



Chapter No.

3

PHYSICAL WORK  
ENVIRONMENT IN  
POWERLOOM  
INDUSTRY IN VITA

## **CHAPTER NO. – 3**

### **PHYSICAL WORK ENVIRONMENT IN POWERLOOM INDUSTRY IN VITA**

#### **3.1 Introduction:-**

Physical Work Environment is one of the important factors of work environment. It consists of building location and its type, lighting, Ventilation, Noise condition, restroom, Color of the Walls & Passage, distance between two machines, various physical facilities such as latrines, urinals, first aid appliances drinking water, canteen, health & safety conditions etc. These various factors affect directly on efficiency of the workers in powerloom industry in Vita.

The different factors of physical work environment in powerloom industry in Vita are presented as under;

#### **3.2 Noise:-**

Noise is serious problem in powerloom Industry in Vita. It affects the hearing capacity of a worker making him irritable & inefficient. Often neglected, noise induces a severe impact on humans and on living organisms, such as Annoyance, Physiological effects, Loss of hearing, human performance, nervous system, sleeplessness, damage of material etc. A healthy human ear responds to a very wide range of sound pollution from the threshold of hearing at zero dB, uncomfortable at 100-120 DB and painful at 130-140 DB. In the powerloom industry it was found that average level of noise is 100-110DB. The workers are feeling that this level of noise is uncomfortable for them and it has various adverse effects on their health such as loss of hearing, low concentration, high blood pressure etc. Following tables & Graph will explain this fact.

##### **3.2.1 Level of noise:**

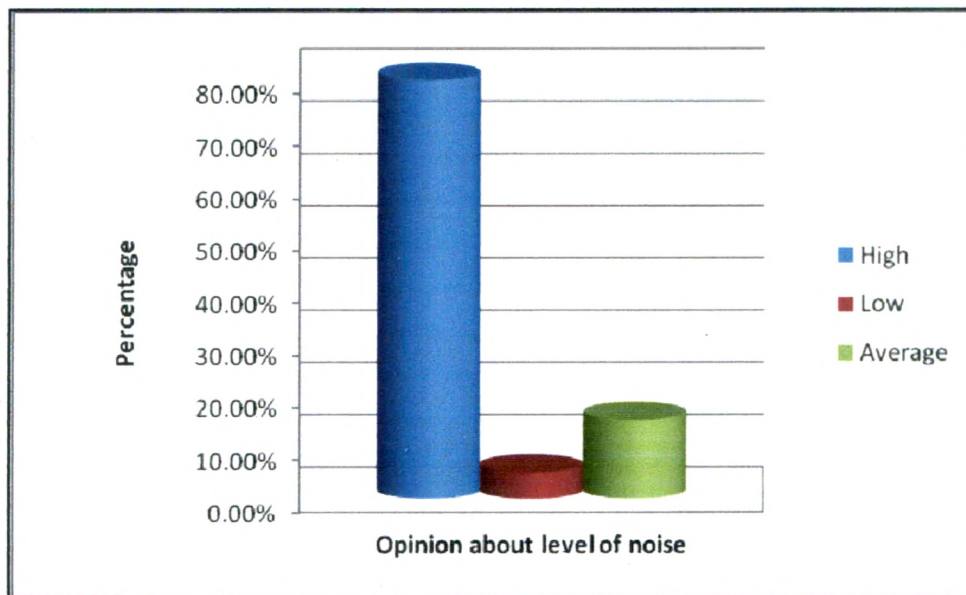
In any industry level of noise should be kept within limit. High level of noise affects badly on hearing capacity. Opinion of workers in powerloom industry in Vita regarding the level of noise is explained as under:

**Table No. 3.1 – Workers view about level of noise**

Sr. No	Opinion about level of noise	No. of Respondents	Percentage
1	High	121	80.00 %
2	Low	08	05.00%
3	Average	21	15.00%
	<b>Total</b>	<b>150</b>	<b>100.00%</b>

The above fact can be shown by following diagram:

**Diagram No. 3.1**



Above diagram no.3.1 reveal that:

- 1) 95% workers have opinion that level of noise in Powerloom shed is high.
- 2) 5% Workers says that the level of noise is low.
- 3) According to 15% workers the level of noise in their shed is average

The above fact reveal that majority of worker are suffering from high level of noise.

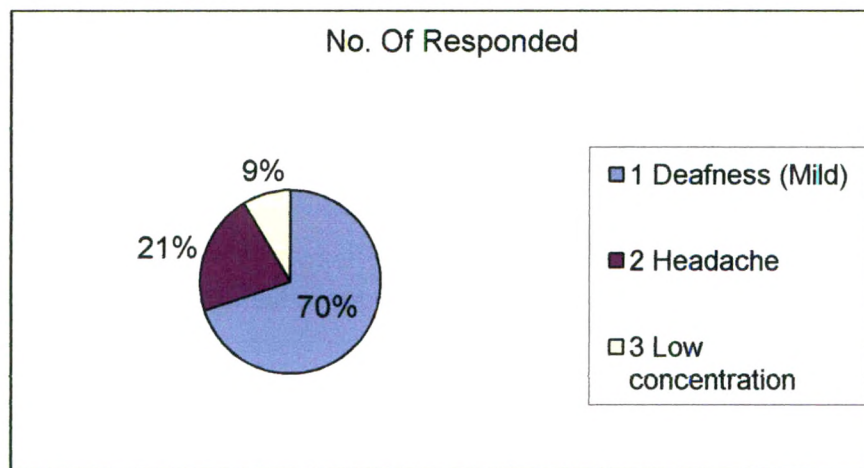
### 3.2.2 Effects of Noise:

The level of noise affect in various ways on efficiency of workers as noise is serious factor. It may create various problems in powerloom industry in Vita as shown in following table;

**Table No. 3.2 – Effects of Noise**

Sr. No	Types of Problems	No. Of Responded	Percentage
1	Deafness (Mild)	105	70.00%
2	Headache	32	21.33%
3	Low concentration	13	08.67%
	<b>Total</b>	<b>150</b>	<b>100.00%</b>

**Diagram No. 3.2**



Above Pie chart reveal that noise level affects in various ways on the workers:

- 1) 70.00% of the workers have problems of deafness but it is mild.
- 2) 21.33% of workers have opinion that the level of noise create problem of headache.
- 3) 8.67% workers says that noise level affect severely ob their concentration while they are working.

