

Understanding the Level of Job Satisfaction among the Workers of Tea-processing Units based on Structural Equation Modelling (SEM): A Case Study of Rajganj Block, Jalpaiguri District, West Bengal

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Abstract

In India, the overall status of tea plantation workers and their working environment is governed by the Plantation Labour Act (PLA), 1951, and the rules framed by the state governments. Tea-processing workers are largely associated with ‘red-collar’ jobs that demand empirical study of their job satisfaction. Historically, tea-processing has been one of the major industrial sectors of Jalpaiguri district. This study determines the factors influencing job satisfaction among workers of tea-processing units in the Rajganj block of Jalpaiguri district. A semi-structured schedule was administered to 250 randomly selected respondents. Data were analysed using Exploratory Factor Analysis (EFA) followed by Structural Equation Modelling (SEM). Results show that wage and health-care facilities exert a strong positive effect on job satisfaction ($\beta = 0.77$). Welfare and job security ($\beta = -0.04$) and housing and supervision ($\beta = -0.02$) exhibit weak negative effects, indicating that moderate changes in these variables produce only slight changes in satisfaction. The findings underscore the primacy of wage and health-care benefits for improving job satisfaction in the tea-processing sector of the study area.

Keywords: Job satisfaction; Exploratory Factor Analysis (EFA); Structural Equation Modelling (SEM); Tea-processing workers; Rajganj block; Jalpaiguri; West Bengal; Wage; Health-care facilities

1. Introduction

The term ‘job satisfaction’ refers to an employee’s psychological and spiritual feelings or perceptions (Koç, Yazıcıoğlu & Hatipoğlu, 2009). Hoppock (1935) characterised job satisfaction as the result of the interplay of psychological, physiological and environmental factors, emphasising that with the combination of these three drivers an individual can

honestly say “I am satisfied with my job”. Maslow’s (1954) hierarchy of human needs provided a strong foundation for subsequent studies of job satisfaction. In simple terms, job satisfaction is a general attitude that employees express as a reflection of their work (Greenberg & Baron, 2000; Kara, 2010; Sonmezer & Eryaman, 2008).

According to Simatwa (2011), job satisfaction is essentially a positive correlation with the possibility of fulfilling personal needs at work. Glimer (1966) characterised people’s job satisfaction or unhappiness as the result of a variety of underlying reasons they hold toward their jobs and, more broadly, toward their lives. Kratzel (1964) linked it to an individual’s verbal assessment of the present scenario of his or her job. Rao (1970) viewed job satisfaction as a complicated, multilayered construct that addresses interconnected social, cultural, economic and personal elements. Aziri (2011) summarised it as a very positive emotional state that results from one’s employment or job experiences.

Over recent decades the key drivers of job satisfaction have been widely discussed in economics and organisational psychology. Academicians have examined socio-demographic and job-orientation features, including gender, age, educational attainment, monthly wage and promotion possibilities (Judge et al., 2002; Lévy-Garboua & Montmarquette, 2004; Clark, 1997; Clark et al., 1996). Other literature treats job satisfaction as an outcome of explanatory factors that incorporate both potential mobility (Gamero-Burón, 2009) and effective mobility (Freeman, 1978; Lévy-Garboua et al., 2007; Clark et al., 1998). Studies by Naff & Crum (1999), Bright (2008) and Su & Bozeman (2009) find that public-service motivation also influences job satisfaction.

The perception of a job is not limited by wage or working hours; it also incorporates latent concepts such as job stability, the tasks to be performed and the condition of the working environment (Lancaster, 1966). Satisfaction of workers with their job is especially crucial for an industry such as tea-processing, because the workers are mainly exposed to physically demanding work and continuously varying workplace conditions (Locke, 1969). Tea-processing workers play a crucial role in maintaining productivity and quality of processed tea, regardless of challenges regarding wage, safety, welfare and working conditions (Khalkho & Ghosh, 2025). Priyadarshan (2019) highlighted that timely monthly wages, promotional opportunities, safety and security measures, support from co-workers and related factors influence the job satisfaction of tea-processing workers.

