

# WORK ENVIRONMENT AND HEALTH HAZARD FOR WEAVERS IN HANDLOOM UNIT

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## Abstract

The present study was undertaken to assess working conditions and health hazard for weavers in handloom unit. Eighty male weavers were selected from durrie units of Sujatganj and Rail Bazar of Kanpur Nagar. Parameters like personal profile, family profile, work profile, Environmental condition and health problems were studied to assess their working condition and health hazard in handloom unit. Pre coded interview schedule and personal interview method was used for data collection. Data on environmental conditions like light, noise, temperature and humidity was measured by using Lux meter, Noise level meter and Thermo hygrometer. Analyses of data shows majority of workers were from age group 41 to 50 years, illiterate, OBC and Muslim. They were landless, from medium extended family type. Occupation of head of family was unskilled worker and earning only Rs. 5000.00 monthly. Majority were having experience of 5-10 years of working on daily wage, duration of work was basis for wage determination, payment was made on daily basis and mode of payment was cash. Majority of them work for seven days/week, about 6-8 hours /day and take only two rest intervals of 16-30 min. Level of light and noise was below the recommended value whereas level of temperature in summer and humidity in winter was above recommended value. Neck- shoulder pain, back pain, headache and knee- thigh pain was reported as major problem. More than 60 percent also reported problem of asthma, constipation and peptic pain.

**Key Words:** Handloom , Health, Hazard, Weavers, Environment

## Introduction

In India, handloom industry occupies second place in providing rural employment after agriculture. Presently, handlooms contribute only 20% towards the total cloth production in the country [10]. Though, Indian Textile Industry with its power looms has achieved a steady development in terms of production and profits, in the last two decades, handloom industry did not show expected improvement [6]. Therefore, it is reasonable to say that the increase in this percentage directly leads to the growth of handloom sector in India. Handloom production has significant contribution to the national GDP and export earnings. While the weavers face a dismal situation for their livelihood, there is a large market for India's handloom products both domestically and internationally. Hand woven durries are produced in home based workshops categorized as informal small scale industry. The work is often organized around families and

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carried out in homes. It has been a major source of living for the people as it does not require resource beyond basic infrastructural facilities to weave durrie. Weaving is one of the most tedious professions, requiring long hours of static work and it is a high risk occupation for developing musculoskeletal disorders as awkward posture, repetitive movements, contact stress and long working time are common. **Banerjee and Gangopadhyay (2010)** reported that repetitive work engagement for long time would increase the intensity of the pain and would lead to repetitive strain injury. With traditional carpet looms, the weaver is often forced to squat to operate the loom and as the diameter of the carpet increases, the weaver must lean forward to complete the task. The standard of living of the weavers is significantly low and they are leading miserable and pitiable life due to unemployment and underemployment. This situation prevails everywhere in our country. Attention should also be called to the fact that India could lose its potential buyers due to factors such as adulterated, polluted dyes, use of child labour in cotton fields/factories, and substandard/unhealthy work conditions. These are some of India's primary concerns addressed by the Planning Commission of India [19]. Despite the fact that Indian handloom industry has made a distinct place in the world, this sector has not attained proper importance as for as weaving related health problem and their effects are concerned. Hence, there are some more fundamental aspect of occupational ergonomics than the concern with the design of the workplace where workers spend considerable time and effort in doing their job. The aim of study is to assess working condition for handloom weavers in durrie unit as it furthers not only the health and well being of the workers but also productivity and the quality of the product.

## **Materials and Methods**

To assess working condition and health hazard for weavers in handloom unit eighty male weavers engaged in durrie weaving were selected through purposive random sampling technique from Sujatganj and Rail Bazar handloom unit of Kanpur Nagar Data on personal profile, family profile, work profile and health problem were collected by using pre coded interview schedule and personal interview method. Data on environmental conditions like light, noise, temperature and humidity was measured by using Lux meter, Noise level meter and Thermo hygrometer.

