Original Article

MUSCULOSKELETAL MORBIDITIES IN CLASS 4 WOMEN EMPLOYEES OF A TERTIARY CARE HOSPITAL: A CROSS-SECTIONAL SURVEY

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ABSTRACT

Background: A job is a piece of work done as a part of the routine of one's occupation for an agreed price. Every occupation is associated with one or more ill effects on the health of the worker. Musculoskeletal morbidity is the commonest cause for occupational health problems & accounts for large number of workers' compensation days & disabilities.

Aim: To conduct a survey on prevalence of musculoskeletal pain & dysfunction in class 4 female hospital employees.

Materials & Methodology: Settings & Design: Interview based randomized cross sectional survey. 80 female class 4 employees working at the Lokmanya Tilak municipal medical college & general hospital (LTMMC & LTMGH) participated in the study. Based on work pattern, a semi-structured questionnaire was prepared and validated. An informed consent was obtained before the interview. The data thus collected over a period of 3 months was analyzed to determine the prevalence & intensity of musculoskeletal dysfunction, pain & its influence on daily activity. Data was spread in Microsoft Excel 2010 & statistically analyzed using percentages.

Results & Conclusion: This study shows that considerable musculoskeletal pain & dysfunction was observed among the women sweepers & aayabai. The back & the knee appear to be affected more than rest of the joints mainly attributed to the combined effect of occupational & psychological stress.

KEY WORDS: Pain, Ergonomics, Class 4 employees, Psychosomatic stress, Tertiary hospitals.

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INTRODUCTION

Various and manifold is the harvest of diseases reaped by certain workers from the crafts and trades that they pursue; all the profit they get is fatal injury to their health mostly, from two causes. The first and the most potent is the harmful character of materials that they handle the second cause ascribe to certain violent and irregular movements and unnatural postures of the body, by reasons of which the natural structure of the vital machine is so impaired that serious diseases gradually develop there from" [1].

The government of India classifies public

officials into class 1/group A (gazetted), class 2/group B (non-gazetted), class 3/group C & class 4/group D. Class 4 employees include manual workers – skilled or semi-skilled whose social status has, more often than not, been low. The extremes of health problems are more commonly observed in this group. Health manpower in hospitals include majorly these employees especially females working as aayabais, sweepers (mehetranis) etc.

Today is an era of women who have diverse role to play in society. Often they handle two or more tasks simultaneously. They are therefore prone to suffer from work related diseases, which are further complicated by social, psychological and physiological issues. Roughly, 1 out of 300 female is suffering from some occupation related disease [2,3].

Since labor intensive economy prevails in India, the musculoskeletal problems may in fact be acute, but insufficient awareness and a lack of proper documentation makes it very difficult to quantify [4].

Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage. It is primarily a psychological experience and is the most common reason for seeking medical aid. LeResche concluded that joint pain; fibromyalgia, chronic pain etc are commonly observed in women. Also, higher rates of pain relate to a variety of social factors. Psychosocial hazards arising from workers' failure to adapt to environment include frustration, lack of job satisfaction, tension etc. which further add to their pain & dysfunction[5].

Though several studies have been carried out and many problems have been identified among hospital employees, little has been done to study the actual disorders involving the health aspects of the class 4 employees especially for women. Practice of pre-placement & periodic health examination of these workers do not exist. Thus, this randomized cross sectional survey was conducted to identify their problems with the following specific objectives:

I. To assess the prevalence of musculoskeletal pain & dysfunction among women class 4 employees working in tertiary care municipal hospital.

II. To understand the health risks involved in work environment.

METHODOLOGY:

The cross-sectional randomized interview based survey was conducted in a multi specialty, 1800 bedded tertiary care municipal hospital. The hospital consists of 40 indoor wards, 11 intensive care units, 9 major operation theatres and also many outpatient departments.

The total number of class 4 employees working were 1430 which included 295 women workers. Only regular employees who had put in a minimum of 5 years were included in the study. Assuming 5% of the populations were absent on duty at the given point of time, the sample size was fixed at 80. Random females were selected between the age group of 20 – 60 years. The departmental ethics committee approved the study protocol and a written informed consent was obtained from all the subjects prior to initiation of the study. The data was collected using a validated semi-structured questionnaire based on workload, working atmosphere and other related health problems. The questionnaire consisted of the following items;

· Personal details [age, sex, job tenure, job designation]

· Musculoskeletal problems in different body regions

· Details of Pain

· Mental and financial problems

The site of pain was further assessed by detailed clinical evaluation. Each questionnaire was filled in by personal interview with the workers and then analyzed.

