AJHS
Asian Journal of Home Science
Volume 9 | Issue 2 | December, 2014 | 572-575

DOI: 10.15740/HAS/AJHS/9.2/572-575
e ISSN-0976-8351 ■ Visit us: *www.researchjournal.co.in*

*Research Paper*

# Occupational hazards faced by spinning mill workers

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**Received:** 30.09.2014; **Revised:** 15.11.2014; **Accepted:** 28.11.2014

■ **ABSTRACT :** Yarn spinning is a process of making or converting fibre materials into yarns for making textile fabric or products. In spinning mills, the fibres pass through various processes to convert them into yarn. Every spinning mill has different sections like opening, where the bails are opened. After that, fibres are fed to machines which pass through carding, combining machine finally twisting is done to convert into yarn. Every department has different number of workers to carry or supervise the work. All these processes lead to fibre dust and its quantum vary from section to section. Opening section has maximum fibre dust and it is minimum in spinning section. The workers engaged in spinning mills encounter different occupational health problems and for identification of their health problems, a questionnaire was developed. Thirty respondents were interviewed and observation of work environment was made. The results revealed that spinning mill workers were facing the problems related to coughing and sneezing, eye irritation, breathlessness due to presence of dust in the work environment. Sweating was due to work pressure. Workers were taking no precautionary measures to avoid the inhale the fibre dust. This being the predisposing factor causing health problem. Hence, the need arises for the use of appropriate protective clothing for preventive them to exposed to fibre dust.

■ **KEY WORDS:** Spinning mill workers, Occupational hazards, Fibre dust

■ **HOW TO CITE THIS PAPER :** Babel, Sudha, Rajvanshi, Rupali and Sharma, Sangeeta (2014). Occupational hazards faced by spinning mill workers. *Asian J. Home Sci.*, **9** (2) : 572-575.

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Textile industries is one of the informal sector which has high working population From ancient day as back as Phynician and Roman empire the textile industry has developed and excelled in meeting the demands in the market. . The workers are engaged in weaving, spinning, tailoring, ironing and many more unskilled jobs. Inspite of tremendous improvement in the industries worker's position have not improved to the expected mark. They are still working in poor environment of the textile industries with low wages. Spinning mill activity is hazard prone activity. Fibre dust is present in the air during the handling or processing of textile fibre, which may contain a mixture of many substances including ground up plant matter, fibre, bacteria, fungi, soil, pesticides, non-cotton plant matter and other contaminants which may have accumulated with the cotton during the growing, harvesting and subsequent processing or storage periods. Any dust present during the handling and processing of fibre through the weaving or knitting of fabrics, and dust present in other operations or manufacturing processes using raw or waste fibres and fibre by products from textile mills are considered fibre dust In weaving and spinning industries, the environment comprised of tremendous pollution by dust and noise along with poor lighting arrangement, lack of drinking water, lavatories, eating place and overall unhygienic atmosphere promote health and nutritional problems among workers. Workers are working in awkward posture, affecting the health. Repetitive motions of the upper limbs long duration, high exertion further amplifies their problem. Usually workers earn very low wages because their payment depend in amount of acceptable pieces produced in a given time. The objective of present investigation was to explore the occupational hazards faced by textile mill workers while handling of fibre and yarn along with their existing clothing practices and safety measures used.

## ■ RESEARCH METHODS

The present study was conducted in Bikaner division.

Thirty Spinning mill workers were purposively selected from each department for the present study. These workers were working at spinning unit from last ten years. A semi structured questionnaire was used to generate information on self-reported problems. Critical examination of work place was also done to know about the work environment. Data were analyzed using frequency, percentage and weighted mean scores.

**General information and health status of the respondents :**

Majority (60%) of respondents were in the age group of 41-50years, 40.00 per cent were between the age group of 31-40 years. The caste wise distribution of the respondents highlight that 40.00 per cent respondents were from general caste and backward caste. Only 20 per cent respondents belonged to scheduled caste. Eighty per cent of the respondents belonged to nuclear family and rest were from joint family. Sixty per cent had medium family size while rest had small family size. It was good to note that none of the respondent was illiterate, equal percentage of respondents (20% in each category) were educated up to primary, middle and higher secondary. The most significant and vital factor which has its bearing on the economic status of the family is its income. The standard of living of a family is based on the economic condition of that family. It is, therefore, imperative to have a glance at the economic returns of the household under the study. Table depicts that 60 per cent of the respondents were in the income range of Rs. 5000-10000 per month 23.33 per cent earned up to Rs. 10,000-20,000 per month. Remaining 6.67 per cent earned Rs.5,000 month.

