Physical Health Burden Among Textile Industrial Workers: Socio-Economic Insights from Surat

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Abstract:

This paper throws light on the physical health burden accustomed by textile industrial workers in Surat. This study focuses on secondary data from national health survey reports, databases regarding occupational health, and socio-economic reports. The various types of health-related problems like musculoskeletal disorders, respiratory diseases, and chemical exposure related diseases are studied by the researcher. Among the approximately 500,000 textile workers in Surat, the finding shows that 68% of workers have at least one occupational health issue, out of which 42% were diagnosed with respiratory problems and 35% workers were affected with musculoskeletal health disorder. From the descriptive analysis, it can be said that there is a significant relation between socio-economic status, working conditions and health outcomes. The focal point of this study shows the critical gap in occupational health infrastructure, safeguard measures and social protection mechanisms. To tackle the escalating occupational health issues, recommendations for policy focuses on enhancing workplace safety regulations, broadening access to health insurance and introducing specific intervention initiatives.

1. INTRODUCTION

Being the core component of India's manufacturing sector, the textile industry contributes approximately 7% to the national GDP and employs 4.5 crore workers all over the nation (Ministry of Textiles, 2023). Surat has become the paramount textile manufacturing hub, especially renowned for its synthetic fabric production, power looms and processing units. The city is a home to approximately 500,000 textiles workers involved in different stages of production that is from spinning and weaving to dyeing and finishing (Gujarat Industrial Development Corporation, 2022)

Despite the economic significance, Surat's textile sector is facing substantial occupational health challenges. Workers are regularly exposed to high-risk conditions including static standing, recurring motions, poor ventilation, chemical fumes, excessive noise and poor ergonomic practices (Patel & Mehta, 2021). These exposures have resulted in a significant burden of health-related problems, impacting their productivity, life standard and socio-economic wellbeing.

Through the socio-economic perspective, this study examines the physical health burden among the textile workers in Surat city by examining how the factors such an education level, income levels, housing conditions and healthcare accessibility impact health outcomes. It is vital to understand these intersections for curating evidence-based interventions that take

into consideration both occupational health hazards and underlying socio-economic vulnerabilities.

2. REVIEW OF LITERATURE

A study by Ahmed et al., (2020); Chen & Wu, (2019) exhibits Occupational health issues in the textile industry represent a global concern, particularly in developing economies where labour-intensive manufacturing predominates. Studies conducted in Bangladesh, Pakistan, China, and India consistently report elevated rates of respiratory diseases, musculoskeletal disorders, dermatological conditions, and hearing impairment among textile workers. The International Labour Organization estimates that textile workers globally experience occupational injury and illness rates 2.5 times higher than the manufacturing sector average (ILO, 2021).

Research focusing on Indian textile workers highlights notable health issues across various production stages. Sharma and Kumar (2020) conducted an extensive study of 15 textile clusters, revealing that 71% of workers experienced health problems related to their work. Respiratory conditions, particularly byssinosis and chronic obstructive pulmonary disease, were reported by 38-45% of those engaged in spinning and weaving tasks. Musculoskeletal disorders were prevalent in 32% to 58% of workers, with lower back pain and neck strain being the most common issues (Desai et al., 2019).

Rao & Venkatesh (2021) highlights the exposure to chemicals is another significant issue. Employees working in dyeing and finishing sectors face higher incidences of dermatitis, allergic reactions, and possible long-term cancer risks due to contact with azo dyes, formaldehyde, and heavy metals. According to the National Institute of Occupational Health, 28% of workers in textile dyeing showed abnormal liver function indicators, indicating chronic chemical toxicity (NIOH, 2022).

Marmot & Wilkinson (2006) focus on the framework of social determinants of health highlights the impact of socio-economic factors on health outcomes. For textile workers, various socio-economic elements are closely linked to their health status. Similarly, Gupta & Singh (2020) There is an inverse relationship between educational attainment and occupational health risks, as individuals with higher education levels tend to have better health literacy and a greater awareness of occupational safety.