### 3.2.3 Necessity of measures for controlling noise:

Nearly all workers have opinion that there owners should provide then certain machines as hearing protection. But very little attention is given towards this. This fact is revealed by following table;

**Table No. 3.3 – Workers view about necessity of measures**

Sr. No	Workers view about necessity of measures for noise control	No of Workers	Percentage
1	Yes	148	99.00%
2	No	02	01.00%
	Total	150	100.00%

The above table explains that:

- 1) Only 1% workers are of view that they do not require measures for hearing protection as they are very much habited by such noise and this level of noise dose not affect on them in any way.
- 2) Majority i.e. 99% workers says that they require certain machines such as ear plugs for their hearing protection.

#### **3.2.4 Measures taken for reducing noise:**

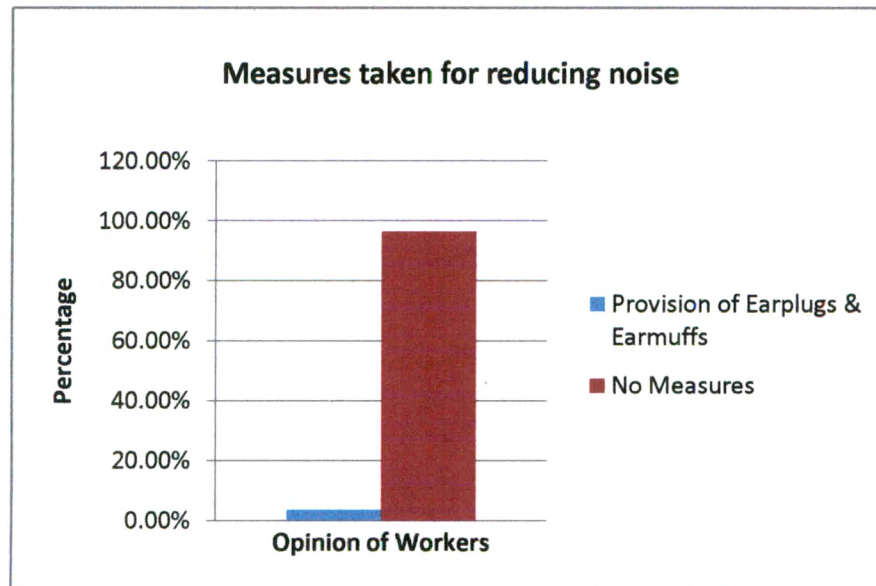
The following measures have been taken for reducing noise in powerloom industry in Vita:

**Table No. 3.4 - Measures taken for reducing noise**

Sr. No	Measures taken for reducing noise	No of Workers	Percentage
1	Provision of Earplugs & Earmuffs	05	3.67%
2	No Measures	145	96.33%
	Total	150	100.00%



Diagram No. 3.3



It is seen from diagram no.3.3 that:

- 1) Only 3.67% workers get ear plugs as hearing protection.
- 2) 96.33%, Workers are neglected from this facility by their owners. This fact reveals that management is not careful about noise controlling measures.

### 3.3 Temperature, Humidity & Ventilation:-

Temperature, Humidity & Ventilation is basic physical factor affecting efficiency on workers in power loom industry. Ventilation is one of the most important engineering controls available to the industrial sector for improving or maintaining the quality of the air in the industrial work environment. Broadly defined, “ventilation is a method of controlling the environment with air flow. The idea is to capture, remove and dilute pollutants emitted in the space to reach a desired quality level. Humidity is the amount of water vapor in the air. High humidity makes people feel hotter outside in the summer because it reduces the effectiveness of sweating to cool the body by reducing the evaporation from the skin. It is necessary to have a proper level of humidity and ventilation in the powerloom shed because under condition of high humidity, the evaporation of sweat from the skin is decreased and the body’s efforts to maintain an acceptable body temperature may be significantly impaired. It was found that the average level of temperature in powerloom industry was 49 degree Celsius Following are the various aspects regarding temperature, Humidity & Ventilation.