Against this background the present study examines the level and determinants of job satisfaction among tea-processing workers in the Rajganj block of Jalpaiguri district, West Bengal, using Exploratory Factor Analysis (EFA) and Structural Equation Modelling (SEM).

2. Study Area

Jalpaiguri district is situated between latitudes $26^{\circ}15'47''$ N and $26^{\circ}59'34''$ N and longitudes $88^{\circ}23'2''$ E and $89^{\circ}7'30''$ E in the northern portion of West Bengal. It has international borders with Bhutan (north-east) and Bangladesh (south) and shares inter-state borders with Darjeeling, Kalimpong, Cooch Behar and Alipurduar. The district comprises three subdivisions (Jalpaiguri Sadar, Dhupguri and Mal) and nine blocks. Rajganj block, the focus of the present study, lies at approximately $26^{\circ}33'22''$ N and $88^{\circ}30'31''$ E.

The economy of the region is predominantly agricultural. Cropping intensity was recorded at 186 % by the Jalpaiguri Krishi Vigyan Kendra. According to the 2011 Census the district population was 2,381,596, with substantial numbers of cultivators, small and marginal farmers and agricultural labourers, underscoring dependence on primary occupations. Tea processing has historically been one of the major industrial sectors of the district, providing employment to a large workforce engaged in what are often described as ‘red-collar’ jobs.

