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**Research Article**

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# A study to assess the level of knowledge on byssinosis among the textile workers at Thirubhuvanai area, Pondicherry

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**Abstract:**

**Background:** Byssinosis is a professional lung disease that is caused by excessive exposure to cotton dust among the textile workers that results in respiratory symptoms and a decrease in lung function. The absence of knowledge on its prevention shifts the risk among the workers. **Methodology:** A quantitative research design was taken, with a descriptive design. A sample size of 50 textile workers in an area of choice in Thirubhuvanai in Puducherry was chosen. Structured questionnaires were used in the collection of data which were then analyzed in the form of descriptive and inferential statistics. **Results:** The results indicated that in the pre-test, 68 per cent of the participants had inadequate knowledge, 32 per cent had moderate knowledge and none had adequate knowledge. Following the intervention, 60 per cent of the participants scored adequately and 40 per cent achieved moderate knowledge with no respondents in the inadequate category. The mean knowledge score increased from 6.94 to 14.08 which was statistically significant at $p < 0.05$. **Conclusion:** The study came to the conclusion that the educational intervention was effective in the enhancement of the knowledge on byssinosis with the need to continuously educate the workers on their health.

**Keywords:** Occupational lung disease, Knowledge, Byssinosis.

## INTRODUCTION

Byssinosis is an occupational lung disease caused by breathing in cotton, flax, hemp, or similar plant dust at work. It is common among textile workers and is sometimes called “brown lung disease” or “Monday fever” because symptoms often begin at the start of the work week. The disease causes chest tightness, cough, wheezing, and shortness of breath, especially after repeated dust exposure. With continued exposure, it can lead to long-term airway damage and reduced lung function.

Occupational lung diseases are long-term consequences of the impact of hazardous airborne substances at various workplaces. The workers in such industries as mining, construction, agriculture, and manufacturing are especially at risk because of unending inhalation of dust, vapors, gases, and biological particles. These exposures may gradually impair normal lung function, leading to structural and functional changes in the respiratory system.

Byssinosis can lead to chronic bronchitis and long-term reduction in lung function if exposure continues.

Regulatory bodies like the Occupational Safety and Health Administration have established guidelines to control workplace hazards. For example, standards were introduced to limit workers’ exposure to cotton dust, significantly reducing the incidence of respiratory conditions such as byssinosis among textile workers.

## METHODOLOGY

The current study chosen uses the quantitative research approach. There were 60 selected community working area. Who met the inclusion criteria were selected by using descriptive Research Design. The researcher then approached the staff nurses introducing herself first to them and establishing rapport communication with them. Having chosen the samples, it was possible to collect the data using the ready-made tools.

## RESULT

The table 1 shows that the majority of participants were aged 26–30 years (38%), followed by 20–25 years (34%) and 31–35 years (26%), with very few in the 36–45 years group (2%). Most participants were female (62%), and nearly half belonged to the Hindu religion (46%), while Muslims and Christians each constituted 24%. Regarding education, the highest proportion had secondary education (32%), followed by graduates (30%), primary education (22%), and illiterate participants (16%). In terms of occupation, most were involved in handling cotton dust (46%) and supervisory roles (44%), with fewer operators (8%) and packing workers (2%). The majority were married (68%), and most lived in single (48%) or joint families (44%), with very few in nuclear families (2%). A large proportion had two children (42%) or one child (38%). Most participants resided in kutcha houses (92%), and 40% reported having lifestyle diseases, while 60% had no such conditions.

Table 2 indicates that in the pre-test, most textile workers had inadequate knowledge (68%), while 32% demonstrated moderate knowledge and none showed adequate knowledge. In the post-test, no participants remained in the inadequate knowledge category, 40% had moderate knowledge, and 60% attained adequate knowledge, reflecting a significant improvement.

Table 3 reveals that the mean knowledge score increased from 6.94 (SD = 3.047) in the pre-test to 14.08 (SD = 4.416) in the post-test. The obtained p value at the 0.05 level indicates that the improvement in knowledge was statistically significant, demonstrating the effectiveness of the intervention on byssinosis among textile workers.

## DISCUSSION

The findings demonstrate a significant improvement in the level of knowledge on byssinosis among textile workers following the intervention. Initially, most participants had inadequate knowledge, which shifted to moderate and adequate levels in the post-test, indicating effective knowledge gain. The increase in mean score with statistical significance further supports the effectiveness of the intervention. These results suggest that structured educational interventions can substantially enhance awareness and understanding of occupational health hazards like byssinosis, thereby promoting preventive practices among textile workers.

## CONCLUSION

The present study examined the attitudes of textile workers toward the prevention of byssinosis, an occupational lung disease, in the community working area of Pondicherry. The findings showed that most textile workers had a low level of attitude toward preventing byssinosis.

## RECOMMENDATION

There should be regular health education programs to further increase the awareness of the textile workers on byssinosis including its causes, symptoms and preventive measures. The safety can be improved at the workplace by ensuring that the area is well ventilated and that personal protective equipment like masks are used on a regular basis. Regular checkups with a doctor are necessary to early discover and deal with the breathing issues in a worker.