RESULTS AND TABLES

General Characteristics: The mean age was 42.5 $\pm$ 7.2 years with average experience of 5.8 $\pm$ 0.7 years. All were full time workers working 6 days/week in varied shifts [7am-3pm, 3pm-11pm & 11pm-7am] helping in various departments of the hospital. The average duration of their service was 21.05 years. Out of the total subjects, 63% were Aayabai and 37% were women Sweepers(mehetranis). As per the information given by the Medical Registration

Office of Lokmanya Tilak Municipal General Hospital, these workers were given equal exposure to shift duties that changed weekly.

Table 1: Shows pain experienced while working.

PAIN	SWEEPER	AAYABAI
YES	81.48%	65.21%
NO	18.52%	34.79%

Inference: women Sweepers are found to feel more pain during work than aayabais

Table 2: Shows pain felt in the various joints.

JOINTS AFFECTED	SWEEPER	AAYABAI
NECK	22.72%	20%
SHOULDER	31.81%	6.66%
ELBOW	18.18%	6.66%
WRIST	9.09%	6.66%
BACK	63.63%	66.66%
KNEE	90.90%	66.66%
FOOT	10%	13.33%
ANY OTHER	0.00%	0.00%

Inference: The knees and the back were found to be considerably affected compared to other joints in both women sweepers & aayabais.

Table 3: Demonstrates the level of activities affected.

ACTIVITIES OF DAILY LIVING	SWEEPER	AAYABAI
CLIMBING STAIRS	54.54%	66.66%
SQUATTING	22.20%	40%
PROLONGED SITTING	31.81%	26.66%
PROLONGED STANDING	27.27%	33.33%
CROSSED SITTING	37.27%	20%
WALKING	48.26%	54.97%
PERSONAL CARE	0.00%	0.00%

Inference: Aayabais were found to have greater difficuilty in Activities of Daily Living especially during stair climbing, squatting, standing & walking compared to women sweepers.

Table 4: quantifies the difficulty in shift work.

DIFFICULTY IN SHIFT WORK	SWEEPER	AAYABAI
YES	68.75%	70%
NO	31.25%	30%

Inference: Change in shift patterns affected aayabais slightly more than women sweepers.

Table 5: shows levels of job satisfaction.

| JOB SATISFACTION	SWEEPER	AAYABAI
YES	74.08%	91.31%
NO	25.92%	8.69%

Inference: Job satisfaction is found to be considerably greater among aayabais than women sweepers.

DISCUSSION

Hospital is an institution meant to ensure community health. Health care professionals working at the hospital are composed mainly of doctors, nurses, paramedical staff and Class IV employees consisting of hospital maintenance staff, laundry staff, ambulance staff and waste-handling staff. In this study we focus on the musculoskeletal morbidities of female Class 4 employees – aayabais & sweepers.

Job Analysis/Work Analysis: is a family of procedures to identify the content of a job in terms of activities involved and attributes or job requirements needed to perform the activities. Through job analysis, we understand what the important tasks of the job are, how they are carried out, and the necessary human qualities needed to complete the job successfully. The process of job analysis involves describing the duties of the incumbent, then the nature and conditions of work, and finally some basic qualifications [6].

Fig 1: Job Analysis (Google images)
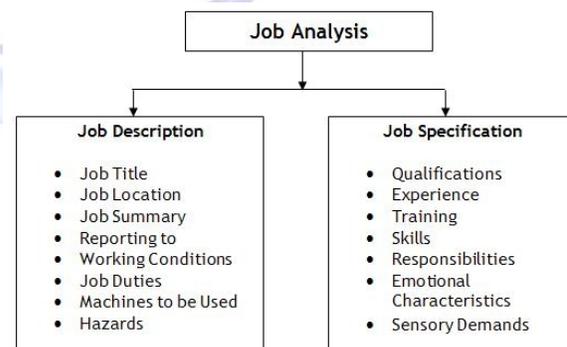
Job Demand Analysis (JDA): is a systematic procedure to quantify and evaluate the physical and environmental demands of a job. The essential and non-essential tasks of a job are identified and measured directly. The JDA will provide quantification of the workplace demands including frequency of workplace activities, weights, distances, heights, positions etc. The JDA will also include observations related to other workplace factors including workstation design and psychosocial factors, which may impact the workplace environment [7].

