



## FOOD SECURITY STATUS AND SOCIOECONOMIC DETERMINANTS OF CALORIE INTAKE AMONG FEMALE READY-MADE GARMENT WORKERS IN BANGLADESH

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### ABSTRACT

Despite the significant contribution of Bangladesh's ready-made garment (RMG) industry to national economic growth, concerns persist about the food security and nutritional well-being of its workforce, particularly female workers who are vulnerable due to low wages and rising living costs. This study assessed the socioeconomic characteristics and food security status of female garment workers, examined how socioeconomic factors influence calorie intake, and identified the major constraints affecting their food security in Gazipur district, Bangladesh. Primary data were collected from 100 female garment workers, predominantly helpers, through a field survey using a semi-structured interview schedule. Descriptive statistics, calorie intake analysis, and a multiple linear regression model were used to analyze the data. The findings revealed that the average daily calorie intake was 1,976 kcal per person, below the nationally recommended requirement of 2,122 kcal. Consequently, 51% of respondents were classified as absolutely poor, 23% as hardcore poor, and 2% as ultra-poor based on calorie intake. The regression results showed that income and education significantly increased calorie consumption, whereas larger family size reduced calorie intake, highlighting the importance of household socioeconomic conditions in determining food security. Respondents also identified low wages, poor housing conditions, limited leave opportunities, fear of job loss, and inadequate workplace security as major challenges affecting their well-being. The findings suggest that strengthening wage policies in line with inflation, expanding workers' purchasing power, and introducing factory-based subsidized meal programs could substantially improve the food security and nutritional well-being of female garment workers. These measures would not only enhance workers' welfare but also contribute to a healthier and more productive industrial workforce in Bangladesh.

**Keywords:** Bangladesh; ready-made garment industry; female workers; food security; calorie intake.

### INTRODUCTION

The ready-made garment (RMG) industry has been the driving force behind Bangladesh's export-led industrialization and remains one of the country's most important economic sectors. Over the past four decades, the industry has grown from a small export-oriented initiative into the world's second-largest apparel exporter after China, making a substantial contribution to national employment, foreign exchange earnings, and economic growth (ILO, 2024; BGMEA, 2025). The sector currently accounts for nearly four-fifths of the country's export earnings and continues to play a pivotal role in Bangladesh's economy (BGMEA, 2025). Despite its remarkable economic contribution, the benefits of this growth have not been equally reflected in the living conditions of many garment workers, particularly women, who continue to face low wages, rising living costs, and heightened vulnerability to food insecurity (CPD, 2024; Syed & Karim, 2025).

Beyond its economic contribution, the RMG industry has played a transformative social role by creating formal employment opportunities for more than four million workers, the majority of whom are women (ILO, 2024; BGMEA, 2025). Employment in the sector has significantly enhanced women's labour force participation, household income, economic empowerment, and decision-making within families (ILO, 2024; Syed & Karim, 2025). However, despite these achievements, female garment workers continue to experience multiple forms of workplace vulnerability, including occupational health risks, gender discrimination, workplace harassment,



inadequate maternity protection, job insecurity, and limited legal protection (Moin et al., 2020; Akter, 2021; Haque et al., 2020; Tejani & Fukuda-Parr, 2021; Syed et al., 2021). These persistent challenges not only undermine workers' quality of life but also limit their ability to achieve adequate nutrition and sustainable livelihoods.

According to the Food and Agriculture Organization (FAO), food security exists when all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food to maintain an active and healthy life (FAO, 2006). Recent studies further emphasize that women are disproportionately affected by food insecurity because of structural inequalities, limited access to productive resources, and socioeconomic vulnerabilities, making gender an important dimension of food security (Gana et al., 2025). For low-income female garment workers, however, achieving this condition remains a considerable challenge despite participation in formal employment. Although employment in the RMG sector has improved income opportunities for millions of women, economic participation alone does not necessarily guarantee adequate living standards or food security. Many female garment workers continue to receive relatively low wages while facing persistent inflation and increasing living expenses, limiting their ability to purchase sufficient and nutritious food. Consequently, food insecurity remains a persistent concern among low-income female garment workers, with important implications for their nutritional status, health, and work productivity.

