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The Impact of Occupational Stress and Nutritional Status on Eating Behaviors: A Cross- Sectional Study on Academia

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Abstract

Background

Academia is a profession characterized by high stress levels due to intense workload and performance expectations. It is well known that daily-life stress can affect health by altering individuals' eating behaviors. This study aims to examine the relationship between job stress and eating behaviors among academics and to determine the factors that affect emotional eating.

Methods

This cross-sectional study was conducted with 200 academic staff (121 females, 79 males, and median age 33 years) working in universities in Istanbul between January and March 2024. Data were collected via an online survey containing a sociodemographic information form, the Adult Eating Behavior Questionnaire (AEBQ), and the university teaching staff's job stress scale.

Results

It was determined that 37.5% of the participants were in the pre-obese or obese category. The median score of research assistants in the Factors creating stress in the work of university academic staff sub-dimension was found to be significantly higher than that of faculty members ($p = 0.007$). In the body mass index (BMI)-based comparison, the emotional/over-eating score of the overweight/obese group was significantly higher than that of the underweight/normal group, while the satiety responsiveness score was lower ($p < 0.001$). In the hierarchical regression analysis, job stress and demographic variables did not significantly explain emotional eating behavior in the initial models ($p > 0.05$). However, the significant improvement in the model's explanatory power began with the addition of BMI in Model 3 ($\Delta R^2 = 0.105$; $p < 0.001$), while job stress itself was not a significant predictor in any model ($p > 0.05$). In the final model (Model 4), the addition of the number of meals further improved the model ($\Delta R^2 = 0.044$; $p = 0.002$), and the model's total explanatory power reached 16.6% ($R^2 = 0.166$; $p < 0.001$).

Conclusion

The study findings indicate that emotional eating behavior in academics is more strongly associated with BMI and dietary habits rather than job stress. In line with these findings, planning healthy nutrition and weight management programs for academics is recommended.

Introduction

In today's higher education institutions, the occupational stress and nutritional behaviors faced by academics are gaining increasing importance for both individual health and institutional productivity [1].

Factors such as academic staff workload, performance pressure, economic concerns, and various work-related stressors directly affect professional quality of life and general health [2, 3]. Specifically, while factors such as compensation, job insecurity, lack of control, and quantitative performance evaluations stand out as primary elements that increase faculty stress, timely payments and the recognition of achievements enhance staff morale [4–6]. Global research indicates that academics experience moderate to high levels of stress, and this situation is strongly associated not only with burnout, anxiety, and depression but also with physiological ailments such as hypertension [1–3].

In coping with stress, the adaptive coping strategies and individual self-efficacy levels used by academics play a decisive role in reducing the negative effects of stress and supporting well-being [7, 8]. Furthermore, it is observed that academic stress negatively affects not only staff but also students' quality of life and academic success [9]. It is also emphasized that economic stress exhibits a multidimensional structure ranging from financial anxiety to job insecurity, requiring intervention frameworks at the individual, organizational, and community levels [10].

Nutritional behaviors are among the fundamental factors affecting the general health status of academics; however, it is observed that the level of nutritional knowledge alone does not guarantee healthy eating practices or ideal body weight [11]. A study conducted in Turkey indicates that nutritional literacy increases water consumption and reduces the frequency of skipping meals, thereby promoting healthy eating behaviors [12]. It has been determined that a large majority of university employees prefer to eat their meals at the workplace, and these meals account for a significant portion of their daily energy intake [13]. Conversely, it has been found that intake of protein, carbohydrates, and sodium in workplace meals exceeds recommended levels, while the energy contribution of breakfast remains insufficient [14].

Academia, which was defined as a low-stress profession until the mid-eighties, has today transformed into a highly stressful structure with increasing workloads, rising quality standards, and the addition of multidimensional roles such as teaching, research, and consultancy [15]. According to International Labour Organization (ILO) reports, the education sector is among the areas where occupational stress is most intense, driven by high workloads, performance pressure, and changing work models [16]. It has been demonstrated that stress can increase or decrease food intake [17]. In one study, it was shown that individuals under chronic stress are more prone to eating compared to those under acute stress conditions and tend to consume energy-dense foods high in fat and sugar during these periods [18]. Given that the current literature clearly indicates that academics experience high levels of occupational stress and that nutritional behaviors are influenced by a wide range of factors, from individual preferences to environmental conditions, this study aims to determine the relationship between the occupational stress faced by academics and their nutritional behaviors.

