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Occupational Health Problems Experienced by Women Workers in Building Construction Industry

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Authors' contributions

This work was carried out in collaboration between all authors. Author Suma Hasalkar proposed a project on Occupational Health Problems Experienced by Women Workers in Building Construction Industry under university funding and guided the students in conduct of research in all steps and analyzed the data and written the report. Authors SK and Swati Hebbal are students who have worked in execution of research project entitled on Occupational Health Problems Experienced by Women Workers in Building Construction Industry in all stages of research work. All authors read and approved the final manuscript.

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ABSTRACT

Construction industry provides job opportunity to large number of skilled as well as unskilled work force. The work force employed in the construction industry have to face several difficulties at the workplace. Several issues related to health, job stress, injuries, occupational details and work site environment at work place are the major concern of the study. Keeping this in view a study was conducted to know occupational health problems experienced by the women workers in building construction industry. The data regarding socio personal characteristics and perceived health problems of women workers were collected by using pre tested structured interview schedule from 120 rural women workers worked in local construction sites of Dharwad taluka. The data on Musculo-skeletal problems were collected by using Corlett and Bishop [1] body map. Results revealed that more than 30 per cent of respondents had less than 5 years of work experience (35.83%) in construction, In case of type of site ground, half of the respondents experienced that the ground was too muddy (54.20%). As concerned with work place 57.50 per cent of women reported that the eating place were unhygienic. An observation into the mean scores revealed that,

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among the upper extremities upper back/ cervical region pain had highest mean score of 4.73 depicting very severe pain in this region. Swelling of body parts were the hazard experienced by 19.17 per cent women, followed by skin infection (6.67%) and fall / fractures (7.50%). There was significant relationship between temperature and eye pain whereas, significant relationship between humidity and shoulder joint was found and both were significant at 0.05 level.

Keywords: Women; health; occupation; construction industry; health problems.

1. INTRODUCTION

Construction sector is providing employment to 70 per cent of total world population (Department of statistics Malaysia construction, 2012. Total number employed in construction sector is 10,27,900 in 2012 [2]. Indian construction industry employs about 33 million people and creates assets worth over Rs 5, 00,000 million annually (Indian construction industry at glance 2011-2012). In India, it is the largest employer of unorganized labour next to agriculture sector.

The contribution of construction sector to the GDP in India at factor cost in 2012-13 was Rs. 30,554 million.

A large group of female unskilled workers in India work in the rural areas as agriculture labourers and as soon as the season ends, they shift to the construction industry by which they financially support their family. In building construction sites the women work directly under the sun, ameliorating stress factor and carry the enormous load, continuously handling and carrying load is one of the main activities that the women perform in construction sites. Excessive stress due to heavy work can cause various occupational health problems including fatigue, discomfort and disability, which are resulted from awkward postures, excessive load carrying and repetitive actions etc.

The present research was planned to study the occupational health problems experienced by women workers in building construction industry with the following specific objectives.

1. To study the demographic profile of selected women workers in building construction industry.
2. To analyze the occupational problems experienced by women in building construction industry.

2. MATERIALS AND METHODS

The present study was undertaken in building construction sites, located in and around the Dharwad taluka, Karnataka state, India during the year 2016-17. A self structured pretested interview schedule was administered on 120 rural women, working in building construction industry. Personal interview technique was used to gather the information regarding socio personal characteristics, work site environment and occupational problems. Corlett and Bishop [1] Body map were used to assess musculo-skeletal problems experienced by women workers in building construction industry. The research tool were used to record the environmental parameters is hygrometer for recording temperature and relative humidity. The data was further tabulated and analyzed by calculating frequency, percentage and correlation.

3. RESULTS AND DISCUSSION

Demographic profile of women in building construction is presented in Table 1.

Regarding the age group of women, it is observed that majority of them belong to middle age group of 34-42 years (39.17%) followed by 34.17 per cent belonging to young age group of less than 34 years and 26.66 per cent belonged to age group of more than 42 years.

Maximum percentage of the women (74.16%) were illiterate followed by primary schooling (24.16%). Only 0.84 per cent had completed their middle school and high school education as depicted in Table 1.

