A STUDY ON HEALTH ISSUES OF HANDLOOM WEAVERS IN LAKSHMIYAPURAM, SANKARANKOVIL, TENKASI DISTRICT, TAMILNADU, INDIA.

Jeeva PS

Assistant professor of Zoology, PMT College, Melaneelithanallur, Tenkasi - 627953

ABSTRACT

Handloom industry in India is the most important & ancient cottage industry with a decentralized setup. The industry is providing livelihood for millions of people in the country. At present handloom sector is facing multiple problems that some other sectors to not have. The study covered a sizable number of population i.e, 300 subjects in Lakshmiyapuram, Sankarankovil. The age based cross sectional study was conducted. Survey method was used to study the health issues of handloom weavers of Sankarankovil Taluk. Regarding infra-structure of the working area most of them expressed infra-structure as good with respect to light, ventilation, floor, roof, sanitation and comfortable work place. The health hazards like shoulder pain, knee pain, breathing problem and hearing problem. All these health problems were associated with weaving related activities, as weaving operation involve continuous repetitive movement of hand, shoulders, legs etc. Almost all the weavers stated that they are suffering from any one of the health problems, due to weaving. Most health problems in this sector originate from ergonomic risk factors. It is quite interesting to note that almost all respondents are having physiological and psychological stress for doing work. The study also pinpoints that almost all respondents are having physiological stress for doing work. Present study is thus an attempt to identify such health problems. We planned to conduct awareness programs for the weavers and also need for and group discussions with the handloom weavers about how to improve their health and its necessity. The workers are advised to have proper medical checkups from time to time.

Key words: ergonomic, physiological, infrastructure, health, handloom

1. INTRODUCTION

"Handloom means any loom other than power loom; and includes any hybrid loom on which at least one process of weaving requires manual intervention or human energy for production." Handloom, or fabric woven by hand, makes up just over a tenth of India's total fabric production. It is the chief means of livelihood of people who entirely depend upon it. On the other hand, weaving plays an important role in state/nation economy. Weaving is the basic process among various manufacturing stages of handloom clothes and is defined as a frame for weaving equipped with some wooden devices [1].

The concept of the handloom industry includes the process of operation by hand, of a wooden structure which is called the loom. In India, the handloom sector is one of the largest unorganized economic activities after agriculture and constitutes an integral part of the rural and semi-rural areas [2].

Handloom industry is providing a large scale employment in rural and urban places and it is an ancient industry. Handloom weaving is the traditional occupation in India. The handloom sector in India is the largest sector next to agriculture. Handloom sector has been organized in three predominant forms of weavers such independent weavers, co-operative system weavers and wage weavers. The most prevalent system is that of the wage weavers. Presently, most of these wage work at takes at place from home [3].

The textile industries are the largest economic sector, nearly 3.8 million handloom provide employment to 6.5 million workers, who are engaged in producing natural fiber fabrics like cotton, silk and woollen, as well as man made and mixed fiber fabrics. Weaving process are done on two types of hand operated looms e.g.,(i) desk –bench type workstation and (ii) sitting on floor with their legs hanging to operate the pedals at a lower level (Anjali Nag, et.al. 2010). The share of employment provided by the handloom industry in the total decentralized sector is above 5.5%. Thus, this industry constitutes one of the major sectors providing employment to the large number of people next only to agriculture [5].

The handloom sector carries a very rich heritage coming down over the centuries of the vibrant culture of the Indus valley civilization. The handloom sector plays a very important role in the country's economy. It is the second largest sector in terms of employment, next only to agriculture. It provides direct or indirect employment to millions of artisans spread all over the country. One-fourth of the total cloth production in the country is from the handloom sector [6].

The knowledge and skills needed for this sector transformed from their forefathers [7]. The entire improvement, growth and structural adjustment have been achived near – total absence of public policies and programs [8]. Weavers in our country don't get quality raw materials at right time and at right producing world they are lagging behind in capturing the modern technology due to lack of infrastructural support from the government. Weavers in our country don't get quality raw materials at right price [9].

The ill health is compounded by various socio- economic factors such as poverty, lack of education, poor diet, addictions, poor working condition, excess working hours etc. [10]. Health problems due to the involvement of physical work, level of education, and health facilities are very poor. Suggested that the government should take initiation for qualitative modification, guidance and protection for the balanced development for the handloom industry due to the poverty of female weavers [11]. In this industry, workers are engaged in various activities such as dyeing, warping, winding, twisting, weaving, etc. Handloom requires workers to indulge in repetitive hand movement to move the shuttles, along with repetitive leg movement to operate the pedals. Also, these operations require a sitting position without any back support with a forward head posture. Awkward posture with limited freedom of movement, continuous noise exposure, closely packed loom arrangement with poor ventilation, and dust pollution are some of the occupational hazards the workers face in this industry [12].

