IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

REVIEW STUDY ON OCCUPATIONAL HEALTH AND SAFETY ON SPINNING INDUSTRY

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ABSTRACT:

The Occupational Health and Safety in the Spinning Industry focuses about how to increase worker health and safety in India. Yarn spinning is the process of turning fibre materials into yarns used in textile fabrics and industries. Fibres go through a series of procedures in spinning mills before being converted into yarn. Opening, where the bails are opened, is section of every spinning mill. After that, the fibres are put into machines that go through carding, combining, and lastly twisting to make yarn. The spinning production process are involved in various of safety and health issue.The major hazards happen are physical, chemical, ergonomically & physiologically Hazards along with these some of things which can create hazards are more working hours, improper ventilation , dust and noise. To prevent the health issues of workers in industries it is essential that the workers be aware of the various occupational hazards in the industry. It is also necessary that the management should take the necessary steps to protect workers from potential hazardous situation.

INDEX TERMS: Occupational health, Physical Hazards, Health Hazards, Control measures

INTRODUCTION:

The textile industry in India contributes significantly to the country's economy and employs a large number of people in per urban and rural regions. Apart from supplying one of life's most fundamental commodities, clothes, the textile sector accounts for around 14% of the country's industrial production. The industry employs approximately 35 million people, making it the country's second-largest employment after agriculture (2) . The textile industry consists of a number of units engaged in spinning, weaving, dyeing, printing, finishing and a number of other processes that are

required to convert fibre into a finished fabric or garment. There are several safety and health issues associated with the textile industry (3).

Spinning is the process that turns fibres into yarn. These fibres can be natural (cotton) or manmade fibres (polyester). Spinning also includes the creation of synthetic filament yarn (yarn that is not made from fibres). Yarn is the end result of spinning. Spinning is the foundation process and all the subsequent value additions i.e., Weaving, Knitting, Processing, Garments and Made ups, depend upon it. Any variation in quality of spinning product directly affects the entire value chain (2).

Occupational health hazards in the textile industry, such as byssinosis, bronchitis, diffused lung disease, and other breathing problems, are mostly caused by poor machine conditions, ergonomic concerns, and environmental factors such as humidity, lighting, and ventilation. Cotton dust and noise are the major environmental hazards which cause health risk in a spinning mill. Ergonomical hazards are of by lifting heavy object without proper lifting principle and it causes muscular-skeletal disorder, repetitive motion injury (2).

SPINNING UNIT

Health hazards

Exposure to cotton dust:

High amounts of cotton dust are exposed in spinning process. They also exposed to pesticides and soil. Workers exposed to cotton dust and other particles can cause respiratory problems. It will result in fatal disease of byssinosis, it known as brown lung. The symptom of this disease includes chest tightness, coughing and shortness of breath (5).

Breathability of dust

The part of the dust that tends to stay in the lungs (breathing dust) is hazardous to one's health. The deposits in the lungs are proportional to the panicle size, with the highest deposition occurring for dust particles smaller than 4 mm (particulate matter).Waste in cotton and cotton dust. The trash content of cotton and the airborne dust created by mechanical spinning operations have a strong relationship. As the trash content of raw cotton grows, so does the amount of dust in the air. The ratio of dust to trash content, on the other hand, declines

as garbage content increases and approaches a constant value at greater trash levels(2).

Fine dust

A difference is established between total dust and fine dust when analysing the room air conditions at work for medical reasons (defined as breathable dust and fraction entering the lung).Many fibre elements are present in total dust, but they are not the primary cause of the health danger. To the naked eye, the tiny dust hanging in the room air is undetectable in its intricacies. It only becomes visible as mist at larger quantities. This thin, breathable dust is extremely harmful (2).

Noise hazard:

Noise is an unwanted signal. Excessive noise levels are damage the eardrum when exposed to every loud and sudden noise and the pair cells in the inner ear are chronically damaged. Prolonged to

exposure to noise of certain frequencies are leads to hearing loss. Other problems like fatigue, absenteeism, annoyance, anxiety, reduction in efficiency, changes in pulse rate and blood pressure as well as sleep disorders have also been noted on account of continuous exposure to noise. Lack of efficient maintenance of machinery is one of the major reasons behind the noise pollution in a majority of the units.

