

## **AN ANALYTICAL STUDY ON SOCIO-ECONOMIC STATUS AND QUALITY OF LIFE AMONG WOMEN LABOURERS IN COFFEE PLANTATION WITH SPECIAL REFERENCE TO MUDIGERE TALUK OF CHILKMGALURU DISTRICT**

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### **ABSTRACT:**

Coffee plantations play a crucial role in shaping the socio-economic status of women labourers in Chikkamagaluru district, the heart of India's coffee industry. Women constitute a major share of the plantation workforce, engaging in activities such as planting, weeding, harvesting, and processing. Their participation not only sustains the coffee economy but also contributes significantly to household income and rural livelihoods. Employment in coffee estates provides women with steady, though often low, wages that help support family needs like food, education, and healthcare. Regular employment also enhances their social recognition and economic independence, enabling some degree of decision-making within. This study investigates the relationship between Socio-Economic Status (SES) and Quality of Life (QoL) among women labourers working in coffee plantations of Mudigere taluk in Chikmagaluru district. The research employed a stratified random sampling method to select 60 women workers. Data were collected using structured interviews, Focus Group Discussions (FGDs), and Key Informant Interviews (KII) with supervisors and social workers. Descriptive statistics, Pearson's correlation, and t-test were used for data analysis. The results revealed a strong positive correlation between SES and QoL ( $r (58) = 0.954$ ,  $p < 0.001$ ), with a t-value of 24.144, indicating high statistical significance. The findings suggest that higher socio-economic status is strongly associated with enhanced physical, psychological, social, and environmental well-being among women plantation workers. The study emphasizes the importance of targeted interventions to improve education, income, and social support, thereby promoting sustainable livelihoods and overall well-being in the coffee sector of Mudigere Taluk of Chikmagaluru District.

**Keywords:** Women Labourers, Socio-Economic Status, Quality of Life.

### **INTRODUCTION**

Chikmagaluru district, located in the picturesque Western Ghats of Karnataka, is historically recognized as the birthplace of coffee cultivation in India. The region continues to be one of the major coffee-producing areas in the country, contributing nearly 40–45% of Karnataka's total coffee cultivation area. Approximately 1.2–1.5 lakh hectares of land in the district are under coffee cultivation, with an annual production ranging from 70,000 to 80,000 metric tonnes. Of this, around 70% comprises Arabica coffee, known for its superior quality and aroma, while 30% consists of Robusta varieties. The coffee sector serves as a vital source of livelihood, employing nearly 60,000 to 70,000 workers, including local residents and migrant labourers from within and outside the state.

Women constitute about 60–70% of the total plantation workforce and play a central role in almost every stage of coffee production, including planting, weeding, pruning, harvesting, and post-harvest processing. Despite their indispensable contribution, women workers often encounter multiple socio-economic challenges such as low wages, seasonal employment, inadequate housing and sanitation, limited access to healthcare, and lack of social protection measures. These conditions adversely affect their overall well-being and quality of life (QoL).

The socio-economic status (SES) of women labourers measured through indicators such as income, education, occupation, and asset ownership significantly shapes their access to resources, participation in decision-making, and living standards. In contrast, QoL reflects broader aspects of well-being, encompassing physical health, psychological stability, social relationships, and environmental satisfaction. Understanding the relationship between SES and QoL among women coffee workers is crucial for assessing their socio-economic vulnerabilities and identifying strategies for empowerment.

This study aims to analyze how variations in socio-economic factors influence the quality of life of women labourers in Chikmagaluru's coffee plantations, contributing to evidence-based policy formulation and sustainable rural development in the plantation sector.

### **Socio-Economic Status (SES)**

Socio-Economic Status (SES) among Women Labourers in Coffee Plantations refers to the combined social and economic position of female workers within society, typically determined by indicators such as:

- **Income:** Daily wages, seasonal earnings, or family income.
- **Education:** Level of formal schooling or literacy.
- **Occupation:** Type of work performed (permanent, seasonal, skilled, unskilled).
- **Asset Ownership:** Land, property, savings, or other resources.

