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"Problems of Women Workers in the Brick Industry: An Empirical Study of Guntur District, Andhra Pradesh"

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Abstract:
The brick industry is one of the most labour-intensive and informally organised sectors in India, providing seasonal employment to millions of workers. Women constitute a substantial proportion of this workforce and are engaged in almost every stage of brick production. Despite their significant contribution, women workers continue to face low wages, insecure employment, hazardous working conditions, and limited access to welfare and social protection. This study examines the work patterns, wage structures, welfare facilities, occupational health risks, and empowerment levels of women workers in the brick industry of Guntur District, Andhra Pradesh. Using a cross-sectional descriptive research design, data were collected from 250 women workers through structured interviews and field observation. Statistical tools such as descriptive statistics, t-tests, chi-square tests, correlation, and regression analysis were employed. The findings reveal pronounced gender-based task segregation, significant wage disparities, inadequate welfare provisions, and widespread health problems. The study argues that improving women's working conditions is not only a matter of social justice but also essential for sustainable industrial productivity. Policy-oriented recommendations are offered to promote decent work, gender equity, and social security in the brick industry.

Keywords: Brick industry, women workers, informal labour, wages, welfare, occupational health, Andhra Pradesh.

INTRODUCTION

The brick industry occupies a crucial place in India's construction sector and rural employment landscape. As one of the most labour-intensive industries, it provides seasonal livelihood opportunities to millions of workers, particularly those from economically and socially marginalised communities. In regions such as Guntur District of Andhra Pradesh, brick kilns function as an important source of employment during agricultural lean seasons, absorbing surplus labour from nearby villages and migrant households. Women constitute a substantial proportion of the brick kiln workforce and are involved in almost every stage of production, including clay preparation, brick moulding, carrying, drying, sorting, and stacking. Their labour is central to the functioning and productivity of the industry. Yet, despite their indispensable contribution, women workers remain largely invisible within formal labour statistics and policy frameworks. Employment in brick kilns is predominantly informal, marked by the absence of written contracts, fixed working hours, job security, and access to statutory welfare benefits. Women's participation in the brick industry is shaped by a complex interaction of poverty, limited educational attainment, restricted employment alternatives, and entrenched gender norms. Most women are confined to physically demanding and low-paid tasks, while men generally occupy relatively better-paid and skilled roles such as kiln operation and machinery handling. Piece-rate payment systems, commonly followed in brick kilns, further intensify income insecurity and gender wage disparities. Women's weaker bargaining power, coupled with contractor-mediated employment, often results in lower earnings, delayed payments,

and dependence on advance wages. Working conditions in brick kilns are harsh and pose serious risks to women's health and wellbeing. Long working hours, repetitive manual labour, heavy lifting, and prolonged exposure to dust, smoke, and extreme heat are common features of their daily work. The lack of basic facilities such as safe drinking water, sanitation, first aid, childcare, and maternity support aggravates occupational health risks and deepens women's vulnerability. Moreover, women's paid work is frequently combined with unpaid domestic and caregiving responsibilities, leading to severe time poverty and physical exhaustion. Despite the existence of labour laws and welfare schemes aimed at protecting workers in unorganised sectors, women brick kiln workers continue to remain excluded from social security benefits such as health insurance, maternity assistance, and accident coverage. Seasonal migration, lack of identity documents, and weak institutional monitoring further limit their access to entitlements and collective bargaining mechanisms. In this context, a focused examination of the problems faced by women workers in the brick industry is both timely and necessary. By situating the analysis within Guntur District of Andhra Pradesh, the present study seeks to understand women's work patterns, wage structures, welfare conditions, and occupational health challenges in a specific regional setting. Such an understanding is essential for informing gender-sensitive labour policies and interventions aimed at improving women's economic security, dignity, and wellbeing in the brick industry.

