Integrating Bio-WellAnalysis With Lifestyle Assessment to Evaluate Health and Well-Being in Working Women

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ABSTRACT

Background: *Due to the combined demands of work obligations, domestic chores, and lifestyle choices that affect their physical and mental health, working women frequently endure significant levels of stress. This study used both traditional survey instruments and Bio-Well electro-photonic imaging to measure stress levels, energy balance, eating patterns, and lifestyle behaviors among female employees at Era University.*

Methods: *Ninety-two working women between the ages of 23 and 66 participated in a descriptive cross-sectional study. A standardized questionnaire measuring sociodemographic information, eating habits, sleep quality, stress perception, and lifestyle choices was used to gather data. Organ energy balance, stress index, and energy levels were assessed using Bio-Well scans under defined settings. The results were interpreted using descriptive and comparative analysis.*

Results: *Elevated physiological and felt stress were common, despite the fact that the majority of subjects had normal BMI and appropriate Bio-Well energy levels. 62% of women reported experiencing daily stress, and according to Bio-Well analysis, 66.3% of them fell into the "Increased Stress" category. Stress levels were significantly correlated with sleep problems, and 82.6% of people used caffeinated beverages daily. Cereals, fats, and sweets were consumed more frequently than green leafy vegetables and fruits, according to dietary trends. Stress was largely caused by workload, deadlines, a lack of managerial assistance, and conflicts between work and home life. Stress also had a big impact on sleep duration and eating habits.*

Conclusion: *Despite generally sufficient energy levels, the results show significant stress and lifestyle abnormalities among working women. To improve women's productivity and well-being, workplace-based nutrition education, stress-reduction strategies, and encouraging organizational policies are crucial. Combining /Bio-Well evaluations with traditional methods provides a thorough foundation for holistic health monitoring.*

Keywords: Working women; Stress; Bio-Well; Energy level; Sleep disturbance; Dietary habits; Work-life balance; Lifestyle factors; Occupational health.

Introduction

The biological, social, and economic aspects of womanhood are intricate, and contemporary women—particularly mothers—must balance the demands of paid work with their disproportionate caring duties [1]. Even though work might improve psychological health and autonomy, women are nevertheless more vulnerable to chronic illnesses, anemia, and hunger. One of the most common health issues is iron-deficiency anemia, which dramatically lowers productivity and quality of life and is caused by reproductive demands, poor diets, and work-related stress [2]. The workplace has emerged as a key location for health promotion since adults spend a large portion of their waking hours at work [3].

Research demonstrates that workplace-based nutrition education and lifestyle interventions can reduce absenteeism and healthcare costs while improving food habits, physical activity, and stress management [4].

These tactics are especially crucial in low- and middle-income nations, where women are at risk for both micronutrient deficiencies and non-communicable diseases like diabetes, hypertension, and cardiovascular disease, which is the world's top cause of death for women [5].Emerging non-invasive technologies provide complementary insights into women's health to traditional biomedical evaluations. Based on Gas Discharge Visualization (), the Bio-Well device uses electro-photonic imaging to assess organ-system functioning, stress, and energy balance.

A more comprehensive understanding of women's physiological and psycho-emotional health is supported by the integration of such tools with conventional frameworks and contemporary medical techniques. When taken as a whole, these viewpoints emphasize the necessity of all-encompassing, workplace-based interventions that tackle the complex health issues that contemporary working women face [6].

Diverse methodological methods forcomprehending women's health, stress, and welfare in biological and professional contexts have been demonstrated in recent literature. The majority of research on work-life balance among female academic professionals uses cross-sectional survey designs using standardized instruments such as the DASS-21, GHQ-12, and Work-Life Balance Scale. In order to investigate relationships between work-life conflict and physical or mental health, these studies frequently employ purposive sampling with sample sizes of 100–300 and employ descriptive and inferential statistics [7].