SES reflects the ability of women workers to access resources, make decisions, and improve their living conditions. Higher SES often means better access to income, education, health, and social opportunities.

### **Quality of Life (QoL)**

Quality of Life (QoL) among Women Labourers in Coffee Plantations refers to their overall well-being across multiple dimensions:

- **Physical well-being:** Health, nutrition, and safety at work.
- **Psychological well-being:** Mental health, stress levels, and emotional satisfaction.
- **Social well-being:** Family and community relationships, social inclusion, and participation.
- **Environmental well-being:** Housing conditions, sanitation, access to clean water, and work environment.

Studying SES and QoL together helps understand how the socio-economic position of women labourers affects their overall life satisfaction, health, and social participation. In coffee plantations, where women form the majority of the workforce, higher SES usually correlates with better QoL, while lower SES is often linked to hardships such as low wages, poor living conditions, and limited access to healthcare and education.

## **WOMEN LABOURERS IN COFFEE PLANTATIONS**

The term “Women Labourers in Coffee Plantations” refers to female workers who are employed in various tasks related to the cultivation, maintenance, and processing of coffee crops. These women perform essential roles on coffee estates, which can include:

- 1. Planting and Nursery Work** – Sowing seeds, raising seedlings, and preparing new plants.
- 2. Weeding and Soil Maintenance** – Removing unwanted plants and maintaining soil health around coffee bushes.
- 3. Pruning and Shade Management** – Trimming coffee plants and managing shade trees to improve growth and yield.
- 4. Berry Picking / Harvesting** – Selecting and collecting ripe coffee cherries, often requiring precision and care.
- 5. Post-Harvest Processing** – Drying, sorting, grading, and packaging coffee beans.

These women may be local residents of the plantation area, intra-state migrants, or inter-state migrants, and they often work under seasonal, piece-rate, or permanent employment arrangements.

The term also implies a social and economic dimension, as these women often face challenges such as low wages, long working hours, inadequate housing, lack of social security, and limited access to education and healthcare. Their work is crucial to both the productivity of the coffee plantations and the livelihoods of rural family's dependent on this sector.

## **ROLE OF WOMEN WORKERS IN COFFEE PLANTATIONS OF CHIKMAGALURU**

Women workers play a crucial and irreplaceable role in the coffee plantations of Chikmagaluru, forming the backbone of the labour force in the district's coffee economy. It is estimated that 60–70% of the total plantation workforce comprises women, particularly during the peak harvesting and maintenance seasons. Their participation spans almost every stage of coffee cultivation — from planting, weeding, pruning, manuring, and berry picking to post-harvest processing such as drying and grading of beans. Among these activities, berry picking is almost entirely dominated by women, who are valued for their precision and patience in selecting ripe cherries. On average, a woman worker picks 40–60 kg of coffee cherries per day, earning around ₹450–₹600 daily, usually on a piece-rate basis. Women also contribute significantly to shade tree maintenance and nursery operations, ensuring crop regeneration. Despite their vital economic contribution, women workers face numerous challenges such as lower wages (15–25% less than men), lack of maternity benefits, limited access to healthcare, sanitation, and absence of childcare facilities in estates. Many also shoulder the dual burden of domestic responsibilities after long working hours in the field. Socially, women's participation in workers' unions and decision-making processes remains limited, though their collective role sustains the industry. Overall, women workers not only sustain daily plantation operations but also anchor the rural household economy in Chikmagaluru, making their empowerment and welfare essential for the sustainable growth of the region's coffee sector.

## **REVIEW OF LITERATURE**

**Mrs. Nirmala K.D and others (2015)** “A Perceptual Analysis of Workers and Their Quality of Work Life: A Study of Gender Differences in The Coffee Plantations of Kodagu District of Karnataka” This study examined the Quality of Work Life (QWL) among 100 plantation workers (50 men and 50 women) across fifteen plantations in Kodagu District, Karnataka, using a convenient sampling

method. Data were collected through a structured interview schedule covering eight dimensions: compensation, welfare, work characteristics, social orientation, constitutionalism, work-life balance, social relevance, and life comforts, with responses recorded on a 5-point Likert scale. Reliability was confirmed with Cronbach's alpha  $> 0.8$ , and secondary data were sourced from journals, reports, and official records. Descriptive statistics and independent t-tests revealed that female workers reported significantly higher perceptions than male workers in seven dimensions, except constitutionalism, which showed no gender difference. The findings highlight gendered perceptions of QWL, indicating that women value workplace factors differently. The study provides insights for policy and welfare interventions aimed at improving work-life quality in plantation sectors.

