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Study On General Health Status and Musculoskeletal Disorders Of the Beedi Workers of West Bengal in India

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ABSTRACT
In India beedi industry is an age-old profession and one of the largest job providers for female artisans in the unorganized sector. This stressful situation becomes worse by physical pain felt in the activities. The present study examines the general health profile, impact of work factor in terms of anatomical, physiological, biomechanical and musculoskeletal disorders prevalence among workers beedi producers. A study was conducted on women artisans engaged in different districts of west Bengal. The current review mainly focuses on serious concerns about the activity's situations, exposers and work-related health hazards of female beedi artisans in west Bengal. Physical parameters such as body height, weight, muscular strength, muscular endurance, cardiovascular endurance, flexibility, body fat percentage and musculoskeletal disorders based on modified Nordic questionnaire **(kourinka.at.al.1987)** were studied. Various risk factors are involved including anatomical, biomechanical and environmental conditions such as physical work load, awkward posture, psycho social factors such as time, pressure and repetitive or monotonous jobs **(Ariens et.al.,2000; Bongers et, al., 2002; cromic et, al.,2002; salerno at.al.,2002**).

KEYWORDS: General health, beedi industry, beedi workers, MSDs, health hazards.

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I. INTRODUCTION:

"Health is a state of complete physical, mental and social wellbeing and not merely an absence of diseases or infirmity". Recently this definition has been amplified and it has been added, "attainment of a level of health that will enable every individual to lead a socially and economically productive life" world health organization, (1948). Health is, therefore, seen as a resource for everyday life, not the objective of living. Health is a positive concept emphasizing social and personal resources, as well as physical capacities. General health or HRPF is defined as fitness related to some aspect of health. This type of general health is primarily influenced by an individual's exercise habits; thus, it is a dynamic state and may change. Muscular strength, muscular endurance, cardiovascular endurance, flexibility and percentage of body fat are generally considered to be the components of general health fitness or more specifically health-related fitness. HRPF consists of those components of physical fitness that have a relationship with good health. There are a large variety of musculoskeletal disorders that have some commonality both in the physiological or anatomical characteristics and in the general location of the problem. For introducing and describing common musculoskeletal disorders problem it is best to categorize them by the anatomical characteristics, while later, in providing more detailed scientific evidence for risk factors, it is best to categorize them by joints. From the anatomical viewpoint, work related musculoskeletal disorders can be classified into six basic types are muscle, tendon, nerve, vascular, bone/cartilage and bursa. The ergonomic surveillance of occupational health hazards and job-related MSDs is most commonly used to identify the job with high rates of hazards so that an effective control program me may be developed. MSDs are a class of disorders that include suffer to the muscle, tendon, nerve, bone and cartilage of the neck, shoulders, hands, elbows, wrists, back and waist, knees, ankles/feet.

II. OBJECTIVES:

- To find out the health status of women beedi workers in west Bengal.
- To identify the hazards and risk associated with each of the task.
- To find out the most affected body regions.
- Major occupational health hazards in west Bengal women beedi employs.

III. METHODOLOGY:

A. SELECTION OF SITE AND SUBJECTS:

The beedi workers under study were situated around Dhulian (Murshidabad district) and Kalyani (Nadia district). The study was conducted on fifty women employs from this industry who were selected randomly both rural and urban area (n=50). The age of the subjects was ranged from 30-45 years and having minimum of 10 years of working experience was randomly selected for the study.

B. DATA COLLECTION:

In depth interviews were also organized with the various stakeholders involved in beedi sectors.

C. TOOLS AND TECHNIQUES OF DATA ANALYSIS:

In order to draw empirical evidence for the study frequency analysis has been done using Statistical package for the social sciences.

CRITERION	TEST AND METHODS EMPLOYED
age	Verification of AADHAAR card and school leaving certificate.
weight	Weighing matching.
height	Anthropometric rod.
Muscular strength	Hand grip dynamometer.
Muscular endurance	Flex arm hang.
Flexibility	Sit-and-reach test.
Cardiovascular endurance	Harvard step test.
Body fat percentage	Skin fold.
Musculoskeletal disorders (MSDs)	Modified Nordic Questionnaire **(kourinka at, al, 1987).**

IV. RESULT AND DISCUSSION:

Table 01: Mean ± SD value of personal data of the subjects (n=50).