Large population-based samples (e.g., SWAN) and more rigorous longitudinal cohort methodologies are used in research on menopause transition and cardiovascular disease risk (Erin R. Uddenberg et al.,2024). To determine the physiological connections between menopausal changes and CVD risk, thisresearch make use of hormonal tests, cardiovascular biomarkers, imaging methods like cIMT and CAC, and multivariable analyticalmodels [8].

Bio-Well/-based stress and energy assessment in clinical and natural settings is the subject of an expanding corpus of research. In order to assess interventions like meditation, lifestyle modifications, or exposure to natural surroundings, studies use quasi-experimental and pre-post designs. These investigations use electro-photonic imaging to analyze factors such as energy level, stress index, and organ balance, with the help of statistical values including mixed-model regressions, paired t-tests, and ANOVA. Although encouraging, researchers point out that because measurements are sensitive, controlled circumstances and procedural consistency are necessary [9].Lastly, cross-sectional designs utilizing validated self-report tools such as the JCQ, BJSQ, GHQ, and K-scales are used in research on workplace stress, psychological distress, and menstrual health in working women A biopsychosocial paradigm for women's occupational health is supported by the substantial correlations between workplace stressors and menstruation-related symptoms shown in logistic and multivariate regression studies [10], the examined literature offers thorough insights into how psychosocial, physiological, and environmental factors influence women's health and well-being. It includes quantitative, longitudinal, and mixed-method methods.

Materials and Methods

1. Study Design and Ethical Approval- A descriptive cross-sectional study was conducted in the Department of Food and Nutrition, Era University, Lucknow. Ethical clearance was obtained from the Institutional Ethical Review Committee, and written informed consent was taken from all participants. The study aimed to assess the health and well-being of working women through an integrated evaluation of stress, energy balance, and lifestyle behaviours.

2. Participants and Sampling-Working women between the ages of 23 and 66 who were employed at Era University were recruited using Purposive sampling.

3. Inclusion criteria-Active employment and willingness to finish the Bio-Well assessment and questionnaire.

4. Exclusion criteria- Women who were hesitant to participate, had a chronic illness diagnosis, or were pregnant.

5. Data Collection Instruments
- **Questionnaire:** A structured, pre-tested questionnaire documented socio-demographic information, perceived stress, dietary habits using a Food Frequency Questionnaire, sleep patterns, and physical activity.
- **Bio-Well Device:** The Bio-Well Electro-Photonic Imaging system was used to capture fingertip emissions. Parameters assessed included total energy level, stress index, organ energy distribution, and chakra alignment, analyzed with software.

4. Study Procedure- Assessments of Bio-Well were carried out in a controlled laboratory setting. During scanning, participants cleansed and dried their hands, took off any metal accessories, and maintained a calm demeanor. Fingertip electro-photonic emissions were captured by the device and processed to assess stress indicators and energy distribution. Assessments of Bio-Well were carried out in a controlled laboratory setting. During scanning, participants cleansed and dried their hands, took off any metal accessories, and maintained a calm demeanor. Fingertip electro-photonic emissions were captured by the device and processed to assess stress indicators and energy distribution. Following the baseline evaluation, all participants attended a nutrition education session that covered topics such as hydration, nutrient-dense food selection, balanced diet concepts, and dietary-lifestyle techniques for stress management.

Results

The study included 92 working women between the ages of 23 and 66, the majority of whom were in the 41–50 age range. The majority of participants were from nuclear families and represented a variety of academic positions at the university, such as administrative personnel, teaching professors, and research academics. Dietary practices varied, with a significant percentage following egg-freeor non-vegetarian diets.

Anthropometric Profile- With minor differences between age groups, the average height and weight of the individuals were usually in line with conventional benchmarks. Over half of the women (52.1%) had normal BMIs, according to BMI research. On the other hand, 11.9% were pre-obese, 20.6% were underweight, and 21.7% were overweight. There were no instances of obesity found.