**Mr. Shrinidhi V S and others (2018)** "Socio-economic Conditions of Tribal Women Workers in Coffee Plantation". This study examines the socio-economic conditions of tribal women workers in coffee plantations, focusing on their living standards, employment conditions, and quality of work life. Data were collected from coffee estates, worker colonies, and tribal villages, supplemented with secondary sources. The findings indicate that the socio-economic status of tribal women remains poor, with most being illiterate and largely unaware of government programs aimed at their welfare. Limited participation in trade unions reduces their bargaining power, resulting in low daily wages compared to women in organized sectors. Social and economic indicators collectively reveal that tribal women remain a marginalized group within the plantation workforce. The study highlights the urgent need for government, NGO, and plantation authority interventions to improve education, awareness, welfare access, and empowerment of tribal women in coffee plantations.

**Molly Chattopadhyay (2020)** "Gender Disparity: A Study of Coffee Plantation Workers in South India" This study investigates gender inequality and discrimination among coffee plantation workers in Karnataka within the framework of the Plantation Labour Act, 1951. Women constitute about 62% of the 4.8 lakh daily wage workers in coffee plantations, yet they continue to face disparities in employment status, wages, social security benefits, and working conditions. A field survey of 510 workers (283 men and 227 women) across large, medium, small, and marginal plantations in Chikmagalur, Hassan, and Kodagu districts revealed persistent gender gaps in access to legally mandated entitlements. Women workers experienced irregular employment, lower wages, and limited welfare benefits compared to men. Overall, both genders faced widespread non-compliance with labor laws. The study highlights the need for stronger enforcement and gender-responsive policies to protect women's rights and promote equality in the plantation sector.

## RESEARCH GAP

Although extensive research has been carried out on rural livelihoods and plantation labour systems in India, there remains a significant gap in understanding the interlinkages between socio-economic status (SES) and quality of life (QoL), particularly among women labourers in coffee plantations. Most existing studies on plantation workers have primarily focused on gender differences in QWL, showing that women perceive workplace factors differently from men, gender inequalities in wages, employment, and social security benefits, and also economic dimensions such as wage levels, employment patterns, and labour welfare measures, often overlooking the broader multidimensional aspects of well-being that encompass physical health, psychological satisfaction, social relationships, and environmental living conditions. Furthermore, the limited research available on women plantation workers tends to treat them as a homogeneous group, without considering how factors like education, asset ownership, caste, or marital status intersect to shape their lived experiences. Another critical gap lies in the scarcity of gender-disaggregated data and context-specific QoL indicators that reflect the unique realities of women plantation workers. Therefore, there is a pressing need for a comprehensive

study that links socio-economic variables with quality-of-life dimensions, using empirical analysis to capture the multifaceted nature of women's well-being in coffee plantation communities. Addressing this gap will not only deepen the academic understanding of gendered labour and social inequality but also inform more inclusive and effective development and welfare policies in the plantation economy.

## OBJECTIVES OF THE STUDY

1. To assess the socio-economic status of women labourers in coffee plantations with respect to income, education, occupation, housing conditions, and asset ownership.
2. To evaluate the quality of life of women labourers across multiple domains in study area.
3. To analyze the relationship between socio-economic status and quality of life among women plantation workers.

## Hypotheses of the Study

- ❖ There is a strong, statistically significant positive correlation between socio-economic status (SES index) and quality of life (QoL total) in study area.