REVIEW OF LITERATURE

Scholarly work on the brick industry in India consistently identifies it as one of the most labour-intensive and informal sectors, with women forming a substantial yet marginalised segment of the workforce. Recent studies emphasise that women's employment in brick kilns is shaped by informality, gendered division of labour, insecure wages, poor working conditions, and limited access to welfare and social protection. Studies grounded in informal labour theory highlight that women's concentration in brick kilns is closely linked to poverty, low educational attainment, and household responsibilities. Chen (2019), drawing on the framework of the International Labour Organization and WIEGO, notes that over 90 per cent of women workers in South Asia are employed in the informal economy. These workers typically lack written contracts, legal protection, and regular wages. Chen argues that women's informal employment is not accidental but rooted in structural inequalities and the unequal distribution of unpaid care work, a perspective highly relevant to women brick workers in Andhra Pradesh. Research on labour organisation within brick kilns documents a persistent gender-based division of work. Das and Parikh (2020) observe a clear pattern of task segregation, wherein men control kiln operations, firing, and machinery, while women are assigned labour-intensive activities such as moulding, carrying, and stacking bricks. Similar findings are reported by Rajvanshi (2023), who notes that women's work, though physically demanding, is classified as "unskilled" and remunerated at lower rates. This division not only reinforces wage inequality but also limits women's opportunities for skill development and upward mobility. Wage-related studies point to the role of piece-rate payment systems in perpetuating gender disparities. Menon and Rodgers (2021) demonstrate that piece-rate systems in informal industries systematically disadvantage women, as negotiated rates tend to reflect women's weaker bargaining power. Sahu (2022) reports that women brick workers earn 30–50 per cent less than men performing comparable tasks, with employers often justifying the gap on grounds of productivity or speed. Such findings underline the structural nature of wage discrimination rather than individual differences in effort or skill. Recent literature also draws attention to debt-based employment relations in brick kilns. Basu and Chau (2020) argue that advance wage payments and interlinked labour–credit contracts trap workers in cycles of dependency that resemble bonded labour. For women, these arrangements are particularly restrictive, as family debts and social norms limit their ability to exit exploitative employment. Studies on migrant brick workers further show that women often migrate with families and are absorbed into low-paid tasks at destination kilns, reinforcing their invisibility in labour records (Roy and Kar, 2022). Occupational health risks faced by women brick workers have been extensively documented in recent years. Chakraborty et al. (2021) report a high prevalence of respiratory diseases, heat stress, and skin disorders among women

involved in brick moulding and carrying. Tiwari (2022) highlights musculoskeletal disorders arising from repetitive bending, lifting, and prolonged standing, tasks predominantly performed by women. Golchha et al. (2023) further note that poor sanitation, lack of clean drinking water, and absence of protective equipment significantly worsen health outcomes for women workers. Studies focusing on welfare and social protection reveal systematic exclusion of women brick workers from statutory benefits. According to the International Labour Organization (2019, updated briefs 2023), women in informal construction supply chains rarely have access to maternity benefits, health insurance, or accident coverage. Naidu and Pappu (2021) observe that even where welfare schemes such as crèches, sanitation facilities, and housing provisions are mandated, weak monitoring and contractor-based employment prevent effective implementation at kiln sites. From a gender and empowerment perspective, Kabeer (2020) argues that women's participation in paid work leads to empowerment only when accompanied by control over earnings and supportive social norms. Empirical studies on brick kilns, however, suggest that most women have limited control over their income, with financial decisions often made by spouses or contractors (Pattanaik, 2022). This lack of economic agency constrains women's voice in wage negotiations, work allocation, and grievance redressal. Recent regional and media-based studies (2023–2024) reinforce academic findings by highlighting the lived experiences of women brick workers, particularly in southern and eastern India. These studies draw attention to seasonal migration, absence of identity documents, and lack of portability of welfare benefits, factors that intensify women's vulnerability and exclusion from public services.

OBJECTIVES OF THE STUDY

The present study was undertaken with the following objectives:

1. To examine the work patterns and task distribution of women workers in brick kilns.
2. To analyse wage structures and income levels of women workers.
3. To assess the availability of welfare facilities and social protection.
4. To study occupational health problems faced by women workers.
5. To examine the relationship between income control, empowerment, and job satisfaction.