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**Table 1: Distribution of Participants N = 60)**

| S. No. | Variable | Category | Frequency (f) | Percentage (%) |
|---|---|---|---|---|
| 1 | Age | 20–25 years | 17 | 34 |
| | | 26–30 years | 19 | 38 |
| | | 31–35 years | 13 | 26 |
| | | 36–45 years | 1 | 2 |
| 2 | Gender | Male | 19 | 38 |
| | | Female | 31 | 62 |
| | | Transgender | 0 | 0 |
| 3 | Religion | Hindu | 23 | 46 |
| | | Muslim | 12 | 24 |
| | | Christian | 12 | 24 |
| | | Others | 3 | 6 |
| 4 | Education | Illiterate | 8 | 16 |
| | | Primary school | 11 | 22 |
| | | Secondary school | 16 | 32 |
| | | Graduate | 15 | 30 |
| 5 | Job Type | Operator | 4 | 8 |
| | | Handling cotton dust | 23 | 46 |
| | | Supervisor | 22 | 44 |
| | | Packing | 1 | 2 |
| 6 | Marital Status | Unmarried | 8 | 16 |
| | | Married | 34 | 68 |
| | | Divorced | 8 | 16 |
| 7 | Type of Family | Nuclear | 1 | 2 |
| | | Joint family | 22 | 44 |
| | | Single | 24 | 48 |
| 8 | Having Children | One child | 19 | 38 |
| | | Two children | 21 | 42 |
| | | Two or more children | 10 | 20 |
| 9 | Type of Residence | Kutcha | 46 | 92 |
| | | Pucca | 4 | 8 |
| | | Semi-pucca | 0 | 0 |
| 10 | Lifestyle Diseases | Yes | 20 | 40 |
| | | No | 30 | 60 |

**Table 2: Frequency and percentage wise distribution on level of knowledge on byssinosis among the textile workers at selected community working area.**

| Level of knowledge | Pre test | | Post test | |
|---|---|---|---|---|
| | Frequency | Percentage | Frequency | Percentage |
| Inadequate | 34 | 68 | 0 | 0 |
| moderate | 16 | 32 | 20 | 40 |
| adequate | 0 | 0 | 30 | 60 |

**Table 3: Mean and Standard deviation on the effectiveness on level of knowledge on byssinosis among the textile workers at selected community working area.**

| Effectiveness of knowledge | Mean | Standard deviation | p value |
|---|---|---|---|
| Pre test | 6.94 | 3.047 | 0.05 |
| Post test | 14.08 | 4.416 | |

**Table 4: Association between level of knowledge on byssinosis among the textile workers at selected community working area.**

| S. No. | Demographic Variables | Category | Inadequate N (%) | Moderate N (%) | Adequate N (%) | $\chi^2$ Value, df, p Value, Significance |
|---|---|---|---|---|---|---|
| 1 | Age | 20–30 years | 10 (20) | 7 (14) | 11 (22) | 2.548, 3, 0.467, NS |
| | | 30–40 years | 13 (26) | 6 (12) | 9 (18) | |
| | | 40–50 years | 11 (22) | 2 (4) | 9 (18) | |
| | | >50 years | 0 (0) | 1 (2) | 1 (2) | |
| 2 | Gender | Male | 8 (16) | 11 (22) | 9 (18) | 2.037, 1, 0.153, NS |
| | | Female | 26 (52) | 5 (10) | 21 (42) | |
| | | Transgender | 0 (0) | 0 (0) | 0 (0) | |
| 3 | Religion | Hindu | 18 (36) | 5 (10) | 15 (30) | 2.219, 3, 0.528, NS |
| | | Muslim | 6 (12) | 6 (12) | 8 (16) | |
| | | Christian | 10 (20) | 2 (4) | 5 (10) | |
| | | Others | 0 (0) | 3 (6) | 2 (4) | |
| 4 | Education | Illiterate | 4 (8) | 4 (8) | 4 (8) | 2.712, 3, 0.538, NS |
| | | Primary school | 7 (14) | 4 (8) | 7 (14) | |
| | | Secondary school | 9 (18) | 7 (14) | 8 (16) | |
| | | Graduate | 14 (28) | 1 (2) | 11 (22) | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 5 | Job Type | Government job | 4 (8) | 0 (0) | 2 (4) | 1.367, 3, 0.713, NS |
| | | Private job | 15 (30) | 8 (16) | 15 (30) | |
| | | Own business | 14 (28) | 8 (16) | 12 (24) | |
| | | Unemployed | 1 (2) | 0 (0) | 1 (2) | |
| 6 | Marital Status | Unmarried | 5 (10) | 3 (6) | 7 (14) | 5.141, 2, 0.046, *Significant* |
| | | Married | 24 (48) | 10 (20) | 17 (34) | |
| | | Divorced | 5 (10) | 3 (6) | 6 (12) | |
| 7 | Type of Family | Nuclear | 14 (28) | 8 (16) | 15 (30) | 2.336, 3, 0.506, NS |
| | | Joint family | 18 (36) | 8 (16) | 13 (26) | |
| | | Single | 2 (4) | 2 (4) | 2 (4) | |
| 8 | Having Children | One child | 12 (24) | 7 (14) | 12 (24) | 0.150, 2, 0.928, NS |
| | | Two children | 17 (34) | 4 (8) | 12 (24) | |
| | | ≥2 children | 5 (10) | 5 (10) | 6 (12) | |
| 9 | Type of Residence | Kutcha | 31 (62) | 15 (30) | 28 (56) | 0.181, 1, 0.670, NS |
| | | Pucca | 3 (6) | 1 (2) | 2 (4) | |
| | | Semi-pucca | 0 (0) | 0 (0) | 0 (0) | |
| 10 | Lifestyle Diseases | Yes | 10 (20) | 10 (20) | 9 (18) | 3.125, 1, 0.0477, *Significant* |
| | | No | 24 (48) | 6 (12) | 21 (42) | |

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