Some of the health hazards associated with handloom workers also include weakened eyesight, early cataract, loss of vision, high or low blood pressure, heart problems, lung damage, filaria, arthritis, etc. It has been found that handloom weavers look much older than their actual age because of malnourishment, and continuous body movements in a constrained position. With time, the problems faced by weavers become severe because of a number of factors. Some of them are the prolonged nature of work, harmful raw materials, poor ventilation, and poorly workspaces. Additionally, physical requirements such as the elevation of arms for long periods of time, static contractions, and repetitive movements that cause neck and shoulder problems also add to the health risks associated with women that cause neck and shoulder problems also add to the health risks associated with weaving [13].

It has also been highlighted in the literature that most of the textile labourers are not aware of health hazards prevalent in the textile industry. Which leads to critical physical and economic consequences for workers, and their families [14]. The impact of low illumination and high noise level on prolonged exposure to a high level of noise and

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low level of illumination would significantly affect the physiological and psychological health of the weavers engaged in handloom in workstation [15]. Some of the health hazards associated with handloom workers also include weakened eyesight, early cataract, loss of vision, high or low blood pressure, heart problems, lung damage, arthritis, etc [16]. Weaving is considered to be a highly labour-intensive task, with the labour cost accounting for up to an average of 65% of the production cost. Some of the musculo skeletal disease (MSD) that commonly occur are carpal-tunnel syndrome (CTS) [17]. It has been found that handloom weavers look much older than their actual age because of malnourishment, and continuous body movements in a constrained position.

Heart problem and lower- back pain, which are generally caused by repetitive motions, awkward and nonneutral postures, poor working conditions among other things. Therefore, there is a critical need to assess the occupational risk factors among the unorganized sector, particularly the weaving industry in India some of the health hazards associated with handloom workers also include weakened eye sight, heart problems, lung damage, blood pressure etc [18].

2.MATERIALS AND METHODS

STUDY AREA

The study was conducted in Lakshmiyapurm near Sankarankovil, Tenkasi district. It occupies a significant place in the Handloom Industry Tamilnadu. Around 2,000 people are depending on handloom as well as power loom industry for their livelihood in Sankarankovil.

STUDY DESIGN

The age based cross sectional study was conducted from Feb - 01 to Mar – 15, 2022. The study covered a sizable number of population i.e, 300 subjects in Lakshmiyapurm of Sankarankovil. The source of population of individuals aged between 25-85 year permanently living in the Sankarankovil Taluk. The survey was conducted to elicit the information regarding socio-economic status and health hazards of handloom weavers of Sankarankovil Taluk. An attempt is made to study the factors responsible for the socio-economic development and health related hazards of handloom weavers of Sankarankovil Taluk, survey method was used.

STUDY POPULATION

The survey population is with socioeconomic capabilities having handloom weaving background. The study covered a sizable number of population i.e, 300 subjects in Lakshmiyapurm of Sankarankovil. The study population was covered a distance of approximately near the Sankarankovil.

CONSTRUCTION OF THE QUESTIONNAIRE

To identified the handloom weavers house to house survey is performed with a well-designed questionnaire. The use of questionnaire is an acceptable tool in handloom weavers survey (Kothari,1984) standard methods are used for the collection of data. Measurement of physical parameters: The basic physical parameters, such as height and the body weight of the weavers were measured by means of an anthropometric rod and a properly calibrated weighing machine respectively. From the anthropometric data the body mass index (BMI) were calculated and expressed in kg/^{m2} [19].

INTERPRETATION OF THE DATA OF SELECTED DATA

The data collected from the survey is presented in % table for each question. The result obtained was compiled, analyzed, and interpreted. The above tabulated results and discussions are presented in the results and discussions.

3. RESULTS

A bigger issue that is going unnoticed in this struggle to protect handloom is the health problems associated with the traditional handloom weavers which may soon result in India losing its Global USP. The present study population includes 300 subjects covered Lakshmiyapuram, Sankarankovil, Tenkasi District, Tamilnadu. The handloom weavers survey out of 300 persons 178 persons are males and 122 subjects are females in the study population.