## Results and Discussion

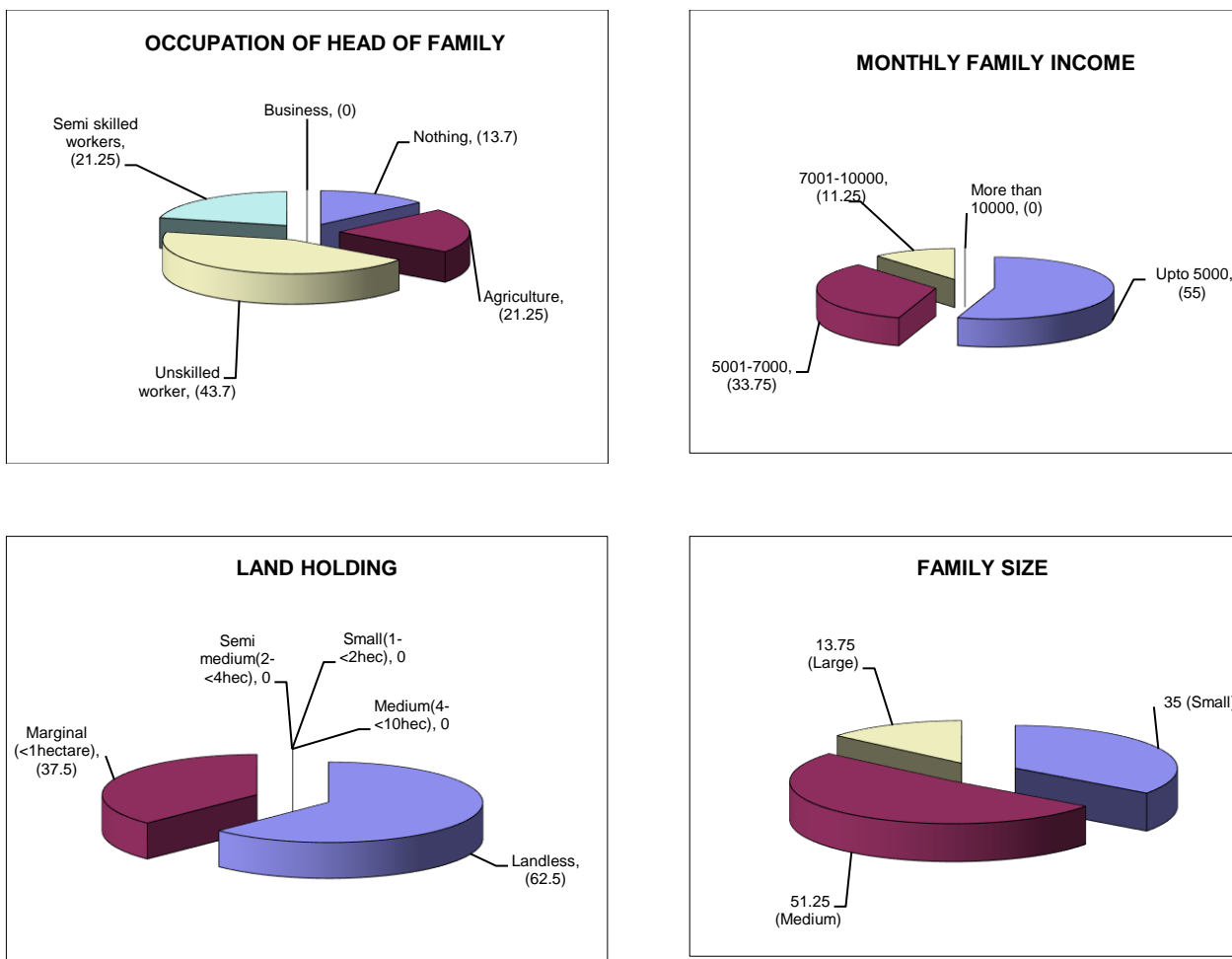
Analysis of data in table -1 reveals that maximum 31.25 percent weavers were belonging from age group 41-50 years and majority i.e. 77.50 percent were illiterate. By religion 85.00 percent weavers were Muslim and 87.50 percent were from other backward caste.

