**Understanding Stress in Farm Women: An Analysis of Contributing Factors**

**Abstract**

With increasing rural-to-urban migration by men, Indian agriculture is experiencing "feminization," where women take on key roles as cultivators, labourers, and entrepreneurs. They often face a heavy workload and significant stress due to the demanding nature of farm work combined with their domestic responsibilities, including childcare and household chores, with limited access to resources and support, leading to physical and mental stress or health concerns .The stress experienced by farm women can harm sustainable agriculture by reducing productivity, impairing decision-making, and decreasing resilience to environmental challenges. The number of studies related to the stress and well-being of women in farming are still relatively small thus, research has been conducted in Coochbehar and Alipurduar districts of West Bengal, to study the level of stress of the farm women as well as the factors contributing to it. The study has also generated measures to reduce the stress level among the farm women. The study employed an ex post facto research design and a mix method approach in collecting data. A stratified simple random sampling technique was used for the study. A stratified random sampling technique was used to ensure representation of different groups. The state, district and blocks were selected purposively whereas, the villages and respondents were selected randomly. The state, districts, and blocks were selected purposively, while villages and respondents were chosen randomly. Data from 100 women, having atleast five years of involvement in agriculture was taken through personal interview method using a structured interview schedule. Data were collected from 100 women with at least five years of experience in agriculture through personal interviews using a structured interview schedule. This study The present study highlights the significant stress experienced by farm women in the Coochbehar and Alipurduar districts of West Bengal, India. The majority of respondents reported medium levels of stress, with environmental concerns, time pressure/workload, and lack of rural amenities being the major contributing factors. External stressors and interpersonal relationships also play a role, albeit to a lesser extent. The findings underscore the need for targeted interventions to address these specific stressors and improve the overall well-being of women in agriculture.

**Key words: farm women, stress, stressors, rural amenities, environmental concern**

**Introduction**

Women constitute a substantial part of India's agricultural workforce, with the 2021-2022 **Periodic Labour Force Survey (PLFS)** reporting that they make up **62.9%** of this sector. In **rural India**, nearly **80%** of women are involved in agriculture, serving as **cultivators (33%)** and **agricultural labourers (47%)**. The increased **rural-to-urban migration** of men has led to the **feminization** of Indian agriculture, where women are increasingly assuming key roles as cultivators, labourers, and entrepreneurs ( Shortall,2015; Wheeler&Lobley,2023).

However, farm women often face **heavy workloads** and **significant stress** due to the combined demands of agricultural tasks and **domestic responsibilities**. This dual burden can lead to **physical and mental stress** and various **health concerns**, adversely affecting **sustainable agriculture** by reducing productivity, impairing decision-making, lowering resilience to **environmental challenges**, and causing **neglect of essential farm practices (**Chatterjee & Acharya .,2020). Despite their crucial role, there is a **lack of research** focused on the sources and impacts of stress on the **quality of life** of women farmers. Present study seeks to **fill this gap** by examining the **stress levels** among farm women and identifying the **factors** that contribute to their stress.

**Methodology**

 An ex post facto study, conducted from January 2024 to August 2024 as part of a Master's degree program, employed a mixed-methods approach to investigate “**Understanding Stress in Farm Women: An Analysis of Contributing Factors”**. The research was carried out in the Coochbehar and Alipurduar districts of West Bengal, India. These districts, along with the selection of Coochbehar I & II and Alipurduar I & II blocks, were chosen purposively due to the high concentration of farm women in the area and the researcher's familiarity with the local context, dialect, and culture, facilitating ease of data collection.

A **random sampling technique** was used to select **four villages**, one from each of the aforementioned blocks. From each village, **25 farm women** with at least **five years** of farming experience were randomly selected, **resulting in a sample size of 100 respondents**

Prior to primary data collection, a **pilot study** was conducted to **refine** the research instruments and methodology. A **preliminary interview schedule** was developed based on a review of **existing literature**, **research papers**, and guidance from the **Advisory Committee**. This schedule was **pre-tested** with a group of **non-sample respondents** to identify areas for improvement and ensure the **clarity and relevance** of the questions. **Necessary modifications** were made based on the feedback received.