Although previous studies have documented the challenges faced by Bangladesh's ready-made garment workers, important research gaps remain. Existing studies have largely focused on labour welfare, workplace conditions, occupational health, workers' rights, and compliance with labour standards (Islam, 2019; Uddin et al., 2023; Syed & Karim, 2025). Other studies have highlighted the prevalence of food insecurity among female garment workers and identified income as an important determinant of calorie intake and household food access (Sharmin et al., 2019; Haque & Islam, 2025). Similar concerns have also been documented among other low-income industrial workers in South Asia, where household food security remains closely associated with income and household composition (Imran & Ali, 2024). However, limited empirical evidence simultaneously examines the socioeconomic characteristics, calorie intake, wage effects, and food security status of female garment workers using household-level primary data. Furthermore, much of the existing evidence predates the recent period of persistent inflation and rising food prices, which have substantially increased the cost of living for low-income urban households in Bangladesh (CPD, 2024). One of the few empirical studies on female garment workers in Bangladesh reported that nearly 60% of workers consumed below the recommended calorie requirement and that wages and wage adequacy significantly influenced food security (Afrad et al., 2015). However, the study was conducted more than a decade ago using data collected in 2013. Given the substantial changes in wage structures, inflation, and food prices in recent years, updated evidence is required to reassess the current food security status of female garment workers. Consequently, there remains a need for updated empirical evidence that explains how current wage levels influence calorie consumption and food security among female garment workers, particularly in major industrial clusters such as Gazipur. Addressing this gap will provide valuable insights for designing evidence-based wage, nutrition, and social protection policies that can improve workers' well-being while supporting the long-term sustainability of Bangladesh's ready-made garment industry.

Against this backdrop, the present study investigates the food security status of female ready-made garment workers in Gazipur, one of Bangladesh's largest industrial hubs with a high concentration of garment factories and workers. Understanding the nutritional condition of this economically important yet vulnerable workforce is essential for developing evidence-based policies that promote both workers' welfare and industrial sustainability. Specifically, the study aims to: (i) examine the socioeconomic characteristics of female garment workers; (ii) assess their calorie intake and food security status; (iii) identify the socioeconomic determinants of per capita calorie intake among female garment workers using a multiple linear regression model; and (iv) identify the major problems faced by female garment workers. The findings are expected to enrich the existing literature on food security among industrial workers while providing evidence-based recommendations for wage policy, nutrition interventions, and social protection programs aimed at improving the well-being of female garment workers and promoting the long-term sustainability of Bangladesh's RMG sector.



## MATERIALS AND METHODS

### Study Area

The study was conducted in Gazipur District, Bangladesh, one of the country's largest ready-made garment (RMG) manufacturing clusters. The district hosts a high concentration of export-oriented garment factories and employs a large number of female garment workers, making it an appropriate location for investigating the food security status of workers in the RMG sector (BGMEA, 2025). Gazipur was purposively selected because of its prominent role in Bangladesh's garment industry and its high concentration of female factory workers, who constitute the target population of this study. The district therefore provides an appropriate setting for examining the socioeconomic characteristics, calorie intake, food security status, and wage-related factors affecting female garment workers.

### Sampling Procedure.

A multistage sampling procedure was employed to select the study respondents. First, Gazipur district was purposively selected because of its high concentration of ready-made garment (RMG) factories. Subsequently, several garment factories were selected based on their accessibility and willingness to participate in the survey. Finally, 100 female garment workers were selected using simple random sampling from employee lists provided by the participating factories. Eligible respondents were full-time female workers aged 18 years or older who had been employed at the factory for at least 6 months and were able to provide information on their household food consumption.

