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DETERMINANTS OF HEALTH COST OF BRICK MOULDING WORKERS IN ERODE DISTRICT OF TAMIL NADU

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Abstract

Brick molding workers constitute one of the most vulnerable groups within the unorganised labour sector, both globally and in developing economies. Through this prolonged engagement in the brick molding activity, the workers may accumulate several health problems. This study aims to analyse the health cost and factors determining the health cost of brick moulding workers. Primary data were collected from brick molding workers using a structured interview schedule for this study. This study used a purposive random sampling method to collect the data from the brick molding workers. Totally 55 sample respondents who are involved in making brick moulding by traditional methods. The findings reveal that workers with longer years of experience in brick moulding reported significantly higher incidence of musculoskeletal disorders, chronic body pain, and respiratory problems compared to workers with shorter work experience. The workers were averagely spending 7 percent of their income on treatment, and the treatment cost was determined by work experience and their salary positively, R2 was 0.33. The Health Score Index was stated that when experience increases lead to lots of health problems.

Keywords

Brick Moulding, Unorganised Sector, Health Problem, Work Experience, Occupational Exposure

1. Introduction

Work experience is a critical determinant of workers' health, particularly in labour-intensive and hazardous occupations. Globally, a large proportion of the workforce in developing and low-income countries is employed in unorganised sectors where prolonged exposure to physical strain, unsafe working environments, and the absence of occupational health safeguards lead to cumulative health deterioration (International Labour Organization [ILO], 2021; World Health Organization [WHO], 2022). Studies across countries reveal that the length of work experience significantly influences the severity of occupational health problems, as long-term exposure to repetitive tasks, dust, heat, and heavy manual labour increases the risk of musculoskeletal disorders, respiratory illnesses, and chronic fatigue (Kazi et al., 2018; Mittal, 2018).

Traditional brick molding is one of the most labour-intensive activities within the construction material industry worldwide. In many developing regions of Asia and Africa, brick molding continues to rely on manual techniques with minimal mechanisation, thereby exposing workers to repetitive bending, lifting, and prolonged contact with clay and dust (ILO, 2021), (Aniyikaiye et al, 2021) Global evidence suggests that workers with longer years of experience in brick molding are more susceptible to occupational health problems due to cumulative physical stress and lack of adequate rest, nutrition, and medical support (WHO, 2022). Despite the recognised health risks, brick molding workers remain largely excluded from formal occupational health monitoring systems.

In the Indian scenario, the brick kiln industry is

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one of the largest unorganised sectors, employing millions of workers on a seasonal and migratory basis (Roy et al, 2008). India ranks as the second-largest producer of bricks globally, and brick molding constitutes the most labour-intensive stage of brick production (Kumari, 2018). Indian studies consistently highlight that brick molding workers operate under strenuous conditions characterised by long working hours, piece-rate wage systems, absence of safety equipment, and poor access to healthcare facilities (Nizam et al., 2020; Pandian & Duraisingh, 2021). Empirical evidence indicates that work experience plays a significant role in shaping health outcomes, with experienced workers reporting a higher prevalence of musculoskeletal pain, respiratory disorders, skin problems, and general physical exhaustion compared to newly engaged workers (Kazi et al., 2018; Baranipriya & Sreeanandan, 2024).

Tamil Nadu is one of the major brick-producing states in India, where the industry contributes significantly to rural employment. Brick kilns in districts such as Erode, Coimbatore, Thoothukudi, and Cuddalore largely depend on traditional brick molding practices involving manual clay preparation, moulding, and sun drying (Hariharan, 2024). These activities demand continuous physical effort and repetitive movements, often carried out without protective gear or ergonomic support. Existing studies from Tamil Nadu primarily focus on the socio-economic conditions and general health hazards of brick kiln workers, while limited attention has been paid to analysing how work experience specifically impacts health conditions over time (Desingu, 2020; Pandian & Duraisingh, 2021).

Erode district represents a significant cluster of traditional brick molding units, where brick production serves as a vital source of livelihood for rural and migrant workers. Brick molding workers in the district are exposed to prolonged physical labour, extreme climatic conditions, and unsafe working environments year after year. However, despite the visible physical strain among experienced workers, there is a lack of micro-level empirical studies examining the relationship between work experience and health conditions among brick molding workers in the Erode district. Most available research treats brick kiln workers as a homogeneous group, overlooking the differential health impacts associated with varying lengths of work experience. In this backdrop, the present study addresses the research problem of understanding how work experience influences the health condition of brick molding workers in Erode district. By focusing on traditional brick molding practices, the study seeks to fill an important research gap by analysing the cumulative health impacts of prolonged occupational exposure.

2. Review of Literature

The brick kiln industry is one of the most labour-intensive and unorganised rural industries in India, providing seasonal employment to millions of migrant and rural workers. Several studies have examined the socio-economic background, occupational health hazards, and living conditions of brick kiln workers, highlighting their persistent vulnerability within the informal sector (Hariharan, 2024; Kumari, 2018). Existing literature indicates that brick kiln workers predominantly originate from economically backward rural households and socially marginalised communities. Studies conducted across different regions of India reveal that most workers possess low levels of education, with a majority being illiterate or having only primary schooling, which limits their access to alternative livelihood opportunities (Pandian & Duraisingh, 2021; Desingu, 2020). Seasonal migration to brick kilns has been identified as a coping mechanism for rural households facing agricultural distress, unemployment, and poverty (Hariharan, 2024).