Data were collected through **face-to-face interviews** using the **structured interview schedule**. The data were systematically **organized, tabulated, and analyzed** using **Microsoft Excel** and **SPSS (Statistical Package for the Social Sciences)**. **Statistical tools** such as **frequency distribution(**A simple frequency distribution is used to identify the number of farm women distributed on different groups)**, percentages(**Percentage =Frequency ÷ N × 100 [Where, N=number of respondents])**, standard deviation(**S.D=$\sqrt{\frac{\sum\_{}^{}\left(Xi– X\right)}{n-1}}$ Where, Xi = Individual score, X = Mean score, n = Total number of respondents)**, mean(**Sum of the observed values of a set divided by the number of observations in the set is called a mean or an average)**, weighted mean(an average computed by giving different weights to some of the individual values.**,) **weighted mean score(**a calculated average where each data point is multiplied by a specific "weight" that reflects its relative importance**),** and the **equidistance method** (The equidistance method of classification was used to categorise the respondents into different level of categories were employed to **analyze the data** and draw conclusions in relation to the **study objectives.**

**Results and discussion**

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Fig .1 Stress level distribution

From the above graph, it can be stated that **farm women** experience stress across **five key domains :Time-Pressure/Workload, Environmental Concerns, External Stressors, Interpersonal Relationships,** and **Rural Amenities**. A **stress assessment scale** consisting of **36 statements** was used to measure the respondents' stress levels. **Responses** were collected using a **four-point scale: Always (3), Sometimes (2), Rarely (1),** and **Never (0)**. The **total possible score** ranged from **0 to 108**. The **equidistance method** was used to categorize respondents into **three stress levels** based on their scores: **High (73–108), Medium (36–72),** and **Low (0–35)**. The **findings indicated** that a **significant majority (76%)** of respondents **experienced medium levels of stress**.

**Table 1: Domains Contributing to Farm Women Stress**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Stressors** | **Mean Score** | **Ranking** |
| **1** | **Time pressure** | **1.88** | **II** |
| **2** | **Environmental Concerns** | **2.09** | **I** |
| 3 | External Stressors | 1.56 | III |
| 4 | Interpersonal Relationship | 1.35 | IV |
| **5** | **Rural Amenities** | **1.88** | **II** |

The data in **Table 1** ranks the stressors affecting **farm women** based on their **mean scores**. A higher mean score indicates a greater level of stress associated with that **domain**.
The table identifies **five domains** contributing to stress among farm women. **Environmental concerns** are the most significant stressor for farm women, followed by **time pressure** and **rural amenities**. **External stressors** and **interpersonal relationships** also contribute to their stress levels, **although** to a lesser extent.

**Table 2. Factors under Time pressure/ Workload domain contributing to the stress of farm women**

|  |  |
| --- | --- |
| **Time pressure/ Workload** | **n=100** |
| **Always (3)** | **Sometimes (2)** | **Rarely (1)** | **Never (0)** | **Mean Score** |
| **1** | **Having to juggle too many activities** | **40** | **58** | **2** | **0** | **2.38** |
| **2** | **Lack of time to complete regular tasks** | **19** | **75** | **6** | **0** | **2.13** |
| 3 | Lack of time spend with loved ones | 4 | 55 | 40 | 1 | 1.62 |
| **4** | **Having too much workload** | **21** | **72** | **7** | **0** | **2.14** |
| 5 | Lack of time to take care health of self and dependent | 11 | 68 | 21 | 0 | 1.99 |
| 6 | Problems with farm equipment functioning | 0 | 43 | 54 | 3 | 1.4 |
| 7 | Fear of getting injured by machinery or livestock | 0 | 44 | 53 | 3 | 1.41 |
| 8 | Concern about health of myself or family | 17 | 69 | 13 | 1 | 2.03 |

The table presents the results of a survey (**n=100**) examining the frequency with which farm women experience various stressors related to **time pressure** and **workload**. The frequency is broken down into **"Always," "Sometimes," "Rarely,"** and **"Never,"** with corresponding numerical values (**3, 2, 1,** and **0**) used to calculate a mean score for each stressor.
**Time pressure** and **heavy workloads** are significant contributors to stress among farm women. The data **indicate** that juggling multiple activities and the inability to complete regular tasks due to time constraints are major issues. While concerns about **equipment, injury,** and **health** are factors, they appear to be less frequent stressors compared to the demands of daily tasks and responsibilities.