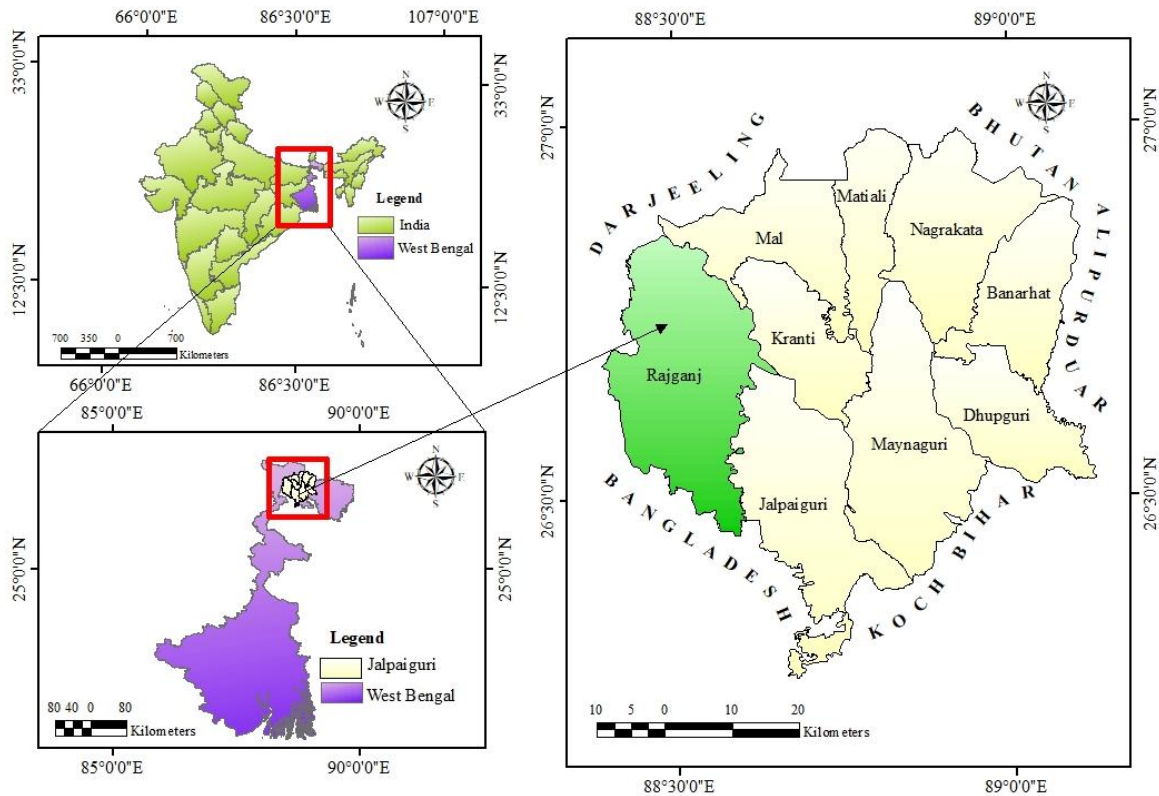


Fig. 1. Location map of the study area (Rajganj block, Jalpaiguri district, West Bengal).

Source: Prepared by the researcher.

3. Materials and Methods

3.1 Objective of the Study

The objective of the present study is to understand the level and determinants of job satisfaction among the tea-processing workers of Rajganj block of Jalpaiguri district.

3.2 Source of Data

The study is empirical. Data were collected through a thorough field survey. A total of 250 tea-processing workers were selected by random sampling from five tea-processing units in the study area. Respondents were interviewed with a structured schedule. A 5-point Likert scale (1 = highly satisfied, 5 = highly dissatisfied) was used to measure the level of job satisfaction.

3.3 Methods

Appropriate statistical approaches were employed to identify the important aspects that affect the degree of job satisfaction of tea-processing workers. Exploratory factor analysis (EFA) was used to uncover the complex factors underlying the observed variables. The underlying factors were subsequently examined using structural equation modelling (SEM).

Factor analysis treats factors as a set of random variables that cannot be measured directly. Individual variables are depicted as linear combinations of underlying factors. Variables with factor loadings typically less than 0.5 (or uniqueness high) were excluded because of their insignificant contribution.

Structural equation modelling (SEM) is a multivariate technique that gauges the impact of numerous latent factors on a dependent variable. It combines regression, factor analysis and path analysis (Hair et al., 2021). SEM has evolved through three generations: the first focused on path analysis, the second incorporated factor analysis, and the third integrates structural causal modelling with Bayesian approaches (Fan et al., 2016). In the present study SEM was used to identify the factors that exert a major impact on job satisfaction. A path diagram was constructed as a visual representation of the theory connecting measurable and latent variables (Mueller & Hancock, 2019).

Reliability of the constructs was assessed with Cronbach's alpha (acceptable range 0.65–0.80 or higher). Convergent validity was evaluated through Average Variance Extracted (AVE $\geq$ 0.50). Discriminant validity was confirmed when AVE of each construct exceeded the squared correlations between constructs.

3.4 Selected Variables

Variables were selected after a comprehensive literature review of job satisfaction and working conditions in labour-intensive industries. The chosen variables encompass key aspects of overall job satisfaction for workers in the tea-processing units of the study area, addressing wages, workplace conditions, management support, welfare facilities, housing, safety measures, promotion opportunities and recognition for work.

4. Results

4.1 Descriptive Statistics

Table 1 presents descriptive statistics for the independent variables. The highest mean values were observed for housing facilities (3.412), working hours (3.388), promotion opportunities (3.348), timely payment of wages (3.324) and clothing provision (3.324). Overall mean values are relatively similar, indicating consistency in workers' opinions. Greater standard deviations were found for recognition for work (1.523), timely payment of wages (1.509) and safety measures (1.506), reflecting diversity of opinion. Mean values ranged from 3.172 to 3.412 and standard deviations from 1.345 to 1.523, indicating that respondents rated their experiences just above the midpoint of the 5-point Likert scale and therefore reported a moderate level of job satisfaction.

Table 1. Descriptive statistics of job-satisfaction variables (N = 250)

Variable	N	Mean	SD
Timely payment of wage	250	3.324	1.509
Health care facilities	250	3.172	1.491
Safety measures	250	3.280	1.506
Working environment	250	3.296	1.486
Clothing provision	250	3.324	1.384
Welfare facilities	250	3.256	1.417
Working hours	250	3.388	1.382
Job security	250	3.320	1.418

Supervision of management	250	3.348	1.438
Housing facilities	250	3.412	1.451
Promotion opportunities	250	3.348	1.345
Recognition for work	250	3.288	1.523

Source: Computed by the researcher from field survey data.