Occupational health hazards constitute a major concern in the brick kiln sector. Empirical studies consistently report a high prevalence of respiratory illnesses, musculoskeletal disorders, skin problems, eye irritation, and chronic fatigue among brick kiln workers due to prolonged exposure to dust, smoke, heat, and physically demanding work (Kazi et al., 2018; Nizam et al., 2020). Research also highlights that women workers experience a higher incidence of musculoskeletal disorders due to repetitive man-

ual labour and extended working hours (Baranipriya & Sreeanandan, 2024).

Several studies emphasise the lack of occupational safety measures and healthcare facilities in brick kilns. The absence of personal protective equipment, limited access to medical services, and poor awareness of occupational health risks further aggravate workers' health conditions (Mittal, 2018; Kumari, 2018). Workers often continue to work despite illness due to fear of wage loss, indebtedness, and the absence of social security coverage. Socio-economic studies reveal that brick kiln workers are subjected to low and irregular wages, long working hours, poor housing conditions, and exploitative labour arrangements mediated through contractors (Pandian & Duraisingh, 2021; Hariharan, 2024). Migrant workers are frequently excluded from government welfare schemes due to a lack of identity documents and place-based entitlements, reinforcing their socio-economic marginalisation. From a rural development perspective, the literature underscores the need for policy interventions focusing on labour welfare, health protection, and livelihood diversification. Studies argue that strengthening rural employment opportunities, enforcing labour regulations, and extending social security coverage can significantly improve the living and working conditions of brick kiln workers (Mittal, 2018; Hariharan, 2024). Despite the growing body of research, region-specific studies remain limited, particularly at the district and block levels, indicating a clear research gap that justifies further empirical investigation.

3. Objectives

To examine the health impact, treatment cost and loss of man-days of the brick molding workers.

To analyze the factors determining the treatment cost due to the health problem in the brick molding industry.

4. Methodology

The Erode district has been selected for this study. Erode District's one of the major occupations of traditional brick moulding. The Erode district consists of 10 taluks, namely Erode, Bhavani, Gobichettipalayam, Perundurai, Sathyamangalam, Kodumudi, Modakurichi, Anthiyur, Nambiyur and Thalavadi. Among these taluks, Anthiyur taluk has the highest number of small-scale brick-making units. So Anthiyur has been selected for the study. The purposive random sampling method was used to collect the sample from the traditional brick moulding workers. For this study, primary data was collected through a well-structured questionnaire. Totally 55 sample respondents were collected randomly from the brick moulding workers for this study. The collected data are classified, analyzed, and interpreted. This study has used statistical tools such as averages, percentages, Independent t-tests, Multiple linear regression and HIS Index for the data analysis.

5. Hypothesis

H01: There is no significant difference in treatment cost between below 7 years of experience and above 7 years of experience in the brick molding industry.

H: Age, Size of the family, work experience, salary of the respondents was the major factors determining the treatment cost.

6. Data Analysis

Table 1. Experience Wise Classification of Socio-Economic Conditions of the Brick Molding Respondents

Particulars	*Below 7 Years*	*Above 7 Years*	*Total*
Gender			
Male	24 (82.8)	23 (88.5)	47 (85.5)
Female	5 (17.2)	3 (11.5)	8 (14.5)

Age			
Below 35	9 (31.0)	1 (3.8)	10 (18.2)
36-50	11 (38.0)	7 (27.0)	18 (32.7)
51-65	7 (24.1)	15 (57.7)	22 (40.0)
Above 66	2 (6.9)	3 (11.5)	5 (9.1)
Education Qualification			
Illiterate	5 (17.2)	19 (73.1)	24 (43.6)
Primary	12 (41.4)	3 (11.5)	15 (27.3)
HSC	9 (31.0)	3 (11.5)	12 (21.8)
UG	2 (6.9)	1 (3.8)	3 (5.5)
Diploma	1 (3.4)	0 (0.0)	1 (1.8)
Marital Status			
Married	23 (79.3)	21 (80.8)	44 (80.0)
Unmarried	6 (20.7)	4 (15.4)	10 (18.2)
Widow	0 (0.0)	1 (3.8)	1 (1.8)
Nature of Family			
Nuclear	19 (65.5)	17 (65.4)	36 (65.5)
Joint	10 (34.5)	9 (34.6)	19 (34.5)
Housing Type			
Pucca	3 (10.3)	3 (11.5)	6 (10.9)
Tiled	13 (44.8)	13 (50.0)	26 (47.3)
Terrace	13 (44.8)	9 (34.6)	22 (40.0)
Hut	0 (0.0)	1 (3.8)	1 (1.8)
Monthly Income and Expenditure(in Rs.)			
Respondent Income	10036.21	12038.46	10982.7
Family Income	16429.31	16382.69	16407.3
Expenditure	24459.67	32242.53	27520.12

Source: Primary data (2025)

The socio-economic condition of the respondents is shown in Table 1. The gender wise conditions show that overall 85.5 percent of the respondent workers were males and 14.5 percent of the respondents were females. The age of the respondents shows the workers has below 7 years of experiences, majority 38 percent of the respondents were 36-50 age group followed by 31 percent of the respondents were below 35 years this shows the middle and young age of participation, the above 7 years of experiences majority of the respondents 57 percent were belonging to 51-65 age group followed by 27 percent of the respondents age were belong to 36-50 age group. The Education qualification of the respondents have stated that most of the respondents were not getting the proper education. The respondents with less than 7 years of experience of the respondents have stated that majority 41.4 percent of the respondents were having the primary education, followed by 31 percent of the respondents were completed the Higher Secondary Education, 17 percent of the respondents were illiterates, 7 percent of the respondents were completed the Undergraduate Degree, and 3.4 percent of the respondents have completed the diploma education. Among the above 7 years of work experiences, a majority of 73 percent of the respondents were illiterates, 11.5 percent of the respondents had completed the primary education and Higher Secondary