Materials and Methods

Study design and sample

This cross-sectional study was conducted between January and March 2024 using a convenience sampling strategy. The target population consisted of academic staff working at various state and foundation universities across Istanbul. The sample size was determined via an a priori power analysis using G*Power (v3.1.9.7). Based on a similar study conducted by Ince-Palamutoğlu et al. [19], an effect size of ρ = 0.21 was accepted. Using two-tailed test parameters with a significance level of α = 0.05 and a target power value of 1- ß = 0.80, the minimum required sample size was calculated as 175. Eligible participants were defined as individuals over the age of 18 who serve as academic staff at a university in Istanbul and have no diagnosis of advanced-stage chronic disease, psychiatric condition, or special dietary requirements. Participants were recruited by sending an online survey invitation directly to their institutional e-mail addresses, which were accessed through publicly available university directories and academic networks. Following the exclusion of incomplete responses and those not meeting the inclusion criteria, a final sample comprising 200 valid responses was obtained. The flow diagram of the study is illustrated in Fig. 1. The studies involving humans were approved by the Human Research Ethics Committee of Istanbul Bilgi University (No: 2023-50160-176, Date: 03.01.2024). The research was conducted in accordance with the Declaration of Helsinki, as well as local legislation and institutional requirements. All participants provided their written informed consent to participate in this study prior to completing the survey.

Data Collection Tools

A four-part survey form, developed by the researchers based on similar studies and the existing literature, was collected using online Google Forms. The survey included sections on sociodemographic information, nutritional habits, food consumption, the Adult Eating Behavior Questionnaire (AEBQ), and the University teaching staff's job stress scale.

The Survey Form: Sociodemographic characteristics such as gender, marital status, academic title, faculty, and years of experience along with dietary habits were questioned through the survey form. Additionally, participants were requested to weigh themselves in the morning, on an empty stomach and barefoot, and to measure their height with feet together and heads in the Frankfort plane. Subsequently, BMI was calculated using the following formula: BMI = body weight (kg) / height (m^2) [20].

Adult Eating Behavior Questionnaire (AEBQ): The AEBQ, developed by Hunot et al. [21] and validated for the Turkish population by Yücel et al. [22], was used in this study. The scale consists of 26 items on a 5-point Likert scale. It comprises seven sub-dimensions: hunger, satiety responsiveness, emotional over-eating, enjoyment of food, emotional under-eating, food fussiness, and slowness in eating. Higher scores on each sub-dimension indicate greater engagement in the respective eating behavior. The Cronbach-α value for the scale was 0.76.

University Teaching Staff's Job Stress Scale: The university teaching staff's job stress scale for which the validity and reliability study was conducted by Balci in 2019 [23], was used in this research. This 5-point Likert-type scale consists of three sub-dimensions: "Factors creating stress in the work of

university academic staff (stress-creating factors scores)"(30 items), "Coping strategies for stress of university academic staff" (25 items), and "Performance of university academic staff in stressful situations" (12 items). The Cronbach-α values for the sub-dimensions were 0.89, 0.86, and 0.83, respectively. An increase in the score on the scale indicates a higher level of occupational stress among university academic staff.

Statistical Analysis

The obtained data were analyzed using IBM SPSS Statistics software (version 28.0, IBM Corp., Armonk, NY, USA). Categorical variables were expressed as numbers (n) and percentages (%). Continuous variables were presented as mean ± standard deviation or median (minimum–maximum), depending on the data distribution. Data distribution normality was evaluated using the Kolmogorov-Smirnov test. The chi-square test was used to compare categorical variables. For continuous variables that did not show a normal distribution, the Mann–Whitney U test was applied for comparisons between two groups, and the Kruskal–Wallis test was used for comparisons among three or more groups. When a statistically significant difference was detected, post hoc analyses were performed using pairwise comparisons with the Bonferroni correction. For continuous variables with normal distributions, the independent-samples t-test was used for two-group comparisons, and the one-way analysis of variance (ANOVA) was used for comparisons among three or more groups. When variances were not homogeneous, Tamhane's T2 test was used for post hoc analyses. Hierarchical multiple linear regression analysis was applied to determine the factors predicting emotional/over-eating behavior. In the first stage, a crude model was created; subsequently, demographic variables (age, gender), sociodemographic characteristics (academic title, marital status, faculty), body mass index (BMI), and dietary habits (number of meals) were added to the model in a stepwise manner. Results were reported with standardized beta (1-beta) coefficients, 95% confidence intervals (CI), and p-values. Furthermore, to evaluate the improvement of the model at each hierarchical step, the R-squared change (ΔR^2), the F-change statistics, and their corresponding p-values were calculated and reported. For all analyses, the statistical significance level was set at $p < 0.05$.