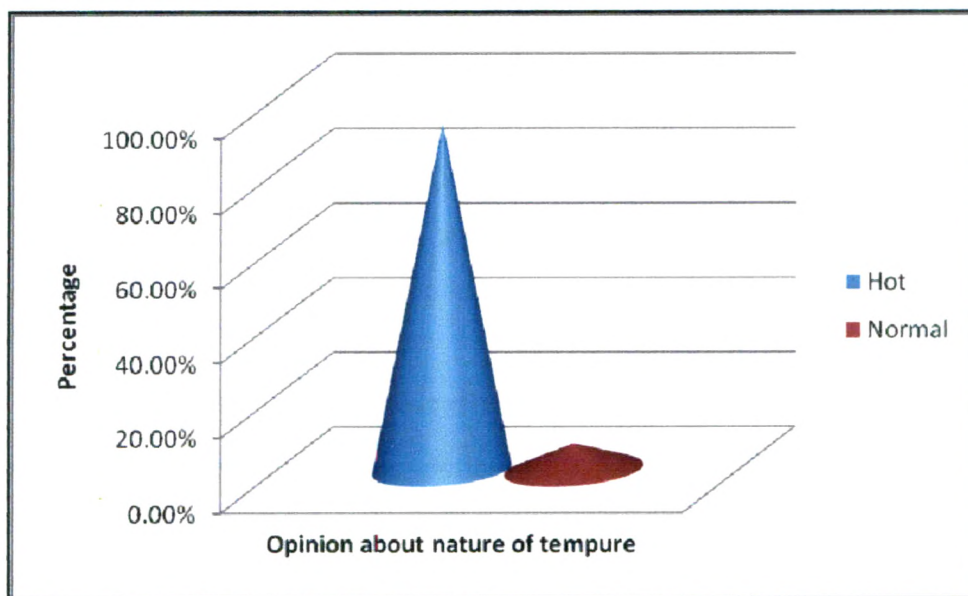
### 3.3.1 Opinion of workers regarding nature of temperature:

Workers opinion about temperature in power loom industry in Vita is as follows:

**Table No. 3.5 – Opinion about nature of temperature**

Sr. No	Nature of Temperature	No of Workers	Percentage
1	Hot	140	93.00%
2	Normal	10	07.00%
	<b>Total</b>	<b>150</b>	<b>100.00%</b>

**Diagram No. 3.4**



It is clear from table no.3.5 that:

- 1) 93% of workers are facing hot temperature conditions while,
- 2) 7% workers say that the temperature in powerloom shed is normal. This fact reveals that majority of workers are dissatisfied about temperature in powerloom industry.

### 3.3.2 Problems of improper humidity, Ventilation & temperature system:

There are various adverse effects of improper temperature, ventilation and humidity on human body such as breathing problem, cough, skin burning etc.

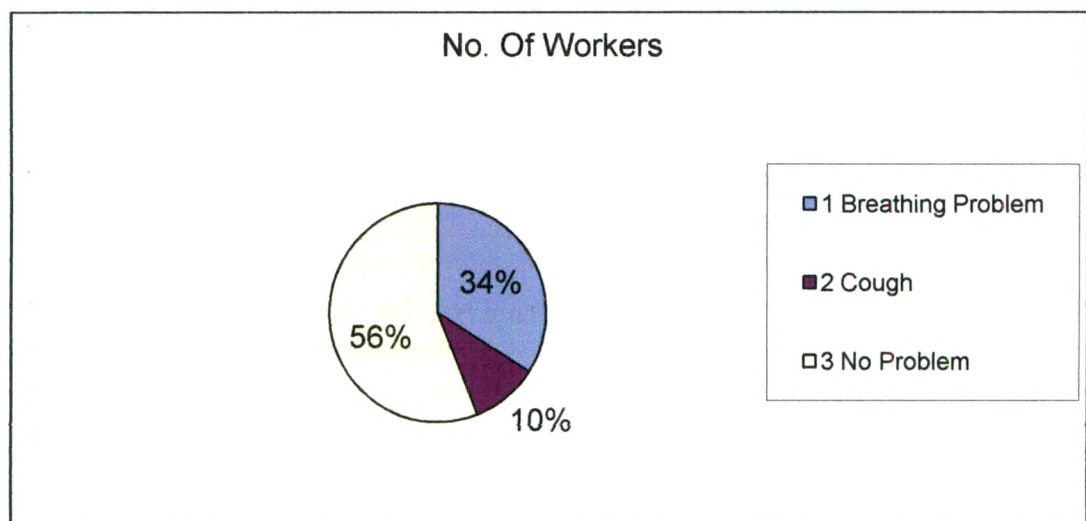
These are shown in the following table:



**Table No. 3.6 – Problems arising out of improper temperature, ventilation and humidity**

Sr. No	Type of Problems	No. Of Workers	Percentage
1	Breathing Problem	51	34.00%
2	Cough	15	10.00%
3	No Problem	84	56.00%
	<b>Total</b>	<b>150</b>	<b>100.00%</b>

**Diagram No. 3.5**



#### **Type of Problems**

Table no.3.6 & above diagram clearly reveal that:

- 1) 34% workers are facing breathing problem
- 2) 10% Workers are facing coughing Problem
- 3) 56% Workers have no problem

Above fact reveal that majority of workers have no problem from improper ventilation, temperature & humidity system but the workers who are facing some problems from that are claiming dissatisfaction about the measures taken to solve their problems