Education, followed by 3.8 percent of the respondents had completed their Undergraduate Degree. The Marital status of the respondents stated that the majority of the respondents were married. Almost 80 percent of the respondents were married. The nature of the family shows that irrespective of their experience level majority, 65.5 percent of the respondents, belonged to a nuclear family, followed by 34.5 percent of the respondents were belong to a joint family. The housing type shows that the respondents who have 7 years of experience were 89.6 percent located in the Tiled and Terrace house, followed by 10.3 percent of the respondents were located in the Pucca house. The respondents having above 7 years of experience, the majority, 50 percent of the respondents, were located in the tiled house, followed by 34.6 percent of the respondents were located in the terrace house, 11.5 percent of the respondents lived in a Pucca house, followed by 3.8 percent of the respondents lived in the hut house. The monthly income and expenditure of the respondents and the family, the average respondent income below 7 years of experience was Rs. 10036.21 and above 7 years' experience, was earning Rs. 12038.46. The average family income is below 7 years Rs. 16429.31, the family average family expenditure was Rs. 24459.67, and for the above 7 years, the average family income was Rs. 16382.69, and the expenditure was Rs. 32242.53.

Table 2. Health Problems of the Brick Molding Workers

Work Experience	*Injury*	*Respiratory problems*	*Skin problems*	*Musculoskeletal disorders*	*Eye irritation*	*Hearing problems*
Below 7 years	26	8	14	19	4	3
	(89.7)	(27.6)	(48.3)	(65.5)	(13.8)	(10.3)
	[50.0]	[53.3]	[66.7]	[46.3]	[44.4]	[37.5]
Above 7 Years	26	7	7	22	5	5
	(100.0)	(26.9)	(26.9)	(84.6)	(19.2)	(19.2)
	[50.0]	[46.7]	[33.3]	[53.7]	[55.6]	[62.5]
Total	52	15	21	41	9	8
	(94.5)	(27.3)	(38.2)	(74.5)	(16.4)	(14.5)
	[100.0]	[100.0]	[100.0]	[100.0]	[100.0]	[100.0]

Source: Primary data (2025); ( ) – Row-wise percentage; [ ] – Column-wise percentage

Table 2 shows the health problems faced in the brick molding industry. In the injury, despite the experience of the respondents with less than 7 years of experience, 50 per cent were injured during work, and the respondents with above 7 years of experience, 50 per cent were injured, and in the overall total, 94.5 per cent of the respondents were injured during work. In the respiratory problem, overall 27.3 per cent of the respondents had this issue, among the majority 53.3 per cent of the respondents having respiratory issues who had below 7 years of work experience, and 46.7 per cent of the respondents were affected at above 7 years of work experience. For the skin problem, overall, 38.2 per cent of the respondents were affected, among them 66.7 per cent of the respondents who had less than 7 years of experience were affected, and 33.3 per cent of the respondents who had more than 7 years of experience were affected. Of the total respondents, 74.5 per cent were affected by the musculoskeletal disorder, among them 53.7 per cent of the respondents who are in above 7 years of experience, and 46.3 per cent of the respondents who had below 7 years of experience were affected due to musculoskeletal disorder. Of the total respondents, 16.4 per cent of the respondents were affected by the eye irritation problem; among them, 55.6 per cent of the respondents who were affected had above 7 years of experience, and 44.4 per cent of the respondents who were affected had below 7 years. Of the total respondents, 14.5 per cent of the respondents were affected by the hearing problem, among them 62.5 per

cent of the respondents belong to above 7 years and 37.5 per cent of the respondents belong to below 7 years. This table concludes that the majority of the problems were affected by above 7 years of experience.

Table 3. Health cost for Injury

Work Experience	*Hospital and treatment*		*Expenditure*		*Statistics*	*Hospital distance (KM)*	*Treatment expense (Rs)*
	Private Hospital	*Allopathy treatment*	*Own*	*Owner's*			
Below 7 years	26	26	1	25	Sum	141	4000
	(100.0)	(100.0)	(3.8)	(96.2)	Mean	5.42	4000.00
	[50.0]	[50.0]	[50.0]	[50.0]	N	26	1
Above 7 Years	26	26	1	25	Sum	117	3500
	(100.0)	(100.0)	(3.8)	(96.2)	Mean	4.50	3500.00
	[50.0]	[50.0]	[50.0]	[50.0]	N	26	1
Total	52	52	2	50	Sum	258	7500
	(100.0)	(100.0)	(3.8)	(96.2)	Mean	4.96	3750.00
	[100.0]	[100.0]	[100.0]	[100.0]	N	52	2

Source: Primary data (2025); ( ) – Row-wise percentage; [ ] – Column-wise percentage

Table 3 shows the health costs incurred for injury of the respondent in the selected study area. In the first 7 years of experience in brick molding, an average of 90 percent of the respondents got injured, as shown in Table 2. All those respondents who got injured were using the allopathy treatment in private hospitals, which is averagely located at a distance of 5.42 km, and the majority, 96.2 percent, were getting treatment with the owner's help. The remaining 3.8 per cent of the respondents were using their own finances for the medical expenses, and the average expenses were Rs. 4000/. In the above 7 years of experience, all the respondents were injured (Table 2) and all of them were using the allopathy treatment in a private hospital, which is located 4.50 km distance, with the majority, 96.2 per cent, of owners' support and the remaining 3.8 per cent of them using their own finance of average Rs. 3500/-. This table concludes that all the respondents get injured were using the allopathy treatment in a private hospital, which is located at 4.96 km. The majority of them were availing the owner's financial support, and the respondents who used their savings were Rs. 3750/-.