N =300			
SI. No.	Demographic variables	No. of respondents	Percentage
1	Gender		
	Male	178	59.33
	Female	122	40.67
2	Age		
	15-25	42	14
	26-35	40	13.33
	36-45	128	42.67
	46-55	66	22
	56-65	12	4
	66-75	8	2.67
	76-85	4	1.33
3	marital status		
	Married	237	79
	Unmarried	63	21
4	Socio Economic Status		
	Low	6	2
	Middle	264	88
	High	30	10

Table.1. Shows the demographic profile of the handloom weavers in the study areas.



Fig.1. illustrates the pictorial presentation of handloom weavers in different age groups.

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Table.1. indicates the demographic profile of the handloom weavers in the study areas. Out of 300 handloom weavers 178 (59.33%) persons are male and 122 (40.67%) persons are female. The study shows that most of the handloom weavers are males when compared to females. The study shows that most of the handloom weavers are in the age group of 36-45. The marital status of the handloom weavers out of 300 handloom weavers 237 (79%) persons are married and 63 (21%) persons are unmarried. The socio economic status of the handloom weavers out of 300 handloom weavers out of 300 handloom weavers 6 (2%) persons are from low class. 264 (88%) persons are from middle class. 30 (10%) persons are from high class. Fig.1. illustrates the pictorial presentation of handloom weavers in different age groups.

N=300			
SI. No.	Educational level	No. of Responds	Percentage
1	Un educated	23	7.66
2	Foundation	56	18.67
3	Middle school	54	18
4	High school	86	28.67
5	Diploma	37	12.33
6	Graduate	44	14.67

Table.2. reveals the educational qualifications of the handloom weavers in the study areas.

Table.2. reveals the educational qualification of the handloom weavers in the study areas. The study reveals that most of the handloom weavers are educated in middle school. Table. 3. Indicates the total income of the handloom weavers in the study areas. Most of the handloom weavers (37%) are earning between 11362-15187. Fig.2. pictures out the skill level of handloom weavers in the study area. Most of the handloom weavers are skilled workers.



Fig.2. pictures out the skill level of handloom weavers in the study area.

Out of 300 handloom weavers, 168 (56%) persons are working in saris weaving working area. 34 (11.3%) persons are working in weaving traditional 9 yard saris. 26 (8.67%) persons are working in weaving vesti. 72 (24%) persons are working in weaving all types of products. Most of the handloom weavers are working in weaving saris. Fig.3. indicates the type of products being weaved by handloom weavers in the study areas.



Fig.3. illustrates the type of products being weaved by handloom weavers in the study areas.

N=300			
SI. No.	Total income (p.m)	No of Respondents	Percentage
1	1520	5	1.67
2	1521-4555	12	4
3	4556-7593	28	9.33
4	7593-11362	95	31.67
5	11362-15187	111	37
6	15362-30374	49	16.33

Table.3. indicates the total income of the handloom weavers in the study areas.

Most of the persons are good in various aspects of workplace. The facilities available in the workplace are satisfied to some handloom weavers. Some of them are not satisfied with the infrastructure of the workplace. Some of the facilities are excellent and some are poor in workplace. Fig.4. reveals the infrastructure of working areas of handloom weavers in the study areas such as light, ventilation, floor, roof, sanitation, water, comfortable workplace. Table.8. quotes the body mass index of the handloom weavers in the study areas. 112 (38%) persons are underweight. 139 (46%) handloom weavers are normal. 49 (16%) handloom weavers are overweight.

Table.8. quotes the body mass index of the handloom weavers in the study areas.

N = 300

SI. No.	BMI	No. of Respondents	Percentage
1	Under weight	112	38
2	Normal	139	46
3	Over weight	49	16



Fig.4. illustrates the infrastructure of working area of handloom weavers in the study area.

N = 300			
SI. No	Type of health problems	No of Respondents	Percentage
1	Asthma	24	8
2	Dust Allergy	70	23.33
3	Muscle Pain	64	21.33
4	Back Pain	58	19.33
5	Hearing Problem	13	4.33
6	Eye	15	5
7	Knee Pain	34	11.33
8	Cardiovascular	10	3.33
9	Skin disease	12	4

Table.9. denotes the types of health problem being faced by handloom weavers in the study areas.