Dietary Consumption Patterns

While consumption of green leafy vegetables, fruits, and dairy products was moderate, the majority of individuals frequently consumed cereals, pulses, and fats/oils. With almost one-third of subjects reporting no intake, meat and poultry consumption was the lowest. Most people reported using sugar and jaggery on a daily basis.

Perceived Stress and Coping Behaviour

Sixty-two percent of the women reported experiencing daily stress. Stress-related sleep disruptions were common, with one-third reporting regular occurrences.

About one-third said they regularly practiced stress-reduction techniques, while another third said they did not.The majority of work-related stress was moderate (52.2%), with very high stress coming in second (28.3%).

A significant percentage (83.7%) stated that stress either regularly or infrequently affected their eating habits. Nearly half of the cohort reported experiencing fatigue without a medical reason on a weekly basis.

Dietary and Lifestyle Practices- The majority of participants thought that altering one's diet may boost one's energy levels at work. Approximately two-thirds slept for only five to six hours per night, and over 80% reported consuming coffee every day. More than half of the participants spent more than five hours a day on screens, suggesting lifestyle choices that could lead to weariness and sleep problems.

Sources of Work-Life Stress and Coping Strategies
The most common stressors were workload, deadlines, a lack of managerial assistance, and a conflict between work and personal obligations. Instead of identifying just one source of stress, several individuals named several. Setting limits, setting priorities, and asking for help from coworkers or family were some of the tactics utilized to preserve work-life balance. The least popular tactic was delegation.

Bio-Well Stress and Energy Assessment
According to the Bio-Well analysis, 23.9% were in the "Optimal" range, while the bulk (66.3%) were in the "Increased Stress" category. The percentage of people with high and extremely high stress levels was lower. With 94.5% of subjects exhibiting appropriate energy levels, the energy distribution results showed positive physiological functioning.

Associations Between Stress, Sleep, Eating Habits, and Lifestyle Factors- Frequent sleep disturbances and eating pattern disruptions were substantially correlated with higher levels of work-related stress. Sleep issues and dietary changes brought on by stress were most common in those who were under extreme stress. Reduced sleep duration and coffee use were shown to be substantially linked with daily stress. Shorter sleep duration was also linked to increased screen time, suggesting a group of lifestyle choices that lead to stress and exhaustion.

Conclusion
The results of this study show that working women at Era University have high levels of stress, sleep problems, and unbalanced lifestyles. While the majority of subjects maintained a normal BMI and showed optimal Bio-Well energy levels, a significant percentage reported increased physiological stress, insufficient sleep, excessive screen time, and frequent dependence on caffeinated beverages. Stress was shown to be largely caused by workload, deadlines, a lack of managerial assistance, and challenges juggling work and personal obligations. Fatigue, poor sleep quality, and disturbed eating patterns were all closely linked to these stressors. The findings highlight the necessity of workplace-based treatments that address the psychological and nutritional aspects of health. The general well-being, productivity, and work-life balance of female employees can be greatly enhanced by nutrition education, stress-management training, supportive organizational policies, and the promotion of better lifestyle practices.
A comprehensive strategy to monitoring and improving women's health in professional settings is provided by combining conventional and contemporary assessment technologies, such as Bio-Well electro-photonic imaging, with dietary and behavioral evaluations.

Recommendations and Future Scope- The necessity for comprehensive workplace programs that address working women's nutritional and mental health is highlighted by this study. Regular nutrition education programs, stress-reduction techniques like yoga and mindfulness, and policies that encourage flexible scheduling, better sleep habits, and less task pressure should all be implemented by institutions. Employee well-being can be further supported by promoting physical exercise during working hours and doing regular health examinations, such as Bio-Well evaluations. Future studies should use longitudinal or intervention-based designs to evaluate long-term results, expand to bigger and more diverse populations across industries, and include biochemical markers for deeper physiological insights. The development of successful, all-encompassing health strategies for working women would also be strengthened by comparative studies that combine /Bio-Well technology with traditional clinical tools and investigate more general psychosocial factors like family dynamics and workplace culture.

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