## Methodology

The study adopts a descriptive and analytical research design to examine the relationship between Socio-Economic Status (SES) and Quality of Life (QoL) of women labourers in coffee plantations. The research was conducted in Mudigere taluk of Chikmagaluru District of Karnataka, a major coffee-growing region with a high concentration of women workers. A stratified random sampling technique was employed to ensure representation of different groups based on employment type, age, and marital status. Both primary and secondary data were utilized. Primary data were collected from 60 Women coffee workers through a structured interview schedule containing closed and open-ended questions, administered personally in the local language to ensure accuracy. Additionally, Focus Group Discussions (FGDs) and Key Informant Interviews (KII) were conducted with supervisors, social workers, and trade union leaders to gain qualitative insights. Secondary data were obtained from government reports, Coffee Board records, NSSO data, and academic studies. Data were analyzed using descriptive statistics and a Pearson correlation coefficient (r) and t-test to test hypotheses and determine the strength of association between SES and QoL variables. This mixed-method approach provided a comprehensive understanding of the economic, social, and psychological dimensions influencing women's well-being in the coffee plantation sector.

## Coffee Plantation Workers of Chikmagaluru

Chikmagaluru, often called the "Coffee Land of Karnataka," has thousands of coffee plantations spread across Mudigere, Balehonnur, Sringeri, Kalasa, and Koppa taluks. The labour force in these estates is diverse and can be broadly categorized as local workers, intra-state migrants, and inter-state migrants. The coffee plantations of Chikmagaluru district employ a diverse workforce that forms the backbone of the local plantation economy. An estimated 60,000–70,000 workers are engaged directly or indirectly in coffee cultivation, of which nearly 65% are women. The workforce includes permanent, temporary, and migrant labourers, each contributing to different stages of production

**Table 1: Types of Workers in Coffee Plantations of Chikmagaluru**

Type of Workers	% Share of Workforce	Place of Origin	Nature / Type of Work	Duration of Employment	Key Issues / Challenges
<b>Local Workers</b>	35–40%	Within Chikmagaluru District (Mudigere, Sringeri, Kalasa, Aldur, Balehonnur)	Permanent or semi-permanent field labour; planting, weeding, pruning, nursery and processing work	Year-round	Low wage growth, poor housing maintenance, limited education and healthcare, limited social security (PF/ESI only 20–25%)
<b>Intra-State Migrant Workers</b>	45–50%	Other districts of Karnataka (Chitradurga, Davangere, Ballari, Raichur, Koppal, Vijayapura)	Seasonal labour; coffee cherry picking, weeding, cleaning, nursery work	3–5 months (harvest season: Dec–Mar)	Poor housing and sanitation, irregular payment, no social benefits, exploitation by contractors, lack of childcare facilities
<b>Inter-State Migrant Workers</b>	10–15%	From Tamil Nadu, Kerala, Jharkhand, Odisha, Assam	Contract-based or casual labour; berry picking, drying, spraying, grading	2–4 months (mainly harvest season)	Language barriers, poor health access, unsafe housing, lack of social identity documents, wage discrimination
<b>Skilled / Support Workers</b>	5–10% (subset of total workforce)	Mix of local and migrant	Skilled roles like machine operation, spraying, transport, and supervision	Year-round	Long working hours, limited promotion, exposure to chemicals, weak legal protection

Local workers form an integral part of the labour force in the coffee plantations of Chikmagaluru, particularly in estates located around Mudigere, Aldur, Kalasa, Sringeri, and Balehonnur taluks. It is estimated that around 35–40% of the total plantation workforce consists of local residents, many of whom belong to traditional plantation families who have worked on estates for several generations.

These local workers are usually permanent or semi-permanent employees, residing in estate-provided quarters known as “labour lines.” They are engaged throughout the year in activities such as planting, weeding, pruning, manuring, and processing of coffee cherries.

Women constitute nearly 60% of this local labour segment, primarily responsible for weeding and harvesting. Permanent local workers earn ₹12,000–₹15,000 per month, along with limited non-monetary benefits like housing, ration subsidies, and basic healthcare.

However, facilities often remain inadequate, and social security coverage is low—only about 20–25% of them receive provident fund or ESI benefits. Despite steady employment, local workers face challenges like low wage growth, poor housing maintenance, and limited educational access for their children.