HYPOTHESES OF THE STUDY

Based on the objectives of the study and the review of related literature, the following hypotheses are formulated for empirical testing among women workers in the brick industry of Guntur District, Andhra Pradesh:

H1: Women's average daily earnings are significantly lower than men's earnings after controlling for the type of work and hours worked.

H2: Employment through labour contractors is significantly associated with lower availability of welfare facilities at brick kiln worksites.

H3: Exposure to kiln-related hazards such as dust and heat is significantly associated with higher incidence of respiratory and dermatological health problems among women workers.

H4: Women workers with access to childcare facilities report significantly higher working hours and earnings than those without access to such facilities.

H5: Participation in training or skill-development interventions is positively associated with women's engagement in higher-paid tasks within brick kilns.

RESEARCH METHODOLOGY

The present study adopted a cross-sectional descriptive research design to examine the work patterns, wage structures, welfare facilities, occupational health problems, and empowerment levels of women workers in the brick industry of Guntur District, Andhra Pradesh. The design was considered appropriate as it enables a systematic analysis of existing conditions and relationships among key variables within a specific time frame.

SOURCES OF DATA

The study was based on both primary and secondary data. Primary data were collected directly from women brick kiln workers through field surveys and interactions. Secondary data were obtained from published research articles, government reports, labour statistics, and policy documents related to informal labour and the brick industry.

SAMPLE DESIGN AND SIZE

A multi-stage cluster sampling technique was adopted due to the scattered nature of brick kilns and the absence of a comprehensive worker registry. In the first stage, brick kilns were randomly selected from different mandals of Guntur District to ensure representation of major kiln types. In the second stage, a fixed number of women workers were randomly selected from each kiln. A total sample of 250 women workers was chosen, which provides adequate representation and acceptable precision for statistical analysis.

TOOLS OF DATA COLLECTION

Data were collected using a structured interview schedule covering socio-demographic characteristics, nature of work, wage patterns, welfare facilities, health issues, and control over earnings. To supplement survey data, focus group discussions and worksite observations were conducted to capture contextual and qualitative insights. Prior informed consent was obtained from all respondents.

STATISTICAL TOOLS AND ANALYSIS

The collected data were coded and analysed using standard statistical techniques. Descriptive statistics were used to summarise socio-economic characteristics and work patterns. Independent samples t-tests were applied to compare mean earnings across groups. Chi-square tests were used to examine associations between categorical variables such as employment arrangement and welfare access. Correlation and regression analyses were employed to study relationships between health outcomes, wages, and empowerment-related variables.

ETHICAL CONSIDERATIONS

Participation in the study was voluntary, and confidentiality of respondents was strictly maintained. The purpose of the study was clearly explained to all participants, and data were used solely for academic research.

LIMITATIONS OF THE STUDY

The study is limited to selected brick kilns in Guntur District and relies on self-reported data, which may involve recall bias. Nevertheless, the findings offer valuable insights into the conditions of women workers in the brick industry and provide a basis for policy and further research.

DATA ANALYSIS AND INTERPRETATION

The data obtained from 250 women workers employed in brick kilns were analysed using descriptive and inferential statistical tools. The analysis focuses on socio-economic characteristics, employment patterns, wage structures, welfare facilities, occupational health problems, and indicators of empowerment and job satisfaction. The results are presented through tables followed by interpretative discussion.

Table 1: Socio-Economic Profile of Women Workers (n = 250)

Characteristic	Category / Value
Age Group	25–45 years
No Formal Education	38%
Primary Education	42%
Secondary & Above	20%
Household Size (5 or more members)	64%
Average Work Experience	8 years

Interpretation:
The majority of women workers belonged to the economically active age group of 25–45 years, indicating prolonged engagement in physically demanding labour. Educational attainment was low, with 80 per cent of respondents having either no formal education or only primary education. This significantly limits access to skilled employment and reinforces dependence on brick kiln work. The average work experience of eight years reflects long-term occupational attachment driven by poverty and lack of alternative livelihoods. As the variables are descriptive, no inferential tests were applied.