**Table 3.** **Factors under Environmental Concerns domain contributing to the stress of farm women**

|  |  |
| --- | --- |
| **Environmental Concerns** | **n=100** |
| **Always (3)** | **Sometimes (2)** | **Rarely (1)** | **Never (0)** | **Mean Score** |
| 1 | Water pollution | 0 | 51 | 49 | 0 | 1.51 |
| 2 | Soil fertility decline | 9 | 69 | 22 | 0 | 1.87 |
| **3** | **Increased droughts** | **38** | **62** | **0** | **0** | **2.38** |
| 4 | Pesticide exposure | 4 | 66 | 30 | 0 | 1.74 |
| **5** | **Weather unpredictability** | **44** | **56** | **0** | **0** | **2.44** |
| **6** | **Increased flooding** | **38** | **58** | **4** | **0** | **2.34** |
| **7** | **climate change** | **45** | **51** | **4** | **0** | **2.41** |

The table presents data (**n=100**) on **environmental concerns** and how frequently farm women experience them. The frequency is categorized into **"Always," "Sometimes," "Rarely,"** and **"Never,"** with corresponding numerical values (**3, 2, 1,** and **0**) to calculate a mean score. The mean score indicates the average frequency of each environmental concern.
The data **suggest** that farm women frequently experience several environmental concerns. **Weather unpredictability** has the highest mean score (**2.44**), closely followed by **climate change** (**2.41**) and **increased droughts** (**2.38**). **Increased flooding** also poses a significant concern (**2.34**). **Soil fertility decline** and **pesticide exposure** are moderate concerns, while **water pollution** appears to be the least frequent concern among the listed factors.
**Environmental stressors** significantly impact the lives of farm women. The high mean scores for **weather unpredictability, climate change, increased droughts,** and **flooding** indicate these are major, frequently experienced issues. These environmental factors can affect **crop yields, water availability,** and overall **agricultural stability,** which in turn can affect the well-being and livelihoods of farm women.

**Table 4. Factors under External Stressors domain contributing to the stress of farm women**

|  |  |
| --- | --- |
| **External Stressors** | **n=100** |
| **Always(3)** | **Some- times(2)** | **Rarely(1)** | **Never(0)** | **Mean Score** |
| 1 | Market instability | 12 | 56 | 32 | 0 | 1.81 |
| 2 | Marketing decision | 0 | 18 | 70 | 12 | 1.06 |
| 3 | Environmental regulation | 7 | 41 | 40 | 12 | 1.42 |
| 4 | Farm policy | 0 | 18 | 69 | 13 | 1.06 |
| 5 | Environmental activists | 0 | 4 | 63 | 33 | 0.71 |
| **6** | **Difficulty making a profit** | **43** | **53** | **4** | **0** | **2.36** |
| 7 | Control everything for fear | 2 | 43 | 55 | 0 | 1.47 |
| 8 | **Fragmented land** | **23** | **57** | **20** | **0** | **2.03** |
| **9** | **Unaffordable health insurance** | **30** | **59** | **11** | **0** | **2.19** |

**Table 4** presents data on various **external stressors** and their impact on the stress levels of **100** farm women. The table shows the frequency with which these women experience each stressor (**"Always," "Sometimes," "Rarely," or "Never"**) and **provides** a mean score to indicate the relative importance of each stressor. A higher mean score suggests that the stressor is more frequently experienced and thus contributes more to overall stress.
**Financial issues,** specifically the difficulty **in** making a profit and the burden of unaffordable health insurance, are the primary external stressors affecting farm women. **Market instability** and **fragmented landholdings** also significantly contribute to stress, reflecting challenges related to the economic viability and practical management of farming operations. **Environmental regulations, farm policies,** and **environmental activism** have a less pronounced but still noticeable impact on stress levels.

**Table 5. Factors under Interpersonal Relationship domain contributing to the stress of farm women**

|  |  |
| --- | --- |
| **Interpersonal Relationship** | **n=100** |
| **Always (3)** | **Sometimes (2)** | **Rarely (1)** | **Never (0)** | **Mean Score** |
| **1** | **Difficulty in conversation with relatives over farm issues** | **4** | **52** | **44** | **0** | **1.60** |
| 2 | Legal aspects of farm transition | 0 | 27 | 69 | 0 | 1.31 |
| **3** | **Conflicts with neighbor /extended family** | **0** | **44** | **56** | **0** | **1.44** |
| 4 | Responsibility to continue family farm | 0 | 27 | 73 | 0 | 1.18 |
| 5 | Immediate family members interference in farm decision | 0 | 27 | 73 | 0 | 1.27 |
| 6 | Conflicts with tenant farmer/farm employee | 0 | 38 | 62 | 0 | 1.31 |