Results

The sociodemographic and academic characteristics of the participants are presented in Table 1. Of the 200 academics included in the study, 60.5% are female, and 39.5% are male. Regarding marital status, 51.5% of the participants are married, and 48.5% are single. When the distribution of academic titles is examined, 38.0% are faculty members, 35.5% are instructors, and 26.5% are research assistants. A statistically significant relationship was found between gender and the distribution of academic titles ($p = 0.039$). The median years of experience for male academics (6 years) is higher than that of female academics (4 years) ($p < 0.001$). The BMI of the participating academics was 23.99 ± 3.85 kg/m². According to BMI classification, 62.5% of the participants are in the underweight-normal category, while 37.5% fall into the overweight-obese category. The mean BMI of males (25.2 kg/m²) is significantly higher than the mean BMI of females (21.9 kg/m²) ($p < 0.001$). When meal consumption habits were

evaluated, it was determined that the number of daily snacks was statistically significantly higher in women than in men ($p = 0.039$).

The findings regarding the participants' job stress levels are presented in Table 2. The scores for stress-creating factors (Median = 91) and stress-coping strategies (Median = 74) were significantly higher among female academics than among male academics ($p < 0.001$). In the assessment by academic title, the stress-creating factors scores of research assistants (Median: 97) were higher than those of instructors and faculty members, and this difference was statistically significant ($p = 0.007$). No statistically significant relationship was determined between the faculty or BMI classification and the sub-dimensions of job stress ($p > 0.05$).

Food enjoyment scores for females (Median = 14) were higher than those for males (Median = 12) ($p = 0.040$). In the assessment by BMI classification, the emotional over-eating scores of the overweight-obese group (Median = 17) were found to be significantly higher than those of the underweight-normal group (Median = 15) ($p < 0.001$). Conversely, the satiety responsiveness and emotional under-eating scores of the overweight-obese group were found to be significantly lower compared to the underweight-normal group ($p < 0.05$). In the analysis by academic title, it was determined that the enjoyment of food scores of research assistants (Median = 14) were higher than those of instructors and faculty members (Median =12) ($p = 0.036$). No statistically significant difference was found between the groups in terms of hunger, food fussiness, slowness in eating, and total scale scores ($p > 0.05$) (Table 3).

According to the results of the hierarchical regression analysis, no statistically significant effect of job stress on emotional eating was detected in the crude model or in the models where demographic variables were added (Model 1 and Model 2) ($p > 0.05$). However, job stress did not significantly predict emotional/over-eating behavior in any of the models ($p > 0.05$). Instead, the addition of BMI (Model 3) produced a statistically significant increase in the model's explanatory power ($\Delta R^2 = 0.105$; F change = 22.930; $p < 0.001$), and the addition of the number of meals (Model 4) provided a further significant increase ($\Delta R^2 = 0.044$; F change = 9.968; $p = 0.002$). In the final model, the total explained variance increased to 16.6% ($R^2 = 0.166$) (Table 4).

Discussion

Occupational stress is a critical professional risk factor that can negatively affect employee health and job performance, leading to loss of productivity, absenteeism, and increased healthcare expenditures [16]. In the academic profession, stress levels are reported to be at moderate to high levels due to multiple role expectations, publication pressure, and academic promotion criteria; this situation is noted to be more pronounced based on variables such as gender, faculty, academic title, income level, and length of service [24]. In our study, the finding that research assistants scored significantly higher on the stress-creating factors sub-dimension than faculty members suggests that early-career staff are at higher risk due to hierarchical pressure, job insecurity, and academic expectations. The literature emphasizes that, while stress-coping strategies improve with title and professional experience, these

stressors become more chronic at lower titles [5, 25]. Furthermore, this finding may be closely related to the specific stressors research assistants face within the Turkish academic system. In addition to the pressure of thesis writing and academic performance expectations brought by postgraduate education processes, the temporary staff status in Turkish higher education legislation creates serious future anxiety among this group [26, 27]. Along with this, the intense workload created by administrative duties that research assistants must carry out alongside their own academic studies can be considered one of the primary reasons for their higher stress levels than those of other titles [28].