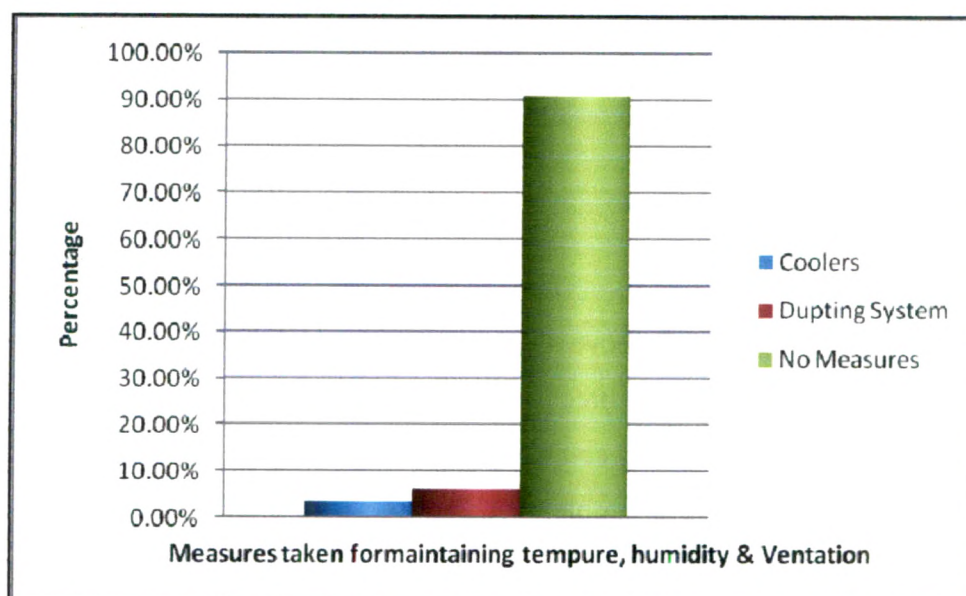
### 3.3.3 Measures taken for maintaining temperature humidity & Ventilation:

It is required to adopt certain measures for maintaining temperature, humidity and ventilation in powerloom industry in Vita to maintain health of workers. There are various adverse effects on the human body if such conditions are not maintained. It may results in various diseases and skin problems. However this fact is ignored in powerloom industry in Vita. Powerloom owners are not aware of various measures for maintaining these conditions in their poewerloom shed. This aspect is discussed as follows;

**Table No. 3.7 - Measures taken for maintaining temperature humidity & Ventilation**

Sr. No	Measures	No. Of Workers	Percentage
1	Coolers	05	3.33%
2	Ducting System	09	6.00%
3	No Measures	136	90.67%
	<b>Total</b>	<b>150</b>	<b>100.00%</b>

**Diagram No. 3.6**



It is observed from diagram no. 3.6shows that:

- 1) Nearly 91% of workers are not satisfied about measures taken for maintaining temperature, humidity & Ventilation system.
- 2) 3.33% Workers says that coolers have been adopted for that while 6% workers says that ducting system is used in their power shed for that.

### 3.3.4 Provision of masks for workers:

In Powerloom industry in Vita there is always danger of disease like Tuberculoses (T.B). Specks of cotton threads are responsible for causing such disease. Taking into consideration this fact, there should be provision of masks for workers. The data regarding this shows the following facts;

**Table No. 3.8 - Provision of masks for workers**

Sr. No	Provision of masks	No of Workers	Percentage
1	Yes	-	-
2	No	150	100.00%
	<b>Total</b>	<b>150</b>	<b>100.00%</b>

Above table clearly reveal that any worker in Powerloom industry does not get masks from their owners. Workers are also not aware of this. They are also not interested in demanding such masks. This fact reveals that owners as well as workers in powerloom industry in Vita are not very serious about health

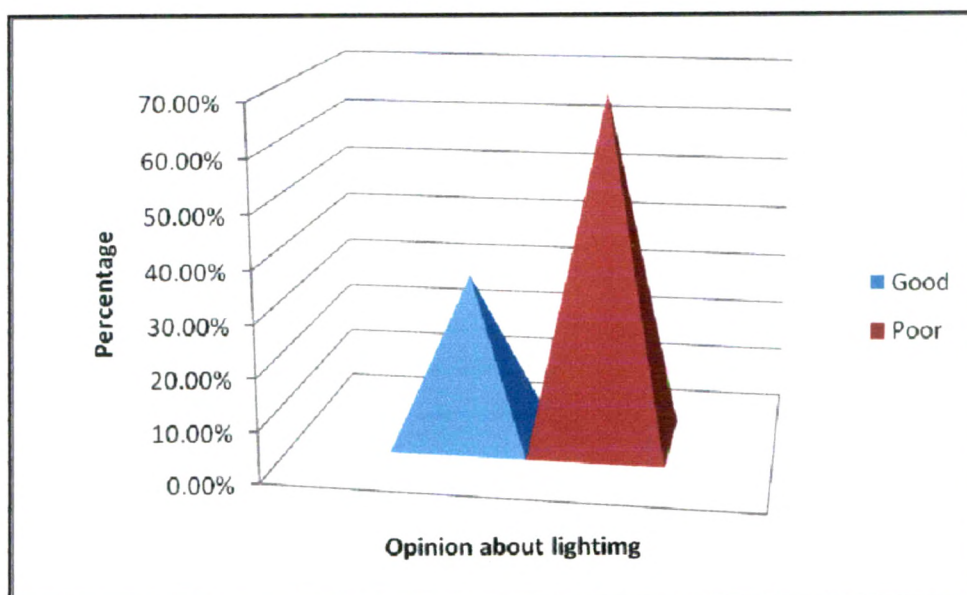
### 3.4 Lighting:-

The Worker in Powerloom industry in Vita work in two shifts. It is expected from workers that there should be one tube light for one loom in Powerloom shed. However powerloom owners in Vita do not follow the general standard of lighting. The powerloom workers in Vita expressed their dissatisfaction over the general lighting condition in their units. Research demonstrates that light has a profound impact on people on their physical, physiological and psychological health, and on their overall performance – particularly in the workplace. When we think about lighting in the workplace, the first thing that comes to mind is the obvious physical effect it has on us. Inappropriate lighting can lead to a host of problems, ranging from eyestrain to serious musculoskeletal injuries. While the physical impact of lighting is obvious, its physiological and psychological impact can be just as strong. Light sends a visual message which can affect mood and motivation levels. However no attention has been given towards the lighting conditions in powerloom industry in Vita. It is explained by following table:

**Table No. 3.9 - Views of workers on lighting condition**

Sr. No	Lighting Condition	No of Workers	Percentage
1	Good	48	32.00%
2	Poor	102	68.00%
	<b>Total</b>	<b>150</b>	<b>100.00%</b>

**Diagram No. 3.7**



It is seen from table no.3.9 and above diagram that:

- 1) According to 32% workers, lighting conditions in powerloom industry in Vita are good while,
- 2) 68% Workers are dissatisfied about lighting conditions in powerloom industry in Vita. Hence it is expected that the lighting conditions should be changed.