**Table 1- Distribution of respondents on the basis of their personal profile** N = 80

S.No.	Personal Profile	Frequency	Percentage
<b>A</b>	<b>Age</b>		
	Up to 30	8	10.00
1	30-40	11	13.7
2	41-50	25	31.25
3	51-60	21	26.25
4	61-70	15	18.75
<b>B</b>	<b>Education Level</b>		
1	Illiterate	62	77.5
2	Primary	8	10.003
3	Higher Secondary	10	12.5
4	Senior Secondary	-	-
5	Graduate	-	-
<b>C</b>	<b>Caste</b>		
1	General	-	-
2	SC/ST	10	12.5
3	OBC	70	87.5
<b>D</b>	<b>Religion</b>		
1	Hindu	12	15.00
2	Muslim	68	85.00
3	Sikh	-	-
4	Christian	-	-

### Family Profile of the Respondents

Analysis of data in fig-1 regarding family profile reveals that maximum 43.70 percent weavers were unskilled worker and 62.50 percent were landless. Family income of maximum 55.00 percent weavers was upto Rs. 5000.00/ month. Type of family for maximum 51.25 percent weavers were extended and size of family was medium i.e. upto 6 members.



**Fig .1. Distribution of respondents on the basis of their family Profile**  
**Work Profile of Handloom Weavers**

Analysis of data in table -2 regarding work profile of handloom weavers reveal that majority 55.00 percent weavers were having work experience of 5-10 years and 60.00 percent were working on daily wage. Wage of 52.00 percent were determined on basis of duration of work and 47.50 on the basis of amount of work. For 52.50 percent weaver’s payment was made on daily basis, for 28.75 percent on fortnightly basis and for 18.00 percent on weekly basis. Payment was made in cash for cent percent weavers.

**Table -2: Work Profile of handloom weavers**

**N=80**

S.No.	Work Profile	Frequency	Percentage
<b>A</b>	<b>Work Experience</b>		
1	5-10 yrs	44	55.00
2	10-20 yrs	26	32.50
3	More than 21 years	10	12.50
<b>B</b>	<b>Nature of employment</b>		
1	Daily wage	48	60.00
2	Contract basis	32	40.00
3	Part time job	-	-
4	Permanent	-	-
<b>C</b>	<b>Pattern of wage determination</b>		
1	Duration of work	42	52.50
2	Amount of work	38	47.50
3	Types of work	-	-
4	Level of skills in work	-	-
<b>D</b>	<b>Mode of payment</b>		
1	Cash	80	100.00
2	Credit	-	-
3	Check	-	-
<b>E</b>	<b>Duration of payment</b>		
1	Daily	42	52.50
2	Weakly	15	18.75
3	Fortnightly	23	28.75
4	Monthly	-	-

### Duration of Work of Handloom Weavers

Analysis of data in table -3 regarding duration of work of handloom weavers reveals that 56.25 percent weavers work for 7 days in a weak and 43.70 percent work for 5 days in a weak. Majority of workers i.e. 56.25 percent work for 6-8 hours per day. Maximum 56.25 percent weavers take two rest intervals in a day and for 38.75 percent duration of rest interval was 16-30 min. **Mukhopadhyay (2008)**, from his ergonomic research on brick manufacturing persons also concluded that during the manufacturing process workers seated on floor with their back unsupported leads to lumber and static load on their back cause strain and injury of soft backbone tissues.

**Table -3: Duration of work for Handloom Weavers**

**N=80**

S.No.	Work Duration	Frequency	Percentage
<b>A</b>	<b>Number of working days/weak</b>		
1	2	-	-
2	4	-	-
3	5	35	43.70
4	7	45	56.25
<b>B</b>	<b>Number of working hours/day</b>		
1	5-6 hours	23	28.75
2	6-8 hours	45	56.25
3	9-10 hours	12	15.00
4	More than 10 hours	-	-
<b>C</b>	<b>Number of rest interval</b>		
1	1	23	28.75
2	2	45	56.25
3	3	12	15.00
4	4	-	-
<b>D</b>	<b>Duration of rest interval</b>		
1	0-15min	10	12.50
2	16-30min	31	38.75
3	31-45min	11	13.75
4	46-60min	28	35.00
5	Above 60 min	-	-

### Environmental condition

Analysis of data in table - 4 regarding environmental parameters reveals that during winter average temperature was recorded 22.13 °C and during summer it was 35.32 °C which was 0.87 °C lesser in winter and 11.32 °C higher in summer from the recommended value. Average humidity recorded during winter was 66.00 percent and during summer 41.00 percent which was 21.00 percent higher in winter and 19.00 percent lesser from the recommended value in summer.