Over recent years, many younger locals have migrated to urban areas for better-paying jobs, leading to an increased dependence on migrant labour from other districts and states. Nonetheless, the contribution of local workers remains fundamental to maintaining the stability and continuity of coffee cultivation in Chikmagaluru's plantations.

Migrant labour forms a vital component of the workforce in the coffee plantations of Chikmagaluru district. It is estimated that nearly 55–65% of the total plantation labour force during the peak harvest season (December to March) comprises migrant workers, translating to around 30,000–35,000 labourers moving into the district each year. Of these, approximately 70% are women, primarily engaged in berry picking, weeding, and cleaning operations. Most migrants originate from drought-prone districts of North and Central Karnataka such as Chitradurga, Davangere, Ballari, Raichur, and Koppal, while around 15–20% come from neighbouring states like Tamil Nadu and Kerala, and a small but rising share—about 5–8%—arrives from Jharkhand, Assam, and Odisha. Workers generally migrate in groups through contractors and stay for 3–5 months, living in temporary sheds or tents provided by estate owners. Daily wages average ₹450–₹600, or around ₹15–₹18 per kilogram of coffee cherry picked, depending on the estate. However, only about 10–15% of these workers are formally registered or receive social-security benefits. Most lack access to safe water, sanitation, and healthcare. Women migrants frequently face issues such as wage discrimination, long working hours, and inadequate childcare facilities. Despite these challenges, seasonal migration remains an important livelihood strategy for rural families facing limited opportunities at home. The dependence on migrant labour in Chikmagaluru has steadily increased over the past decade as local youth move toward urban employment, making these workers the true backbone of the district's coffee economy.

## **SURVEY BASED ANALYSIS AND DATA INTERPRETATION**

A survey of twenty villages Mudigere taluk of Chikmagaluru district of Karnataka state has been conducted 60 of Coffee workers have been interviewed through questionnaire. The research findings are as follows,

**Table 2: Socio-Demographic Characteristics of Women Workers in Coffee Plantations (n=60)**

Characteristics		Respondents	Percentage	Rank
Distribution of Age	20 to 30	15	25.00	03
	30 to 40	18	30.00	02
	40 and above	27	45.00	01
Qualification	Illiterate	15	25.00	03
	Primary School	18	30.00	02
	Higher Primary School	20	33.33	01
	PUC and above	07	11.67	04
Occupation	Only Coffee works	30	50.00	01
	Any work (Kooli)	10	16.67	03

	Agriculture and agricultural labourer	20	33.33	02
Types of Workers	Local Workers	28	46.67	01
	Intra-State Migrant Workers	12	20.00	03
	Inter-State Migrant Workers	20	33.33	02
Years of experience in Coffee Work	Up to 5 years	05	8.33	03
	5 to 10 years	35	58.33	01
	10 to 15 years	20	33.33	02
Distribution of House hold Monthly income	Up to 5000	13	21.67	03
	5001 to 7000	13	21.67	02
	7001 to 9000	17	28.33	03
	9001 to 12000	17	28.33	04
Land Ownership	Yes	24	40.00	02
	No	36	60.00	01
Type of House	Kutcha	30	50.00	01
	Semi-pucca	24	40.00	02
	Pucca	6	10.00	03
No of Assets Holding	1	18	30.00	01
	2	18	30.00	02
	3	12	20.00	03
	4	12	20.00	04
Moade of payment	Daily wages	05	8.33	03
	Monthly	30	50.00	01
	Contract	25	41.67	02

(Source: field survey)

