

THE FEMALE STRESS PARADOX: UNPACKING THE SCIENCE BEHIND WOMEN’S INCREASED STRESS SUSCEPTIBILITY

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Abstract. *Women are disproportionately affected by stress, with higher rates of anxiety, depression, and burnout. This article explores the science behind women’s increased stress susceptibility, examining the complex interplay of biological, psychological, and societal factors. A comprehensive review of existing literature reveals key differences in stress response, hormone regulation, and brain chemistry between men and women. Understanding these factors can inform strategies to mitigate stress and promote well-being in women.*

Keywords *Stress Susceptibility, Chronic Stress, Emotional Regulation, Coping Mechanisms, Work-Life Balance*

INTRODUCTION

Stress is a pervasive and debilitating experience affecting millions worldwide. While stress affects both sexes, women are more likely to experience chronic stress, anxiety, and depression. This disparity warrants an exploration of the underlying factors contributing to women’s increased stress susceptibility.

STATEMENT OF THE PROBLEM

Despite growing awareness of stress-related disorders, the gender-specific factors driving women’s increased stress vulnerability remain poorly understood. This knowledge gap hinders the development of effective stress management strategies tailored to women’s unique needs.

REVIEW OF LITERATURE

Existing research highlights significant gender differences in stress response, hormone regulation, and brain chemistry. Women exhibit:

- Heightened cortisol and oxytocin levels in response to stress.
- Greater emotional reactivity and rumination.
- Increased burden of caregiving responsibilities.
- Higher rates of trauma and abuse.
- Different coping mechanisms and social support networks.

ANALYSIS AND DISCUSSION

The collected data is tabulated and targeted on applied maths analysis like easy percentages and tabulation to create the method of study clearer and easier to understand. The study was confined to the Tirunelveli District within the state of Tamil Nadu. For the aim of achieving the target of the research, data collected through questionnaires were analysed.

Table 1

Variables	Category	No. of Respondents	%
Age	Below 18 years	15	12
	19 – 24 years	31	24.8
	25 – 35 years	45	36
	36 to 50 years	25	20
	Above 50 years	9	7.2
Educational Qualification	School level	20	16
	Graduate	50	40
	Post graduate	30	24
	others	25	20
Marital Status	Married	99	79.2
	Unmarried	26	20.8
Family Type	Joint	28	22.4
	Nuclear	97	77.6

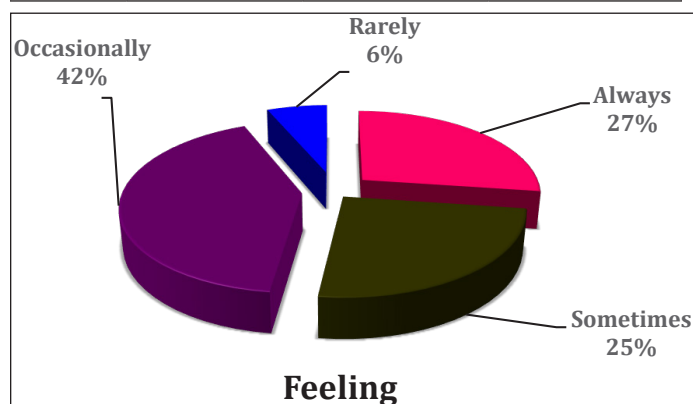
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The above table reveals that majority (36%) of the respondents come under the age group of 25 years to 35 years and most (40%) of the respondents did complete their graduation. 79.2% of the respondents comes under their wedlock. Majority (77.6%) of the respondents were living in the nuclear family system.

Table 2: Feeling Stressed

Opinion	Category	No. of Respondents	%
Feeling Stressed	Always	34	27
	Sometimes	31	25
	Occasionally	52	42
	Rarely	8	6
	Total	125	100

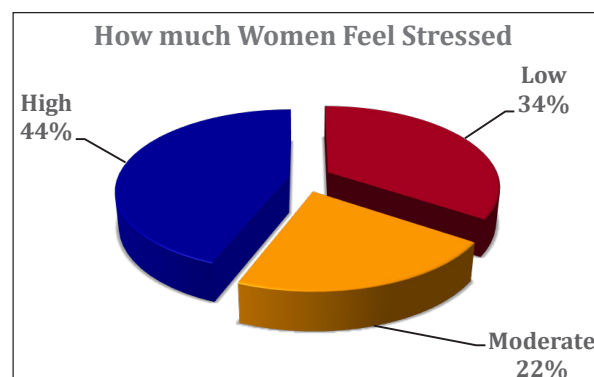


Among 125 women surveyed majority 42% of the respondents feel stressed occasionally followed by 27% of respondents feel stressed always. 25% of the respondents sometimes feel stressed and 6% of the respondents rarely feel stressed.

Table 3: Self Assesed Level of Stress

Opinion	Category	No. of Respondents	%
How much women feel Stressed?	Low	43	34
	Moderate	27	22
	High	55	44
	Total	125	100

The above table reveals that the respondents stress level comes under the major portion 44% of high followed by 34% of the respondent's stress level is low. 22% of the respondent's stress level comes under moderate level.