The sample size of 100 respondents was considered appropriate for achieving the study objectives and is comparable to similar household-based studies conducted among garment workers in Bangladesh (Sharmin et al., 2019; Haque & Islam, 2025). The use of random sampling at the respondent level helped minimize selection bias and improve the sample's representativeness.

### Data Collection

Primary data were collected through face-to-face interviews with 100 female garment workers between November and December 2025 using a pre-tested semi-structured questionnaire. The questionnaire gathered information on respondents' socioeconomic characteristics, household income and expenditure, food consumption, calorie intake, and the major challenges affecting their food security. Before each interview, the purpose of the study was explained to the respondents, and informed consent was obtained. Participation was entirely voluntary, and respondents were assured that their responses would remain confidential and be used solely for research purposes. To complement the primary survey, secondary data were collected from the Bangladesh Bureau of Statistics (BBS), the Bangladesh Garment Manufacturers and Exporters Association (BGMEA), the Food and Agriculture Organization (FAO), and other relevant published reports and scientific literature.

### Analytical Techniques

Descriptive statistics were employed to summarize the socioeconomic characteristics of the respondents, including age, education, household size, monthly income, and marital status. Measures of central tendency (mean and median), dispersion (standard deviation), frequencies, and percentages were calculated to describe the sample profile. These analytical techniques have been widely applied in food security and socioeconomic studies to provide an initial understanding of household characteristics and variable relationships (Sharmin et al., 2019; Haque & Islam, 2025). All statistical analyses were conducted using Stata 17, while Microsoft Excel 2021 was used for data entry, cleaning, and preliminary tabulation. The results are presented in tables to facilitate clear interpretation and comparison.

### Calorie Intake Estimation

Per capita daily calorie intake was estimated using the 7-day household food consumption recall method, a widely accepted approach for assessing household dietary intake and food security (FAO, 2018; BBS, 2024). Information on all food items consumed by the household, irrespective of their source (purchased, home-produced, or received as gifts), was collected and converted into calorie values using the Food Composition Table for Bangladesh (INFS, 2013).

To account for differences in energy requirements across household members, household size was converted into adult equivalent units (AEUs) using the modified OECD equivalence scale proposed by Hagenaars et al. (1994), assigning weights of 1.0 for individuals aged  $\geq 10$  years, 0.5 for children aged 5–10 years, and 0.3 for children below 5 years. Per capita daily calorie intake was then calculated by dividing the total household calorie consumption by the total number of adult equivalent units and the recall period (7 days), as follows:

$$\text{Daily calorie intake} \left( \frac{\text{kcal}}{\text{AEU day}} \right) = \frac{\text{Total household calorie consumption during 7 days}}{\text{Adult equivalent household size} \times 7}$$

While the seven-day recall method provides reliable estimates of short-term consumption, potential recall bias is acknowledged as a limitation. To mitigate this, respondents were guided with probing questions and cross-checked against typical household food purchase records.

### Econometric Model

To examine the socioeconomic determinants of calorie intake among female garment workers, a multiple linear regression model was employed. The model was selected because the dependent variable, per capita daily calorie intake, is continuous, allowing the estimation of the direction and magnitude of the relationship between calorie intake and the explanatory variables (Rahman, 2026; CPD, 2024; Wooldridge, 2020). The model was specified as:

$$Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \dots + \beta_k X_{ki} + \epsilon_i \dots \dots \dots (i)$$

where  $Y_i$  represents per capita daily calorie intake,  $X_{1i} \dots \dots X_{ki}$  denotes explanatory variables,  $\beta_0$  is the intercept,  $\beta_{1i} \dots \dots \beta_{ki}$  are regression coefficients, and  $\epsilon_i$  is the error term. The explanatory variables were selected based on economic theory, previous empirical evidence, and the objectives of the study. In particular, monthly income, family size, and education were included because previous studies have consistently identified them as important determinants of household food security and nutritional outcomes (Sharmin et al., 2019; Haque & Islam, 2025; FAO et al., 2023). Monthly income reflects household purchasing power and access to food, family size captures the pressure of household resource allocation on per capita food availability, and education serves as a proxy for nutritional awareness and informed food choices. A parsimonious model specification was adopted because the study was based on a relatively small cross-sectional sample ( $n = 100$ ), thereby minimizing the risk of overfitting while improving the stability and interpretability of the estimated coefficients. All econometric analyses were conducted using Stata 17. The estimated model was evaluated using the coefficient estimates, their statistical significance, the coefficient of determination ( $R^2$ ), and the overall F-statistic. 3. Results and Discussion:

### SOCIOECONOMIC CHARACTERISTICS OF THE RESPONDENTS

The socioeconomic characteristics of the surveyed female garment workers are presented in Table 1. These characteristics provide important insights into the demographic and household conditions that influence workers' food consumption, nutritional status, and overall food security.

The age distribution indicates that the ready-made garment (RMG) workforce in the study area is predominantly composed of young and economically active women. The respondents' ages ranged from 18 to 45 years, with a mean age of 28.08 years and a median age of 26 years. More than three-quarters (77%) of the respondents belonged to the 21–30 years age group, while only 10% were older than 35 years. This finding reflects the labor-intensive nature of Bangladesh's garment industry, where employers generally prefer younger workers because of their physical endurance and ability to cope with long working hours. Similar age patterns have been reported among female garment workers in Bangladesh by Sharmin et al. (2019) and Syed and Karim (2025), suggesting that the sector continues to rely heavily on young female labor.

Educational attainment among the respondents was generally low. Nearly half of the workers (47%) had completed secondary education, while 31% had primary education. Only 14% had completed higher secondary education, one respondent had attained graduate-level education, and 7% had no formal education.

The relatively low level of educational attainment may restrict employment opportunities outside the garment sector and limit workers' bargaining power, thereby increasing their economic vulnerability. Previous studies have similarly reported that most female garment workers possess only primary or secondary education, reflecting the sector's accessibility to women with limited formal schooling (Islam, 2019; Syed & Karim, 2025). The household structure of the respondents was characterized by relatively small family sizes. The average household size was 3.15 members, which is lower than the national average household size of 4.26 reported by the Bangladesh Bureau of Statistics (BBS, 2022). Approximately 42% of respondents belonged to households with three to four members, whereas 41% lived in households with one to two members. Only 5% reported households comprising more than six members. Although smaller households generally experience lower consumption pressure, larger households are more likely to face food insecurity because limited household resources must be shared among a greater number of dependents. This observation is consistent with previous studies identifying household size as an important determinant of food security and calorie consumption among low-income households in Bangladesh (Sharmin et al., 2019; Haque & Islam, 2025).

**Table 1. Socioeconomic characteristics of the surveyed female garment workers (n = 100)**

| Variable    | Category/Statistic | Frequency | Percentage (%) |
|-------------|--------------------|-----------|----------------|
| Age (years) | 16–20              | 3         | 3.0            |
|             | 21–25              | 19        | 19.0           |
|             | 26–30              | 58        | 58.0           |
|             | 31–35              | 10        | 10.0           |
|             | 36–40              | 5         | 5.0            |
|             | 41–45              | 5         | 5.0            |
| Education   | Illiterate         | 7         | 7.0            |
|             | Primary            | 31        | 31.0           |
|             | Secondary          | 47        | 47.0           |
|             | Higher Secondary   | 14        | 14.0           |
|             | Graduate           | 1         | 1.0            |
| Family size | 1–2                | 41        | 41.0           |
|             | 3–4                | 42        | 42.0           |
|             | 5–6                | 12        | 12.0           |
|             | >6                 | 5         | 5.0            |

Source: Field survey, 2025

## INCOME AND EXPENDITURE PROFILE OF FEMALE GARMENT WORKERS

Table 2 presents the monthly income and expenditure of the sampled female garment workers. The respondents earned an average monthly income of Tk. 17,777, while their average monthly expenditure was Tk. 14,972, indicating an average monthly surplus of approximately Tk. 2,805. The close correspondence between the mean and median values for both income and expenditure suggests that the distributions were relatively balanced, with limited influence from extreme observations.