### **3.5 Distance between two looms:-**

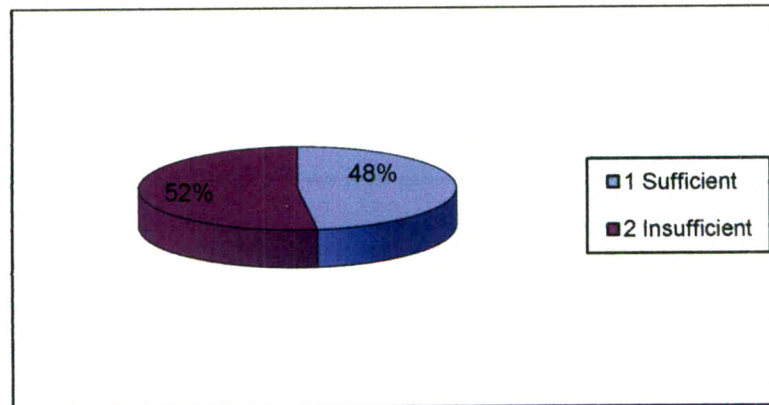
It is expected that there should be sufficient distance between two looms in powerloom shed but it has been observed that this condition is not satisfactory in powerloom industry in Vita. It was found that the average distance between two looms was 2-3 feet. Therefore workers cannot move freely while they are working. The low distance also causes disturbance to work. This fact is explained by following table;



**Table No. 3.10 - Views of the workers on distance between two looms**

Sr. No	Views Expressed about distance between two looms	No of Workers	Percentage
1	Sufficient	72	48.00%
2	Insufficient	78	52.00%
	<b>Total</b>	<b>150</b>	<b>100.00%</b>

**Diagram No. 3.8**



**Views Expressed**

The above pie chart shows that:

- 1) Majority i.e. 52% workers were not happy about the distance between two looms while,
- 2) 48% workers are satisfied about the distance between two looms. The workers opined that the minimum distance between two looms should be 4 feet's.
- 3) It is observed that many times accidents occurred in powerloom sheds because of the inability of movement of workers.

### **3.6 Shift Work:-**

#### **3.6.1 No. Of shifts in Powerloom sheds:**

Powerloom workers in Vita works in shift. Nearly in all powerloom sheds there are two shifts i.e. day & night. Day shifts starts generally at 8.00 a.m. and ends at 6.00 p.m. while night starts at 6.00 p.m. and ends at 4.00 a.m. Only few powerloom owners have adopted three-shift system. As the number of workers in this industry is reducing significantly two-shift system can be seen in all powerloom sheds. As per standard norms shift should of 8 hours but due to labour shortage workers have to

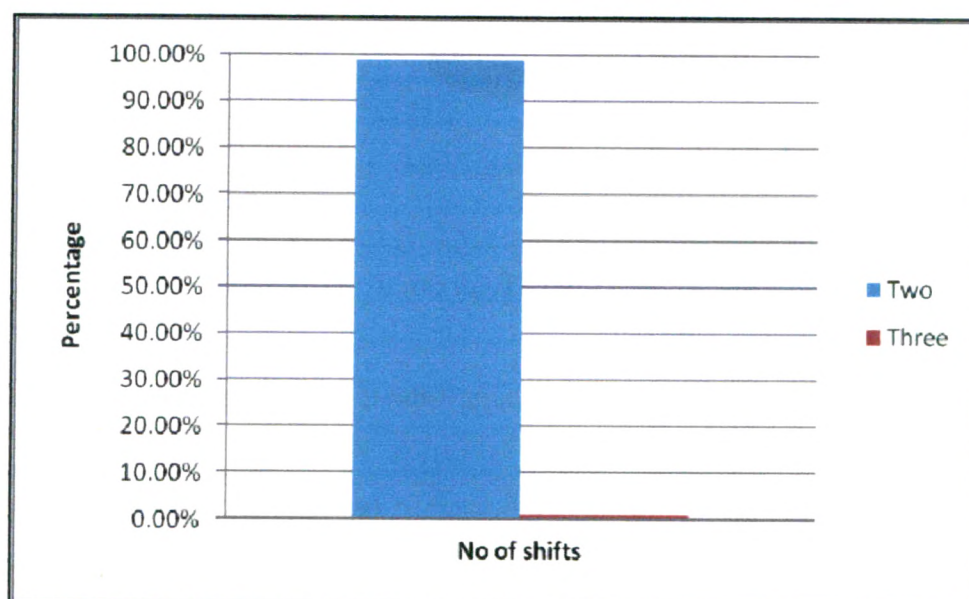


work for 10 to 12 hour. The table showing no of shifts in powerloom shed is as follows;

**Table No. 3.11 – No. of Shifts**

Sr. no	No. Of Shifts	No. Of Workers	Percentage
1	Two	148	99.00%
2	Three	02	01.00%
	<b>Total</b>	<b>150</b>	<b>100.00%</b>

**Diagram No. 3.9**



It can be seen from above diagram no.3.9 that 99% workers works in two shifts while only 1% workers work in three shifts.