Though it causes serious health effects, exposure to noise is often ignored by textile units because its effects are not immediately visible and there is an absence of pain (5).

Effects of Noise on Human Health

Noise is a problem that affects everyone. It has been determined by many researchers that there are permanent hearing threshold changes in people who are in high noise environments for a long time. Although it is not easy to detect a significant damage to the hearing at lower levels or short-term exposures, the negative effects of noise on human health, behaviour and happiness can be determined(1).

Physical Effects of Noise

It is the negative effects of noise on hearing. It can be examined in two parts as temporary and permanent. The most common temporary effects are temporary hearing threshold shift and temporary loss of hearing sensitivity known as hearing fatigue. Hearing loss becomes permanent in cases where the exposure is too much and the hearing system is affected by noise again in regaining its old features (1).

Physiological Effects of Noise

These are changes that occur in the human body. Major physiological effects; muscle tensions, stress, increase in blood pressure, changes in heart rate and blood circulation, pupil dilation, respiratory acceleration, circulatory disorders and sudden reflexes(1).

Psychological Effects of Noise

In the press of the psychological effects of noise; nervous disorder, fear, discomfort, uneasiness, fatigue and mental effects slow down. The sudden increase in noise level can cause fear in people (1).

PHYSICAL HAZARDS

Accidents:

Accidents in traditional spinning mills were formerly a common occurrence. Workers were exposed to the potential of mishaps beginning with the opening of bales and continuing through material handling and machine operation. Accidents have, however, decreased as a result of the introduction of new machinery, material handling systems, equipment, and tools. All sections of the hazardous devices, in particular, are carefully protected. They've also got the essential fasteners and bolts on the doors and coverings. Also included are appropriate safety stop gestures (2).

Machinery accidents:

All types of textile machinery can cause accidents due to machinery. Accident occurs transmission machine parts such as belts, pulleys, gears, shafts and other revolving parts (2).

Heat Stress:

The spinning industry sometimes requires high levels of temperature and artificial humidity of the air. Heat stroke or heat exhaustion are both signs of heat stress. Symptoms includes headache, dizziness and in

severe cases, it will happen nausea and vomiting.

Fire:

Cotton is a flammable substance, making it prone to fire. It is particularly prone to fire in the blow room and on the cards; any spark created in these areas might not only start a fire, but also spread it to other machines via the cotton conveying system (2).

The suggestions to improve the safety and health conditions in spinning industry:

- In order to reduce noise levels, machinery should be adequately maintained. Certain machine parts can be replaced if necessary.
- Workers should be given with earplugs if the noise level cannot be controlled. This will decrease their exposure to noise.
- Workers can be rotated among their jobs so that they are not forced to constant noise for long periods of time.
- At the workplace, there should be proper ventilation is required.
- Workers should be provided with masks to decrease direct exposure to dust.
- To prevent worker exposure to cotton dust, proper dust control equipment should be installed and maintained.
- Evaluate all manual handling operations and hazards that might result in musculoskeletal problems.
- Examine current injury records related to manual handling, such as days lost due to back strain, fatigue, and handling injuries, as well as the cost to the company.
- Train employees both during induction and on a regular basis, and highlight the risk of back injury through the use of posters, films, and other means of making people aware.
- To avoid the spread of fire in spinning, several contemporary devices are available, such as smoke alarms and CO2 flooding.
- Using safe machine guards and personal protective equipment to avoid accidents. Accidents have also been reduced because of automation in material transportation and in hazardous areas.
- Employers should conduct medical examinations for their employees on a regular basis. Management should take necessary steps if serious occupational health issues are identified.
- The seats of the workers and the tables should be well aligned in height so that there is no musculoskeletal strain (4).

CONCLUSION

The study showed that workers exposed to high physical hazards, health hazards in spinning industry. This study highlights that worker at high risk of developing hearing problems and other associated infirmities due to excessive occupational noise. Study strongly recommends provision of safety measures and personal protective tools like, ear plugs, dust mask and ear muffs to safeguard (5) .

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