Table 4. Health Cost for Respiratory Problem

Work Experience	*Treatment Place*			*Treatment type*		*Expenditure*	*Statistics*	*Hospital distance (KM)*	*No. Of. Years getting treatment*	*Treatment expense (Rs)*
	Private	*Government*	*Others*	*Sidha*	*Medical treatment*	*Own*				
Below 7 years	1	7	2	2	6	8	Sum	61	18	15000
	(12.5)	(62.5)	(25.0)	(25.0)	(75.0)	(100.0)	Mean	7.63	2.25	**1875**
	[50.0]	[62.8]	[40.0]	[40.0]	[60.0]	[53.3]	N	8	8	8
Above 7 Years	1	3	3	3	4	7	Sum	51	25	26000
	(14.3)	(42.7)	(42.9)	(42.9)	(57.1)	(100.0)	Mean	7.29	3.57	**3714**
	[50.00]	[37.5]	[60.0]	[60.0]	[40.0]	[46.7]	N	7	7	7
Total	2	8	5	5	10	15	Sum	112	43	41000
	(13.3)	(53.3)	(33.4)	(33.3)	(66.7)	(100.0)	Mean	7.47	2.87	**2733.33**
	[100.00]	[100.0]	[100.00]	[100.0]	[100.0]	[100.0]	N	15	15	15

Source: Primary data (2025); ( ) – Row-wise percentage; [ ] – Column-wise percentage

Table 5. Health Cost for Skin Problem

Work Experience	Treatment Place		Treatment Type			Expenditure		Statistics	Hospital distance (KM)	No. Of. Years	Treatment expense (Rs)
	Government	Others	Ayurvedic	Sidha	Medical procedure	Own	Owner				
Below 7 years	4	10	1	9	4	14	0	Sum	114	33	21700
	(28.6)	(71.4)	(7.1)	(64.3)	(28.6)	(100.0)	(0.0)	Mean	8.14	2.36	**1550**
	[80.0]	[58.8]	[100.0]	[56.3]	[80.0]	[66.7]	[0.0]	N	14	14	14
Above 7 Years	1	7	0	7	1	7	1	Sum	52	24	16450
	(12.5)	(87.5)	(0.0)	(87.5)	(12.5)	(87.5)	(12.5)	Mean	6.5	3	**2056**
	[20.0]	[41.2]	[0.0]	[43.8]	[20.0]	[33.3]	[100.0]	N	8	8	8
Total	5	17	1	16	5	21	1	Sum	166	57	38150
	(22.7)	(77.3)	(4.5)	(72.7)	(22.7)	(95.5)	(4.5)	Mean	7.55	2.59	**1734.09**
	[100.00]	[100.0]	[100.0]	[100.0]	[100.0]	[100.0]	[100.0]	N	22	22	22

Source: Primary data (2025); ( ) – Row-wise percentage; [ ] – Column-wise percentage

Table 6. Health cost for Musculoskeletal Problem

Work Experience	Treatment Place			Treatment Type			Musculoskeletal disorders expenditure		Statistics	Hospital distance (KM)	No. Of. Year treatment	Treatment expense (Rs)
	Private	Government	Others	Ayurvedic	Sidha	Allopathy	Own	Owner				
Below 7 years	2	14	2	1	1	16	18	0	**Sum**	111	41	13750
	(11.1)	(77.8)	(11.1)	(5.6)	(5.6)	(88.9)	(100.0)	(0.0)	**Mean**	6.17	2.28	**763.88**
	[40.0]	[51.9]	[33.39]	[100.0]	[20.0]	[50.0]	[48.6]	[0.0]	**N**	18	18	18
Above 7 Years	3	13	4	0	4	16	19	1	**Sum**	130	102	58450
	(15.0)	(65.0)	(20.0)	(0.0)	(20.0)	(80.0)	(95.0)	(5.0)	**Mean**	6.50	5.10	**2922.50**
	[60.0]	[48.1]	[66.7]	[0.0]	[80.0]	[50.0]	[51.4]	[100.0]	**N**	20	20	20
Total	5	27	6	1	5	32	37	1	**Sum**	241	143	72200
	(13.2)	(71.1)	(15.7)	(2.6)	(13.2)	(84.2)	(97.4)	(2.6)	**Mean**	6.34	3.76	**1900**
	[100.0]	[100.0]	[100.0]	[100.0]	[100.0]	[100.0]	[100.0]	[100.0]	**N**	38	38	38

Source: Primary data (2025); ( ) – Row-wise percentage; [ ] – Column-wise percentage