### 3.6.2 Preference given by workers for various shifts:

It is observed that the powerloom workers in Vita generally prefer day shift over night shifts. The reason for that is the rest that they get at night. In day shift generally the efficiency of workers is more than night shift. In addition to this they can sound sleep at night. The preference of workers for day & night shift is as shown in following table.

Table No. 3.12 - Type of shift preferred by workers

Sr. No	Type of shift preferred	No of workers	Percentage
1	Day	140	53.34%
2	Night	10	6.66%
	Total	150	100

Diagram No. 3.10

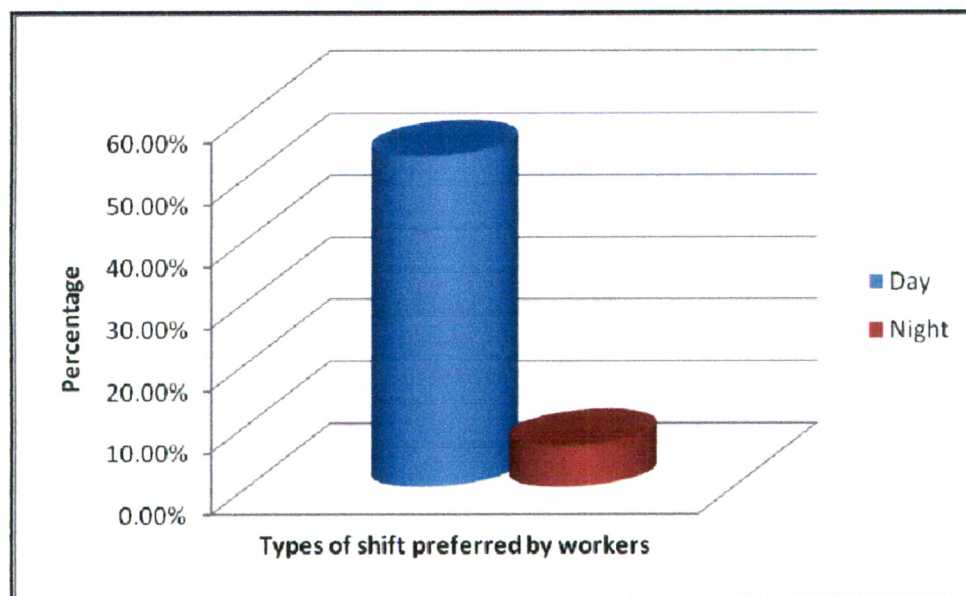


Table no.3.12 and above diagram explain that:

- 1) Majority of workers i.e 93.34% workers prefer day shift while,
- 2) 6.66% workers prefer night shift.

In spite of this fact selection of shift is not in hands of workers because shift is rotated weekly. That means every week the worker has to change the shift.

### 3.7 Health & Safety conditions:-

Workers in powerloom Industry are facing problems relating with health & safety. There is danger of diseases like tuberculosis (T.B.), asthma etc. This may cause due to dust, specks of cotton threads etc. there is always possibility of minor accidents such as cutting and bruising, electric shock etc. Hence to overcome these problems there should be proper maintenance of health & safely conditions. There should be provision of mask, first aid appliances but these measures are rarely taken in powerloom industry in Vita. These various aspects are discussed as follows;



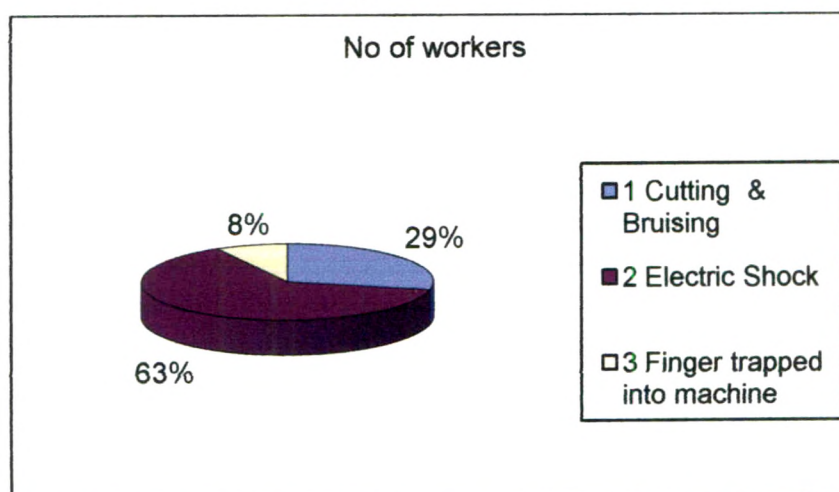
### 3.7.1 Problems of minor accidents:

Workers are facing different types of accident problem. These accidents occur when they are on work. They are as follows;

**Table No. 3.13 – Types of Accidents in powerloom sheds.**

Sr. No	Opinion of workers about type of accident	No of workers	Percentage
1	Cutting & Bruising	43	28.66%
2	Electric Shock	95	63.34%
3	Finger trapped into machine	12	8.00%
	<b>Total</b>	<b>150</b>	<b>100.00%</b>

**Diagram No. 3.11**



Above pie chart shows that;

- 1.) 28.66% Workers are facing problem of cutting & bruising
- 2.) 63.34% Workers are facing problem of electric shock
- 3.) 8.00% workers are facing problem of finger trapping into machine.

Above fact reveal that majority of workers are suffering from possibility of electric shock. It is therefore necessary to provide safety equipments such as gloves to workers by their owners.

