

Study on Carpet Industry Workers Affected By Their Work in and Around Madho Singh, Bhadohi, Uttar Pradesh, India

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ABSTRACT

The carpet industry of Bhadohi, Uttar Pradesh, is one of India's most significant cottage-based export industries, providing employment to thousands of workers in and around Madho Singh. Despite its economic importance, carpet workers often face hazardous working conditions, long working hours, poor ventilation, and inadequate occupational safety measures. This study examines the socio-economic conditions and health problems faced by carpet industry workers in the study area. The research is based on field observations, interviews, and secondary data collected from government reports, journals, and previous studies. Findings reveal that workers commonly suffer from respiratory disorders, eye irritation, skin diseases, back pain, joint problems, and stress due to continuous weaving activities and exposure to dust and chemicals. The study also highlights issues of low wages, lack of healthcare awareness, and poor living conditions. It suggests improving workplace safety, healthcare facilities, and social security measures for sustainable worker welfare and industry development.

Keywords: Carpet Industry, Carpet Workers, Occupational Health, Bhadohi, Madho Singh, Socio-Economic Conditions, Respiratory Diseases, Cottage Industry, Worker Welfare, Uttar Pradesh.

INTRODUCTION

The carpet weaving industry of Bhadohi district, Uttar Pradesh, is internationally recognised as one of the largest hand-knotted carpet manufacturing clusters in the world. The industry contributes nearly 90% of India's carpet exports and sustains the livelihoods of millions of workers engaged in weaving, dyeing, spinning, clipping, and finishing activities. Despite its enormous contribution to the national economy and foreign exchange earnings, the workers associated with this industry continue to experience severe socio-economic deprivation, occupational health hazards, and labour insecurity. Madho Singh block of Bhadohi district represents one of the most concentrated carpet weaving regions where weaving activities are deeply integrated into household livelihoods and local culture.

The present study investigates the living and working conditions of carpet industry workers in and around Madho Singh block, Bhadohi, Uttar Pradesh. The research focuses on the socio-economic status of workers, occupational hazards associated with carpet weaving, prevalence of health disorders, wage structure, child labour practices, gender disparities, and access to labour welfare and social security schemes. Carpet weaving is largely organised through an informal contractor-based system in which workers are paid on a piece-rate basis without formal employment contracts or social protection. Workers often spend 10–14 hours daily in poorly ventilated weaving spaces while maintaining prolonged sitting postures and repetitive hand movements, resulting in musculoskeletal pain, respiratory disorders, eye strain, dermatological problems, and psychological stress.

The study further highlights the persistence of poverty, indebtedness, and low educational attainment among carpet weaving households. Child labour continues to remain a significant concern due to economic compulsion, lack of educational opportunities, and intergenerational dependence on weaving occupations. Women workers face additional burdens in the form of wage discrimination and dual responsibilities of domestic work and income generation. The absence of organised labour representation and limited awareness regarding government welfare schemes further intensify the vulnerability of workers.

This research adopts a comprehensive field-based approach to examine the multidimensional challenges faced by carpet workers in Madho Singh. The findings aim to contribute to academic discourse on informal labour, occupational health, and rural industrialisation while also providing evidence-based recommendations for policymakers, labour departments, health agencies, and social organisations. The study emphasises the urgent need for improved occupational safety measures, fair wage systems, social security coverage, educational support for children, and gender-sensitive labour policies to ensure sustainable and humane development of the carpet industry in Bhadohi. The present study was conducted at Bazaar Madhosingh, Uttar Pradesh, India, located at latitude 25.26799° N and longitude 82.533855° E. The site is well known for traditional carpet weaving and related handicraft activities. Field observations and data collection were carried out among local workers involved in carpet finishing and weaving processes. The area represents an important cottage industry cluster, providing suitable conditions for socio-economic and occupational studies related to carpet manufacturing.

Research Objectives

1. To assess the socio-economic profile and living conditions of carpet industry workers in Madho Singh block, Bhadohi.
2. To examine the working conditions, workplace environment, and occupational hazards faced by carpet weavers.
3. To document the nature, prevalence, and severity of occupational health problems (musculoskeletal, respiratory, ocular, dermatological, and psychosocial) among carpet workers.
4. To assess the prevalence of child labour in carpet weaving households and its determinants.
5. To analyse the wage structure, income levels, debt burden, and financial vulnerability of carpet industry workers.