Sweeper (Male/female): The major work of these employees, irrespective of gender includes waste collection & disposal. Biomedical wastes (solid & liquid) include a mixture of different types of wastes such as domestic, litter, chemical, infectious wastes, pathological wastes, sharps, radioactive etc. waste management encompasses a wide range of activities including – collecting garbage, sorting recyclable materials, processing of commercial & industrial waste etc. [8,9,10].

Job duties:

· To scrub & clean the wards, stores & passages, urinals etc. Keep the ward & its surroundings clean & tidy.

· To wash, disinfect & dry soiled linen.

· To help nurses in the treatment of bladder & rectal cases.

· To give bedpans & urinals to patients promptly as & when needed, to clean & wash the patients, and to remove the bedpans when done with.

· To remove all refuse & soiled dressings to refuse bins.

· To carry dead bodies to the mortuary

· To help ward attendants in constantly keeping the ward floors, walls, windows etc. clean.

· To scrub & clean lavatories, bathrooms, bedpans, spittoons etc.

· To scrub & clean staircases of hospital premises.

· To wash, clean & dry mackintoshes.

· To take specimens & other materials to clinical laboratories.

· To keep count of bedpans, kidney trays, spittoons, given for use.

· To make herself generally useful to the nurses & other staff.

Aayabai: perform duties like patient care, assisting with hospital equipment, basic housekeeping duties, assist doctors & nurses etc. [8,9,10].

Job duties:

· To scrub & clean wards, passages, equipment, wall, windows

· To dust & polish furniture, stoppers, hinges of doors & windows, other articles in laboratories,

stores etc

· To scrub & clean ward utensils & be accountable for them.

· To carry patients to operation theaters, x ray, pathology for investigations, therapy etc

· To warm milk, tea, food in the ward pantry & help serve patients.

· To help nurses in bringing & receiving stores, linen, medicines from the dispensary, checking dead stock, sorting-counting-arranging linen etc.

· To carry mattresses, dressing drums to & from wards for sterilization or refilling.

· To help nurses in making beds, giving baths, preparing patients for surgery.

· To clean boilers, sterilizers, sinks, wash basins, gas rings, geysers, spring cots etc.

· To place screens around the beds.

· To carry dressing trolleys, help to give injections, application of splints, removing POP casts

· To accompany patients to other hospitals if instructed so

· To control patients & visitors in OPD, wards.

· To perform any other duty as directed by the supervisors.

Task Analysis: determines how a task is accomplished, including a detailed description of both manual and mental activities, task and element durations, task frequency, task allocation, task complexity, environmental conditions, necessary clothing and equipment, and any other unique factors involved in or required for one or more people to perform a given task [11].

Class 4 workers in general, irrespective of gender, are required to perform many activities during their assigned work, which include stressors like:

· Physical: Long standing hours, Lifting heavy loads, Repetitive bending, Awkward postures, Patient transfers & positioning in bed, Equipment handling etc. Bad habits like tobacco chewing, use of paan, gutkha etc.

· Movement: Climbing stairs, Walking around the wards, Repetitive motion of upper limbs while cleaning, Washing & Scrubbing, Squatting, Carry patients, Pushing & Pulling trolley, stretchers,

carrying wheelchairs etc.

· Environmental: Improper hygienic conditions, Constant exposure to water, disinfectants, needles, syringes etc, Risk of injury eg. Needle pricks, Infections, Communicable diseases, Exposure to X-rays, bio hazardous materials in garbage

· Psychological: Tension among peers, Weekly shift duties, Stress at home, strained social relationships, Financial factors, overtime if done any

Job Satisfaction: includes multidimensional psychological responses to an individual's job, and that these personal responses have cognitive (evaluative), affective (or emotional), and behavioral components. [12] It plays an important part in determining the quality of working life among class 4 employees. Aayabai were highly satisfied with their jobs compared to the sweepers in our study. All this could be attributed to the fact that aayabai were married, financially more stable than sweepers due to multiple earners in the family, they also showed improved endurance and less fatigue.

CONCLUSION

This study presented an ergonomic assessment of female class 4 employees defining the various job demands and tasks performed. It showed that most of the workers had musculoskeletal problems, which commonly involved the knee & back followed by neck, shoulders, feet, elbow & wrist.

Suggestions for Work Modifications: Fallowing points to be considered, Regular health check ups, Counseling & stress management, Adult literacy programs, Change in Working postures, Use of protective gear: Mask, gloves, proper footwear, adequate long brooms etc.

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