Box plots of the responses showed median values generally between 3 and 4, confirming a moderate level of job satisfaction. The interquartile ranges indicated moderate variability, and the proximity of means and medians suggested relatively balanced, non-skewed distributions.

4.2 Exploratory Factor Analysis (EFA)

EFA was performed to identify the underlying structure of the observed variables. The Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy was 0.813 overall (Table 2), indicating a satisfactory sample for factor analysis. Individual MSAs ranged from 0.668 to 0.930. Bartlett’s test of sphericity yielded $\chi^2 = 2419.388$ (df = 66, $p < .001$), confirming that the variables are sufficiently intercorrelated (Table 3).

Table 2. Kaiser–Meyer–Olkin (KMO) measures of sampling adequacy

Variable	MSA
Overall	0.813
Timely payment of wage	0.930
Health care facilities	0.882
Safety measures	0.693
Working environment	0.693
Clothing provision	0.895
Working hours	0.870
Job security	0.910
Supervision of management	0.668
Housing facilities	0.671
Welfare facilities	0.845

Promotion opportunities	0.903
Recognition for work	0.890

Source: Computed by the researcher.

Table 3. Bartlett's test of sphericity

Chi-square (χ^2)	df	p-value
2419.388	66	< .001

Source: Computed by the researcher.

Four factors with eigenvalues greater than 1 were retained; together they accounted for 67.08 % of the total variance (Table 4). A scree plot confirmed a clear break after the fourth factor.

Table 4. Percentage of variance explained by extracted factors

Factor	SS Loadings	Percent of Variance	Cumulative Percentage
1	2.942	24.513	24.513
2	2.096	17.465	41.978
3	1.661	13.838	55.816
4	1.351	11.262	67.077

Source: Computed by the researcher (principal-axis factoring, varimax rotation).

Factor loadings (Table 5) revealed a clear four-factor structure: (1) Welfare and job security (welfare facilities, working hours, promotion opportunities, clothing provision, job security); (2) Wage and health-care benefits (health-care facilities, recognition for work, timely payment of wage); (3) Workplace environment (working environment, safety measures); and (4) Housing and supervision (housing facilities, supervision of management). Uniqueness values were generally low, indicating a well-defined factor structure.

Table 5. Factor loadings (principal-axis factoring with varimax rotation)

Variable	Factor 1	Factor 2	Factor 3	Factor 4	Uniqueness
Welfare facilities	0.831				0.283
Working hours	0.747				0.409
Promotion opportunities	0.738				0.450
Clothing provision	0.722				0.452

Job security	0.704				0.464
Health care facilities		0.815			0.252
Recognition for work		0.675			0.474
Timely payment of wage		0.618			0.464
Working environment			0.858		0.003
Safety measures			0.853		0.004
Housing facilities				0.797	0.321
Supervision of management				0.764	0.376

Source: Computed by the researcher. Blank cells indicate loadings < 0.40 (suppressed for clarity).

4.3 Reliability Analysis

Cronbach's alpha for the overall scale was 0.855 (Table 6), indicating high internal consistency. Subsequent construct-level reliability and validity statistics (α , ω and AVE) are reported in the measurement-model section below.

Table 6. Scale reliability statistics

Statistic	Value
Cronbach's α (scale)	0.855

Source: Computed by the researcher.

5. Discussion

5.1 Structural Equation Model (SEM)

After EFA, SEM was applied to examine the relationships among the four latent factors and overall job satisfaction. Four alternative hypotheses were tested:

H₁: Welfare and job security have a significant effect on job satisfaction.

H₂: Wage and health-care benefits have a significant effect on job satisfaction.

H₃: Housing and supervision have a significant effect on job satisfaction.

H₄: Workplace environment has a significant effect on job satisfaction.