Maximum percentage of respondents belonged to SC / ST caste category (38.34%), followed by other backward caste (35.83%) and upper caste (25.83%) as shown in the Table 1.

More than 70 per cent women were married and 19.16 per cent were widows followed by only 1.17 per cent unmarried women in the selected sample as shown in Table 1.

As high as 65 per cent of women had 1-3 children followed by 33.34 per cent having 4-6 children. Only 1.66 per cent of women did not any child during the study period.

Table 1. Demographic profile of selected women workers involved in building construction activity

Particulars	Frequency	Percentage
Age (years)		
Less than 33	41	34.17
33-42	47	39.17
More than 42	32	26.66
Education level		
Illiterate	89	74.16
Primary	29	24.16
Middle school	1	0.84
High school	1	0.84
Caste		
Forward caste/General	31	25.83
Other backward caste	43	35.83
Sc / ST	46	38.34
Marital status		
Unmarried	2	01.67
Married	95	79.17
Widow	23	19.16
No. of children		
No child	2	01.66
1-3 (small family)	78	65.00
4-6 (large family)	40	33.34
Type of family		
Nuclear	81	67.50
Joint	19	15.83
Extended	20	16.67
Landholding (acers)		
Landholding a) Yes	6	5
b) No	114	95
Marginal (> 2.5)	3	2.50
Small (2.5-5)	2	1.67
Medium (5-10)	1	0.83
Annual income of the family		
Low income Rs 43,001	36	30.00
Rs 43,001 -52001	69	57.50
High income Rs 52001	15	12.50

Regarding type of family majority of women belonged to nuclear family (67.50%) followed by 16.67 per cent of women belonging to extended family and 15.83 per cent had joint family system as depicted in Table 1.

A glance into the data on land holding revealed that only five per cent women were having agriculture landholdings of which 2.50 per cent of respondents were marginal farmers followed by (1.67%) were small farming families with 2.5-5 acres of land. Only 0.83 per cent of respondents were in medium farming category with land holdings 5-10 acres as presented in Table 1.

Occupational details of the respondents, like Years of experience and reasons to choose construction occupation were presented in Table 2.

A glance in the Table 2 depicted that the main occupation of 63.33 per cent respondents was construction work, whereas 36.67 per cent respondents were agricultural labourers and they worked in construction industry during off season only.

With respect to number of years of experience, more than 30 per cent of respondents had less than 5 years of work experience (35.83%) in construction, followed by 29.16 per cent having 5-10 years of work experience. Only 11.66 per cent of the respondents had more than 20 years of work experience as presented in Table 2.

Majority of respondents expressed that they choose construction work as the wage is good (77.50%), where as the reasons given by 57.50 per cent of respondents was to support family, followed by work is available during off season of agriculture (34.20%) and available throughout the year (15.00%). Only 2.50 per cent said no other work to earn money for the family.

Table 3 depicted details of Work site environment in building construction industry. As concerned with work place 57.50 per cent of women reported that the eating place were unhygienic followed by decomposing garbage (26.70%), stinking toilets (11.70%) and litter filled work sites in construction sites (2.50%).

In case of type of site ground, half of the respondents experienced that the ground was too muddy (54.20%), followed by uneven ground (24.20%), full of sharp residues of building materials (13.30%), and too hot whether condition (5.80%). Only 2.50 per cent of women said the ground was slippery in building construction areas.

Table 2. Occupational details of selected respondents

N=120

Occupation of the respondents	Frequency	Percentage
Construction	76	63.33
Agriculture labour + Construction	44	36.67
Year of experience		
Less than 5 years	43	35.83
5-10 years	35	29.16
10-15 years	15	12.52
15-20 years	13	10.83
More than 20 years	14	11.66
Reasons to choice construction occupation*		
To support family	69	57.50
Available throughout the year	18	15.00
Wage is good	93	77.50
No other work to earn	3	02.50
Available during off season in agriculture	41	34.20