In addition to these title-based differences in stressors, another significant finding highlighting gender-based variations in eating behavior emerged in our study. The finding that female academics scored significantly higher in the enjoyment of food sub-dimension compared to males is in strong alignment with current literature. In a study involving over 4,000 adults, Yalçın et al. (2023) reported that hedonic hunger and stress levels were significantly higher in women than in men [29]. This situation may be explained by women's greater tendency to use food as a reward or an emotional regulator in stress-coping. Systematic review and meta-analysis results reported by Karamizadeh et al. (2024) also confirm that the tendency toward hedonic eating is positively correlated with BMI, and that this relationship exerts greater pressure on women, especially within the modern obesogenic environment [30]. It is suggested that the occupational stress faced by female academics may be associated with an increased tendency toward hedonic eating, which could potentially relate to altered food reward sensitivity. Therefore, the elevated food enjoyment scores among female academics could be interpreted not merely as a preference, but possibly as a hedonic coping mechanism in response to stressful academic environments.

In this study, it was determined that job stress does not directly predict emotional eating behavior among academics; however, BMI was identified as the strongest independent predictor of this behavior. While job stress and demographic variables did not make a significant contribution to the model on their own in the hierarchical regression analysis, the fact that the model's explanatory power reached a significant level only with the addition of BMI indicates that emotional/over-eating behavior is driven mainly by weight status rather than by job stress. Job stress did not emerge as a significant predictor of emotional eating in any of the models, whereas BMI produced the only substantial and significant increase in explained variance. While our cross-sectional design precludes establishing causality, the current literature suggests that stress and high cognitive load may interact with individual factors, such as weight status, to influence eating behaviors [31, 32]. Similarly, Kumar et al. (2022) indicate that stress is associated with unhealthy eating habits, potentially due to its interplay with cognitive processes [33]. In our sample, the finding that the model became significant only once BMI was accounted for indicates that emotional eating cannot be fully understood without considering the individual's body composition. It is possible that individuals with higher BMI levels might be more susceptible to the stress-emotional eating cycle. However, since specific cognitive mechanisms such as self-regulation or biological predispositions were not measured in this study, these dynamics warrant further longitudinal investigation to clarify the underlying mechanisms. Our findings parallel a recent study conducted on academics in Türkiye, which reported that job stress is not directly related to eating behaviors but rather

significantly affects sleep quality [34]. Similarly, the literature reports that, despite moderate-to-high stress levels among academics, their eating behaviors are not directly associated with stress [28]. This situation can be explained by stress becoming chronic and part of daily life for academics, as well as individuals having developed stress-coping strategies alongside their professional experience.

The relationship between job stress, nutritional behaviors, and anthropometric measurements is supported by various studies in the literature [35]. In our study, the strong association between BMI and emotional eating suggests that emotional eating is a bidirectional pattern that both contributes to weight gain and is reinforced by it. The finding that emotional eating scores are significantly higher in pre-obese and obese individuals compared to those of normal weight supports this view [36]. Furthermore, decreased sensitivity to hunger-satiety signals and increased hedonic eating drive in individuals under stress are considered fundamental mechanisms in the maintenance of emotional eating behavior [37]. In the present study, the increase in explanatory power to 16.6% with the inclusion of the daily number of meals in the model indicates that emotional eating is related not only to weight status but also to the individual's established eating pattern. It is reported that irregularities in meal frequency and meal-skipping can trigger uncontrolled eating episodes through fluctuations in blood glucose levels [38]. This finding is closely related to the critical role of circadian rhythm and meal timing in metabolic health within nutritional literature [39]. The current literature shows that long working hours, unpredictable meeting schedules, and high workloads can disrupt circadian rhythms and lead to irregular meal patterns, thereby reinforcing the tendency toward emotional eating [38]. Consequently, it can be argued that academic eating behavior is influenced not only by individual preferences but also by the temporal constraints imposed by the academic work culture.