5.2 Measurement Model: Reliability and Validity

Table 7 shows that all constructs exhibited high reliability (α and ω > 0.78) and adequate convergent validity (AVE > 0.50). The covariance matrix among latent variables (Table 8)

indicated positive associations among all constructs and with job satisfaction, supporting the theoretical structure of the model.

Table 7. Reliability and validity indices for the constructs

Construct	α	ω_1	AVE
Welfare and job security (Wf_Js)	0.874	0.875	0.585
Wage and health-care benefits (Wg_hl)	0.807	0.810	0.588
Housing and supervision (Hs_su)	0.786	0.787	0.650
Workplace environment (Wp_En)	0.998	0.998	0.997

Source: Computed by the researcher.

5.3 Overall Model Fit

The user model was statistically non-significant ($\chi^2 = 53.852$, $df = 56$, $p = 0.557$), indicating good fit to the data, whereas the baseline model was highly significant ($p < .001$). Absolute fit indices were excellent: SRMR = 0.032 and RMSEA = 0.000 (both well below the conventional 0.08 threshold). Incremental fit indices (CFI = 1.000, TLI = 1.001, NFI = 0.980) also exceeded the recommended 0.90 threshold, confirming an excellent overall model fit.

5.4 Structural Model Assessment and Hypothesis Testing

Parameter estimates for the structural model (Table 8) show that only wage and health-care benefits exerted a statistically significant positive effect on job satisfaction ($\beta = 0.771$, $p < .001$). Welfare and job security ($\beta = -0.025$, $p = 0.656$), housing and supervision ($\beta = -0.042$, $p = 0.487$) and workplace environment ($\beta = 0.030$, $p = 0.720$) were non-significant. Consequently H_2 is supported, while H_1 , H_3 and H_4 are not supported.

Table 8. Parameter estimates for the structural model

Dependent	Predictor	Estimate	SE	β	z	p
Job_sat	Wf_Js	-0.034	0.076	-0.025	-0.445	0.656
Job_sat	Wg_hl	0.999	0.143	0.771	6.980	< .001
Job_sat	Hs_su	-0.050	0.072	-0.042	-0.694	0.487
Job_sat	Wp_En	0.030	0.084	0.030	0.358	0.720

Source: Computed by the researcher.

Table 9. Summary of hypothesis test results

Hypothesis	Result
H ₁ : Welfare and job security → Job satisfaction	Not supported
H ₂ : Wage and health-care benefits → Job satisfaction	Supported
H ₃ : Housing and supervision → Job satisfaction	Not supported
H ₄ : Workplace environment → Job satisfaction	Not supported

Source: Authors' analysis.

The path diagram (Fig. 2) visualises these relationships. Rectangles represent observed variables and ovals represent latent constructs. Single-headed arrows indicate the direction of influence; double-headed arrows represent covariances. The largest path coefficient is that from wage and health-care benefits to job satisfaction ($\beta = 0.77$).