Table 4 shows the health cost occurred for respiratory problems of the respondents in the selected study area. In the 7 years of experience in brick molding, 53.3 percent of respondents got respiratory problems while working, as shown in Table 2. The majority, 62.5 percent of the respondent took medical treatment in government hospitals with their own expenditure, and the average distance to the government hospital is 7.63 Km. The average

annual expenditure of the treatment for the respiratory problem is Rs 2875, and the treatment was taken for 2 years. The remaining 12.5 per cent nd 25 percent of respondents were taking siddha treatment. For the above 7 years of experience, 42.2 per cent of respondents took medical treatment in the government hospitals with their own expenditure, and the average distance was 7.63 kms, with the average expense of Rs. 3714 and 14.3 per cent and 42.9 per cent of respondents took siddha treatment. In total, 53.3 per cent of respondents took 66.7 per cent of medical treatment, 13.3 per cent, and 33. 4 per cent of them took siddha treatment with the average expense of Rs.3266. Table 5 shows the cost occurred for the skin problems of the respondents in the study area. In the 7 years of experience in brick molding, 66.7 per cent of respondents got skin problems, as shown in the table 4.15. In that, 28.6 per cent of respondent took medical treatment in the government hospital, with the average expense of their own expenditure being Rs 4359.28. The average distance to the hospital was 2.36 kilometers. Respondents with other treatments took siddha and ayurvedic treatment, and there is no owner's expenditure for the treatment. In the above 7 years of experience in brick molding, 33.3 per cent of respondents have skin problems. The majority, 87.5 percent of respondents, took another type of treatment place; 87.5 percent of respondents took siddha treatment. Only 12.5 percent of respondents took government hospital, with 12.5 percent of medical procedures, with an average expense of Rs. 2056 and average distance of 6.50 kilometers. In total majority, 77.3 per cent of respondents took other type of treatment such as siddha and ayurvedic and 22.7 per cent of respondents took 22.7 per cent of medical treatment. Table 6 shows the cost occurred for the Musculoskeletal problems of the respondents in the study area. In the 7 years of experience in brick molding, 46.3 per cent of respondents got Musculoskeletal problems, as shown in the table 4.15. In that, 77.8 per cent of respondent took 88.9 per cent of allopathy treatment in the government hospital, with the average expense of their own expenditure being Rs 1152. The average distance to the hospital was 2.28 kilometers. 11.1 per cent of respondents took other treatments such as siddha and ayurvedic treatment, and there is no owner expenditure for the treatment. In the above 7 years of experience in brick molding, 53.7 per cent of respondents have Musculoskeletal problems. 65.0 per cent of respondents took Government treatment, with 80.0 per cent of respondents taking allopathic treatment. Only 15.0 and 20.0 percent of respondents took 20.0 percent of the sidha procedures, with an average expense of Rs. 2447 and an average distance of 6.50 kilometers. In total, 71.1 per cent of respondents received 84.2 per cent of allopathy in the government hospital.

Table 7. Health cost for Eye Irritation

Work Experience	*Treatment Place*	*Treatment Type*	*Expenditure*	*Statistics*	*Hospital distance (KM)*	*No. of. Year*	*Treatment expense (Rs)*
	Government	*Allopathy*	*Own*				
Below 7 years	4	4	4	**Sum**	27	6	3500
	(100.0)	(100.0)	(100.0)	**Mean**	6.75	1.50	**875**
	[50.0]	[50.0]	[50.0]	**N**	4	4	4
Above 7 Years	4	4	4	**Sum**	25	18	7700
	(100.0)	(100.0)	(100.0)	**Mean**	6.25	4.50	**1925**
	[50.0]	[50.0]	[50.0]	**N**	4	4	4
Total	8	8	8	**Sum**	52	24	11200
	(100.0)	(100.0)	(100.0)	**Mean**	6.50	3.00	**1400**
	[100.0]	[100.0]	[100.0]	**N**	8	8	8

Source: Primary data (2025); ( ) – Row-wise percentage; [ ] – Column-wise percentage

Table 7 shows the cost incurred for eye irritation of the respondents in the study area. Table 7 shows that 44.4 per cent of respondents had eye irritation in the first 7 years of experience; everyone took allopathy treatment in the government hospital at their own expense. They took 1.50 years of treatment with the average expense of Rs. 1375, and the average distance to the hospital was 1.50 kms. In the above 7 years of experience, everyone took allopathy treatment in the government hospital at their own expense. They took 4.5 years of treatment with the average expense of Rs.1925. The average distance to the hospital for treatment was 6.25 kms.

Table 8. Health Cost for Hearing Problems

Work Experience	*Treatment Place*			*Type of Treatment*		*Expenditure*	*Statistics*	*Hospital distance (KM)*	*No. Of. Years of taking treatment*	*Treatment expense (Rs)*
	Private	*Government*	*Others*	*Ayurvedic*	*Allopathy*	*Own*				
Below 7 years	1	1	1	1	2	3	Sum	22	7	6670
	(33.3)	(33.3)	(33.4)	(33.3)	(66.7)	(100.0)	Mean	7.33	2.33	**2223.33**
	[33.3]	[25.0]	[100.0]	[100.0]	[28.6]	[37.5]	N	3	3	3
Above 7 Years	2	3	0	0	5	5	Sum	35	21	6450
	(40.0)	(60.0)	(0.0)	(0.0)	(100.0)	(100.0)	Mean	7.00	4.20	**1290**
	[66.7]	[75.4]	[0.0]	[0.0]	[71.4]	[62.5]	N	5	5	5
Total	3	4	1	1	7	8	Sum	57	28	13120
	(37.5)	(50.0)	(12.5)	(12.5)	(87.5)	(100.0)	Mean	7.13	3.50	**1640**
	[100.0]	[100.0]	[100.0]	[100.0]	[100.0]	[100.0]	N	8	8	8

