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Workplace Conditions and Ergonomic Practices for Promoting Secretaries' Physical and Psychological Health in Colleges of Education in Northeast Nigeria: A Cross-Sectional Survey

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Abstract

Secretaries spend most of the working day at one desk, so the condition of the office and the fit of the furniture matter for their health. This cross-sectional survey tested whether office environment and ergonomic design predict the physical and psychological health of secretaries in public Colleges of Education in Northeast Nigeria. All 417 full-time secretaries in fifteen colleges were approached, and 338 returned the questionnaire (81.06%). Responses were analysed with means, standard deviations, and simple and multiple linear regression. Health ratings were favourable (M = 3.91 of 5), and psychological items scored higher than physical ones. Office environment (β = .222) and ergonomic design (β = .260) each predicted health but explained only 4.9% and 6.8% of its variance. Together they explained 7.4%,

and only ergonomic design kept an independent effect (β = .198). Adjustable chairs, desks and workstation layout deserve first call on limited funds.

Keywords: office environment, ergonomic design, secretaries' health, musculoskeletal strain, psychological well-being, Colleges of Education, Northeast Nigeria.

1. Introduction

Work shapes health. The World Health Organization and the International Labour Organization (WHO & ILO, 2022) estimated that 12 billion working days are lost each year to depression and anxiety, at a cost of nearly US$1 trillion to the global economy. The World Health Organization (WHO, 2022) reports that about 1.71 billion people live with a musculoskeletal condition, that low back pain is the leading cause of disability in 160 countries, and that it is a main reason people leave the workforce early. Health also bears on output. A meta-analysis of 78 samples (N = 18,853) found that subjective well-being predicted job performance (ρ = .37; Salgado & Moscoso, 2022).

Office work looks safe, but it is not free of risk. Mohammadian et al. (2025) listed prolonged awkward postures, repetitive movements, static exertion and poorly designed workstations as the main ergonomic hazards, and all four are common in offices. In their study of 99 office workers in an industrial company, 80.81% reported musculoskeletal symptoms, the mean Rapid Office Strain Assessment score was 5.40 (a score of 5 or above indicates high risk), and the chair produced the most strain of any component. Secretaries are among the most exposed. They type, read screens and handle documents for most of the day at one workstation, and they keep the records and correspondence on which academic and administrative units depend.

Two features of the physical workplace can be changed by the institution that employs the worker. The office environment is the arrangement and condition of the workspace: how much room there is, how furniture is placed, and whether temperature, air, light and noise are tolerable. Ergonomic design is the fit between the workstation and the body of the person using it, which covers the chair, the desk, the position of the monitor and the reach of frequently used items (National Institute for Occupational Safety and Health [NIOSH], 2024). Both can be altered without changing the nature of the job, which is not true of pay structures or national policy.

Evidence links both features to health. Poor indoor environmental quality has been tied to workplace health complaints (Tabe-Afshar et al., 2023), and a review of office comfort studies found that the acoustic domain correlated most strongly with productivity and health (Fissore et al., 2023). Employees with some control over lighting and noise reported lower stress (Forooraghi et al., 2021). In a survey of 4,352 employees across seven office layouts, emotional exhaustion varied with office design, and cell offices gave the most favourable results (Bodin & Theorell, 2024). Zhang (2025) linked workstation area, privacy, indoor climate and maintenance quality to mental well-being in Chinese office buildings. On the ergonomic side, Fadaei et al. (2024) found that posture, work equipment and office chair design significantly influenced the general health of university employees in Iran, and Irwanti et al. (2024) reported that ergonomic design affected the well-being of hospitality workers in Bali. Mahasneh et al. (2024) found that lighting, noise control, ventilation and ergonomic furniture affected employee health in Jordan, and Dumitriu et al. (2025) reported that good ergonomics, lighting and

temperature control went with better physical and psychological well-being. Bailey (2021) reviewed the health implications of sedentary behaviour at work and the interventions that address it.

Nigerian studies describe a poorer starting point. Okonkwo et al. (2021) reported that budgets limited the ergonomic quality of Nigerian educational institutions, and Nwachukwu and Magaji (2024) found that the workstations of administrative staff in tertiary institutions in Zamfara State fell short of basic ergonomic standards. Akinmayowa and Oguntimehin (2024) reported work-related musculoskeletal disorders among academic staff in South-West Nigeria. Adamu and Ibrahim (2023) reported a higher prevalence of musculoskeletal disorders among secretaries in Northeast Colleges of Education than among corporate workers, and traced it to outdated furniture, prolonged sitting and limited ergonomic awareness. Mohammed and Ibrahim (2023) assessed indoor environmental quality in the same kind of institution for its implications for staff health.