Access to healthcare and preventive services is heavily impacted by income levels and the formality of employment. According to data from the National Sample Survey Office, workers in the informal sector, who make up about 85% of the textile workforce in Surat, encounter significant obstacles in accessing healthcare. These challenges arise from the

absence of health insurance, the inability to cover treatment expenses, and a lack of awareness about available services (NSSO, 2019).

In the same context, the study by Patel et al. (2020) exhibits the living conditions and neighbourhood settings also influence the health of workers. In Surat, numerous textile workers live in overcrowded, poorly ventilated housing with insufficient sanitation, which heightens the risk of respiratory and infectious diseases. The combined impact of workplace exposures and unfavourable living conditions results in a syndemic health burden that disproportionately impacts workers from socio-economically disadvantaged backgrounds.

3. OBJECTIVES

1. To assess the prevalence of physical health problems among textile industrial workers in Surat.
2. To analyse the health outcomes by determining income levels of workers
3. To examine the influence of migrant status on occupational health vulnerability.

4. HYPOTHESIS

H_1: Textile industrial workers in Surat experience a high prevalence of occupational health problems.

H_0: Health outcomes are not determined by their income levels.

H_1: Occupational health risk is higher for migrant textile workers than for textile workers.

5. METHODOLOGY

5.1 Research Design

A descriptive approach is used in this study, which makes use of secondary data from different authoritative sources. In this study, quantitative data on health outcomes, occupational exposures and socioeconomic indicators are analysed to provide a comprehensive assessment of the health burden among textile workers in Surat.

5.2 Scope of the study

Around 500,000 textile workers in Surat, Gujarat, were studied for their physical health burden (respiratory, musculoskeletal, dermatological, hearing and other occupational conditions). In the context of 21st century industrialization, this study investigated how socioeconomic factors such as income, education, employment formality and migrant status influence these health outcomes. The analysis relies solely on secondary data from NFHS-5, NIOH reports, ESIC records, GIDC surveys, and Annual Survey of Industries.

5.3 Tools and Techniques

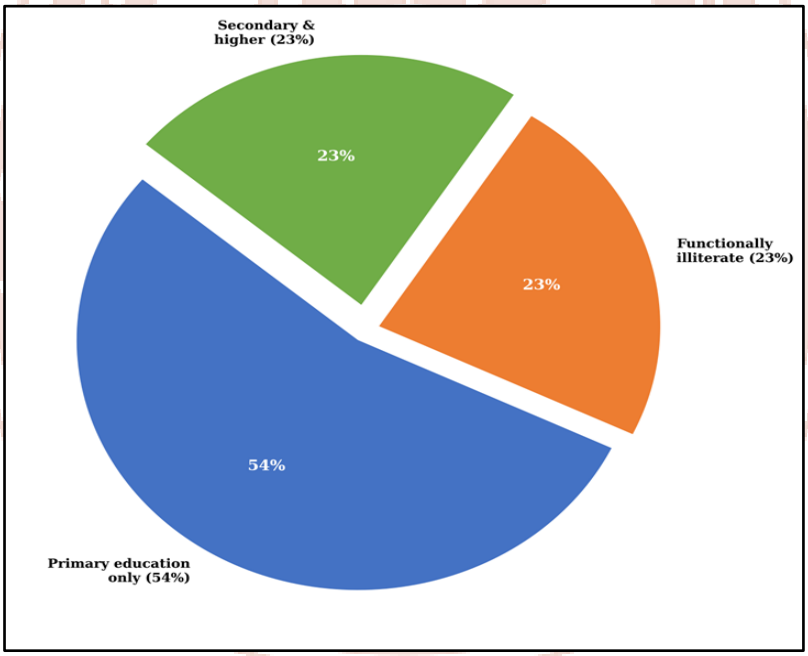
To examine the relationship between occupational health conditions and socioeconomic factors among textile workers in Surat, a descriptive analytical research design was used based on secondary data. Descriptive statistics, cross-tabulations and comparative percentages were employed to analyze the data.