- Distribution of Age:** Women workers are predominantly older, with 45% aged 40 and above. This indicates that older women form the backbone of labor in coffee plantations, likely due to experience and availability for seasonal work. Younger women (20–30 years) make up only 25%, suggesting lower participation from the youth, which may impact future workforce sustainability.
- Qualification:** Educational attainment is generally low among plantation workers. One-third (33.33%) have completed higher primary school, 30% have primary education, and 25% are illiterate. Only a small proportion (11.67%) have completed PUC or higher, reflecting limited access to formal education and training. This low literacy may restrict awareness of rights, government schemes, and opportunities for alternative employment.
- Occupation:** Half of the respondents (50%) work exclusively in coffee plantations, while 33.33% combine it with agricultural labor, and 16.67% perform other informal work (Kooli). This shows that coffee plantations are the main source of livelihood but women diversify work to supplement income.
- Types of Workers:** Local women constitute 46.67% of the workforce, inter-state migrants 33.33%, and intra-state migrants 20%. This mix highlights reliance on both local and migrant labor, with locals slightly dominating, indicating some stability in the workforce composition.
- Years of Experience:** Most women (58.33%) have 5–10 years of experience, suggesting moderate expertise. Workers with 10–15 years experience account for 33.33%, indicating the retention of experienced labor, while only 8.33% are newcomers, showing a slow influx of new workers.

- **Household Monthly Income:** A large portion earns between ₹7001–12000 (28.33% each), with 21.67% in the lower income bracket (up to ₹5000). The data indicate that while some households earn moderate income, a significant number remain in low-income categories, reflecting economic vulnerability.
- **Land Ownership:** Only 40% of women own land, whereas 60% do not. Lack of land ownership emphasizes financial insecurity and dependence on plantation wages.
- **Type of House:** Half of the respondents live in kutcha houses (50%), 40% in semi-pucca, and only 10% in pucca houses, reflecting generally poor housing conditions and limited access to proper shelter.
- **Number of Assets Holding:** Majority (60%) have only 1–2 assets, while 40% have 3–4 assets. This limited asset ownership shows constrained wealth and low economic resilience.
- **Mode of Payment:** Most women receive monthly wages (50%), followed by contract payments (41.67%) and daily wages (8.33%). This suggests some regularity in income but a considerable proportion still relies on contract-based work, which may be less secure.

### **Living Conditions for Women Labourers in Coffee Plantation in Chikmagalur**

Coffee plantation workers in Chikmagalur are primarily migrant laborers from states like Assam and West Bengal, forming a crucial workforce for the labor-intensive industry, especially during the harvest season. Their work involves various tasks from planting to harvesting, with wages varying by operation type and worker status. However, workers have also faced issues such as labor shortages, poor living conditions, and, in some cases, exploitation and unfair labor practices, leading to calls for improved wages, benefits, and enforcement of labor laws, which are often worsened by patriarchal and feudal cultures persisting on some estates. They also experience health problems related to their work and exposure to pesticides.

Living conditions for Women Labourers in coffee plantation in Chikmagalur are often poor, with inadequate housing, sanitation, and healthcare access, particularly for smallholder farms. While larger plantations may offer better conditions, many workers live in cramped, poorly maintained housing and face issues like leaky roofs, especially during monsoons. Many workers, particularly migrant laborers, also contend with health problems exacerbated by poor living conditions and malnutrition.

### **Housing and infrastructure**

- **Inadequate housing:** Many workers live in houses made of mud walls with roofs thatched with leaves, which can lead to leaks during the rainy season. Some quarters are described as being in "cattle shed" conditions.
- **Overcrowding:** During the pandemic, workers were often housed in cramped dormitories, and while some estates tried to provide more space, it was still not ideal.
- **Lack of basic amenities:** There is often a lack of basic amenities, including clean water supply and sufficient sanitation facilities.

### **Health and sanitation**

- **Poor health outcomes:** Living conditions can lead to a high prevalence of diseases, with some studies showing child and infant mortality rates twice the national average.
- **Malnutrition:** Malnutrition is a significant issue, especially among women plantation workers, contributing to related diseases and overall poor health.
- **Limited access to healthcare:** Workers frequently lack access to modern medical centers.

- **Unhygienic sanitation:** Many workers use unhygienic sanitation facilities.

### Social and economic challenges

- **Harassment:** Some studies have highlighted issues like sexual harassment faced by women workers.
- **Child labor:** Child labor is also prevalent, as families may bring their children to work to supplement their income.
- **Alcoholism:** Alcohol abuse is a common problem on some estates, and it is sometimes even provided by the estate owners.
- **Migrant worker issues:** Migrant workers, who make up a significant portion of the workforce, can face additional challenges, such as communication barriers due to a lack of knowledge of local languages and difficulty accessing medical care.