The Northeast carries pressures that other zones do not. More than a decade of insurgency has damaged public infrastructure in the region. UNICEF figures relayed by Agence France-Presse (AFP, 2017) put the number of schools destroyed at nearly 1,400 over eight years of conflict, and the Global Coalition to Protect Education from Attack (GCPEA, 2026) counted at least nine attacks on schools and 30 on higher education in Nigeria in 2024 and 2025. Where maintenance is deferred and public budgets are redirected to security and relief, offices and furniture are likely to deteriorate first and be replaced last.

Three bodies of theory explain why these conditions should matter for health. Ergonomic theory holds that equipment and workstations should fit the physical capacities of the people who use them, because awkward postures, repeated movements and prolonged sitting strain muscles, joints and the spine (McCormick & Sanders, 1982; NIOSH, 2024). Person-Environment Fit Theory holds that strain and ill health follow when the environment does not supply what the person needs (French et al., 1982), and Nigerian work has linked poor fit to health through perceived stress (Ugwu et al., 2020). The Job Demands-Resources model adds that physical conditions of work can act as resources that protect employees or as demands that wear them down (Bakker et al., 2023). Together they lead to two expectations: a poorly fitted workstation should harm the body first and mood later, and the wider office setting should act partly through the workstation.

Most of the studies above treat office environment and ergonomic design separately, examine one outcome at a time, or draw their samples from corporate organisations and academic staff. Studies from the Northeast tend to address one predictor or one outcome (Adamu & Ibrahim, 2023; Mohammed & Ibrahim, 2023). The literature reviewed for this study contained none that set both predictors against the physical and psychological health of secretaries in Colleges of Education in the region. Without that evidence, college managers cannot tell whether improving the layout of an office or replacing furniture would do more for the health of their secretaries.

This study therefore set out to determine how office environment and ergonomic design relate to the physical and psychological health of secretaries in public Colleges of Education in Northeast Nigeria. Its objectives were:

1. to determine the influence of office environment on secretaries' health;
2. to determine the influence of ergonomic design on secretaries' health; and

3. to determine the joint influence of office environment and ergonomic design on secretaries' health.

The research questions asked what influence office environment (RQ1), ergonomic design (RQ2), and the two together (RQ3) have on secretaries' health in Colleges of Education in Northeast Nigeria. Three null hypotheses were tested at the 0.05 level of significance:

H1: Office environment has no significant influence on secretaries' health in Colleges of Education in Northeast Nigeria.

H2: Ergonomic design has no significant influence on secretaries' health in Colleges of Education in Northeast Nigeria.

H3: Office environment and ergonomic design have no significant joint influence on secretaries' health in Colleges of Education in Northeast Nigeria.

2. Materials and Methods

2.1 Study design and setting

A cross-sectional survey design was used (Takona, 2024). All variables were perceptual and were measured by asking secretaries about their own workplaces and health. A questionnaire could reach respondents in fifteen colleges across six states within a reasonable time, and it produced numerical data that could be tested statistically without altering any condition in the field. The study was carried out in Northeast Nigeria, which comprises Adamawa, Bauchi, Borno, Gombe, Taraba and Yobe states. The climate is hot and semi-arid for much of the year, which puts pressure on offices without adequate cooling and ventilation. Data were collected in the 2025/2026 academic year.

2.2 Participants

The population was 417 full-time secretaries with permanent appointments in fifteen public Colleges of Education, five owned by the federal government and ten by state governments. Permanent staff were chosen because they occupy one workstation over a long period and can judge it from sustained experience. Part-time and contract secretaries were excluded because their length of stay and exposure vary widely, and private colleges were excluded because their funding and management differ from those of public institutions. The population was finite, identifiable and reachable, and the number of secretaries per college ranged from 8 to 72, so a random sample could have left some colleges with few or no respondents. A census was therefore taken, and every college was represented (Hossan et al., 2023; Lakens, 2022).