**Table 1 : General profile of the respondents** **(n=30)**

| Sr. No. | Aspects | Categories | No. of respondents | |
|---|---|---|---|---|
| | | | Frequency | Percentage |
| 1. | Age (in years) | 31-40 | 12 | 40.0 |
| | | 41 -50 | 18 | 60.0 |
| 2. | Caste | SC/ST | 06 | 20.0 |
| | | Backward (OBC) | 12 | 40.0 |
| | | General | 12 | 40.0 |
| 3. | Family type | Nuclear | 24 | 80.0 |
| | | Joint | 6 | 20.0 |
| | Family size | Small (up to 4 members) | 12 | 40.0 |
| | | Medium (5-8 members) | 18 | 60.0 |
| 4. | Education | up to Primary | 6 | 20.0 |
| | | up to Middle | 6 | 20.0 |
| | | up to Metric | 12 | 40.0 |
| | | Higher secondary | 6 | 20.0 |
| 5. | Monthly income (Rs.) | up to 5000 | 5 | 6.67 |
| | | 5000-10000 | 18 | 60.0 |
| | | 10000-20000 | 7 | 23.33 |

**Table 2 : Problems encountered by spinning mill workers** **(n=30)**

| Sr. No. | Problems encountered | Opening | | Blending and picking | | Carding and combing | | Combing and twisting | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | % | Rank | % | Rank | % | Rank | % | Rank | % | Rank |
| 1. | Skin allergy | 30.0 | VIII | 30.0 | VI | 46.67 | II | 26.7 | VI | 37.0 | V |
| 2. | Eye irritation and itching | 43.33 | VI | 50.0 | IV | 43.34 | III | 36.67 | III | 43.33 | IV |
| 3. | Headache | 85.33 | II | 96.67 | I | 100 | I | 100 | I | 95.0 | I |
| 4. | Fatigue | 96.7 | 1 | 90.0 | II | 100 | I | 96.7 | II | 93.33 | II |
| 5. | Hearing problem | 10.0 | X | 10.0 | VII | 36.66 | IV | 30.0 | V | 21.67 | VIII |
| 6. | Nose irritation | 50.0 | V | 10.0 | VII | 13.33 | VII | 36.67 | III | 34.17 | VI |
| 7. | Nausea | 33.33 | VII | 10.0 | VII | 3.33 | VIII | 20.0 | VII | 16.7 | IX |
| 8. | Throat irritation | 20.0 | IX | 30.0 | VI | 26.7 | VI | 33.33 | IV | 27.50 | VII |
| 9. | Coughing and sneezing | 56.7 | III | 60.0 | III | 46.67 | II | 30.0 | V | 48.82 | III |
| 10. | Breathlessness | 53.33 | IV | 43.33 | V | 30.0 | V | 10.0 | VIII | 34.17 | VI |
| 11. | Allergic bronchitis | 10.0 | X | 10.0 | VII | 10.0 | IX | 10.0 | VIII | 10 | X |

**Opening :**

While opening major problem reported was fatigue (96.7%) followed by headache. Slightly more than half of the respondents reported breathlessness, coughing and sneezing and nose irritation. Eye irritation and itching was reported by (43.33%) and nausea was faced by one third of the respondents. Skin irritation due sticking of short fibres on skin was faced by 30 per cent of the respondents.

**Blending and picking :**

Headache and fatigue were the major problems reported (96.7 and 90%) followed by coughing and sneezing (60%) and eye irritation and itching (50%).Thirty per cent of the respondents reported eye and throat irritation. Only ten per cent respondents reported nausea, nose irritation and allergic bronchitis.

**Carding and combing :**

Headache and fatigue were the major problems reported by almost all respondents. Skin allergies, coughing and sneezing were reported by 46.7 per cent of the respondents. Eye irritation and itching was reported by 43.34 per cent, while hearing problem was reported by 36.66 per cent. Breathlessness and throat irritation was reported by 30 and 26.7 per cent respondents, respectively.

**Combing and twisting :**

Similar to other departments headache and fatigue were the major problems reported by the respondents. Eye irritation, eye itching and nausea was reported by 36.67. Hearing problem, coughing and sneezing were reported by 30 per cent of the respondents. Skin allergy was reported by 26.7 per cent.