PARAMETERS	MEAN ± SD VALUE
Height (cm)	145.42±10.92
Weight (cm)	55.84±11.09
Age (years)	37.56±5.03
BMI (kg/m^2)	26.60±6.70

It was observed from the table that the mean age of the subjects was 37.56 yearswith the standard deviation of 5.03. The mean height of the subjects was 145.42cm with the standard deviation of 10.92. The mean weight of the subjects was 55.84kg with standard deviation of 11.09. The BMI of the subjects was 26.60 kg/m^2 with the standard deviation of 6.70.

Table 02: Mean ± SD value of health-related physical fitness parameters of the subjects (n=50).

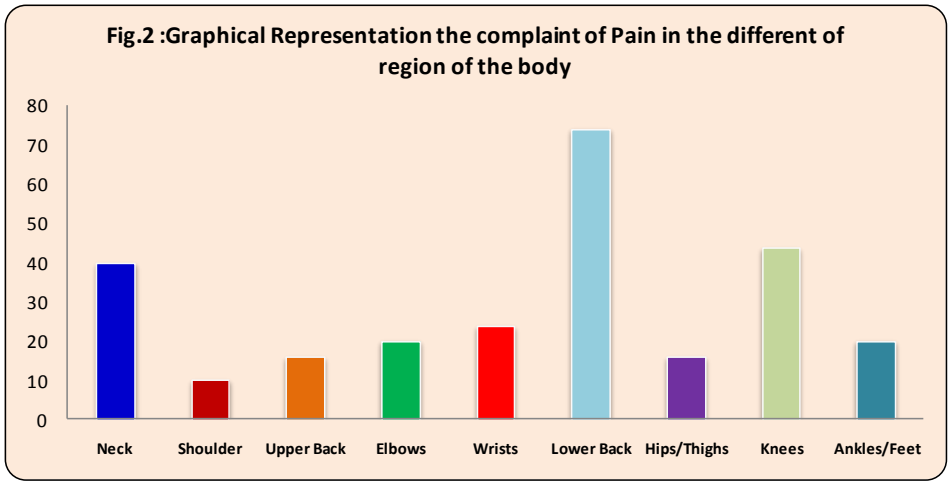
PARAMETERS	MEAN±SD VALUE
Muscular strength (kg)	29.44±8.19
Muscular endurance (sec.)	5.88±4.81
Cardiovascular endurance(bpm)	46.38±20.19
Flexibility (inch.)	5.06±1.93
Body fat percentage (m.m)	28.36±6.13

It was observed that the mean muscular strength of the subjects was 29.44kg with the SD of 8.19. The mean muscular endurance of the subjects was 5.88sec. With the SD of 4.81. The mean cardiovascular endurance

of the subjects was 46.38bpm. With the SD of 20.19. The mean flexibility of the subjects was 5.06 inch. With the SD of 1.93. The mean body fat percentage of the subjects was 28.36 m.m with the SD of 6.13.

Table 03: Representation of discomfort felt in different parts of the body of the subjects (n=50).

Sl. No.	Pain/Discomfort felt body region	Percentage(%)
1	Neck	40
2	Shoulder	10
3	Upper Back	16
4	Elbows	20
5	Wrists	24
6	Lower Back	74
7	Hips/Thighs	16
8	Knees	44
9	Ankles/Feet	20



The discomfort felt by the female beedi employs were more on the upper parts of their body region such as neck 40%, shoulders 10%, upper back 16%, elbows 20%, wrist hands24%, and on the other hand, the discomfort felt more pain in the lower parts of their body region such as lower back 74%, the hip/thigh/buttocks 16%, the knees 44%, the ankles/feet 20% etc.

V. CONCLUSION:

The general health status and musculoskeletal disorders to beedi profession are highly present in the sampled beedi industries. Ergonomic analysis indicated that the workers are constantly adapting awkward posture, such as sitting on the floor in cross legged position and downward forward bending of head and neck during work position which resulted in severe back pain and constant aches in the upper and lower extremities of their body parts.

Presently ergonomic postural rehabilitation intervention programme and safe practices have to be established to reduce job related vulnerabilities and increasing over all wellbeing of women beedi workers. This research has been able to identify the work-related musculoskeletal disorders and injuries remains prevalent in beedi industry of west Bengal and cognitive ergonomics needs will ensure good work practices and better health of women beedi artisans.

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