2.3 Instrument

Data were collected with the Office Environment and Secretaries Outcomes Questionnaire (OESOQ), which has six sections and 71 items. Items were adapted from earlier instruments and reworded for secretaries in Colleges of Education. This paper uses four sections. Section A recorded college, gender, age range and years of working experience. Section B measured office environment

with 13 items adapted from Ismaila et al. (2013) and Almaz and Fawzy (2022); they covered space, furniture arrangement, privacy, storage, circulation, temperature, ventilation, air quality, lighting, noise, cleanliness and the condition of furniture. Section C measured ergonomic design with 14 items adapted from O'Brien (2021), Lokman and Habidin (2024), Fadaei et al. (2024), Vischer (2020) and the International Organization for Standardization (ISO, 2011); they covered the adjustability of chair and desk, reach, workstation organisation and layout, monitor position, access to power points, lumbar and armrest support, and fatigue during prolonged sitting. Section E measured health with 14 items adapted from Gayatri and Sai (2025), McHenry et al. (2023), Pace et al. (2021) and Silveira et al. (2017). Nine health items concerned physical indicators (neck, shoulder and back pain, comfort of posture, energy, physical fatigue, headaches, eye strain and sick leave) and five concerned psychological indicators (sleep, feeling overwhelmed, decisions under stress, spillover of stress into personal life, and emotional balance). The questionnaire did not define these as separate validated subscales, so the grouping used in this paper follows item content. The remaining sections of the OESOQ, on performance and job satisfaction, are not analysed here.

Items in Sections B, C and E were rated on a five-point scale: Strongly Disagree = 1, Disagree = 2, Moderately Agree = 3, Agree = 4 and Strongly Agree = 5 (Alabi & Jelili, 2023). All items were worded so that a higher score means a more favourable condition or outcome. The score for each variable was the mean of its items.

2.4 Validity and reliability

Three experts from the Department of Vocational Education, Abubakar Tafawa Balewa University, Bauchi, and from Modibbo Adama University, Yola, reviewed the questionnaire for face and content validity. They checked the clarity of language, wording and layout, and rated each item for relevance, clarity and adequacy of coverage. Items judged unclear, irrelevant or inadequate were revised or removed (Marín, 2024). Reliability was tested in a pilot study of 39 secretaries from two colleges outside the study area, Federal College of Education, Katsina, and Sa'adatu Rimi College of Education, Kumbotso, which is about 9% of the population. A pilot of 30 or more is generally regarded as adequate for estimating internal consistency (Bonett & Wright, 2015; Ranganathan & Caduff, 2023). Cronbach's alpha was 0.920 for office environment, 0.881 for ergonomic design and 0.954 for health, all above the 0.70 usually taken as acceptable (Taber, 2018).

2.5 Data collection

The researcher obtained an introductory letter from the Department of Vocational Education and administered the questionnaire personally, with one research assistant in each college. Personal administration lets the researcher build rapport, clarify items and collect completed forms directly, which tends to raise response rates (Sekaran & Bougie, 2019). The assistants were trained on the objectives of the study, research ethics, the administration procedure and the recording and retrieval of forms. Fieldwork lasted ten weeks. Of the 417 questionnaires distributed, 338 were completed and returned (81.06%) and 79 (18.94%) were not returned. This response rate compares favourably with those

reported for individual-level surveys in organisational research (Holtom et al., 2022). All analyses used the 338 returned questionnaires.

2.6 Data analysis

Data were analysed with the Statistical Package for the Social Sciences (SPSS). Frequencies and percentages described the respondents, and means and standard deviations described each item and variable. A mean of 3.00 or above was read as agreement and a mean below 3.00 as disagreement. Simple linear regression tested H1 and H2, and multiple linear regression tested H3, with health as the dependent variable in each model (Roustaei, 2024). The multiple regression gives the combined effect of the two predictors and the contribution of each when the other is held constant. Hypotheses were tested at the 0.05 level, and a null hypothesis was rejected where p was below .05.

2.7 Ethical considerations

Participation was voluntary. The covering letter on the questionnaire told respondents that their answers would be treated confidentially and used only for academic purposes. Details of ethical approval and consent are given in the Ethical Approval statement at the end of the paper.

3. Results

3.1 Respondents

Respondents came from all fifteen colleges. Federal College of Education, Yola (n = 58, 17.2%), Federal College of Education (Technical), Gombe (n = 51, 15.1%) and Federal College of Education (Technical), Potiskum (n = 45, 13.3%) supplied the largest shares, in line with their large secretarial populations. The smallest shares came from Gombe State College of Education and Legal Studies, Nafada, and College of Education and Legal Studies, Nguru (n = 6 each, 1.8%). Table 1 gives the other characteristics of the 338 respondents. Men made up 59.5% of the sample, and 69.5% of respondents were aged 35 to 54 years. A little over half (56.0%) had served between 6 and 15 years, so most had known their offices for some time.