Note: Multiple answers

Table 3. Details of Work site environment in building construction industry

N=120

Particulars	Frequency	Percentage
Work place		
Unhygienic eating place	69	57.50
Stinking toilets	14	11.70
Litter filled work sites	3	2.50
Garbage of decomposing nature	32	26.70
Type of site ground		
Uneven ground	29	24.20
To muddy ground	65	54.20
Full of sharp residues of building materials	16	13.30
Slippery	3	2.50
Too hot	7	5.80
Type of ladder used in work sites		
Without safety belt	16	13.30
Without support	42	35.00
Too steep	26	21.70
Unstable	6	5.00
Obstacle pathway	30	25.00

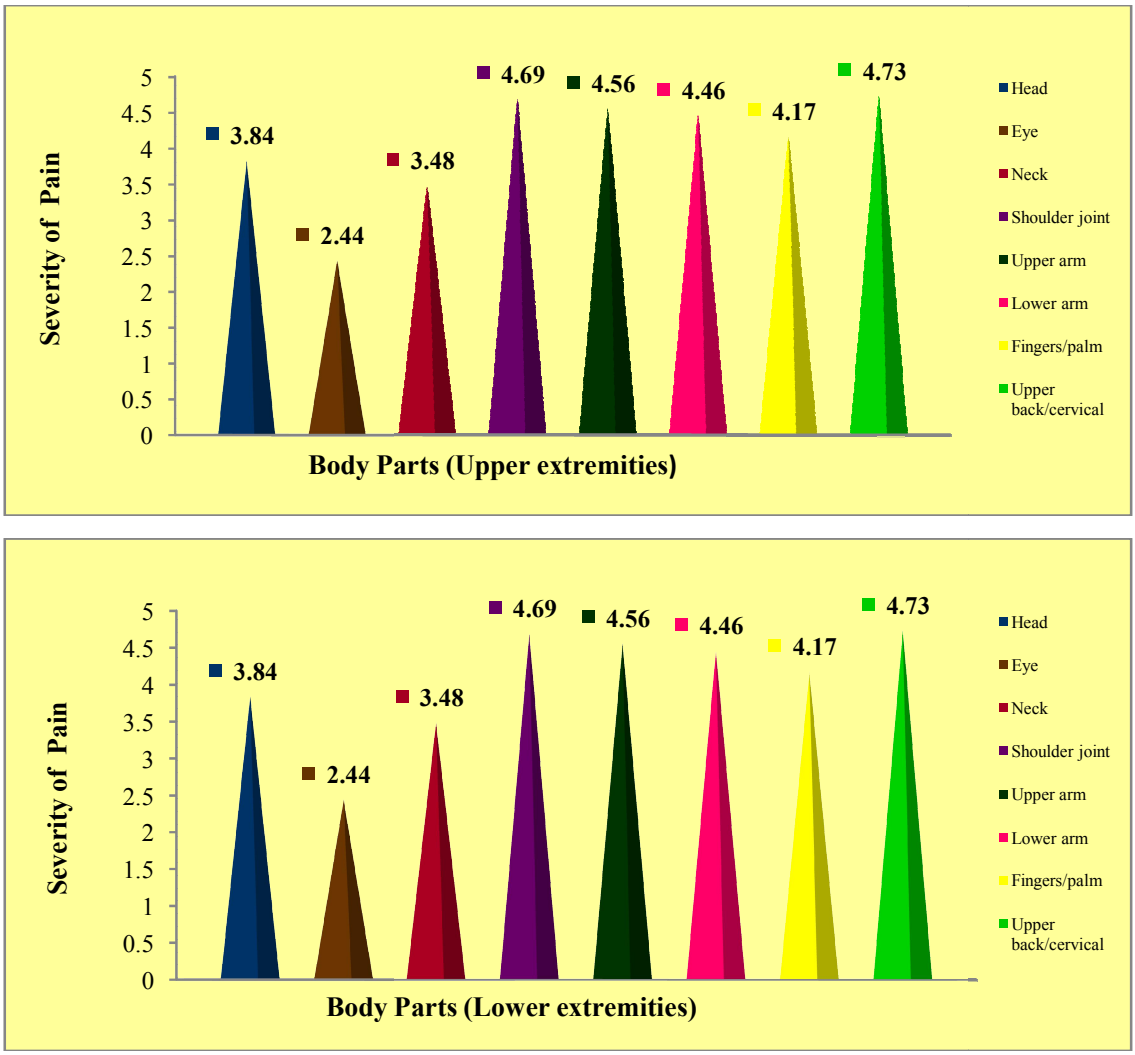

Fig. 1. Incidence of pain in different body parts among women in construction industry