Table.9. denotes the types of health problem being faced by handloom weavers in the study areas. Among 300 handloom weavers most of the weavers are suffering from dust allergy. Table.9. denotes the types of health problem being faced by handloom weavers in the study areas. Out of 300 handloom weavers, 24 (8%) persons are suffering from Asthma problem.70 (23.33%) persons are suffering from dust allergy problem. 64 (21.33%) persons are suffering from back pain problem. 13 (4.33%) persons are suffering from hearing problem. 15 (5%) persons are suffering from eye problem. 34 (11.33%) are suffering from knee pain problem.10 (3.33%) persons are suffering from cardiovascular problem. 12 (4%) persons are suffering from skin disease problem. Among 300 handloom weavers most of the weavers are suffering from dust allergy.

Table.10. reveals type of stress during work of handloom weavers in the study area. The stress faced by the handloom weavers are of two types. One is the physical stress and the other is psychological stress. Out of 300 handloom weavers, 179 persons are facing physical stress. 121 persons are facing psychological stress.

SI. No.	Types of stress	No. of Respondents	Percentage
	Physical stress		
1	Feeling discomfort	28	9.33
2	Headache	34	11.33
3	Back pain	49	16.33
4	Joint pain	68	22.66
	Psychological stress		
1	Boredom	18	6
2	Feeling depressed	40	13.33
3	Feeling uneasy	39	13
4	Frustration	24	8

Table.10. reveals type of stress during /work of handloom weavers in the study areas.

N=300

4.DISCUSSION

The best wealth of a man is health. Good health can be defined as the state of being where a person is free from all kinds of physical or mental illness. It is the most precious procession of a man. Handloom industry plays a vital role in the Indian economy. The handloom industry is one of the challenging one in India. The employees of this industry hardly ever benefit from occupational health and safety provisions [20].

Handloom industry is proving a large scale employment in rural and urban places and it is an ancient industry. Handloom weaving is the traditional occupation in India. Thehandloom sector in India is the largest sector next to agriculture. There is a lack of awareness about occupational safety and environmental hazards that severely affect the vulnerable and marginalised working population [21]. The handloom industry has developed a lot over a period of time. It is spread throughout the country. Most of the handloom units are run either as sole-proprietors or else they work under master weavers [22].

The study shows that most of the handloom weavers are males than females. We can find most of the weavers are between the age group 36-45 years. In our study found out sixty five percent of respondents were skilled workers. The handloom weavers are mostly educated in high school. The study shows that most of the handloom weavers have their own land asthe asset of the family. The working environment and living condition of the handloom workers are poor and pathetic and even hazardous to their health.

From this study, it can be concluded that all types of weavers belong to low socio- economic condition and that they were exposed to different work stressors and hazardous environment. Hence, they are suffering from different health problems like pain in body parts, eye problems and respiratory problems.

Exposure to contaminated fibres with biological agents such as bacteria and fungimay result in respiratory diseases. They don't clean their room and loom's regularly, therefore lots of fiber dust was observed near their loom. It was observed that in some of the houses ventilators were made but due to lack of cleaning they were choked with dust and fibers [23].

Some of them are the prolonged nature of work, harmful raw materials, poor ventilation, and poorly-lit workspaces. Additionally, physical requirements such as the elevation of arms for long periods of time, static contractions, and repetitive movements that cause neck and shoulder problems also add to the health risks associated with weaving [24, 25, 26, 27].

The findings of this study are also supported by an inspection and measurement study conducted among textile industries in Tamilnadu, which observed that the main risks in the textile industry are physical, chemical, economic, more working hours, incorrect ventilation, dust, and noise [28]. The findings of another study, among garment works in Tamil Nadu to assess the level of awareness of health problems and their attitude and practiceto prevent the same is also consistent with the present study findings [29].

Moreover, many weavers do not own a handloom and instead, work for the weavers who do own weaving equipment. Inadequate salaries and lack of equipment result in people having to work long hours to meet basic food

and housing needs [30]. The present study also corroborates these findings.

Similar findings have been reported in a study to assess the occupational health problems among the handloom weavers at Uttarakhand, which reported that all the work activities include certain risk factors such as awkward postures, repetitive movements, inadequate rest, poor lighting, poor hygienic condition, accumulation of dust near the loom and poor ventilation [31].

In addition, about almost all of weavers were somewhat to completely dissatisfied with work place lighting condition which has shown inadequate lighting in all weaving work places. With respect to the work station design and tools, most of the participants in this studyexpressed dissatisfaction in their seats [32]. It is true in our study too. The results of the present study indicated that poor working conditions and work station design may increase the rate of musculoskeletal problems and complaints among weavers.