Table 1: *Characteristics of Respondents (N = 338)*

Characteristic	Category	n	%
Gender	Male	201	59.5
	Female	137	40.5
Age range	25–34 years	65	19.2
	35–44 years	135	39.9
	45–54 years	100	29.6
	55 years and above	38	11.2
Years of experience	1–5	69	20.4
	6–10	106	31.4
	11–15	83	24.6
	16–20	49	14.5
	21 and above	31	9.2

Note. Percentages are of the 338 returned questionnaires. The respondents came from all fifteen colleges.

3.2 Descriptive statistics

Table 2 summarises the three variables. Secretaries agreed with every item on each of them. Office environment had a grand mean of 3.80 (SD = 0.80). The cleanliness item was rated highest (3.97), and the items on keeping frequently used things within easy reach (3.69) and having sufficient space for work (3.70) were rated lowest. Ergonomic design had a grand mean of 3.76 (SD = 0.90). The chair's armrests and seat (3.91) and its lower-back support (3.85) were rated highest. The adjustability of the desk was rated lowest (3.57) and drew the widest spread of answers (SD = 1.09). Health had the highest grand mean of the three variables (M = 3.91, SD = 0.61).

Table 2: *Descriptive Statistics and Reliability of the Study Variables*

Variable	Items	M	SD	Cronbach's α (pilot)
Office environment	13	3.80	0.80	.920
Ergonomic design	14	3.76	0.90	.881
Health (all items)	14	3.91	0.61	.954
Physical items	9	3.85		
Psychological items	5	4.03		

Note. N = 338. Scores range from 1 to 5, and higher scores are more favourable. The physical and psychological rows are unweighted means of item means (items 1–9 and 10–14 in Table 3), grouped by item content. The pilot sample was n = 39.

Table 3 lists the health items. Psychological items were rated higher (4.03 across items 10 to 14) than physical items (3.85 across items 1 to 9). The highest means were for work stress not spilling over into personal life (4.13), managing job demands without feeling overwhelmed (4.09), making sound decisions under stress (4.02) and sleeping well (4.00). Among the physical items, completing administrative tasks without physical fatigue was rated lowest by a clear margin (3.43, SD = 0.66). The other physical items fell between 3.85 and 3.99.

Table 3: *Mean and Standard Deviation of Health Items*

No.	Item (abridged)	M	SD
Physical indicators			
1	Free from neck, shoulder or back pain	3.86	0.94
2	Work posture stays comfortable all day	3.94	0.90
3	Duties done without interference from body pain	3.90	0.91
4	Enough energy to work to a good standard	3.87	0.98
5	Energetic and alert to the end of the day	3.90	0.97
6	Tasks completed without physical fatigue	3.43	0.66
7	Rarely or never has work-related headaches	3.99	0.92
8	Eyes stay comfortable and unstrained	3.89	0.79
9	Environment supports health; rarely needs sick leave	3.85	0.69
Psychological indicators			
10	Sleeps well; not kept awake by work concerns	4.00	0.73
11	Manages job demands without feeling overwhelmed	4.09	0.68
12	Sound decisions despite job-related stress	4.02	0.78
13	Work stress does not spill into personal life	4.13	0.75
14	Feels emotionally balanced and motivated	3.91	0.79
	Grand mean	**3.91**	**0.61**

Note. N = 338, except item 14 (N = 337). Items are abridged from the questionnaire wording. Grouping into physical and psychological indicators follows item content.

3.3 Tests of the hypotheses

Office environment was a significant positive predictor of health ($\beta = .222$, $t = 4.18$, $p < .001$) and explained 4.9% of the variance (adjusted $R^2 = .047$; $F(1, 336) = 17.45$, $p < .001$), so H1 was rejected. Ergonomic design was also a significant positive predictor ($\beta = .260$, $t = 4.94$, $p < .001$) and explained 6.8% of the variance (adjusted $R^2 = .065$; $F(1, 336) = 24.38$, $p < .001$), so H2 was rejected. Table 4 gives both models.