Monthly income exhibited relatively low variation, ranging from Tk. 14,000 to Tk. 22,400 with a standard deviation of Tk. 1,497.33, reflecting the relatively uniform wage structure prevailing in the garment industry. In contrast, monthly expenditure showed considerably greater variability (standard deviation = Tk. 2,966.07), ranging from Tk. 6,000 to Tk. 20,000, indicating substantial differences in household consumption requirements and financial obligations among the respondents.

Although the respondents reported a positive average balance between income and expenditure, the remaining disposable income was relatively limited after meeting routine household expenses. Given the rising cost of living and food prices in Bangladesh, such a modest financial margin may constrain households' ability to purchase adequate and nutritious food, thereby increasing their vulnerability to food insecurity. Similar findings have been reported by Sharmin et al. (2019) and Haque and Islam (2025), who observed that limited household income and expenditure capacity significantly influence the food security status of female garment workers in Bangladesh.

**Table 2. Summary statistics of respondents' monthly income and expenditure (Tk./month)**

| Variable           | Income (Tk.) | Expenditure (Tk.) |
|--------------------|--------------|-------------------|
| Mean               | 17,777       | 14,972            |
| Median             | 18,000       | 15,000            |
| Minimum            | 14,000       | 6,000             |
| Maximum            | 22,400       | 20,000            |
| Standard deviation | 1,497.33     | 2,966.07          |

Source: Field survey, 2025

## FOOD SECURITY STATUS BASED ON DAILY PER CAPITA CALORIE INTAKE

As presented in Table 3, more than half of the respondents (51%) were classified as absolute poor based on their daily per capita calorie intake, while 23% belonged to the hardcore poor category and 2% were categorized as ultra-poor. Only 24% of the respondents consumed more than 2,122 kcal/person/day and were therefore classified as non-poor. Overall, 76% of the surveyed female garment workers failed to meet the national calorie threshold, indicating that inadequate dietary energy intake remains widespread despite their participation in formal employment. These findings are consistent with Afrad et al. (2015), who reported that 60% of female garment workers in Gazipur consumed below the recommended calorie requirement and found wage adequacy to be a significant determinant of food security. The higher proportion observed in the present study may reflect the increasing pressure of food price inflation and rising living costs experienced by low-income households in recent years.

The predominance of respondents in the absolute poor and hardcore poor categories suggests that regular employment in the ready-made garment sector does not necessarily ensure adequate food consumption. Similar evidence has been reported among low-income industrial workers in South Asia. Imran and Ali (2024), using the Core Food Security Model (CFSM), found that although most beedi-worker households in West Bengal were food secure, a proportion of low-income households remained food insecure, particularly those with greater household responsibilities, highlighting the continued influence of income constraints on household food security. Relatively low wages, persistent food price inflation, and increasing household living costs likely constrain workers' ability to obtain sufficient and nutritious diets. Similar findings have been reported among female garment workers in Bangladesh, where food insecurity was found to affect nearly three-quarters of workers and was closely associated with inadequate dietary intake and poorer nutritional outcomes (Sharmin et al., 2020; Haque & Islam, 2025).

These findings also align with broader evidence showing that poor labour welfare, limited purchasing power, and inadequate social protection continue to undermine the health and well-being of garment workers in Bangladesh (Syed & Karim, 2025; Ahmed et al., 2021). Improving wage adequacy together with nutrition-sensitive social protection measures would therefore be essential to enhance food security and support a healthier and more productive workforce.

