest: There was no personal or institutional conflict of interest for this study.

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Ethical Clearance: Ethical clearance was taken from R.V. COLLEGE OF PHYSIOTHERAPY, Bengaluru

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