REVIEW OF LITERATURE

The carpet weaving industry has attracted considerable scholarly attention because of its economic significance and the occupational vulnerabilities associated with traditional weaving practices. International research from major carpet-producing countries such as Iran, Turkey, Pakistan, and Afghanistan highlights the severe health implications faced by carpet workers. Shahnavaiz (1987) conducted one of the earliest ergonomic studies on Persian carpet weavers and reported that prolonged trunk flexion during weaving caused chronic spinal stress and musculoskeletal strain. Similarly, Hashemi-Bajgan et al. (2009) documented a very high prevalence of musculoskeletal disorders among Iranian carpet weavers, particularly affecting the lower back, neck, and knees. Turkish studies by Borakci et al. (2006) further revealed widespread respiratory diseases, including asthma and chronic bronchitis, caused by prolonged exposure to wool dust and poor ventilation in weaving units. Research by Rezaei et al. (2014) additionally established that continuous close-range visual work during knotting significantly increased the prevalence of myopia and premature ocular disorders among carpet workers. Occupational exposure to synthetic dyes and chemicals has also been linked with long-term carcinogenic risks among dyeing workers.

In India, the Bhadohi-Mirzapur carpet cluster has been extensively studied from socio-economic and labour perspectives. Goswami (1999) provided a foundational analysis of the social organisation of carpet production, highlighting the role of caste, contractors, and export-oriented production systems. Bhattacharya (2002) examined the effects of globalisation and argued that international market pressures reduced weavers' wages despite increasing export profits. Singh et al. (1997) reported high prevalence of musculoskeletal and respiratory disorders among Mirzapur carpet workers, especially among pit loom weavers. Mishra and Srivastava (2008) identified chronic poverty and debt bondage among weaving households, while the NCEUS (2007) highlighted the near absence of social security coverage for informal workers, including carpet weavers.

Literature on child labour revealed that the Bhadohi carpet belt historically employed large numbers of children, leading to interventions such as the Rugmark/GoodWeave certification programme. Studies by the ILO, Human Rights Watch, and Satyarthi (1994) documented exploitative and bonded child labour practices. Recent studies, however, suggest a decline in child labour due to stricter regulations and educational initiatives, though adolescent labour remains prevalent. Gender studies within the carpet industry indicate that women contribute substantially to weaving activities but remain economically and socially disadvantaged. Deshpande (2011) and Patel (2013) showed that women workers experience wage discrimination, excessive working hours, and a double burden of paid and unpaid labour, resulting in poor health and limited social mobility.

Despite extensive literature on the broader Bhadohi-Mirzapur carpet cluster, significant research gaps remain. Very few studies focus specifically on Madho Singh block, and no comprehensive study integrates occupational health, socio-economic conditions, labour rights, gender issues, and post-COVID vulnerabilities within a single analytical framework. The present study seeks to address these gaps through a multidimensional investigation of carpet industry workers in and around Madho Singh, Bhadohi, Uttar Pradesh

RESEARCH METHODOLOGY

The present study adopted a concurrent mixed-methods research design integrating quantitative and qualitative approaches to examine the occupational health and socio-economic conditions of carpet industry workers in and around Madho Singh Block, Bhadohi district, Uttar Pradesh. The quantitative component consisted of a structured household questionnaire survey conducted among 350 carpet worker households selected through stratified purposive sampling from six villages: Madho Singh, Deori, Aurai, Gopiganj, Khemia, and Sathwa. The qualitative component included 45 in-depth semi-structured interviews, 8 Focus Group Discussions (FGDs), and Key Informant Interviews (KIIs) with employers, health personnel, NGO representatives, and government officials. Villages were selected based on carpet loom density, representation of major carpet production systems, geographic distribution, and accessibility.

Data collection tools included a structured questionnaire, the Nordic Musculoskeletal Questionnaire (NMQ) for assessing musculoskeletal disorders, and the Rapid Entire Body Assessment (REBA) tool for ergonomic risk evaluation. The questionnaire covered socio-demographic characteristics, employment history, workplace conditions, occupational health, healthcare access, economic vulnerability, and awareness of labour rights. Quantitative data were analysed using SPSS Version 25.0 employing descriptive statistics, chi-square tests, and binary logistic regression, while qualitative data were analysed through thematic analysis using the framework approach. Ethical approval was obtained from the University Research Ethics Committee, and informed consent, confidentiality, anonymity, and voluntary participation were ensured throughout the study.

AREA PROFILE AND CARPET INDUSTRY OVERVIEW

This chapter presents the geographical, demographic, and industrial profile of Bhadohi district with special reference to Madho Singh block, a major centre of India's carpet weaving industry. Bhadohi, located in the eastern Gangetic plains of Uttar Pradesh, is characterised by a predominantly rural population and a strong artisanal economy dominated by weaving communities, particularly the Ansari (Julaha) community. The chapter traces the historical evolution of the carpet industry from Mughal patronage to its integration into global export markets under the contemporary putting-out production system. It analyses the organisational hierarchy involving exporters, contractors, and household weavers, highlighting severe income inequalities within the value chain. The chapter further describes major production methods—hand-knotted, hand-tufted, and durrie weaving—and outlines the labour-intensive nature and occupational health risks associated with each category of carpet work.