6. RESULTS/DISCUSSION

6.1 Demographic and Socio-Economic Profile

Approximately 78% of Surat's textile workers are male, with the mean age of 32 years. A large percentage of workers, Approximately 62%, are migrants from other states, mainly Uttar Pradesh, Bihar, and Odisha. There is a modest level of education for 54% of the population, with 23% being functionally illiterate (Gujarat Industrial Development Corporation, 2022).

Figure 1: Educational Attainment Distribution Among Textile Workers in Surat



Source: Gujarat Industrial Development Corporation (2022)

The average monthly income ranges from 8000 to 15,000 rupees, depending greatly on skill level and type of employment. An estimated 85% of the workforce is employed informally, meaning they do not have formal employment contracts, are not covered by social security, and only have limited occupational health coverage. A small percentage of workers own health insurance through the Employee's State Insurance Scheme (18%) according to (ESIC, 2022).

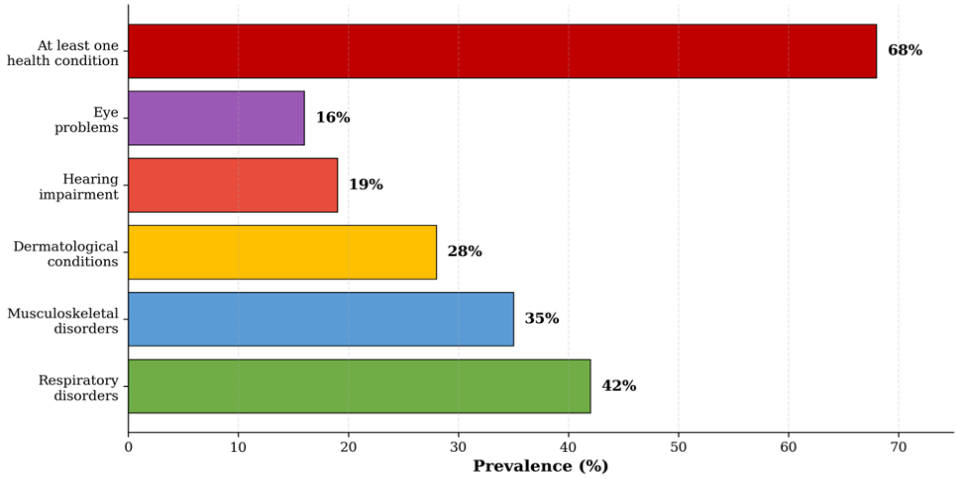
Table 1: Socio-Economic Profile of Textile Workers in Surat

Characteristic	Percentage / Value
Male workers	78%
Migrant workers	62%
Primary education only	54%
Informal employment	85%
Average monthly income	₹8,000-15,000
Health insurance coverage	18%

Source: Gujarat Industrial Development Corporation (2022); ESIC (2022)

Objective 1: To assess the prevalence of physical health problems among textile industrial workers in Surat.

Figure 2: Prevalence of Major Occupational Health conditions among textile industrial workers in Surat.



Source: National Institute of Occupational Health (2023)

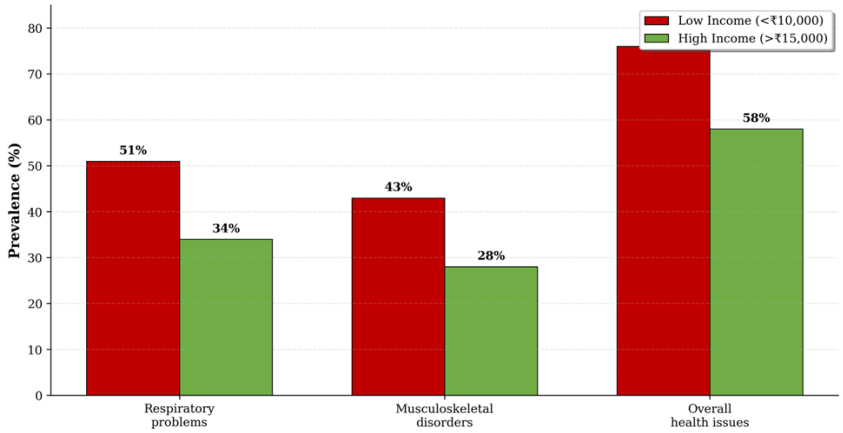
Interpretation: There were 68% of workers who reported at least one occupational health condition with respiratory disorder (42%) and musculoskeletal disorders (35%) being the most common. It also shows that a significant proportion of workers suffers from hearing impairment (19%) and dermatological conditions (28%). These data shows that occupational health burden is substantially high among the textile workers in Surat.

