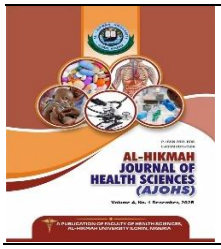
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Original Article

Self-Reported Stress and Its Association with Dietary Patterns Among Working Adults in Ilorin West Local Government Area, Kwara State

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ABSTRACT

Background: Self-reported stress may influence food choices, yet evidence among working adults in Nigeria remains limited. Objective: To assess perceived stress, dietary patterns, and their association among working adults in Ilorin West Local Government Area, Kwara State.

Methods: A descriptive cross-sectional study was conducted among 108 working adults aged 30–60 years selected through multistage sampling. Data were collected using a structured interviewer-administered questionnaire containing socio-demographic items, the 10-item Perceived Stress Scale (PSS-10), and a Food Frequency Questionnaire (FFQ). Frequencies, percentages, means and standard deviations were used for description. Sparse cells violated Pearson chi-square assumptions, so an exact test was used for the stress-by-dietary-pattern association.

Results: Mean age was 40.6 ± 8.6 years. Moderate perceived stress was reported by 80.6% of respondents, while 61.1% had moderate dietary patterns. Daily consumption was highest for protein sources (54.6%) and vegetables (46.3%). The association between perceived stress and dietary pattern was not statistically significant (Fisher–Freeman–Halton exact p = 0.205).

Conclusion: Moderate stress and moderate dietary patterns were common. The findings do not demonstrate a statistically significant association between perceived stress and dietary patterns in this sample.

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Introduction

Dietary patterns are important determinants of population health because habitual food choices influence cardiometabolic health and other chronic disease risks. Unhealthy diets are recognized as major modifiable contributors to non-communicable diseases, including cardiovascular disease, type 2 diabetes and obesity (Iriti *et al.*, 2020; Ahmed & Mohammed, 2025). Dietary patterns describe combinations and frequencies of foods consumed over time and may provide a more useful picture of eating behaviour than isolated nutrients or foods (Asaolu *et al.*, 2024).

Stress may influence dietary behaviour through physiological and psychological pathways. Perceived demands that exceed coping resources can produce psychological distress, while chronic activation of stress systems may affect appetite, food preference and self-regulation (Ahmed *et al.*, 2022; James *et al.*, 2023). Stress has also been associated with emotional eating, meal skipping and greater consumption of energy-dense or ultra-processed foods (Fatima, 2025).

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These behaviours may contribute to unhealthy dietary patterns when sustained over time.

Working adults may be particularly exposed to these influences because occupational demands occur alongside financial and family responsibilities. Work schedules, fatigue and limited time for meal planning can encourage reliance on convenient foods (Infurna *et al.*, 2020; Ameye *et al.*, 2025). In Nigeria, nutrition transition has increased the coexistence of traditional foods with processed foods, refined grains and sugar-sweetened products, while concerns remain about inadequate fruit and vegetable intake (Petrikova *et al.*, 2023; Sanni, 2025).

In Ilorin West Local Government Area, adults engage in diverse formal and informal occupations, with differences in income, working hours, food access and household responsibilities likely to shape dietary choices. However, evidence specifically examining perceived stress and dietary patterns among working adults in the area is limited. Understanding whether stress is associated with dietary patterns can inform workplace health promotion and nutrition interventions. This study therefore assessed perceived stress and dietary patterns and examined their association among working adults aged 30–60 years in Ilorin West Local Government Area, Kwara State.

Methods

Study design and setting

A descriptive cross-sectional study was conducted among working adults aged 30–60 years in Ilorin West Local Government Area, Kwara State, Nigeria. The area is an important administrative and commercial centre with residents engaged in formal and informal occupations.

Study population and eligibility

The study population comprised working adults aged 30–60 years who resided in the LGA and were engaged in income-generating occupations. Participants had to have worked in their current occupation for at least six months and provide written informed consent. Unemployed persons, temporary residents, persons with less than six months in the occupation, and individuals unable to complete the questionnaire were excluded.

Sample Size Determination

The minimum sample size was calculated using the Fisher formula, $n = Z^2pq/d^2$, at a 95% confidence level ($Z = 1.96$), using a prevalence of 92.8% ($p = 0.928$), $q = 0.072$, and a 5% margin of error ($d = 0.05$) (Akinbule *et al.,* 2025; Bolarinwa, 2020). The calculated minimum sample size was approximately 103. Allowing for 10% non-response gave an estimated sample size of 115. However, 108 complete questionnaires were retrieved and included in the final analysis. The sample-size calculation did not incorporate a design effect for the multistage sampling procedure, which is acknowledged as a limitation of the study.

Sampling Technique

Four wards (Adewole, Ojuekun/Zarumi, Balogun Alanamu and Ajikobi) were selected from the 12 wards by simple random sampling. Two communities were selected from each ward by balloting. Participants were proportionately allocated to communities, households were selected systematically, and where more than one eligible person lived in a household, one was selected by simple random sampling.