SOCIO-ECONOMIC PROFILE OF CARPET WORKERS

The socio-economic profile of 350 carpet workers in Madho Singh Block, Bhadohi, reveals a workforce marked by poverty, low literacy, social marginalization, and economic vulnerability. Entry into weaving begins at an early age, indicating persistent child labour practices despite legal restrictions. Educational attainment is poor, particularly among women, with high illiteracy rates limiting awareness of labour rights and alternative employment opportunities. Muslim Ansari and OBC communities dominate the workforce, reflecting traditional caste-based occupational patterns. Income levels remain significantly below statutory minimum wages under a predominantly piece-rate payment system, with frequent wage deductions and absence of formal agreements. Housing conditions are inadequate, with overcrowding, poor sanitation, and limited ventilation exposing families to occupational health risks. Food insecurity, indebtedness, and dependence on contractors further reinforce a cycle of chronic poverty and socio-economic exclusion among carpet worker households.

OCCUPATIONAL HEALTH IMPACTS

The study revealed highly adverse working conditions and severe occupational health burdens among carpet workers in Madho Singh, Bhadohi. Most workers operated in cramped, poorly ventilated home-based or shared workplaces with prolonged exposure to wool dust, chemicals, and inadequate sanitation facilities. Average daily working hours exceeded recommended standards, with minimal rest breaks and high ergonomic risk scores. Health assessments showed widespread musculoskeletal disorders, respiratory illnesses, eye strain, skin diseases, and psychological distress. Child labour and women's reproductive health concerns also persisted. The findings indicate an urgent need for occupational safety interventions, ergonomic improvements, health services, and stronger labour protection measures.

LABOUR RIGHTS AND SOCIAL PROTECTION

Labour rights and social protection among carpet workers in Madho Singh remain severely inadequate due to the predominance of informal, piece-rate employment arrangements. Most workers lack written contracts, legal awareness, minimum wage protection, overtime benefits, and employment security. Social security coverage through schemes such as

PM-SYM, PM-JAY, EPF, and insurance programmes remains limited because of low awareness, documentation barriers, and exclusion from formal systems. Trade union membership and collective bargaining are almost absent due to dispersed household production and fear of employer retaliation. Government welfare and industry initiatives, including CEPC programmes, have had limited outreach. The findings reveal a substantial gap between existing labour protections and workers' actual access to rights and welfare benefits, highlighting the need for stronger institutional support and policy implementation

.GENDER DIMENSION IN CARPET WORK

The gender dimension of carpet work in Madho Singh reveals deep inequalities in labour participation, wages, and social conditions. Women constitute nearly 40–45% of the weaving workforce and contribute across all stages of carpet production, yet much of their labour remains invisible and undervalued. A substantial gender pay gap of 27.4% reflects occupational segregation and weaker bargaining power within the informal production system. Women also experience a severe double burden, combining approximately 9.6 hours of paid weaving with 5.4 hours of unpaid domestic work daily. Additionally, safety concerns, harassment, and mobility restrictions limit women's access to welfare services and employment opportunities, reinforcing gendered vulnerabilities within the carpet industry

.FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

The study reveals that carpet workers in Madho Singh, Bhadohi, experience multidimensional deprivation shaped by economic vulnerability, hazardous working conditions, and weak labour protections. Workers largely belong to socially and economically marginalised communities with low educational attainment, high indebtedness, poor housing conditions, and incomes substantially below statutory wage standards. Occupational health findings indicate a severe burden of musculoskeletal, respiratory, visual, and psychological disorders, demonstrating the hazardous nature of carpet weaving, particularly under the traditional khadda loom system. Child labour continues to persist due to debt bondage, poverty, and educational exclusion, while labour rights violations remain widespread because of the informal putting-out system. Women workers experience additional disadvantages through wage inequality and the burden of unpaid domestic responsibilities.

The study concludes that these problems are structurally embedded within the organisation of the carpet production system rather than resulting from individual factors alone. Therefore, comprehensive interventions are required. Recommended measures include ergonomic redesign of looms, mandatory health screening, enforcement of minimum wage and labour laws, expansion of social security coverage, debt relief programmes, elimination of child labour through education-linked interventions, and promotion of worker cooperatives. Long-term policy action is essential to ensure sustainable livelihoods and dignified working conditions for carpet workers.

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