Source: Primary data (2025); ( ) – Row-wise percentage; [ ] – Column-wise percentage

Table 8 shows cost occurred for the Hearing problems for the respondents in the study area. Consistently, respondents took 33.3 per cent in the government, private, and other treatment places for the treatment. 33.3 per cent of respondents took ayurvedic treatment in the government hospital. Furthermore, 66.7 per cent of respondents took allopathy treatment in the private and other types of hospitals. They took 2.33 years of treatment in the hospital, with their own expenditure of an average expense of Rs. 3000 and the average distance to the hospital was 7.33 kilometers. In the above 7 years of experience, 60 and 40 per cent of respondents worked in government and private hospital respectively. The type of treatment, 100 per cent respondents took allopathy. Respondents took 4.20 years of treatment in the hospital and spent their own expenditure for the treatment. The average distance for the hospital was 7 kilometers. In total, 50 per cent of respondents received 87.5 per cent of allopathy treatment in the government hospital. Furthermore, 37.5 per cent and 12.5 per cent of respondents took ayurvedic treatment. In the 3.5 years of treatment, they spent Rs.1931 on their own expenditure. This table shows that for the hearing problem, respondents spent their own income on treatment.

Table 9. Treatment Cost of the Brick Molding Workers in a year (in Rs.)

Work Experience	Statistics	Treatment Cost						Total Treatment Cost
		Injury	Respiratory Problem	Skin Problem	Musculoskeletal problem	Eye irritation	Hearing Problem	
Below 7 years	Sum	4000	15000	21700	13750	3500	6670	78870
	Mean	**4000**	**1875**	**1550**	**763.88**	**875**	**2223.33**	**2719.66**
	N	1	8	14	18	4	3	29
Above 7 Years	Sum	3500	26000	16450	58450	7700	6450	162170
	Mean	**3500**	**3714**	**2056**	**2922.50**	**1925**	**1290**	**6237.31**
	N	1	7	8	20	4	5	26
Total	Sum	7500	41000	38150	72200	11200	13120	241830
	Mean	**3750**	**2733.33**	**1734.09**	**1900**	**1400**	**1640**	**4396.90**
	N	2	15	22	38	8	8	55

Source: Primary data (2025)

The mean treatment cost of brick molding workers varies according to their work experience and type of health problem. Among workers with below 7 years of experience, the mean treatment cost is highest for injury ₹4000, followed by hearing problems ₹2223.33, respiratory problems ₹1875, skin problems ₹1550, and eye irritation ₹875, while the lowest cost is observed for musculoskeletal problems ₹763.88. The overall mean treatment cost for this group is ₹2719.66. In contrast, workers with above 7 years of experience incur higher mean treatment costs, particularly for respiratory problems ₹3714, followed by injury ₹3500 and musculoskeletal problems ₹2922.50. The mean costs for skin problems, eye irritation, and hearing problems are ₹2056, ₹1925, and ₹1290 respectively, with a total mean treatment cost of ₹6237.31. Considering all workers together, the highest mean treatment cost is observed for injury ₹3750, followed by respiratory problems ₹2733.33. The overall mean total treatment cost amounts to ₹4396.90, indicating that occupational health issues impose a significant financial burden on brick molding workers.

Table 10. Loss of Income Due to the Health Problem occurred in the Brick Molding Industry

Work Experience	*Admitted to the hospital*		*Total*	*Statistics*	*No. of days admitted in hospital*	*Loss of income/3 months (in Rs.)*
	Yes	*No*				
Below 7 years	21	8	29	**Sum**	75	22500
	(72.4)	(27.6	(100	**Mean**	3.57	1071.43
	[53.8]	[50.0]	[52.7]	**N**	21	21
Above 7 Years	18	8	26	**Sum**	121	36300
	(69.2)	(30.8	(100	**Mean**	6.72	2016.67
	[46.2]	[50.0]	[47.3]	**N**	18	18
Total	39	16	55	**Sum**	196	58800

	(70.9	(29.1	(100	**Mean**	5.03	1507.69
	[100.0]	[100.0]	[100.0]	**N**	39	39

Source: Primary data (2025); ( ) – Row-wise percentage; [ ] – Column-wise percentage

Table 10 shows the loss of income due to health problems while working in brick molding. In the 7 years of experience below, 72.2 per cent of respondents got admitted to the hospital for 75 days in the hospital, lost their income with an average of 1071.43 in the period of 3 months. A minority of respondents were never admitted to the hospital. In the above 7 years of experience, 69.2 per cent of respondent got admitted 121 days in the hospital, who have losses their income with an average of 2016.67 in the period of 3 months. In total, 70.9 per cent of respondents got admitted to the hospital, and they have been admitted for an average of 196 days in the hospital and lost their income, averaging 1507.69 during the period of 3 months.

Hypothesis I

H_0: There is no significant difference in treatment cost between below 7 years of experience and above 7 years of experience in the brick molding industry.

H_1: There is a significant difference in treatment cost between below 7 years of experience and those with above 7 years of experience in the brick molding industry.