SCIENCE BEHIND WOMEN'S INCREASED STRESS SUSCEPTIBILITY

Women often report higher stress levels than men. But why is this? While societal roles and expectations play a significant part, there's also a biological component to consider. Hormonal differences, brain chemistry, and even genetic predispositions can influence how women experience and respond to stress. Let's delve into the science behind this complex issue.

Hormonal Influences

Fluctuations in oestrogens and progesterone levels affect stress response and mood regulation.

Hormonal Influences on Stress Susceptibility in Women:

- **Oestrogen Fluctuations:** Changes in oestrogens levels throughout the menstrual cycle and during menopause can affect stress response and mood regulation.
- **Progesterone's Calming Effect:** Progesterone has a calming effect on the nervous system, but its levels drop significantly during the premenstrual phase and menopause, leading to increased stress sensitivity.
- **Thyroid Hormone Regulation:** Hormonal changes can impact thyroid function, leading to hypothyroidism (underactive thyroid), which can increase stress levels.

Remedies:

- **Hormone Replacement Therapy (HRT):** For menopausal women, HRT can help stabilize oestrogens and progesterone levels, reducing stress susceptibility.
- **Birth Control Pills:** Regulating menstrual cycles and hormone levels with birth control pills can help alleviate premenstrual stress and anxiety.

- *Thyroid Hormone Supplementation:* If hypothyroidism is present, thyroid hormone replacement medication can help regulate stress response.
- *Natural Remedies*
 - *Omega-3 Fatty Acids:* Support brain health and hormone regulation.
 - *Vitamin D:* Essential for mood regulation and hormone balance.
 - *Magnesium:* Helps regulate stress response and hormone function.
 - Herbal supplements may help alleviate stress and hormone-related symptoms.
- *Lifestyle Modifications:*
 - *Regular Exercise:* Reduces stress and promotes hormone balance.
 - *Mindfulness Practices:* Yoga, meditation, and deep breathing can help manage stress and hormone regulation.
 - *Balanced Diet:* Focus on whole foods, fruits, vegetables, and whole grains to support hormone health.

Brain Chemistry

Women's brains exhibit higher levels of stress-related neurotransmitters like serotonin and dopamine.

Brain Chemistry Influences on Stress Susceptibility in Women:

- *Serotonin Levels:* Women tend to have lower serotonin levels, which can increase stress sensitivity and anxiety.
- *Dopamine Regulation:* Dopamine plays a role in stress response, motivation, and pleasure. Imbalances can contribute to stress susceptibility.
- *GABA and Glutamate Balance:* GABA (inhibitory) and glutamate (excitatory) neurotransmitters regulate stress response. An imbalance can lead to increased stress sensitivity.
- *Neuroinflammation:* Increased inflammation in the brain can contribute to stress susceptibility and anxiety.

Remedies:

- *Selective Serotonin Reuptake Inhibitors (SSRIs):* Medications that increase serotonin levels, often prescribed for anxiety and depression.
- *Natural Serotonin Boosters:*
 - Omega-3 fatty acids
 - Vitamin D
 - Magnesium

- Exercise
- Sunlight exposure
- *Dopamine Support:*
 - Amino acid supplements like tyrosine and phenylalanine.
 - Vitamin B6, B9, and B12.
 - Magnesium and iron.
 - Exercise and physical activity.
- *GABA and Glutamate Balance:*
 - GABA supplements.
 - Balanced diet with GABA-rich foods - fermented foods, green tea.
- *Neuroinflammation Reduction:*
 - Omega-3 fatty acids.
 - Antioxidants -vitamins C and E, polyphenols.
 - Exercise and physical activity.
 - Mindfulness practices - yoga, meditation.
- *Lifestyle Modifications:*
 - Regular exercise.
 - Balanced diet.
 - Stress management techniques like deep breathing, progressive muscle relaxation.
 - Sufficient sleep.

Societal Expectations

Gender roles and caregiving responsibilities contribute to increased stress and emotional labour.

Societal Expectations Influencing Stress Susceptibility in Women:

- *Gender Roles and Stereotypes:* Women are often expected to prioritize caregiving, nurturing, and emotional labour, leading to increased stress and emotional burden.
- *Unrealistic Beauty and Body Standards:* Societal pressure to conform to beauty ideals can lead to body dissatisfaction, low self-esteem, and stress.
- *Work-Life Balance and Career Expectations:* Women often face challenges balancing work and family responsibilities, leading to increased stress and guilt.
- *Social Media and Comparison Culture:* Constant comparison to others on social media can foster feelings of inadequacy, stress, and anxiety.