Instrument and data collection

A pre-tested interviewer-administered questionnaire contained three sections. Section A covered age, sex, marital status, education, occupation, monthly income and work experience. Section B used the 10-item Perceived Stress Scale (PSS-10), with responses scored from 0 (never) to 4 (very often); four positively worded items were reverse scored. Section C used a semi-quantitative FFQ covering fruits, vegetables, whole grains, processed foods, sugary foods/drinks, fried/fatty foods, dairy products and protein sources. Face and content validity were assessed by public-health experts. A pilot test was conducted among working adults in Ilorin South LGA, and the reported Cronbach's alpha was 0.78.

Measurement of variables

Perceived stress was scored from 0–40 and classified as low (0–13), moderate (14–26) or high (27–40). Dietary pattern was reported as healthy, moderate or unhealthy based on the composite FFQ classification used in the original study. Because the original aggregate manuscript did not retain the respondent-level FFQ scoring key or validation record for those composite cut-offs, the exact scoring algorithm cannot be independently reconstructed from the available study materials; this limitation is now stated explicitly rather than introducing an unsupported scoring rule. Perceived stress was treated as the principal explanatory variable and dietary pattern as the outcome.

Statistical analysis

Data were coded and analysed using IBM SPSS Statistics version 27. Descriptive statistics included frequencies, percentages, means and standard deviations. Pearson's chi-square test was considered for categorical associations; however, where sparse expected frequencies exist, association was therefore evaluated using the Fisher–Freeman–Halton exact test. Statistical significance was set at $p < 0.05$.

Ethical considerations

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Ethical approval was obtained from the Kwara State Ministry of Health Ethical Research Committee (ERC/MOH/2026/05/644). Permission was obtained from relevant authorities in Ilorin West LGA. Written informed consent was obtained from participants, who were assured of confidentiality, anonymity and voluntary participation.

Results

Table 1: Socio-Demographic Characteristics of Respondents (N = 108)

Variable	Frequency (n)	Percent (%)
Age, years		
30–34	34	31.5
35–48	50	46.3
49–60	24	22.2
Mean ± SD	40.6 ± 8.6	
Sex		
Male	54	50.0
Female	54	50.0
Marital status		
Single	15	13.9
Married	66	61.1
Divorced	10	9.3
Widowed	17	15.7
Ethnicity		
Yoruba	88	81.5
Hausa	8	7.4
Igbo	7	6.5
Nupe	5	4.6
Education		
No formal	14	13.0
Primary	11	10.2
Secondary	26	24.1
Bachelor's	35	32.4
Master's	20	18.5
Doctorate	2	1.9
Occupation		
Self-employed	59	54.6
Civil servant	31	28.7
Private sector	18	16.7
Monthly income		
<₦50,000	44	40.7
₦100,000–149,999	45	41.7
₦150,000–199,999	13	12.0
≥₦200,000	6	5.6
Work experience		
<1 year	3	2.8
1–5 years	45	41.7
6–10 years	33	30.6
>10 years	26	24.1

Respondents had a mean age of 40.6 ± 8.6 years. Males and females were equally represented. Most were married, Yoruba and self-employed; the largest income group earned ₦100,000–149,999 monthly.

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Table 2: Perceived Stress Level among Respondents (n=108)

Stress level	n	%
Low	14	13.0
Moderate	87	80.6
High	7	6.5
Mean PSS score ± SD	20.0 ± 5.1	

Moderate stress predominated (80.6%), with a mean PSS-10 score of 20.0 ± 5.1.

Table 3: Assessment of Dietary pattern among Respondents (n=108)

Food Group	Never n(%)	≤1/Week n(%)	2–4/Week n(%)	5–6/Week n(%)	Daily n(%)
Fruits	1 (0.9)	26 (24.1)	32 (29.6)	12 (11.1)	37 (34.3)
Vegetables	0 (0.0)	31 (28.7)	16 (14.8)	11 (10.2)	50 (46.3)
Whole grains	2 (1.9)	20 (18.5)	37 (34.3)	16 (14.8)	33 (30.6)
Processed foods	22 (20.4)	36 (33.3)	30 (27.8)	10 (9.3)	10 (9.3)
Sugary foods/drinks	18 (16.7)	31 (28.7)	32 (29.6)	11 (10.2)	16 (14.8)
Fried/Fatty foods	15 (13.9)	21 (19.4)	50 (46.3)	9 (8.3)	13 (12.0)
Dairy products	15 (13.9)	18 (16.7)	36 (33.3)	16 (14.8)	23 (21.3)
Protein sources	1 (0.9)	16 (14.8)	21 (19.4)	11 (10.2)	59 (54.6)

Daily consumption was highest for protein sources (54.6%) and vegetables (46.3%). Consumption of processed foods was generally low, with only 9.3% consuming them daily.