Table 11. Independent sample t-test difference between experience levels in the brick molding industry

Factor	***Below 7 years***		***Above 7 years***		***t Value***	***P Value***
	Mean	***SD***	***Mean***	***SD***		
Treatment Cost	2719.66	1580.90	6237.31	2533.65	-6.246	.048*

*Source: Computed Primary data ** 1% level of significant, * 5% level of significant*

Table 11 shows the independent sample t-test of the experience level in the brick molding industry. There is a significant difference in the treatment cost between those with below 7 years' experience and those with above 7 years' experience. While seeing the treatment cost, there is a significant difference in the treatment cost of the respondents. The respondents are working in the brick molding industry. The respondents with work experience below 7 years had a mean treatment cost of Rs. 2719.66, and the respondents with work experience above 7 years had a mean treatment cost of Rs. 6237.31. The t-value shows -6.246, which is negative; it denotes that the mean value of the second group is higher than the mean value of the first group. The p-value is 0.048, which means it is significant at 5 % level of significant. The null hypothesis is rejected, and the alternative hypothesis is accepted. There is a significant difference in treatment cost between below 7 years of experience and above 7 years of experience in the brick molding industry.

Hypothesis II

The work experience and respondent salary determined the treatment cost

Table 12. Factors Determining Treatment Cost

	Unstandardized Coefficients		***Standardized Coefficients***	***t***	***Sig.***
	B	Std. Error	Beta		
(Constant)	-2340.08	2180.15		-1.073	.288
Working Experience	128.36	46.36	.359	2.769	.008**
Respondent Salary	.504	.212	.307	2.371	.021*

R Square	0.330			
Adjusted R-Square	0.304			

*Source: Computed primary data ** 1% level of significant; * 5% level of significant:*

$$y = a + b_{x1} + b_{x1} + \mu$$
$$= a + b_{exp} + b_{sal} + \mu$$
$$y = -2340.08 + 128.36_{exp} + 0.504_{sal} + \mu$$

Where,

Y = Treatment cost

b_{exp}= Working Experience

b_{sal} = Respondent salary

Table 12 represents the factors determining the treatment cost of the brick molding workers. The highly correlated independent variable, working experience and respondent salary were taken into account. The treatment cost was determined by the working experience in the brick molding industry and the respondent's salary in the brick molding industry. The work experience in the brick molding industry was a 1 percent level of significant positively, when a respondent worked one year, then it led to the treatment cost increase by Rs. 128.36. The respondent's salary in the brick molding industry was significant at the 5 percent level. When the respondent's salary increases by Rs. 1, it leads to an increase in the treatment cost of Rs. 0.51. The R2 value is 0.33. The treatment cost was determined by the respondent's salary and working experience in the brick molding industry at a 33 percent level.

Health Status Index

The Health Status Index is a composite measure used to assess the overall health condition of individuals or a group. It shows how healthy or unhealthy a person is using a single score base.

$$HSI = \frac{Health\ Score}{Total\ Indicators}$$
$$Health\ Score = \Sigma H_i$$

H_i = Injury, Respiratory problem, Skin disease, Musculoskeletal Problem, Eye irritation and hearing problem

(If there is a problem 1, no problem means 0)

Index Calculation

HSI Value	***Health Condition***
0.00 – 0.33	Low health problems (Good health)
0.34 – 0.66	Moderate health problems
0.67 – 1.00	High health problems (Poor health)

Table 13. HIS Index Calculation

Respondents	***Work Experience***	***HIS***	***Group Level***	***Respondents***	***Work Experience***	***HIS***	***Group Level***
R1	Below 7 years	0.2	Low	R30	Above 7 Years	0.6	Medium
R2	Below 7 years	0.6	Medium	R31	Above 7 Years	0.8	High
R3	Below 7 years	0.6	Medium	R32	Above 7 Years	0.4	Medium
R4	Below 7 years	0.4	Medium	R33	Above 7 Years	0.4	Medium
R5	Below 7 years	0.4	Medium	R34	Above 7 Years	0.6	Medium
R6	Below 7 years	0.4	Medium	R35	Above 7 Years	0.6	Medium
R7	Below 7 years	0.4	Medium	R36	Above 7 Years	0.6	Medium
R8	Below 7 years	0	Low	R37	Above 7 Years	0.6	Medium
R9	Below 7 years	0.6	Medium	R38	Above 7 Years	0.4	Medium
R10	Below 7 years	0.6	Medium	R39	Above 7 Years	0.4	Medium
R11	Below 7 years	0.4	Medium	R40	Above 7 Years	0.4	Medium
R12	Below 7 years	0.6	Medium	R41	Above 7 Years	0.4	Medium