Table 4. Occupational problems experienced by women workers in building construction industry

N=120

Hazards	Frequency	Percentage
Skin infection	8	6.67
Swelling in body parts	23	19.17
Falls / Fractures	9	7.50
Cuts / bleedings	2	1.67
Eye injury	1	0.83
Twists of body parts	1	0.83
No hazards	76	63.33

Regarding the type of ladder used in work sites, 35 per cent of respondents reported that the ladder was without adequate support, followed by obstacles in path way (25.00%), too steep area (21.70%), ladder was without safety belt (13.30%) and unstable (5.00%). The environmental parameters of the building construction sites included temperature and humidity.

Incidence of pain in different body parts among women in construction industry presents in Fig. 1. An observation into the mean scores revealed that among the upper extremities upper back/ cervical region pain had highest mean score of 4.73 depicting very severe pain in this region followed by shoulder joint and upper arm (4.56) which also had scored more than 4.5 score. The other two body parts which had severe pain were lower arm (4.46) and fingers / palm (4.17). Head

and neck had depicted moderate pain with a mean score of 3.84 and 3.48 respectively. Lastly eye had scored 2.44 mean score depicting mild pain as presented in Table 4. Mean scores data revealed that among lower extremities lower back had highest mean score of 4.68 depicting very severe pain followed by calf / leg (4.57) and thigh / muscles (4.53) also scored more than 4.5 score. The other three body parts which had severe pain were knee (4.40), feet (4.32) and ankles (4.30).

Among upper extremities 77.50 per cent of women experienced very severe pain in upper back followed by shoulder joint (75.00%), upper arm (66.66%), lower arm (58.33%), head (39.16%), fingers (38.33%) neck (15.00%). Only 3.33 per cent of women experienced very severe pain in eye. Among lower extremities 71.66 per cent of women experienced very severe pain in lower back followed by leg (61.66%), thighs (60.83%), knee (53.33%), feet (47.50%) and ankles (44.16%) problems.

In case of upper extremities, 41.66 per cent of women reported severe pain in fingers / palm, followed by lower arm (30.83%) and neck (29.16%). More than 20 per cent of women scored 4 depicting severe pain in the upper arm (24.16%), head (22.50%) and shoulder joint (20.83%). Only 18.33 per cent experienced severe pain in the upper back followed by pain in eye (15.83%). In case of lower extremities, 43.33 per cent of women experienced severe pain in ankles, followed by feet (38.33%), thighs (33.33%) and lower back (25.83%). Equal per cent of women scored 4 depicting severe pain in calf / leg and knee (34.16%).

Among upper extremities, 47.50 per cent of women scored 3 depicting moderate pain in neck, followed by eye (26.66%), head (20.83%), fingers (19.16%), lower arm (9.16%) and upper arm (7.50%). Equal per cent of women reported moderate pain in shoulder joint and upper back (03.33%). Among lower extremities, 13.33 per cent of women experienced moderate pain in the feet. Equal per cent of women experienced moderate pain in the knee and ankles (11.66%). Less than five per cent of women scored 3 indicating moderate pain in thigh / muscles (4.16%) followed by calf / leg (3.33%) and lower back (0.83%).

In case of upper extremities, 30 per cent women scored 2 indicating that mild pain in eye followed by head (14.16%) and neck (5.83%). About two per cent of women experienced mild pain in upper arm, lower arm. Equal per cent of women reported mild pain in fingers and upper back (0.83%). In case of lower extremities, only 1.66 per cent of women experienced mild pain lower back and thigh. Less than one per cent of women scored 2 indicating mild pain in calf / leg, knee, ankle and feet.