**Table 3. Distribution of respondents according to daily per capita calorie intake**

| Food security category | Daily calorie intake (kcal/person/day) | Number of respondents | Percentage (%) | Average calorie intake (kcal/person/day) |
|------------------------|----------------------------------------|-----------------------|----------------|------------------------------------------|
| Ultra poor             | <1600                                  | 2                     | 2.0            | 1556.00                                  |
| Hardcore poor          | 1600–1804                              | 23                    | 23.0           | 1730.39                                  |
| Absolute poor          | 1805–2121                              | 51                    | 51.0           | 1969.69                                  |
| Non-poor               | ≥2122                                  | 24                    | 24.0           | 2260.00                                  |
| <b>Total</b>           | —                                      | <b>100</b>            | <b>100.0</b>   | —                                        |

Source: Field survey, 2025

## DETERMINANTS OF PER CAPITA CALORIE INTAKE AMONG FEMALE GARMENT WORKERS

The multiple linear regression results presented in Table 4 indicate that monthly income, family size, and education significantly influence the per capita daily calorie intake of female garment workers. The model explains approximately 41% of the variation in calorie intake ( $R^2 = 0.41$ ), and the overall regression is statistically significant ( $F = 21.67$ ), suggesting that the selected socioeconomic variables jointly provide a satisfactory explanation of variations in household calorie consumption.

Monthly income exhibits a positive and highly significant effect on calorie intake ( $\beta = 0.045$ ,  $p < 0.01$ ), indicating that higher earnings improve workers' ability to purchase sufficient and nutritious food. This finding reflects the central role of purchasing power in determining household food consumption, particularly among low-income wage earners whose food expenditure constitutes a large proportion of total household expenditure. The result is consistent with previous studies conducted among female garment workers in Bangladesh, which found that wage adequacy and household income are positively associated with food security and dietary intake (Afrad et al., 2015; Sharmin et al., 2019; Haque & Islam, 2025). Similar evidence has also been reported in broader food security research, where household income remains one of the strongest predictors of food access and nutritional adequacy (FAO et al., 2023).

Family size has a negative and statistically significant effect on per capita calorie intake ( $\beta = -28.63$ ,  $p < 0.05$ ), implying that larger households tend to experience lower calorie availability per household member. This finding suggests that limited household resources must be shared among more family members, reducing per capita food consumption when income does not increase proportionately. Similar relationships have been documented in Bangladesh and other developing countries, where increasing household size places additional pressure on food budgets and contributes to higher food insecurity among low-income households (Sharmin et al., 2019; Haque & Islam, 2025; FAO et al., 2023).

Education also exerts a positive and statistically significant influence on calorie intake ( $\beta = 6.12$ ,  $p < 0.05$ ), indicating that workers with higher educational attainment are more likely to achieve better nutritional outcomes. Education may improve nutritional awareness, enhance household budgeting and food purchasing decisions, and facilitate access to information regarding healthy dietary practices. This finding is supported by previous studies showing that educational attainment contributes positively to household food security through improved knowledge, resource management, and income-generating opportunities (FAO et al., 2023; Handoko et al., 2026).

Overall, the findings suggest that improving food security among female garment workers requires interventions that extend beyond employment alone. Policies aimed at ensuring adequate wages, strengthening educational opportunities, and supporting households with greater dependency burdens would contribute substantially to improving calorie intake and the nutritional well-being of this economically important workforce.

**Table 4. Determinants of Per Capita Daily Calorie Intake among Female Garment Workers**

| Variables               | Coefficient ( $\beta$ ) | Std. Error | t-value | p-value |
|-------------------------|-------------------------|------------|---------|---------|
| Constant                | 1072.45                 | 210.32     | 5.10    | <0.001  |
| Monthly income (Tk.)    | 0.045***                | 0.012      | 3.75    | <0.001  |
| Household size          | -28.63**                | 9.45       | -3.03   | 0.003   |
| Education (years)       | 6.12**                  | 2.88       | 2.12    | 0.036   |
| <b>Model Statistics</b> |                         |            |         |         |
| Observations            | 100                     |            |         |         |
| R <sup>2</sup>          | 0.41                    |            |         |         |
| F-statistic             | 21.67***                |            |         |         |

Source: Field Survey, 2025.

Note: \*\*\*p < 0.01; \*\*p < 0.05; \*p < 0.10.