Table 4: *Simple Linear Regression of Secretaries' Health on Office Environment and on Ergonomic Design*

Predictor	B	SE	β	t	p	R^2	F(1, 336)
Office environment	.174	.042	.222	4.177	<.001	.049	17.450
Ergonomic design	.216	.044	.260	4.938	<.001	.068	24.381

Note. N = 338. Each predictor was entered in its own model. Dependent variable: secretaries' health. B = unstandardised coefficient; SE = standard error of B; β = standardised coefficient.

When both predictors were entered together, they explained 7.4% of the variance in health ($R = .272$, adjusted $R^2 = .069$; $F(2, 335) = 13.41$, $p < .001$), and H3 was rejected. Within the model, ergonomic design remained a significant predictor ($\beta = .198$, $t = 2.99$, $p = .003$). Office environment, which was significant on its own, was not ($\beta = .101$, $t = 1.53$, $p = .127$). Table 5 gives the coefficients.

Table 5: *Multiple Linear Regression of Secretaries' Health on Office Environment and Ergonomic Design*

Predictor	B	SE	β	t	p
Office environment	.079	.052	.101	1.530	.127
Ergonomic design	.165	.055	.198	2.993	.003

Note. N = 338. $R = .272$, $R^2 = .074$, adjusted $R^2 = .069$, $F(2, 335) = 13.410$, $p < .001$. Dependent variable: secretaries' health.

4. Discussion

4.1 Health ratings

Secretaries in the fifteen colleges rated their health favourably (M = 3.91), and they rated their psychological health (4.03) above their physical health (3.85). Fatigue was the one physical item that stood well below the rest (3.43). That pattern is what ergonomic theory would lead one to expect, since a poorly fitted workstation loads the body first and reaches mood and stress through that route

(McCormick & Sanders, 1982). The data cannot confirm the sequence, because body and mood were measured together at one time.

One caution applies to every rating in this study. Respondents scored almost every item favourably, including items on space and furniture that earlier work describes as deficient in Nigerian public institutions (Adamu & Ibrahim, 2023; Okonkwo et al., 2021). The ratings may reflect real adequacy in these colleges. They may also reflect leniency, social desirability or low expectations in a setting where conditions have long been poor. Any of these would narrow the spread of responses, and a narrow spread tends to weaken observed relationships.

4.2 Office environment and ergonomic design as predictors of health

Both predictors were positively and significantly associated with health. This agrees with Nigerian reports that link inadequate offices and workstations to musculoskeletal complaints (Adamu & Ibrahim, 2023; Akinmayowa & Oguntimehin, 2024; Nwachukwu & Magaji, 2024) and with studies from other countries (Dumitriu et al., 2025; Fadaei et al., 2024; Irwanti et al., 2024; Mahasneh et al., 2024). Mohammadian et al. (2025) found the chair to be the most strain-producing part of the office workstation. The secretaries here rated their chairs more favourably than the adjustability of their desks, which had the lowest ergonomic mean (3.57).

The associations were small. Office environment explained 4.9% of the variance in health and ergonomic design 6.8%. Fadaei et al. (2024) reported much larger standardised paths from posture, layout, equipment and chair design to general health (β from .345 to .586) among university employees in Iran, but their model, outcome and sample differ from those used here, so the two sets of figures cannot be compared directly. There are plain reasons for a modest effect in this study. Health depends on many things outside the office, including age, nutrition, family circumstances and access to care, and none of these was measured. The health items also asked about work-related symptoms in general terms, not about diagnosed conditions.

The joint model shows how the two predictors behaved together. Office environment lost its significance once ergonomic design was in the model, and ergonomic design kept its own (β = .198). The two predictors overlap. Working back from the standardised coefficients in Tables 4 and 5, their correlation is about .61, so much of what the office environment explains about health is also explained by the workstation. One reading is that the workstation is the route through which the wider office reaches the body. That reading fits ergonomic theory and the idea in the Job Demands-Resources model that physical conditions act as demands or resources (Bakker et al., 2023). Another is simple statistical overlap between two correlated predictors. A mediation analysis would be needed to tell the two apart.

4.3 Implications for practice

For college administrators, the results suggest where limited funds might go first. Ergonomic design was the only predictor with an independent association with health, so adjustable chairs and desks, monitors set at a suitable height and workstation layouts that keep frequently used items within reach come first. The descriptive results point to the weakest spots: desk adjustability (3.57), space for work (3.70), keeping items within reach (3.69) and physical fatigue (3.43). Improving the amount and

arrangement of workspace comes next, beginning with the poorest offices. Because ergonomic design explained less than 7% of the variance in health, it should be treated as one lever among several, not as a full answer.