Among upper extremities, 24.16 per cent of women experienced very mild pain in eye. Equal per cent of women scored 1 depicting very mild pain in head and neck (2.50%). Only 0.83 per cent reported pain in shoulder joint. These results were in agreement with those of Hasalkar et al. [3] revealed that while performing top dressing of fertilizer activity in traditional method, majority of the women complained 'very severe' and 'severe' pain in shoulder joint, upper arm and low back.

Table 4 showed Occupational problems experienced by women workers in building construction industry. Majority of respondents did not experience any hazards (63.33%) in building construction industry. Swelling of body parts were the hazard experienced by 19.17 per cent women, followed by skin infection (6.67%) and fall / fractures (7.50%). Only 1.67 per cent of women experienced cuts/ bleedings and equal per cent of women experienced eye injury and twists of body parts (0.83%) in building construction work.

These results were found with study conducted by Bharara et al. [2] results revealed that cent per cent respondents reported skin infection, cough and swelling followed by 95 per cent reported skin allergy and back pain. Vaidya et al. [4] study reported that maximum percentage of women were complaining of backache (52%), followed by headache (50%), eye injury and skin infection.

Table 5 depicted the mean temperature and humidity in construction sites. It was observed that mean temperature recorded was 28.24˚C with standard deviation of 3.06˚C and humidity mean value was 39.33 per cent with standard deviation of 10.05 per cent. Both temperature and humidity were within the recommended values for comfortable work. The environmental parameters of the building construction sites included temperature and humidity.

Table 5. Relationships between Musculo-skeletal disorders with temperature and humidity

N=120

Composition of environmental parameters of the construction sites with recommendations		
Environmental parameters	**Observed mean value**	**Recommended value/ norm***
Temperature (°C)	28.24±3.06	36-38°C
Humidity(percentage)	39.33±10.05	80%
Relationships between Musculo-skeletal disorders with temperature and humidity		
Upper extremities		
Head	-0.16	-0.07
Eye	0.52*	0.07
Neck	-0.03	0.35
Shoulder joint	-0.12	0.42*
Upper arm	-0.06	0.14
Lower arm	-0.07	-0.12
Fingers/palm	0.04	-0.29
Upper back	-0.14	0.24
Lower extremities		
Lower back	-0.17	0.29
Thighs/muscles	-0.19	0.13
Calf/leg	0.13	0.09
Knee	-0.03	-0.06
Ankles	0.13	-0.16
Feet	0.16	-0.27

3.1 Relationships between Musculo-skeletal Disorders with Temperature and Humidity

There was significant relationship between temperature and eye pain whereas, significant relationship between humidity and shoulder joint was found and both were significant at 0.05 level as presented in Table 5. As the temperature in the environment increased pain in eye or eye irritation also increased. Humidity or moisture content in the environment increased the pain in shoulder joint also increased.

4. CONCLUSIONS

It can be said that for supporting family and children, women work almost a day for small remuneration in construction industry, and perform various activities. While doing work they use different types of awkward postures for prolonged period of time. In the long run this causes great damage to their health and they suffer from various health problems like musculo-skeletal pain and discomfort, skin infection, swelling in body parts, falls or fractures, cuts or bleedings, eye injury and twists of body parts. All these problems are faced by women workers due to lack of knowledge about occupational health and safety, illiteracy, un aware of postures while working, indiscriminate handling workload and non usage of protective measures like mask, gloves, head gear, ear plug, apron foot wear etc. while working in construction industry. So there is a need to create awareness among the women workers about occupational health, safety and benefits of using protective measures while working in the construction industry.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Corlett EN, Bishop RP. The ergonomics of spot welders. Appi. Ergon. 1976;9:23-32.
2. Bharara K, Sandhu P, Sidhu M. Issues of occupational health and injuries among unskilled female labourers in construction

industry. Stud Home Sci. 2012;6(1): 1-6.

3. Hasalkar S. Non-timber forest products: Role of women and its impact on household economy. Ph.D. Thesis, S.N.D.T Women's University, Mumbai. 2006.

4. Vaidya VG, Mamulwar MS, Ray SB, Beena R, Bhathawande PV, Ubale S. Occupational health hazards of women in brick klin and construction industry. J. of Krishna Institute of Medical Sci. Uni. 2015; 4(1):49-54.

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