Over all the problems faced by the workers during spinning in ascending order were headache, fatigue, coughing and sneezing, eye irritation and itching, skin allergy, nose irritation, throat irritation, nausea, and allergic bronchitis.

Data related to existing clothing pattern of spinning mill workers reveals that majority of workers were wearing the shirt as upper garment and pajama as lower garment followed by wearing of shorts and T-shirts. At feet chappal was worn followed by shoes (WMS-0.833).Weighted mean scores of 0.33 shows that cap was worn occasionally by the respondents. Information regarding the use of any special protection was also collected and it was revealed that no special protection was used by the respondent to save them from the fibre dust in the environment.

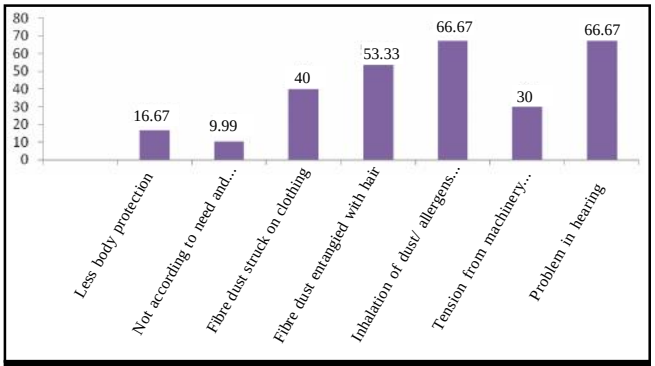


**Fig. 1 : Problems encountered with existing dressing pattern**

**Table 3 : Existing clothing pattern of Spinning mill workers** **(n=30)**

| Type of garment | | Frequently | | Occasionally | | Never | | WMS |
|---|---|---|---|---|---|---|---|---|
| | | f | % | f | % | f | % | |
| Upper garment | T- Shirt | 05 | 16.67 | 10 | 33.3 | 15 | 50 | 0.66 |
| | Shirt | 27 | 91.11 | 03 | 9.89 | – | – | 1.9 |
| Lower garment | Pant | 05 | 16.67 | 10 | 33.33 | 15 | 50 | 0.66 |
| | Shorts | 13 | 43.33 | 15 | 50.0 | 02 | 6.66 | 1.36 |
| | Pajama | 20 | 66.67 | 05 | 16.67 | 05 | 16.67 | 1.5 |
| Head | Cap | – | – | 10 | 33.33 | 20 | 66.67 | 0.33 |
| Feet | Chappal | 22 | 73.33 | 05 | 16.67 | 03 | 10 | 1.63 |
| | Shoes | 05 | 16.67 | 15 | 50 | 10 | 33.33 | 0.833 |

**Table 4 : Problems encountered with existing dressing pattern** **(n=30)**

| Sr. No. | Problem faced | f | % |
|---|---|---|---|
| 1. | Less body protection | 5 | 16.67 |
| 2. | Not according to need and requirement | 3 | 9.99 |
| 3. | Fibre/ dust struck on clothing | 12 | 40.00 |
| 4. | Fibre dust entangled with hair | 16 | 53.33 |
| 5. | Inhalation of dust/ allergens through nose | 20 | 66.67 |
| 6. | Tension from machinery hazards | 9 | 30.00 |
| 7. | Problem in hearing | 20 | 66.67 |

Problems encountered with existing dressing pattern was also enquired it was found that two third of the respondents faced the problem of Inhalation of dust/ allergens through nose and Problem in hearing and fibre dust entangled with hair, Fibre/ dust struck on clothing. Tension from machinery hazards were also reported by thirty per cent of the respondents.

**Conclusion :**

Maximum numbers of the respondents (60%) were in the age group of 41-50years and metric pass (40%) and belonged to nuclear families (80%).The problems encountered due to wool spinning were : headache (95%),Fatigue(93.3%), Coughing and sneezing (48.82%) itching/irritation in eyes (43.3%) and skin allergies. Problem of hearing loss due to noise pollution was reported by 21.7 per cent respondents. Majority of respondents were wearing dhoti kurta followed by pant shirt. None of respondents were using personnel protective devices to protect themselves. It is recommended that awareness should be generated among spinning mill workers about the use of personnel protective devices like face mask and ear muffs.

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