Remedies:

- *Challenge and Reframe Gender Roles and Stereotypes:*

- Encourage equal sharing of responsibilities.
- Promote diverse representation in media.
- Support women's empowerment and leadership.
- *Foster Positive Body Image and Self-Esteem:*
 - Encourage self-acceptance and self-compassion.
 - Promote diverse and realistic beauty standards.
 - Support body positivity movements.
- *Support Work-Life Balance and Flexible Work Arrangements:*
 - Encourage employers to offer flexible work options.
 - Support women's career advancement and leadership development.
 - Promote shared family responsibilities.
- *Healthy Social Media Habits and Comparison Reduction:*
 - Encourage mindful social media use.
 - Promote realistic and diverse representation on social media.
 - Support self-acceptance and individuality.
- *Community and Social Support:*
 - Encourage women's networks and support groups.
 - Promote open communication and empathy.
 - Support access to mental health resources and services.

Trauma and Adversity

Women's higher rates of trauma and abuse impact stress resilience and coping mechanisms.

Trauma and Adversity Influencing Stress Susceptibility in Women:

- *Higher Rates of Trauma Exposure:* Women are more likely to experience interpersonal violence, sexual assault, and abuse, leading to increased stress and trauma.
- *Socioeconomic Disadvantage:* Women from lower socioeconomic backgrounds face increased stress due to financial insecurity, limited access to resources, and systemic inequality.

Racial and Ethnic Discrimination: Women from marginalized communities experience chronic stress due to systemic racism and discrimination.

Adverse Childhood Experiences (ACEs): Women with ACEs are more likely to experience stress, anxiety, and depression.

Remedies:

- *Trauma-Informed Care and Support:*
 - Access to mental health services and therapy.
 - Support groups and community resources.

- Trauma-sensitive healthcare providers.
- *Socioeconomic Empowerment:*
 - Education and job training programs.
 - Financial assistance and resource access.
 - Policy changes addressing systemic inequality.
- *Cultural Sensitivity and anti-Racism Efforts:*
 - Cultural competency training.
 - Addressing systemic racism and discrimination.
 - Supporting marginalized communities.
- *ACEs Prevention and Intervention:*
 - Early childhood intervention programs.
 - Parenting support and education.
 - Community-based prevention initiatives.
- *Self-Care and Stress Management:*
 - Mindfulness practices.
 - Exercise and physical activity.
 - Creative expression and art therapy.

SUMMARY OF KEY FINDINGS

Biological Factors

Hormone Regulation

- Women's hormonal cycles, particularly fluctuations in oestrogens and progesterone, influence stress response and emotional regulation.
- Higher cortisol responses to stress are observed in women, impacting their overall stress levels and health outcomes.

Brain Chemistry

- Differences in brain structure and function, such as those in the hippocampus and amygdala, contribute to varied stress processing between men and women.
- Neurotransmitters like serotonin and dopamine, which regulate mood and stress, are modulated differently in women, affecting their vulnerability to stress-related disorders.

Psychological Factors

Emotional Regulation

- Women are more likely to engage in rumination, a maladaptive coping mechanism that exacerbates stress and depression.
- Greater empathy and emotional sensitivity in women lead to heightened stress responses to interpersonal conflicts and caregiving responsibilities.

Coping Mechanisms

- Women tend to use emotion-focused coping strategies, such as seeking social support, which can be both beneficial and problematic depending on the context.
- The “tend-and-befriend” response, characterized by nurturing and seeking social networks during stress, contrasts with the “fight-or-flight” response more common in men.

Societal Factors

Gender Roles and Expectations

- Societal expectations and traditional gender roles place additional stress on women, particularly in balancing work, family, and personal care (Vermeulen & Neyro, 2005).
- Discrimination, harassment, and unequal treatment in various settings contribute to chronic stress and mental health issues in women (Kessler et al., 2005).

Work-Life Balance

- Women often face greater challenges in achieving work-life balance, leading to higher rates of burnout and stress-related health problems (Matud, 2004).
- The dual burden of professional responsibilities and unpaid domestic labor disproportionately impacts women's mental health (Lundberg, 2005).

SCOPE OF THE STUDY - KEY CONSIDERATIONS

- *Comparative Analysis:* Compare stress responses and coping mechanisms between men and women.
- *Intersectionality:* Examine how factors like race, ethnicity, socioeconomic status, and sexual orientation intersect with gender to influence stress experiences.
- *Evidence-Based Approach:* Rely on peer-reviewed scientific research and expert opinions.
- *Practical Implications:* Provide actionable advice for women to manage stress effectively.
- *Cultural Sensitivity:* Acknowledge the diverse experiences of women across different cultures and societies.

CONCLUSION AND IMPLICATIONS

Women's increased stress susceptibility stems from a complex interplay of biological, psychological, and societal

factors. Understanding these factors can inform targeted interventions and stress management strategies to promote women's well-being and resilience.

- A comprehensive understanding of these factors highlights the need for targeted strategies to mitigate stress in women.
- Interventions should consider the unique biological, psychological, and societal influences on women's stress to effectively promote their well-being.
- Future research should continue to explore these complex interactions and develop gender-sensitive approaches to stress management.

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