Two further steps follow from the evidence. The National Commission for Colleges of Education could write minimum workspace and ergonomic furniture requirements into its accreditation of Colleges of Education. Staff welfare committees could assess workstations periodically, since conditions deteriorate and differ from office to office, and the Senior Staff Union of Colleges of Education in Nigeria could use these results in welfare negotiations.

4.4 Limitations and further research

Several limits apply. All data were self-reported and collected from the same respondents on one occasion, so ratings may be affected by leniency or social desirability, and they were not checked against medical records, supervisors' assessments or measurements of the workstations. The design is cross-sectional, so the results show association and cannot show that better conditions produced better health. The respondents were full-time secretaries in public colleges in one zone, which limits generalisation to private institutions, other staff and other regions. Age, gender and years of experience were collected but not entered into the models, and workload, supervision and other determinants of health were not measured. About 19% of questionnaires were not returned, and non-respondents were not compared with respondents. Finally, 3 on the response scale meant "moderately agree", so a mean of 3.00 as the mark of agreement is a lenient threshold. Every mean exceeded it, so the useful comparisons are those between items and variables, not against the threshold.

Further studies should test the three outcomes of the wider project (health, performance and job satisfaction) together in a multivariate model, use mediation analysis to test whether the workstation carries the effect of the wider office environment, and add objective measures of health to self-reports. Longitudinal or quasi-experimental studies that measure health before and after an ergonomic change would give evidence of cause and effect. Similar studies in private institutions, other zones and other groups of administrative staff would show how far the findings travel.

5. Conclusion

Office environment and ergonomic design were both associated with better health among secretaries in public Colleges of Education in Northeast Nigeria, but they accounted for a small share of the differences: 4.9% and 6.8% on their own and 7.4% together. When both were considered, only ergonomic design kept an independent association with health. Secretaries rated their psychological health above their physical health, and physical fatigue was the weakest area. The findings support giving ergonomic provision, especially adjustable chairs and desks and a layout that keeps frequently used items within reach, first call on limited funds, while recognising that most of the variation in health lies elsewhere. Because the data are self-reported and cross-sectional, the results show association and not cause. Before-and-after studies of ergonomic changes are needed to test whether improving workstations improves health.

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Conflict of Interest

The author declares no conflict of interest.

Author Contributions

Mohammed Bojude Abubakar: conceptualization, methodology, investigation, data collection, data analysis, writing (original draft), writing (review and editing) and project administration.

Data Availability Statement

The questionnaire is reproduced in Appendix II and the SPSS output in Appendix IV of the author's doctoral dissertation (Abubakar Tafawa Balewa University, Bauchi, 2026). The respondent-level data are held by the author and are available from the corresponding author on reasonable request. No personal identifiers were collected.

Ethical Approval and Informed Consent

Participation was voluntary, and respondents were assured that their answers would be treated confidentially and used only for academic purposes. The Department of Vocational Education, Abubakar Tafawa Balewa University, Bauchi, issued the letter introducing the researcher to the colleges.

Declaration of AI-Assisted Tools

An AI assistant (Claude, Anthropic) was used to extract and draft this manuscript from the author's doctoral dissertation and to format it to the journal's requirements. The author is responsible for the accuracy of the content, the originality of the text, and the accuracy of the citations and references. No AI tool is listed as an author.

References

Adamu, A., & Ibrahim, S. (2023). Ergonomic assessment of administrative workstations in Northeast Nigerian Colleges of Education. *Journal of Workplace Health, 18*(2), 172–189.

Agence France-Presse. (2017, September 29). UNICEF warning over school closures in Northeast. *The Guardian Nigeria*. https://guardian.ng/news/unicef-warning-over-school-closures-in-northeast/

Akinmayowa, T. O., & Oguntimehin, Y. A. (2024). Ergonomic assessment and prevalence of work-related musculoskeletal disorders among academic staff in selected universities in South-West Nigeria. *Nigerian Journal of Environmental Sciences and Technology, 8*(1), 112–125.

Alabi, A. T., & Jelili, M. O. (2023). Clarifying Likert scale misconceptions for improved application in urban studies. *Quality & Quantity, 57*(2), 1338–1350.