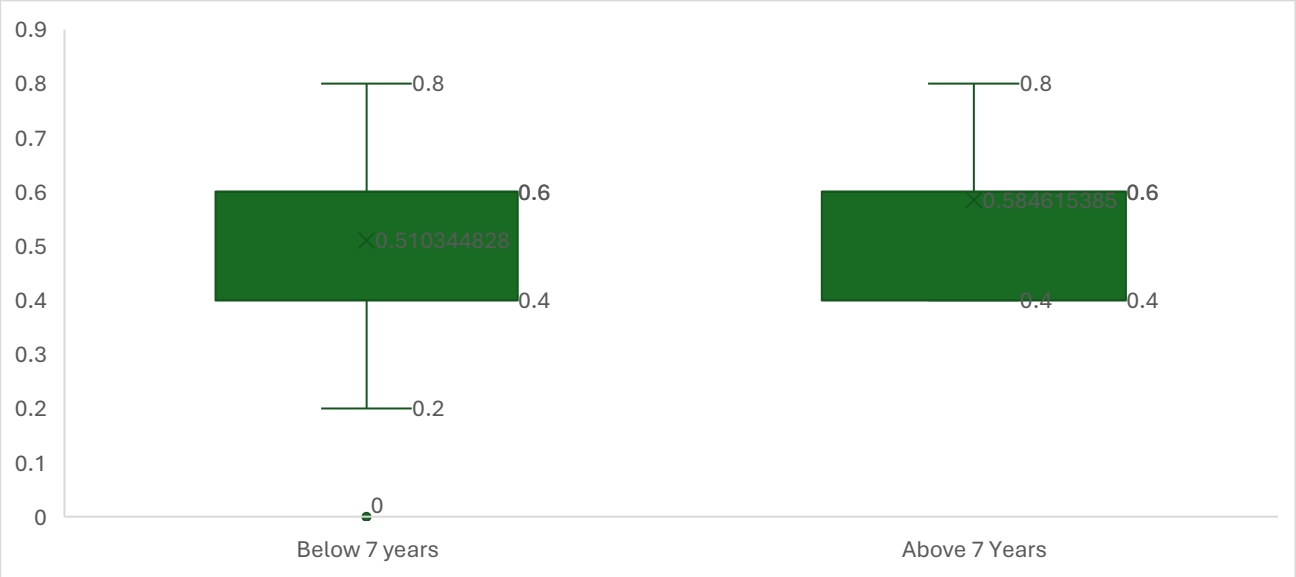
Respondents	Work Experience	HIS	Group Level	Respondents	Work Experience	HIS	Group Level
R13	Below 7 years	0.6	Medium	R42	Above 7 Years	0.6	Medium
R14	Below 7 years	0.4	Medium	R43	Above 7 Years	0.6	Medium
R15	Below 7 years	0.6	Medium	R44	Above 7 Years	0.8	High
R16	Below 7 years	0.8	High	R45	Above 7 Years	0.8	High
R17	Below 7 years	0.4	Medium	R46	Above 7 Years	0.8	High
R18	Below 7 years	0.6	Medium	R47	Above 7 Years	0.6	Medium
R19	Below 7 years	0.6	Medium	R48	Above 7 Years	0.6	Medium
R20	Below 7 years	0.6	Medium	R49	Above 7 Years	0.6	Medium
R21	Below 7 years	0.8	High	R50	Above 7 Years	0.6	Medium
R22	Below 7 years	0.4	Medium	R51	Above 7 Years	0.4	Medium
R23	Below 7 years	0.8	High	R52	Above 7 Years	0.6	Medium
R24	Below 7 years	0.6	Medium	R53	Above 7 Years	0.8	High
R25	Below 7 years	0.4	Medium	R54	Above 7 Years	0.6	Medium
R26	Below 7 years	0.6	Medium	R55	Above 7 Years	0.6	Medium
R27	Below 7 years	0.4	Medium				
R28	Below 7 years	0.6	Medium				
R29	Below 7 years	0.4	Medium				

Source: Compute data

The Health Status Index (HSI) analysis helps us get a better sense of the health of brick molding workers. It puts different health problems into one easy-to-understand number. The results show HSI scores go from 0.0 to 0.8, meaning workers have different levels of health issues. For those with less than seven years on the job, most have medium health problems. It suggests that even early on, brick molding takes a toll because it is hard work. While some newer workers are in good health, others have high HSI scores. It means health risks are not just something that happens after years of doing this job. Things like not having good safety gear, working long hours, or just being more likely to get sick can also play a role.

On the other hand, the group with seven-plus years on the job shows a clearer trend: their health gets worse. More of these workers have big health problems. Their HSI values are mostly higher, which shows the build-up of long-term exposure to job dangers like breathing in dust, doing the same motions over and over, heat, and not having safety gear. Not many experienced workers have low HSI scores, which means staying in this industry for a long time makes it harder to stay healthy. It supports the idea that job-related health risks add up, and the constant exposure gets worse the longer you work. Comparing the HSI scores of the two groups shows that health goes down as work experience goes up. Both groups often have medium health problems, but workers with more experience usually have dangerous problems, so we need to focus on job-related health issues. Regular checkups, better safety at work, and health education are especially important for workers who have been around a while. These things could help slow down the health decline we saw in the research.

Figure 1



Source: Primary data (2025)

The box plot is about the Health Status Index (HSI) and how it relates to work experience. Higher HSI means worse health, as shown in Figure 1. For people working less than seven years, the middle HSI is about 0.5. Their scores go from 0.0 to 0.8, so most have okay health, but some are in better shape. Those working over seven years usually have a higher HSI, around 0.6. They do not have very low HSI scores. The worst HSI is 0.8 for both groups, so there are folks with serious health issues either way. More experienced workers tend to have worse health, maybe from being on the job longer.

7. Conclusion

The study concludes that the traditional brick moulding industry in Anthiyur taluk of Erode district contributes significantly to rural employment and the local economy through labour-intensive techniques. However, there are significant risks to one's occupational health associated with using traditional procedures for extended periods of time. The results show that workers are having the musculoskeletal and skin conditions, which negatively impact their general health and eventually lower their health index. Despite the fact that companies frequently cover medical costs when accidents happen, this assistance is still reactive rather than proactive. The cumulative health impact associated with long-term brick moulding operations is further highlighted by a strong correlation between treatment expenses and workers' experience. This emphasizes the necessity of organized actions that go beyond unofficial support systems. Therefore, the study highlights the need for safer work practices, better workplace health facilities, and increased participation of brick moulding workers in government health benefit programs aimed at the unorganized sector. Enhancing occupational health measures would improve the sustainability of this rural livelihood activity in addition to safeguarding worker well-being.

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