The lack of significance of job stress as an independent predictor suggests that, unlike the strong stress-eating relationship observed among university students, factors such as professional experience and age may play a protective role among academics [40]. In conclusion, the findings of this study reveal that emotional eating behavior among academics is more strongly associated with BMI and nutritional patterns than with job stress alone. This situation emphasizes that focusing solely on stress management in interventions targeting academics will not be sufficient; rather, it underscores the need for holistic approaches that include developing healthy eating habits and managing weight. It is thought that nutrition education and behavior change programs implemented in university settings can improve academic staff's long-term health outcomes [41].

Strengths and Limitations

One of the primary strengths of this study is its examination of the relationships among variables in a stepwise manner using a hierarchical regression model, integrating occupational stress, eating behavior, and anthropometric indicators within a single analytical framework. This approach allowed for the isolation of the independent effect of job stress from demographic, anthropometric, and behavioral variables, enabling a holistic evaluation of the multidimensional structure of emotional eating behavior. Furthermore, the focus on the academic population is significant, as it contributes to the limited number

of studies examining the relationship between job stress and nutrition in this professional group, characterized by high cognitive load and multiple role expectations. In addition to these strengths, the study has certain limitations. The cross-sectional design of the research restricts the ability to make causal inferences regarding the direction of the identified relationships. Since the data were collected via self-report surveys, there is a risk of recall or social desirability bias in participants' responses. Moreover, the lack of assessment of biomarkers, such as cortisol, which objectively reflect the physiological dimension of stress, leaves interpretations of the biological mechanisms underlying stress and eating behavior indirect. Additionally, while our regression model successfully identified significant predictors, it explains a modest proportion of the variance in emotional eating behavior ($R^2 = 0.166$). This highlights the complex, multifactorial nature of eating behaviors; thus, additional confounding variables such as physical activity, sleep quality, psychological factors (e.g., depression and anxiety), income level, and specific work schedules were beyond the scope of the current study. Future longitudinal, biomarker-based research that incorporates these multidimensional factors is expected to more clearly reveal the temporal and biological dimensions of the stress-emotional eating relationship among academics.

Conclusion

In this cross-sectional study, it was demonstrated that job stress does not directly predict emotional/over-eating behavior among academics; however, BMI emerged as the strongest independent predictor of emotional eating behavior. It was found that demographic variables and job stress did not provide a significant contribution to the model. However, the explanatory power reached a significant level with the addition of BMI, and increased further when the daily number of meals was included. These results suggest that emotional eating behavior in academics is more closely associated with anthropometric status and current nutritional patterns.

The findings emphasize that focusing solely on stress management in interventions for academic staff may not be sufficient, highlighting the importance of holistic approaches that include regular meal planning, support for healthy eating behaviors, and weight management. Future longitudinal studies and biomarker-based assessments are expected to more clearly reveal the potential indirect effects of occupational stress on eating behavior and metabolic health.

Abbreviations

Adult Eating Behavior Questionnaire (AEBQ); BMI, body mass index; International Labour Organization (ILO)

Declarations

Ethics approval and consent to participate

The studies involving humans were approved by the Human Research Ethics Committee of Istanbul Bilgi University (No: 2023-50160-176, Date: 03.01.2024). The research was conducted in accordance with the

Declaration of Helsinki, as well as local legislation and institutional requirements. All participants provided their written informed consent to participate in this study prior to completing the survey.

Consent for publication

Not applicable.

Availability of data and materials

The data presented in this study are available on request from the corresponding author due to privacy or ethical restrictions.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

HSA: Conceptualization, Formal analysis, Investigation, Methodology, Project administration, Supervision, Writing – original draft, Writing – review & editing. DZB: Investigation, Formal analysis, Writing – original draft, Writing – review & editing. FS: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Writing – original draft. FHT: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Writing – original draft. NK: Investigation, Formal analysis, Writing – original draft, Writing – review & editing.

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Generative AI statement

The authors employed Gemini 3 Flash by Google for translation assistance and Grammarly for grammatical editing during the drafting of this manuscript. All AI-generated suggestions were critically evaluated by the authors, who maintain full accountability for the accuracy and originality of the final text.