### 3.7.2 Satisfaction of workers about health & safety Provision:

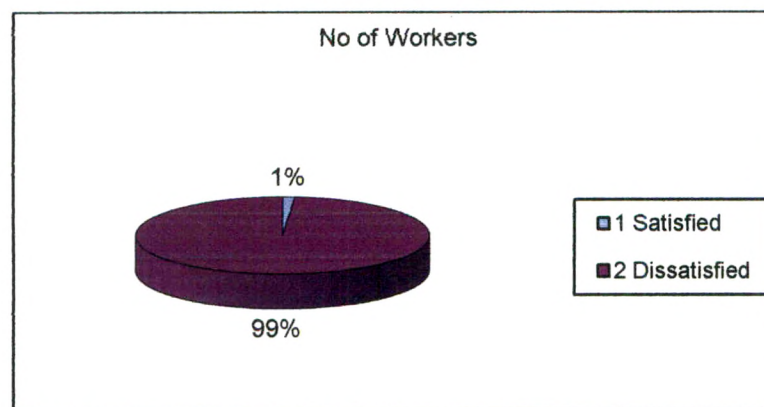
The powerloom workers have not been provided with proper health & safely provisions. High frequency of accident is the common occupational hazard in

powerloom industry as well as dust, heat is resulting in diseases like T.B., asthma etc. The workers therefore need timely medical checkup after regular period. However these requirements are not fulfilled in nearly all powerloom sheds. This indicates negligence of the powerloom owners regarding health and safety of powerloom workers.

**Table No. 3.14 - Views of the workers regarding health & safety provision**

Sr. No	Views	No of Workers	Percentage
1	Satisfied	2	01.00%
2	Dissatisfied	148	99.00%
		<b>150</b>	<b>100</b>

**Diagram No. 3.12**



**Opinion about satisfaction**

Table no. 3.14 clearly shows that;

- 1.) 99% workers are dissatisfied about the health & safety provisions in their Powerloom shed
- 2.) 1% workers are satisfied about the health & safety provisions in their Powerloom shed.

### 3.7.3 Causes of Accidents:

There are various causes of accidents in powerloom industry in Vita. Accident may occur due to carelessness of workers, lack of safety equipment, work schedules, defective physical climate at work place, excessive noise, defective machinery etc. But among this carelessness of workers and lack of safety equipment is main cause of accident. The observation regarding these main causes is as shown in following table;



Table No. 3.15 causes of accident

Sr. No	Causes of accident	No. of workers	Percentage
1	Lack of safety Equipment	83	55.00%
2	Carelessness of workers	37	25.00%
3	Other causes	30	20.00%
	<b>Total</b>	<b>150</b>	<b>100.00%</b>

Diagram No. 3.13

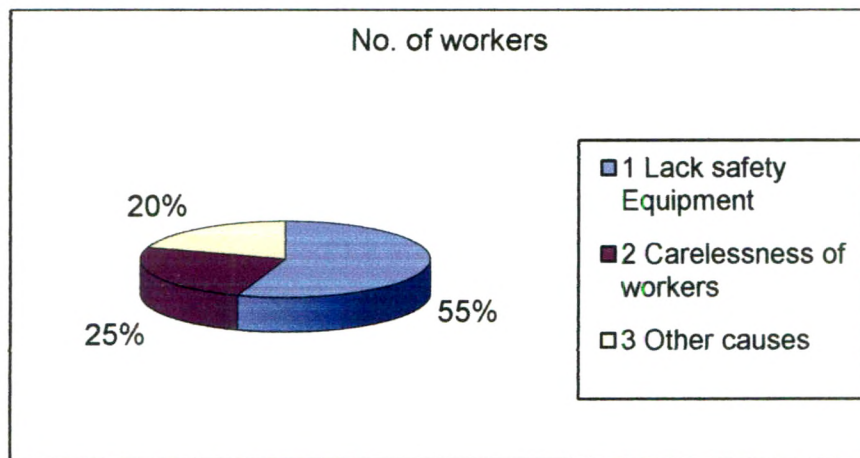


Table no.3.15 explains that:

- 1) According to 55% workers lack of safety equipment is main cause of accidents
- 2) 25% workers says that it is carelessness of workers that results in accident while,
- 3) According to 20% workers other causes such as defective machinery, bad working conditions, work schedules etc. are responsible for accidents. It means that powerloom industry should concentrate on proper maintenance of safety equipments.