Almaz, H., & Fawzy, A. (2022). The impact of anthropometrics on the functional design of office furniture. *International Design Journal, 12*(5), 21–30.

Bailey, D. P. (2021). Sedentary behaviour in the workplace: Prevalence, health implications and interventions. *British Medical Bulletin, 137*(1), 42–50.

Bakker, A. B., Demerouti, E., & Sanz-Vergel, A. (2023). Job demands–resources theory: Ten years later. *Annual Review of Organizational Psychology and Organizational Behavior, 10*, 25–53. https://doi.org/10.1146/annurev-orgpsych-120920-053933

Bodin, D. C., & Theorell, T. (2024). Office design's impact on psychosocial work environment and emotional health. *International Journal of Environmental Research and Public Health, 21*(4), 438.

Bonett, D. G., & Wright, T. A. (2015). Cronbach's alpha reliability: Interval estimation, hypothesis testing, and sample size planning. *Journal of Organizational Behavior, 36*(1), 3–15.

Dumitriu, S., Bocean, C. G., Vărzaru, A. A., Al-Floarei, A. T., Sperdea, N. M., Popescu, F. L., & Băloi, I. C. (2025). The role of the workplace environment in shaping employees' well-being. *Sustainability, 17*(6), 2613.

Fadaei, M., Homayounfar, M., Soufi, M., & Daneshvar, A. (2024). The effect of environmental and ergonomic stimuli of the work environment on employees' behavior by the mediating role of general health. *Iranian Journal of Ergonomics, 10*(1), 36–45.

Fissore, V. I., Fasano, S., Puglisi, G. E., Shtrepi, L., & Astolfi, A. (2023). Indoor environmental quality and comfort in offices: A review. *Buildings, 13*(10), Article 2490. https://doi.org/10.3390/buildings13102490

Forooraghi, M., Miedema, E., Ryd, N., & Wallbaum, H. (2021). Scoping review of health in office design approaches. *Journal of Corporate Real Estate, 23*(3), 155–180.

French, J. R. P., Jr., Caplan, R. D., & Harrison, R. V. (1982). *The mechanisms of job stress and strain*. John Wiley & Sons.

Gayatri, K. V. N. S. A., & Sai, M. M. (2025). Bridging lecturers' well-being: Analyzing sleep patterns, stress and health outcomes through participatory approaches. *Help: Journal of Community Service, 1*(4), 234–245.

Global Coalition to Protect Education from Attack. (2026). *Education under attack 2026: Nigeria*. https://protectingeducation.org/wp-content/uploads/eua_2026_nigeria.pdf

Holtom, B., Baruch, Y., Aguinis, H., & Ballinger, G. A. (2022). Survey response rates: Trends and a validity assessment framework. *Human Relations, 75*(8), 1560–1584.

Hossan, D., Dato' Mansor, Z., & Jaharuddin, N. S. (2023). Research population and sampling in quantitative study. *International Journal of Business and Technopreneurship, 13*(3), 209–222.

International Organization for Standardization. (2011). *Ergonomics of human-system interaction—Part 210: Human-centred design for interactive systems* (ISO 9241-210:2010).

Irwanti, N. K. D., Adiatmika, I. P. G., Muliarta, I. M., & Abdullah, D. (2024). The role of ergonomic interventions in enhancing employee well-being: A case study from the hospitality industry. *Jurnal Info Kesehatan, 22*(4), 735–746.

Ismaila, S. O., Musa, A. I., Adejuyigbe, S. B., & Akinyemi, O. D. (2013). Anthropometric design of furniture for use in tertiary institutions in Abeokuta, South-Western Nigeria. *Engineering Review, 33*(3), 179–192.

Lakens, D. (2022). Sample size justification. *Collabra: Psychology, 8*(1), 33267.

Lokman, N. I., & Habidin, N. F. (2024). Relationship between ergonomic factors and employee performance among employees at Proton Holdings Berhad. *International Journal of Academic Research in Business and Social Sciences, 14*(1).

Mahasneh, J., Ali, H., & Saad, R. A. (2024). An analysis of the workplace environment and its impact on employee health, satisfaction and productivity in Jordan. *Future Cities & Environment*.

Marín, M. G. V. (2024, February). Content validity of the instruments through expert judgment. In *Conference proceedings CIVAE 2024: 6th Interdisciplinary and Virtual Conference on Arts in Education* (pp. 188–191). MusicoGuia.