The main health problems faced by handloom weavers is musculoskeletal problems. Working for long hours, sitting in a static posture make the workers vulnerable to MSDs. The problems encompassed by the handloom workers is more in the upper and lower back, shoulder and the wrist/hands. Awkward posture with limited freedom of movement, continuous noise exposure, closely packed loom arrangement with poor ventilation, and dust pollution are some of the occupational hazards the workers face in this industry [33].

Handloom is a tough occupation. Handloom weavers get backaches, hearing problem, breathing problem, joint pain and pain in lower abdomen more than any other health problem. The reasons identified include unnatural work postures, use of hazardous chemicals, unsafe working practices, long working hours and high risks of accidents at work place, caused by unsafe conditions [34]. In our study most of the respondents affected in joint bain breathing problem back pain and so on.

It was observed that the weavers were exposed to different work stressors and hazardous environment. So, they had complaints about different occupational health problem. The maximum health complaints (i.e. respiratory problems, cardiovascular problems, ENT, eye problems and pain in body parts) were significantly high among the handloom weavers. [35]. It was also found in our study.

The health hazards like shoulder pain, Knee pain, breathing problem, hearing problem. All these health problems were associated with weaving related activities, as weaving operation involve continuous repetitive movement of hand, shoulders, legs etc. [36]. It is true in our study too found out 65% of the respondents were skilled workers. The handloom weavers are affected physically and psychologically. They are feeling discomfort, headache, back pain, joint pain. Psychologically they are affected by boredom, feeling depressed. Feeling un easy and frustrated [37].

In our study clearly brings to the various health issues faced by weavers and there is also no distinction between male and female weavers in respect of the various health problems. In this study we found that most of the handloom workers are affected by dust allergy and muscle pain.

Continuous exposure to these hazards and unhealthy environment causes severe health problems to the workers. These health problems decreases the quality of life of the workers [38]. From the study, It can be concluded that the handloom weavers are exposed to many health problems and constraints at the workplace.

Almost all the weavers stated that they are suffering from any one of the health problems, due to weaving. Most health problems in this sector originate from ergonomic risk factors. Any improvement program in this industry should therefore focus on the ergonomicaspects of hand weaving operation [39]. The present study revealed the presence of many hazards in the handloom weaving industries such as physical, chemical, ergonomic and psychosocial hazards.

The entire process takes place with the weaver seated on the floor in static postures for 4 - 6 hours without having support to their vertebral column. This again may lead to postural health hazards these weavers [40]. The present study revealed most of them (71%) are affected back pain. While working on pit loom there was not enough depthfor free leg movement in the pit which cause the weavers to work in a fixed leg postures for long duration which creates discomfort which creates discomfort and stress in leg musclesand also in lower body parts.

Most health problems in this sector originate from economic risk factors. Literature has shown that predisposing factors for musculoskeletal problems are multi-factorial and maybe attributed to posture, repetitive movement, physical load, psychological stress and other economic factors [41]. It is true in our study too.

In the entire weaving process shoulders are involved in repetitive movements without breaks for throwing shuttle and moving reed frames. Their repetitive movement of hand increases the risk of neck, upper arm and shoulder musculoskeletal problem [42]. Similar findings are also seen in our study. 93% persons affected by hearing problem and 65% subjects are having dust allergy.

5. SUMMARY

The present population based a study on health issues of handloom weavers in Lakshmiyapuram, Sankarankovil, Tenkasi District, Tamilnadu. The health hazards are positively associated with age, education, family income, socio economic status and infrastrutcure of the work place.

- There is an association between male sex and handloom weaving.
- Lower and middle age people are more involved in handloom weaving.
- Most of the respondents are unmarried (67%).
- A direct relationship is observed between economic status and handloom weavers are found in the study.
- ✤ A direct relationship is noticed between handloom weaving and literacy.
- The study also pinpoints that around 65% subjects are skilled in handloom weaving.
- The direct role of infrastructure of the working area is confirmed by the study.
- ✤ A great majority of handloom weavers are weaving saris.
- A majority of subjects (46%) body mass index (BMI) is normal.
- Most of the handloom weavers are having general health risks like asthma, dust allergy, muscle pain, hearing problem and so on.
- A large number of respondents (68%) are suffering from joint pain.
- The study also pinpoints that almost all respondents are having physiological and psychological stress for doing work.

Present study is thus an attempt to identify such health problems. We planned to conduct awareness programs for the weavers and also need for and group discussions with the handloom weavers about how to improve their health and its necessity. The workers are advised to have proper medical checkups from time to time.

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