Table further reveals that average noise recorded during winter was 74.66 db on work place and during summer 79.80 db which was 15.34 db lesser in winter and 10.2 db lesser in summer from the recommended value. Average light was recorded 707.2 lux in winter and 883.1 lux in summer which is 292.8 lux lesser in winter and 116.0 lux in summer than the recommended range.

**Radjabi (1983)** reported that eyesight disorders are prevalent among weavers, because of eye strain and inadequate lighting.

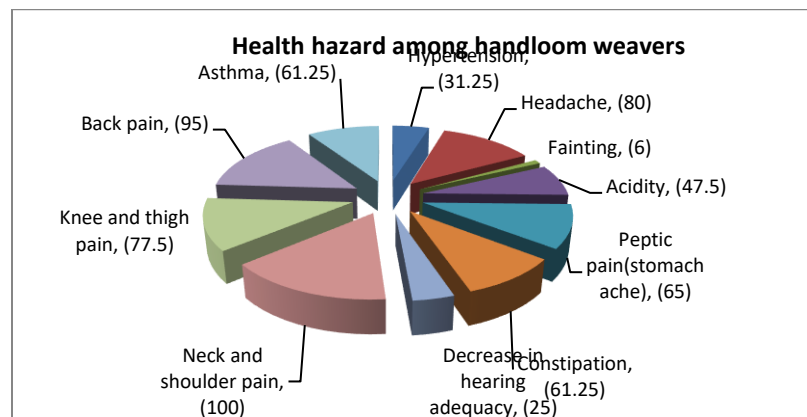
**Table- 4- Environmental condition at handloom unit**

**N=80**

S. No.	Environmental parameters	Winter season (n=80)				Recommended value	Summer season (n=80)				Recommended
		Morning	Afternoon	Evening	Average		Morning	Afternoon	Evening	Average	
1	Temperature	18.5	27.0	20.8	22.13	20 to 23	27.2	45.3	33.4	35.32	20 to 24
2	Noise	71.8	74.5	77.6	74.66	90 db	77.4	79.5	82.4	79.8	90 db
3	Humidity	70	66	70	66.00	40-45%	50	30	43	41.00	40-60%
4	Light	493.6	904.9	723.0	707.2	1000-2000 lux	540	1188.6	920.8	883.1	1000-2000 lux

**Health hazards among handloom weavers**

Analysis of data in fig.-2 reveals that maximum cent percent weavers were affected by neck and shoulder pain followed by 95.00 percent weavers were experienced back pain, 80.00 percent headache, 77.00 percent pain in knee and thigh Sixty five percent weavers were suffering from peptic ulcer, 61.25 percent weavers from asthma and constipation, 47.5 percent from acidity, 31.25 percent from hypertension, 25.00 percent weavers from decrease in hearing adequacy and minimum 6.00 percent from fainting. Daam (1993), in his ergonomic research entitled "static force exertion in postures with different degrees of freedom" concluded that repetitive movements involved micro wear and tear in the soft tissue of the limbs. This minor damage in the tissue is repaired if adequate rest is given which was absent in weaving sectors.



**Fig. -2 Health hazard among handloom weavers**

## Conclusion

It is concluded from the study that most of the middle age, illiterate, backward caste and muslim worker from landless, unskilled workers family, with low family income and upto six member joint family are engaged in this craft. They are working from five to ten years on daily wage, seven days in a week for six to eight hours and take only two rest intervals of 16-30 min. Low humidity in winter, high temperature in summer and low light round the year is common phenomena of work place. Weavers suffer from pain in neck, shoulder, knee/thigh headache and backache. Problem of peptic pain, constipation and asthma was also common among weavers. There must be some provision of protecting equipments for example ear plugs, face masks, first aid facility, gloves and proper uniform, for the protection of workers from the effective environment.

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