### 3.8 Physical Facilities:-

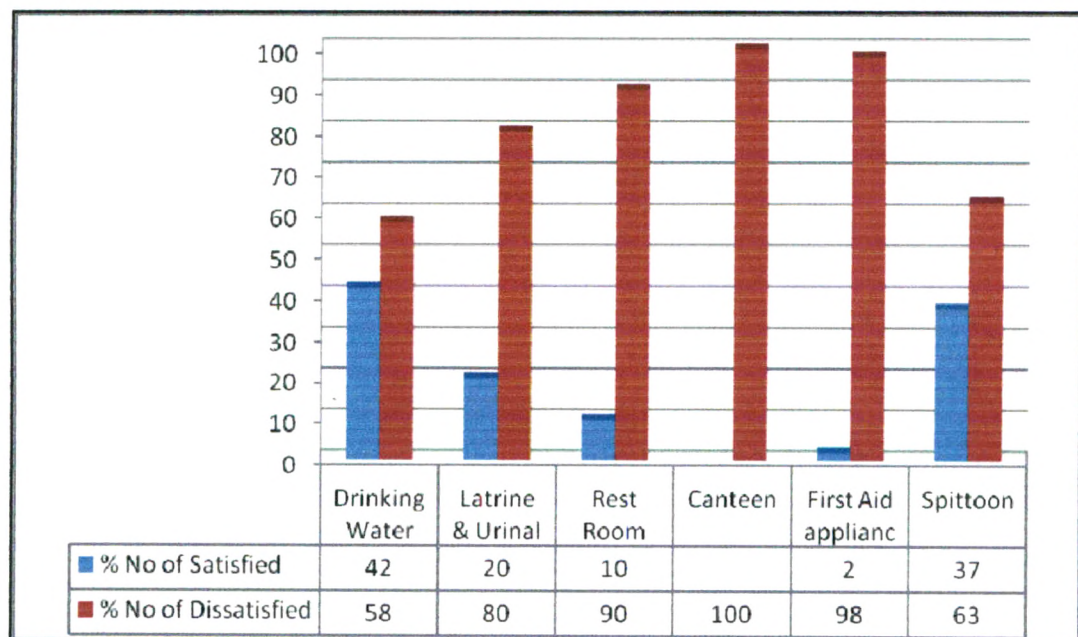
It is expected that any industry should provide basic physical facilities such as cool & clean drinking water, latrines & Urinals, First aid appliances, rest room, canteen, bus facility for conveyance of workers etc. These facilities are helped in increasing health & efficiency of the workers in the organization. The observation regarding these facilities in powerloom industry in Vita revealed that these facilities are not provided properly. In many powerloom sheds, there is not cool & clean

drinking water; latrines & Urinals are not properly cleaned. There is absence of separate rest rooms for workers. There is also negligence regarding cleanliness in powerloom sheds where workers actually work. There are not canteen & Bus facilities for workers. These facts are explained by following table;

**Table No. 3.16 Opinion of workers about physical facilities**

Sr. no	Facilities	Opinion			
		Satisfy No	% of Satisfy No.	Dissatisfy No	% of Dissatisfy No.
1	Drinking Water	63	42.00%	87	58.00%
2	Latrine & Urinals	30	20.00%	120	80.00%
3	Rest Rooms	15	10.00%	135	90.00%
4	Canteens	-	-	150	100.00%
5	First Aid appliance	3	2.00%	147	98.00%
6	Spittoons	55	37	95	63.00%

**Diagram No. 3.14**



It is observed from table no. 3.16 that:

- 1) 42% workers are satisfied about drinking water facility & 58% workers are dissatisfied about it.
- 2) 20% workers are satisfied about latrines & Urinals whereas 80% workers dissatisfy about it. It means that in many powerloom sheds there is not separate facility of latrines & Urinals.
- 3) 10% Workers are satisfied about rest room while 90% workers are dissatisfied out rest room facility provided by their owners. according to them they have to take rest in premises of powerloom shed. It means there is also not separate facility of rest rooms.
- 4) 100% workers are dissatisfied about canteen facility there is not canteen of any powerloom owner specially for workers. Workers have to go outside for breakfast & tea.
- 5) 2% workers are satisfied about first aid appliances while 98% workers are dissatisfied about this. These workers have quoted that remedies are taken when accident occurs in powerloom shed. It means there is not preplanned system of first aid appliances in this industry.
- 6) 63% are dissatisfied about spittoons while 37% are satisfied about spittoons.

### **Conclusions about physical work environment:**

From the detailed explanation of the various aspects of physical work environment the general conclusions regarding this can be drawn as follows:

#### **1) Noise:**

Majority of workers in powerloom industry in Vita are suffering from high level of noise. Such high level of noise results in headache, low concentration & other effects. However no attention have been provided towards this. Only 3.67% of the workers are getting earmuffs for controlling such noise pollution in their powerloom shed.

#### **2) Temperature, Humidity & Ventilation:**

In majority of powerloom shed humidity and ventilation conditions are poor. Such improper conditions are responsible for breathing problem.

cough, and various other diseases like T.B. It was found that disease like T.B. is very common in this industry which arises due to dust and cotton threads in powerloom shed. However in very few powerloom shed masks are provided to overcome such problem. Workers are also unaware of such disease and not interested in demanding such masks. This fact reveals that owners as well as workers in powerloom industry in Vita are not serious about health.

3) **Lighting:**

Lighting conditions in the powerloom industry in Vita are not satisfactory. General standards of lighting are not followed by powerloom owners in Vita.

4) **Distance between two looms:**

In Majority of powerloom sheds, the distance between two looms was found as 2 to 3 feet which was not sufficient. According to workers, the distance between the looms should be at least 4 feet. Most of the times accident occurred due to such low distance between two looms. The low distance also results in disturbance to work.

5) **Shift Work:**

Workers in powerloom industry in Vita work in two shifts. Shifts are rotated weekly. But majority of workers prefer to work in day shift. However it is not in the hands of workers. The workers who have to work at night shift are generally reluctant to work. This is also one of the reason of labour absentism in this industry.

6) **Health & Safety Conditions:**

Lack of safety equipment & carelessness of workers are major causes accident in powerloom industry in Vita. However no pre-planned provisions are made for accident that. In addition to this first aid boxes are also not found in nearly all powerloom sheds.

7) **Physical Facilities:**

The provisions of factories act regarding health and safety conditions are not properly followed in powerloom industry in Vita Latrines and urinals were



not clean & in hygienic conditions. In many shed, there were not separate rest rooms for workers. There was also negligence regarding cleanliness at workplace. There were not separate canteen & bus facilities for workers.

In a nutshell the physical work environment in powerloom industry is not satisfactory. It needs to be improved.