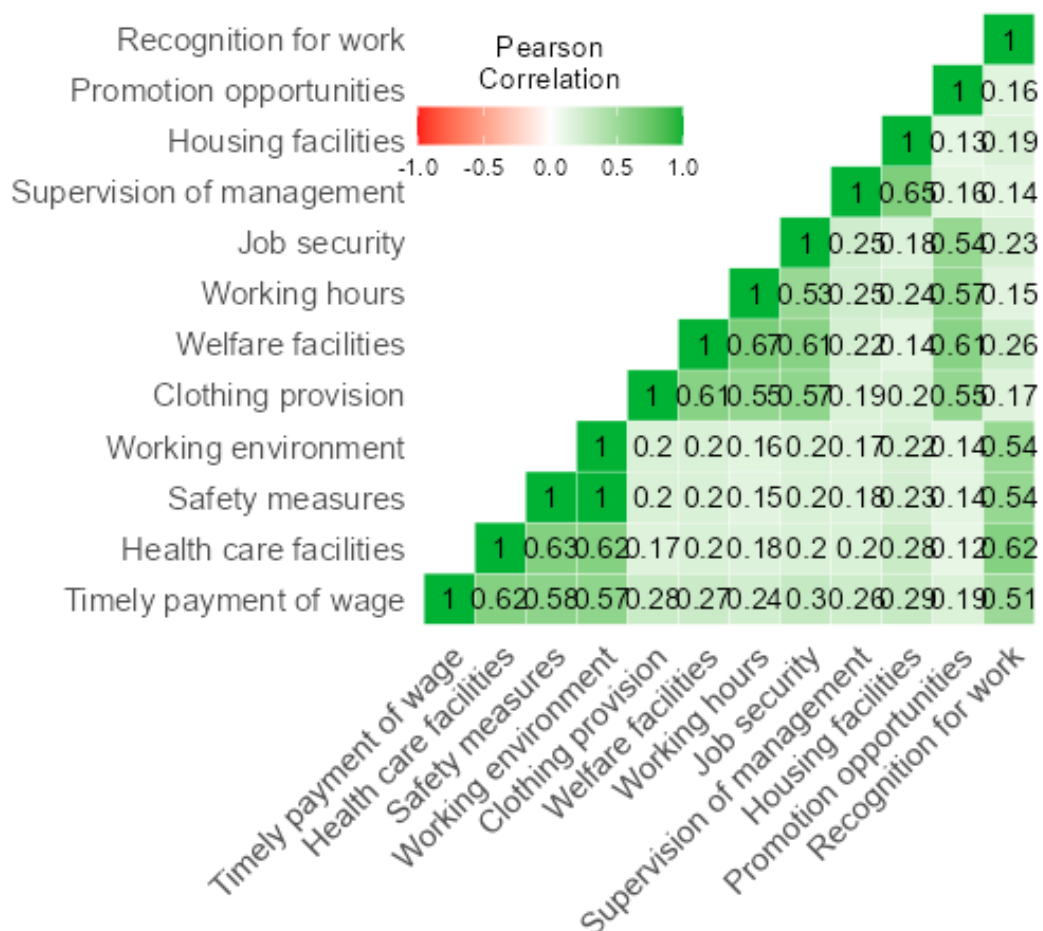


Fig. 2. Path diagram of the structural equation model showing standardised coefficients linking latent constructs to job satisfaction.

In summary, wage and health-care benefits are the dominant drivers of job satisfaction among tea-processing workers in the Rajganj block. Housing and supervision and welfare and job security display weak negative coefficients, implying that changes in these factors produce only minimal shifts in satisfaction levels under the present conditions of the study area.

6. Conclusions

Employee job satisfaction is vital to individual performance and organisational effectiveness. When workers are satisfied they tend to perform their duties more dedicatedly, enhancing long-run organisational outcomes; conversely, low satisfaction can lead to disengagement and absenteeism. Understanding and improving job satisfaction is therefore essential for any organisational unit that seeks a balanced and efficient workforce.

The present study examined the level and determinants of job satisfaction among workers of tea-processing units in the Rajganj block of Jalpaiguri district. Job satisfaction emerged as a multi-dimensional construct. Wage and health-care benefits exert the strongest positive influence ($\beta = 0.77$). Housing and supervision and welfare and job security show weak negative effects and are not major determinants under current conditions. The workplace environment also failed to reach statistical significance.

Policy-makers and management authorities should therefore prioritise improvements in wage levels and health-care facilities when formulating interventions aimed at raising job satisfaction in the tea-processing sector of the study area. Future research could usefully incorporate longitudinal designs, multi-district comparisons and direct measures of productivity and turnover to strengthen the evidence base for policy.

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Author Contributions

Suity Ghosh: Conceptualisation, methodology, field survey, data analysis, writing—original draft. Prof. (Dr.) Ranjan Roy: Supervision, methodology guidance, writing—review and editing. Both authors approved the final manuscript.

Data Availability Statement

The anonymised survey data underlying this study are available from the corresponding author upon reasonable request.

Declaration of Competing Interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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