### Testing of Hypotheses

#### Hypotheses of the Study

- ❖ There is a strong, statistically significant positive correlation between socio-economic status (SES index) and quality of life (QoL total) in study area.

#### Socio-Economic Status (SES index)

SES is usually a composite index combining several measurable indicators that reflect a respondent's economic and social position. For coffee plantation women labourers, typical indicators can include:

Domain	Indicator	Measurement	Coding Example	Example
<b>Income</b>	Monthly personal/household income	₹/month	Monthly Income / Max (Monthly Income)	$10500 \rightarrow 0.875$ $10500 / 12000 = 0.875$
<b>Education</b>	Highest level completed	Ordinal	1 = Illiterate, 2 = Primary, 3 = High school.	$3 \rightarrow 1$
<b>Housing</b>	Type of house / ownership	Ordinal	1 = Kutcha, 2 = Semi-pucca, 3 = Pucca	$2 \rightarrow 0.667$
<b>Assets</b>	Ownership of assets (radio, TV, mobile, livestock, etc.)	Count or index	0-5 score	$4 \rightarrow 0.8$
<b>Land Ownership</b>	Whether family owns land	Binary	0 = No, 1 = Yes	$1 \rightarrow 1$

#### Compute SES index

$$SES\_index_i = Monthly\_Income_{norm} + Education_{norm} + HouseType_{norm} + LandOwned_{norm} + AssetScore_{norm}$$

$$SES\_index_{14} = 0.875 + 1 + 0.667 + 0.8 + 1 = 4.342$$

### Quality of Life (QoL total)

Quality of life reflects physical, psychological, social, and environmental well-being.

Domain	Example Indicators	Measurement
<b>Physical health (P1–P7, 7 items)</b>	Energy and fatigue, Pain and discomfort, Sleep and rest, Mobility, Daily activities, Dependence on medication or treatment and Overall physical health	5-point Likert scale (1 = Very poor to 5 = Very good) P1 + P2 + ... + P7 (range 7–35)
<b>Psychological well-being (Psy1–Psy6, 6 items)</b>	Positive feelings, Thinking, learning, memory, and concentration, Self-esteem, Body image and appearance, Negative feelings and Spirituality/religion/personal beliefs.	5-point Likert Psy1 + ... + Psy6 (range 6–30)
<b>Social relationships (Soc1–Soc3, 3 items)</b>	Personal relationships, Social support and Sexual activity/intimacy satisfaction	5-point Likert Soc1 + Soc2 + Soc3 (range 3–15)
<b>Environment (Env1–Env8, 8 items)</b>	Financial resources, Physical safety and security, Health and social care access, Home environment, Opportunities for leisure, Physical environment, Transport and mobility and Opportunities for acquiring new skills or knowledge	5-point Likert Env1 + ... + Env8 (range 8–40)

### Compute Total QoL

$$QoL_{total_i} = Physical\_score + Psychological\_score + Social\_score + Environmental\_score$$

#### Example:

- Physical:  $4+4+5+4+4+4+4 = 29$
- Psychological:  $4+4+4+4+4+4 = 24$ 
  - Social:  $4+4+4 = 12$
- Environmental:  $4+4+4+4+4+4+4+4 = 32$

$$QoL_{total_{14}} = 29 + 24 + 12 + 32 = 97$$

### Pearson Correlation

Measure linear association between SES index and QoL total.

$$r = \frac{\sum_{i=1}^n (SES_i - \bar{SES})(QoL_i - \bar{QoL})}{\sqrt{\sum_{i=1}^n (SES_i - \bar{SES})^2 \sum_{i=1}^n (QoL_i - \bar{QoL})^2}}$$