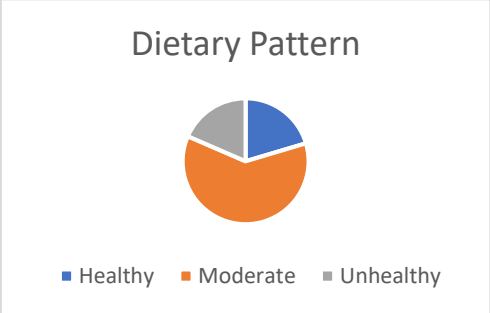


Fig. 1. Overall Dietary Pattern of Respondents

Most respondents exhibited a moderate dietary pattern (61.1%), while 20.4% and 18.5% demonstrated healthy and unhealthy dietary patterns, respectively.

Table 4: Association Between Perceived Stress Level and Dietary Pattern Among Respondents

Perceived Stress Level	Unhealthy Diet n (%)	Moderate Diet n (%)	Healthy Diet n (%)	p-value
Low stress	1 (7.1)	8 (57.1)	5 (35.7)	
Moderate stress	16 (18.4)	54 (62.1)	17 (19.5)	
High stress	3 (42.9)	4 (57.1)	0 (0.0)	
Total	20 (18.5)	66 (61.1)	22 (20.4)	0.205

A moderate dietary pattern was the most common across all stress levels. The Fisher–Freeman–Halton exact test showed that there was no statistically significant association between perceived stress level and dietary pattern (p = 0.205).

Discussion

The study found that moderate perceived stress was common among working adults. This is consistent with Nigerian evidence showing substantial occupational stress among bankers, healthcare workers and university employees (Adekeye *et al.*, 2024; Adeleke *et al.*, 2025). Occupational workload, financial pressures and competing family responsibilities may contribute to the persistence of moderate stress among working-age adults (Mbata & Okemini, 2024; Nwobodo *et al.*, 2023). Most respondents also demonstrated a moderate rather than clearly healthy dietary pattern. Vegetables and protein sources were commonly consumed, but fruits and whole grains were less frequently consumed, while processed, sugary and fried foods remained part of the dietary profile. This mixed pattern is consistent with the nutrition transition described in Nigeria, where traditional foods coexist with increasingly available processed and convenience foods (Petrikova *et al.*, 2023; Sanni, 2025). Asaolu *et al.* (2024) similarly showed that Nigerian adults may exhibit distinct dietary patterns that combine traditional and other

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food groups, highlighting the importance of examining overall dietary behaviour rather than isolated foods.

No statistically significant association was demonstrated between perceived stress and dietary pattern. Although the proportion reporting an unhealthy dietary pattern increased across the low-, moderate- and high-stress groups, the high-stress category contained only seven respondents and the exact test did not support statistical significance. The finding therefore should not be interpreted as evidence that stress has no influence on food choice; rather, the study did not have sufficient evidence to establish an association. The result differs from studies reporting relationships between stress and poorer dietary quality or unhealthy eating behaviors (Fatima, 2025; Akinbule *et al.*, 2025). Differences may reflect variations in age, occupation, socioeconomic circumstances, dietary measurement, sample size and cultural food practices. Food affordability, food availability, nutrition knowledge and household preferences may also influence dietary choices independently of perceived stress.

The observed pattern suggests that dietary behavior among the respondents may be influenced by several factors beyond perceived stress. The relatively high consumption of vegetables and protein sources indicates the presence of some healthy dietary practices, while the lower consumption of fruits and whole grains and continued intake of processed, sugary, and fried foods reflect areas requiring improvement. The absence of a statistically significant association between perceived stress and dietary patterns further suggests that stress alone may not sufficiently explain dietary choices among these working adults. Other factors, including food affordability, availability, personal preferences, nutrition knowledge, and workplace food environments, may contribute to the dietary patterns observed. This highlights the need for workplace nutrition interventions that address the broader determinants of food choice alongside stress-management strategies.

Limitations

The small sample size limits statistical precision and generalizability. The original FFQ composite scoring key was not retained, preventing independent reconstruction of the dietary-pattern cut-offs. The cross-sectional design also prevents causal inference. These limitations should be considered when interpreting the non-significant association.

Conclusion

This study found that moderate perceived stress and moderate dietary patterns were common among working adults in Ilorin West LGA. Vegetables and protein sources were frequently consumed, but overall dietary behaviour remained mixed. The study did not demonstrate a statistically significant association between perceived stress and dietary patterns. Workplace health promotion should therefore address stress management and healthy eating together rather than assuming that dietary behaviour is determined by stress alone. Future studies should recruit larger samples and use a clearly documented dietary scoring system to provide more precise evidence.

Recommendations

Employers and organizations: Provide practical stress-management and nutrition-promotion activities, including adequate meal breaks and supportive workplace environments.

Healthcare professionals: Integrate brief stress assessment and healthy-eating counselling into occupational and primary healthcare contacts.

Government and public-health authorities: Support affordable healthy food environments and workplace health-promotion policies for working adults.

Working adults: Prioritize regular meals, fruits, vegetables and other nutrient-rich foods while using healthy coping strategies for work-related stress.

Researchers: Conduct larger, preferably longitudinal studies with transparent FFQ scoring procedures and adequate sample sizes for multivariable analysis.

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