McCormick, E. J., & Sanders, M. S. (1982). *Human factors in engineering and design* (5th ed.). McGraw-Hill.

McHenry, K., Koster, M., Ludwig, G., Gao, Y., & Eichmeyer, J. (2023). Assessing burnout and well-being in higher education health science faculty. *OBM Integrative and Complementary Medicine, 8*(1), 1–17.

Mohammadian, M., Mollahoseini, S., & Naghibzadeh-Tahami, A. (2025). Musculoskeletal disorders among office workers: Prevalence, ergonomic risk factors, and their interrelationships. *Scientific Reports, 15*, Article 45425. https://doi.org/10.1038/s41598-025-30155-6

Mohammed, A., & Ibrahim, S. (2023). Indoor environmental quality assessment in Northeast Nigerian Colleges of Education: Implications for staff health and performance. *Journal of Building Engineering, 66*, 105474.

National Institute for Occupational Safety and Health. (2024). *About ergonomics and work-related musculoskeletal disorders*. Centers for Disease Control and Prevention. https://www.cdc.gov/niosh/ergonomics/about/index.html

Nwachukwu, I. J., & Magaji, A. M. (2024). Ergonomic practice, workplace compliance and health implications on administrative staff in Zamfara State. *International Journal of Entrepreneurship, Technology and Innovation, 1*(2).

O'Brien, T. G. (2021). Testing the workplace environment. In *Handbook of human factors testing and evaluation* (pp. 247–277). CRC Press.

Okonkwo, C., Aliyu, M., & Mohammed, B. (2021). Budget constraints and ergonomic quality in Nigerian educational institutions: A three-year longitudinal study. *International Journal of Educational Management, 35*(4), 578–593.

Pace, F., D'Urso, G., Zappulla, C., & Pace, U. (2021). The relation between workload and personal well-being among university professors. *Current Psychology, 40*(7), 3417–3424.

Ranganathan, P., & Caduff, C. (2023). Designing and validating a research questionnaire—Part 1. *Perspectives in Clinical Research, 14*(3), 152–155.

Roustaei, N. (2024). Application and interpretation of linear-regression analysis. *Medical Hypothesis, Discovery and Innovation in Ophthalmology, 13*(3), 151.

Salgado, J. F., & Moscoso, S. (2022). Cross-cultural evidence of the relationship between subjective well-being and job performance: A meta-analysis. *Journal of Work and Organizational Psychology, 38*(1), 27–42. https://doi.org/10.5093/jwop2022a3

Sekaran, U., & Bougie, R. (2019). *Research methods for business: A skill building approach*. John Wiley & Sons.

Silveira, R. C. P., Ribeiro, I. K. S., Teixeira, L. N., Teixeira, G. S., Melo, J. M. A., & Dia, S. F. (2017). Wellness and health of teachers in a public educational institution. *Revista de Enfermagem UFPE, 11*(3), 1481–1488.

Taber, K. S. (2018). The use of Cronbach's alpha when developing and reporting research instruments in science education. *Research in Science Education, 48*(6), 1273–1296.

Tabe-Afshar, L., Ghaffarianhoseini, A., Naismith, N., & Ghaffarianhoseini, A. (2023). Indoor environmental quality parameters and their relationship with occupants' satisfaction and health in office buildings. *Building and Environment, 227*, 109656.

Takona, J. P. (2024). Research design: Qualitative, quantitative and mixed methods approaches. *Quality & Quantity, 58*(1), 1011–1013.

Ugwu, F. O., Eze, C. N., & Onyishi, I. E. (2020). The mediating role of perceived stress in the relationship between person-environment fit and employee health. *Journal of Psychology in Africa, 30*(5), 431–437.

Vischer, J. C. (2020). Designing the work environment for worker health and productivity. *Design & Health Journal*, 85–93.

World Health Organization. (2022, July 14). *Musculoskeletal conditions* [Fact sheet]. https://www.who.int/news-room/fact-sheets/detail/musculoskeletal-conditions

World Health Organization & International Labour Organization. (2022, September 28). *WHO and ILO call for new measures to tackle mental health issues at work* [News release]. https://www.who.int/news/item/28-09-2022-who-and-ilo-call-for-new-measures-to-tackle-mental-health-issues-at-work

Zhang, X. (2025). *Perceived environmental qualities and occupants' mental health, cognitive performance and satisfaction at workplaces in China: Survey and experiment* [Doctoral dissertation, University of Liverpool].