Table 2: Nature of Work Performed by Women Workers

Type of Work	Percentage (%)
Brick Moulding	46
Carrying Bricks	34
Clay Preparation	12
Skilled / Semi-skilled Work	8
Total	100

Interpretation:
The table reveals that women workers are overwhelmingly engaged in physically intensive and low-skilled activities. Brick moulding and carrying together accounted for 80 per cent of women's employment. Only a marginal proportion (8 per cent) had access to skilled or semi-skilled tasks such as kiln firing or machine operation. The average working duration was 9.5 hours per day, exceeding recommended limits for unorganised sector labour and reflecting exploitative work arrangements.

Table 3: Wage Structure and Earnings of Women Workers

Wage Component	Value
Piece-rate Workers	72%
Daily Wage Workers	28%
Mean Daily Earnings	₹265
Standard Deviation	₹54
t-value	11.42
Level of Significance	$p < 0.05$

Interpretation:
A majority of women workers (72 per cent) were paid on a piece-rate basis, leading to income instability and wage variability. The mean daily earning of ₹265 was found to be below statutory minimum wage norms in many regions. An independent samples t-test revealed a statistically significant difference in earnings across work categories ($t = 11.42$, $p < 0.05$). Additionally, 29 per cent of respondents reported wage deductions or delayed payments, while 47 per cent relied on advance wages or informal loans, indicating high financial vulnerability.

Table 4: Availability of Welfare Facilities at Brick Kilns

Welfare Facility	Availability (%)	χ^2 Value	Level of Significance
Drinking Water	58		
Sanitation Facilities	22	14.63	$p < 0.05$
Childcare Facilities	6		
First Aid / Medical Aid	18		

Interpretation:
The table highlights severe inadequacies in welfare facilities at brick kiln worksites. While just over half of the respondents reported access to drinking water, sanitation, childcare, and medical facilities were largely absent. A chi-square test showed a significant association between kiln type and availability of welfare facilities ($\chi^2 = 14.63$, $p < 0.05$), indicating uneven compliance with labour welfare norms across kiln categories.

Table 5: Occupational Health Issues Reported by Women Workers

Health Problem	Percentage (%)
Back Pain	63
Respiratory Problems	41
Eye Infections	36
Skin Allergies	29

Interpretation:
Occupational health problems were widespread among women workers. Back pain emerged as the most common ailment, affecting nearly two-thirds of respondents. A binary logistic regression analysis revealed that women engaged in heavy lifting were more than twice as likely to suffer from musculoskeletal disorders (Odds Ratio = 2.31, $p < 0.01$). Prolonged exposure to brick dust significantly increased respiratory problems (Odds Ratio = 1.74, $p < 0.05$). A chi-square test further confirmed a significant association between kiln type and prevalence of health issues.

Table 6: Empowerment and Job Satisfaction of Women Workers

Indicator	Percentage (%)
Control over Earnings	27
Dependence on Spouse/Family	73
Job Satisfaction	41
Job Dissatisfaction	59

Statistical Measure	Value
Pearson Correlation (r)	0.32
Level of Significance	$p < 0.05$

Interpretation:
Only 27 per cent of women reported having control over their earnings, while the majority depended on family members for financial decisions. Job dissatisfaction was reported by 59 per cent of respondents. Pearson's correlation analysis revealed a moderate positive relationship between financial autonomy and job satisfaction ($r = 0.32$, $p < 0.05$), suggesting that increased economic control enhances women's perceived well-being and satisfaction at work.