### Result Details & Calculation

<p><b>X Values</b>  <math>\Sigma = 186.875</math>          Mean = 3.115  <math>\Sigma(X - M_x)^2 = SS_x = 48.374</math></p> <p><b>Y Values</b>  <math>\Sigma = 4735</math>          Mean = 78.917  <math>\Sigma(Y - M_y)^2 = SS_y = 16230.583</math></p> <p><b>X and Y Combined</b>  <math>N = 60</math>  <math>\Sigma (X - M_x)(Y - M_y) = 845.048</math></p> <p><b>R Calculation</b>  <math>r = \sum ((X - M_y)(Y - M_x)) / \sqrt{((SS_x)(SS_y))}</math>  <math>r = 845.048 / \sqrt{(48.374)(16230.583)} = 0.9537</math></p> $r = \frac{\Sigma(x_i - \bar{x})(y_i - \bar{y})}{\sqrt{(\Sigma(x_i - \bar{x})^2 \Sigma(y_i - \bar{y})^2)}}$ $r = \frac{845.0479}{\sqrt{(48.3741 * 16230.5833)}} = 0.9537$ <p style="background-color: yellow;"><b>r = 0.9537</b></p>	<p><b>t-test for Significance:</b></p> $t = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}}$ $df = n - 2$ $t = \frac{0.9537\sqrt{60-2}}{\sqrt{1-0.9537^2}}$ $t = \frac{0.9537 \times 7.6158}{0.3008} = \frac{7.2625}{0.3008} \approx 24.144$ <p style="background-color: yellow;"><b>The calculated t -value is approximately 24.144</b></p>														
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center; padding: 2px;">Parameter</th><th style="text-align: center; padding: 2px;">Value</th></tr> </thead> <tbody> <tr> <td style="text-align: center; padding: 2px;">Pearson correlation coefficient (r)</td><td style="text-align: center; padding: 2px;"><b>0.9537</b></td></tr> <tr> <td style="text-align: center; padding: 2px;"><math>r^2</math></td><td style="text-align: center; padding: 2px;">0.9095</td></tr> <tr> <td style="text-align: center; padding: 2px;">P-value</td><td style="text-align: center; padding: 2px;">0</td></tr> <tr> <td style="text-align: center; padding: 2px;">Covariance</td><td style="text-align: center; padding: 2px;">14.3228</td></tr> <tr> <td style="text-align: center; padding: 2px;">Sample size (n)</td><td style="text-align: center; padding: 2px;">60</td></tr> <tr> <td style="text-align: center; padding: 2px;"><b>Statistic</b></td><td style="text-align: center; padding: 2px;"><b>24.1469</b></td></tr> </tbody> </table>	Parameter	Value	Pearson correlation coefficient (r)	<b>0.9537</b>	$r^2$	0.9095	P-value	0	Covariance	14.3228	Sample size (n)	60	<b>Statistic</b>	<b>24.1469</b>
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Pearson correlation indicated that there is a significant large positive relationship between X and Y, ( $r (58) = .954, p < .001$ ). And  $t$  -value of 24.144, with degrees of freedom  $df = n - 2 = 58$ , indicates a highly statistically significant correlation. Since the absolute value of the calculated  $t$  is very large, it provides strong evidence to reject the null hypothesis, which states that There is a strong, statistically significant positive correlation between socio-economic status (SES index) and quality of life (QoL total) in study area.

## CONCLUSION

Women labourers form the backbone of the coffee plantation workforce in Chikmagaluru, performing critical roles in planting, weeding, pruning, berry picking, and post-harvest processing. They constitute a majority of the workforce, yet face significant challenges such as low wages, seasonal employment, inadequate housing, limited access to healthcare and education, and lack of social security. The study highlights that the socio-economic status (SES) of women workers including income, education, occupation, and asset ownership has a direct and significant influence on their overall quality of life (QoL), affecting physical, psychological, social, and environmental well-being. The findings indicate a strong positive correlation ( $r (58) = 0.954, p < 0.001$ ), with a  $t$ -value of 24.144 indicating high

statistical significance. These findings suggest that higher socio-economic status is closely associated with improved quality of life among women coffee workers. The study underscores the need for targeted interventions to enhance economic, educational, and social support for women labourers, which can contribute to both individual well-being and the sustainability of the coffee sector in Chikmagaluru.

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