Hypothesis testing:

H_1 Accepted: Textile industrial workers in Surat experience a high prevalence of occupational health problems.

Objective 2: To analyse the health outcomes by determining income levels of workers.

Figure 3: Health Outcomes by Income Level Among Textile Workers



Source: Gujarat Industrial Development Corporation (2022); NIOH (2023)

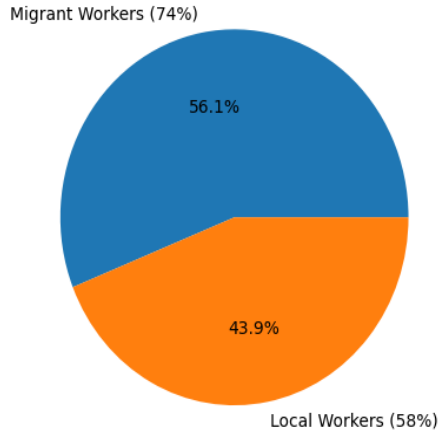
Interpretation: There is a strong inverse relation seen between income and health among the textile workers in the bar graph. Low income workers (<₹10,000/month) depicts higher respiratory issues (51% vs. 34%), musculoskeletal disorders (43% vs. 28%) and overall health problems (75% vs. 58%) as compared to high income workers (>₹15,000/month). The disparities seen in this graph depicts that there prevail greater occupational hazards and substandard healthcare availability to lower income groups which emphasize the need for better workplace protections with equity measures in the respective sector.

Hypothesis Testing:

H_0 Rejected: Health outcomes are determined by income level of textile workers.

Objective 3: To examine the influence of migrant status on occupational health vulnerability.

Figure 4: Comparative Health Burden: Migrant vs Local Textile Workers



Interpretation: As can be seen from the pie chart, migrant workers report a higher percentage of health issues than local workers. A significantly higher vulnerability is shown by migrant workers (74%), of whom 56.1% are highly affected, than by local workers (48%), who show a significant vulnerability of 43.9%.

Source: National Institute of Occupational Health (2023); Gujarat Industrial Development Corporation (2022); National Family Health Survey-5 (2019–21)

Hypothesis Testing:

H_1 Accepted: Occupational health risk is higher for migrant textile workers than for textile workers.

7. CONCLUSION

As we all know that the textile industry is one of the fastest growing industries in the whole economy by contributing more in the workforce, but though it is contributing the highest level of workforce it faces health problems as well as physical problems at the workplace. Approximately 68% of workers face health related problems physically as well as occupationally. This data shows that there is failure in the roots of the system and because of that they face health issues, lack of legal protection, and social protection, which ultimately affects the low - income people, informal sector workers, migrant as well as uneducated workforce. This study explains how occupational health problems face inequalities which create chaotic conditions which overall affect the standard of living of the workers and their efficiency of working. This problem is created by humans as well as by the economic necessities: it can be said that the workers who are healthy will work efficiently and productively to maintain the sustainable growth of the country as well as of the economy. As this sector is contributing more to Surat's development, to maintain the dignity as well as health of the workers, should be the first priority and also the main goal of the 21st century.

8. SUGGESTIONS

1. Deploy mobile medical units visiting textile clusters weekly for free check-ups, lung function tests, and awareness programs.
2. Introduce a low-cost health tracking card storing medical history, exposure records, and insurance details for continuity of care.
3. Create shared occupational health centres within textile industrial clusters funded jointly by government and industry associations.
4. Establish cooperative savings schemes where workers contribute small amounts monthly for emergency health needs.
5. Design affordable ergonomic solutions for power loom workers by engineering colleges.

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