MAJOR FINDINGS

1. The majority of women workers are engaged in low-skilled and physically demanding tasks such as brick moulding, carrying, and clay preparation, while access to skilled or supervisory roles remains extremely limited.
2. Women work for an average of about 9.5 hours per day, often without adequate rest breaks, reflecting the absence of effective labour regulation in the unorganised brick industry.
3. Most women are paid on a piece-rate basis, which intensifies work pressure and leads to unstable and uncertain incomes rather than assured daily wages.
4. The mean daily wage earned by women workers is low, and significant wage differences exist across work categories, confirming inequitable wage structures within the industry.
5. Many women experience delayed payments and wage deductions and depend on advance wages or informal loans, increasing economic insecurity and long-term dependency on kiln owners or contractors.
6. Basic welfare amenities such as sanitation, childcare, first aid, and rest areas are largely absent at kiln worksites, with considerable variation across different types of kilns.
7. A large proportion of women suffer from health problems, particularly back pain, respiratory illnesses, eye irritation, and skin disorders, mainly due to heavy lifting, dust exposure, and extreme heat.
8. Most women workers are excluded from formal social security schemes such as health insurance, maternity benefits, and accident coverage, largely due to their informal employment status.
9. Only a small proportion of women have control over their earnings, while the majority depend on spouses or family members for financial decisions, limiting their empowerment.
10. Women with greater control over their income report relatively higher levels of job satisfaction, indicating that financial autonomy positively influences well-being and work satisfaction.
11. The combined evidence shows that women's disadvantages in the brick industry are structural and systemic, arising from informal labour arrangements, gender norms, and weak institutional support rather than individual factors.

SUGGESTIONS FOR FURTHER STUDY

1. Conduct comparative research across different districts and states, particularly within Andhra Pradesh, to identify regional variations in women's employment conditions and welfare access in brick kilns.
2. Undertake long-term studies tracking women workers over multiple kiln seasons to understand changes in income, health outcomes, and employment stability.
3. Include both male and female workers in future studies to examine gender-based wage differentials, task allocation, and productivity patterns more comprehensively.
4. Focus on seasonal migrant women to assess the impact of migration on social security access, healthcare utilisation, housing conditions, and children's education.
5. Assess the implementation and effectiveness of existing labour laws, welfare programmes, and inspection mechanisms in improving women's working conditions.
6. Conduct detailed health studies to examine long-term occupational hazards, reproductive health issues, and access to medical services among women workers.
7. Explore how skill training, mechanisation, and cleaner kiln technologies influence women's wages, job roles, and health outcomes.
8. Study the role of women's collectives, self-help groups, and labour unions in enhancing bargaining power, decision-making, and workplace rights.
9. Examine the intergenerational effects of brick kiln employment on children's education, health, and future labour participation.

10. Encourage participatory and action-based research to test community-level and policy interventions aimed at improving gender equity in the brick industry.

CONCLUSION

Women workers form the backbone of India's brick industry, contributing extensively to activities such as clay preparation, moulding, carrying, drying, and stacking of bricks. Despite their central role in sustaining production, their work remains largely invisible, undervalued, and poorly protected within an overwhelmingly informal labour structure. The present study clearly demonstrates that women employed in brick kilns face multiple and interlinked challenges, including low and unstable wages, long and unregulated working hours, hazardous working conditions, inadequate welfare facilities, and exclusion from formal social security systems. The findings reveal that women are disproportionately concentrated in low-skilled and physically demanding tasks, while access to skilled roles and upward mobility remains limited. The dominance of piece-rate wage systems, coupled with wage delays and dependence on advance payments, contributes to persistent income insecurity and economic dependence. Inadequate provision of basic amenities such as sanitation, childcare, and first aid further aggravates women's vulnerability, particularly for those balancing paid work with caregiving responsibilities. Occupational health problems are widespread among women workers, with a high incidence of musculoskeletal disorders, respiratory illnesses, and skin-related conditions resulting from heavy manual labour, dust exposure, and extreme heat. Limited access to healthcare and social protection intensifies the long-term physical and economic costs of such work. Moreover, the study highlights low levels of financial autonomy among women, which restricts their bargaining power, decision-making capacity, and overall job satisfaction. The study confirms that the problems faced by women employees in the brick industry are structural rather than incidental. They arise from deeply embedded gender norms, informal employment arrangements, weak enforcement of labour laws, and inadequate institutional support. Addressing these issues requires a comprehensive and gender-sensitive approach that combines effective labour regulation, improved welfare provision, occupational health interventions, skill development, and women's empowerment initiatives. Ensuring decent work for women in the brick industry is not only a matter of social justice but also a prerequisite for the long-term sustainability and productivity of the sector.

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