## MAJOR PROBLEMS FACED BY FEMALE GARMENT WORKERS

Table 5 presents the major problems perceived by the surveyed female garment workers. Low salary was the most frequently reported problem, identified by 55% of respondents, followed by housing problems (48%), limited educational attainment (34%), communication difficulties (29%), and fear of dismissal (20%). Vacation facilities (12%), eve teasing (9%), and sexual harassment (2%) were reported less frequently.

The predominance of low salary and housing problems indicates that economic hardship remains the primary challenge faced by female garment workers. Inadequate wages, together with increasing housing and living costs, reduce workers' purchasing power and limit their ability to afford sufficient and nutritious food.

This finding is consistent with the earlier results of this study, where 76% of respondents were classified as calorie deficient, and also agrees with previous studies that identified wage inadequacy as a major contributor to food insecurity among garment workers in Bangladesh (Afrad et al., 2015; Sharmin et al., 2019; Haque & Islam, 2025).

Limited educational attainment and fear of dismissal were also important concerns reported by the respondents. Low education may restrict opportunities for skill development and higher-paying employment, while job insecurity can further reduce household economic stability. Similar challenges have been highlighted in studies on the Bangladesh garment sector, which emphasize that low wages, limited employment security, and inadequate labour protection continue to constrain workers' welfare (Akter, 2021; Syed et al., 2021; Syed & Karim, 2025).

Overall, the findings suggest that improving food security among female garment workers requires not only adequate wages but also better housing conditions, educational opportunities, and greater employment security.

**Table 5. Perceived Major Problems Faced by Female Garment Workers**

| Problems                   | First Rank n (%) | Second Rank n (%) | Total n (%) |
|----------------------------|------------------|-------------------|-------------|
| Low salary                 | 40 (40.0)        | 15 (15.0)         | 55 (55.0)   |
| Housing problem            | 28 (28.0)        | 20 (20.0)         | 48 (48.0)   |
| Limited education          | 14 (14.0)        | 20 (20.0)         | 34 (34.0)   |
| Communication difficulties | 12 (12.0)        | 17 (17.0)         | 29 (29.0)   |
| Fear of dismissal          | 9 (9.0)          | 11 (11.0)         | 20 (20.0)   |
| Limited vacation           | 4 (4.0)          | 8 (8.0)           | 12 (12.0)   |
| Eve teasing                | 5 (5.0)          | 4 (4.0)           | 9 (9.0)     |
| Sexual harassment          | 0 (0.0)          | 2 (2.0)           | 2 (2.0)     |

Source: Field Survey, 2025.

## CONCLUSION

The ready-made garment (RMG) sector remains a cornerstone of Bangladesh's economy, yet this study finds that many female garment workers continue to experience inadequate food security despite being employed in formal settings. The results show that 76% of the respondents consumed fewer than 2,122 kcal per person per day, indicating that the majority failed to meet the national calorie requirement. Monthly income, family size, and education were identified as significant determinants of per capita calorie intake. Higher income and educational attainment were associated with improved calorie consumption, whereas larger household size reduced per capita calorie intake. In addition, low salary, housing costs, limited educational attainment, communication difficulties, and fear of dismissal emerged as the major problems reported by the respondents, reflecting the economic and social challenges faced by female garment workers.

The findings suggest that employment alone may not ensure adequate food security when household purchasing power is constrained by rising living costs. Improving the nutritional well-being of female garment workers therefore requires coordinated policy interventions that strengthen both economic and social protection. Priority should be given to ensuring adequate and inflation-adjusted wages, promoting nutrition-sensitive workplace initiatives such as subsidized meal programs, improving access to affordable housing, and expanding educational and awareness programs that support informed dietary choices. Such measures would contribute not only to improving workers' food security and well-being but also to enhancing labour productivity and supporting the long-term sustainability of Bangladesh's ready-made garment industry.



## CONFLICT OF INTEREST

The authors declare that there is no conflict of interest regarding the publication of this paper.

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