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Tables

Tables 1 to 4 are available in the supplementary files section

Figures

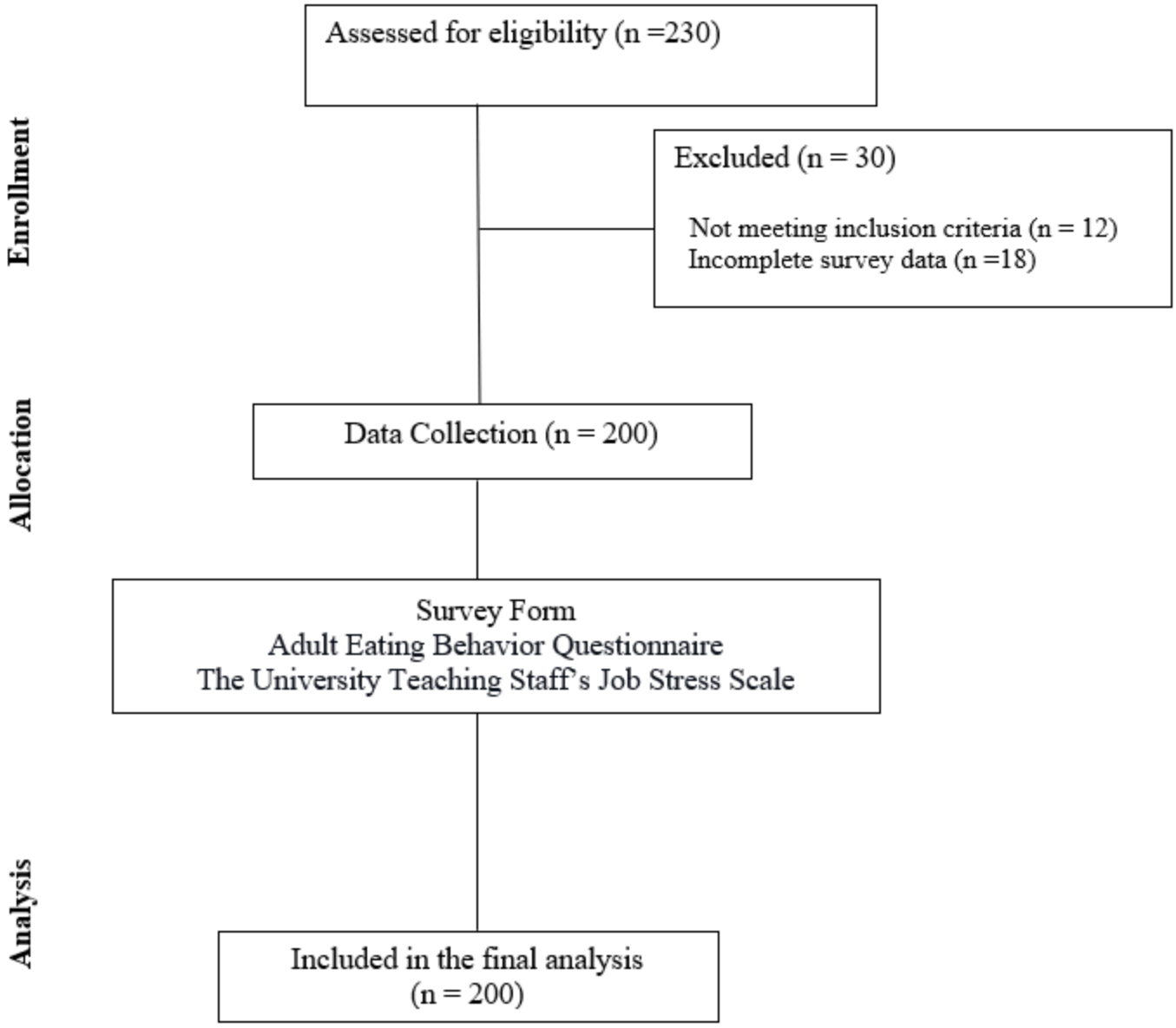


Figure 1

STROBE flow diagram of the study. The flowchart details the participant recruitment and selection process, indicating the number of academic staff assessed for eligibility (n = 230), the specific reasons for exclusion (n = 30), and the final sample size included in the data collection and analysis (n = 200).

Supplementary Files

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- Tables.docx