**Table 5** presents data from a survey of **100** farm women (**n=100**) regarding **interpersonal relationship factors** contributing to their stress. The table shows the frequency with which respondents experience certain issues (**Always, Sometimes, Rarely, Never**) and provides a mean score for each factor. The mean score is calculated based on a scale where **Always = 3, Sometimes = 2,Rarely=1,andNever=0**.The data **indicate** that several interpersonal relationship factors contribute to the stress experienced by farm women. The most significant factor appears to be **"Difficulty in conversations with relatives over farm issues,"** which has the highest mean score of **1.60**. This suggests that a considerable number of respondents **"Sometimes"** experience this issue. Other factors, such as **"Conflicts with neighbors/extended family," "Legal aspects of farm transition," "Responsibility to continue the family farm," "Immediate family members' interference in farm decisions,"** and **"Conflicts with tenant farmers/farm employees,"** also contribute to stress, though to a lesser extent, with mean scores ranging from **1.18 to 1.44**. Most respondents reported experiencing these issues **"Sometimes"** or **"Rarely"**.
Based on the data, interpersonal relationship issues significantly contribute to the stress levels of farm women. The primary source of stress in this domain is the **difficulty in having conversations** with relatives about farm issues. Other factors, including legal aspects of farm transition, conflicts, family interference, and responsibilities related to continuing the family farm, also play a role in increasing stress.

**Table 6. Factors under Rural Amenities domain contributing to the stress of farm women**

|  |  |
| --- | --- |
| **Rural Amenities** | **n=100** |
| **Always (3)** | **Sometimes (2)** | **Rarely (1)** | **Never (0)** | **Mean Score** |
| **1** | **Nearby market unavailability** | **24** | **58** | **18** | **0** | **2.60** |
| 2 | Lack of community in immediate vicinity | 9 | 29 | 62 | 0 | 1.47 |
| **3** | **Unavailability of good schools/childcare** | **47** | **43** | **10** | **0** | **2.37** |
| **4** | **Lack of health care services** | **30** | **66** | **4** | **0** | **2.26** |
| 5 | Conflict with professional associates | 0 | 26 | 67 | 7 | 1.19 |
| 6 | Concern about judgment from neighbor | 0 | 43 | 57 | 0 | 1.43 |

**Table 6** presents data (**n=100**) on several factors related to rural amenities and their contribution to the stress levels of farm women. The table uses a scoring system to reflect how frequently these factors cause stress: Always (3), Sometimes (2), Rarely (1), and Never (0). The mean score is calculated for each factor.
The table highlights that the **unavailability of nearby markets, good schools/childcare, and healthcare services** are the most significant stressors related to rural amenities for farm women. In contrast, **conflicts** with professional associates and **concerns** about judgment from neighbors appear to be less significant stressors.
Based on the data, the **lack of** rural amenities significantly impacts the stress levels of farm women. The primary stressors are related to the availability and accessibility of essential services\*\*, such as\*\* markets, schools/childcare, and healthcare.

**Recommendations to alleviate Stress among farm women**

This study highlights the significant stress experienced by farm women in the Coochbehar and Alipurduar districts of West Bengal, India. The majority of respondents reported medium levels of stress, with environmental concerns, time pressure/workload, and lack of rural amenities being the major contributing factors. External stressors and interpersonal relationships also play a role, albeit to a lesser extent. The findings underscore the need for targeted interventions to address these specific stressors and improve the overall well-being of women in agriculture.

Based on the findings of this study, the following recommendations are suggested:

|  |  |
| --- | --- |
| **Key concerns**  | **Recommendation** |
| **Environmental Concerns** | Implement training programmes on sustainable farming trainingsProvide timely and accurate weather forecast trough accessible training  |
| **Reduce time pressures and workload** | Provide subsidies and training for frm machinery and toolsEncourage the formation of womensself help groups (SHGs) for shared labor, equipment and knowledge |
| **Improve rural amenities** | Establish / improve local market infrastructure for better access to fair pricesSet up mobile health clinics and childcare centres in rural areaAdvocate for quality educational facilities in rural areas |
| **Address External stressors** | Implement policies ensuring fair prices for agricultural produce Increase health insurance coverage and accessibility for farm women and their families |
| **Strengthen interpersonal Relationships**  | Organize workshops on communication and conflict resolutionAddress gender inequalities in agriculture and household responsibilities through awareness campaigns ad policies |

**Conclusion**

By implementing these recommendations , policymakers, researchers , and community organizations can work collaboratively to reduce stress among farm women , enhance their quality of life , and promote sustainable agricultural development . Further research should focus on evaluating the effectiveness of these interventions and exploring additional strategies to support the well being of women in agriculture.

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