

Workplace Ergonomics and Employees' Performance: The Moderating Effect of Job Satisfaction in Microfinance Institutions of Bamenda, Cameroon

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Abstract

The purpose of this study is to investigate the effect of workplace ergonomics on employees' performance while assessing the moderating role of job satisfaction in microfinance institutions (MFIs) of Bamenda, Cameroon. Physical ergonomics, cognitive ergonomics and organisational ergonomics are used to measure workplace ergonomics. The study adopts a quantitative-causal research design with the use of questionnaires administered to 140 employees in MFIs in Bamenda, Cameroon. The Ordinary Least Squares (OLS) Technique is used to analyse the data collected. The results show that physical ergonomics has a positive (0.136) and significant effect on employees' performance, cognitive ergonomics has a positive (0.509) and significant effect on employee performance and organisational ergonomics also has a positive (0.111) and significant effect on employees' performance. On the other hand, job satisfaction has a positive (0.387) significant moderating effect on the

relationship between physical ergonomics and employees' performance, but not for cognitive ergonomics and organisational ergonomics. MFIs should prioritise investments in physical workplace improvements such as ergonomic furniture, proper lighting, and comfortable workspaces to promote better employee performance. To improve on cognitive ergonomics, MFIs should create training programs aimed at improving cognitive ergonomics to enhance employees' mental processes and decision-making skills, ultimately leading to higher performance levels. MFIs and other organisations should evaluate their internal processes and structures to ensure they are conducive to optimise employee performance.

Keywords: Workplace Ergonomics, Employees' Performance, Job Satisfaction, Microfinance Institutions

JEL Classification: G21, J24, J28, J81, M54

1. Introduction

In developing countries, Microfinance Institutions (MFIs) are crucial in providing financial services to low-income people and small enterprises. These institutions support economic empowerment and the reduction of poverty by facilitating access to loans, savings, and other financial services (Ledgerwood et al., 2013). Like many other organisations, MFIs are realising the value of people and how important workplace ergonomics are to maintaining staff performance and job happiness. Since employees are a company's most precious asset, it is important to pay close attention to the work environment in which they carry out their duties in order to improve their performance and results (Yankson, 2012). Therefore, it is crucial for managers to ensure that employees carry out their tasks in a safe and healthy environment that can promote their best performance, job satisfaction, and productivity (Morgan et al., 2021).

The International Ergonomics Association (IEA) states that ergonomics is a profession that applies theory, principles, data, and methods to design in order to maximise human well-being and overall system performance. It is a scientific discipline that focuses on understanding interactions between humans and other system elements (IEA, 2018). According to Chinyelu (2018), organisations today are highly concerned with employee performance. This is accurate since employee performance has a direct impact on an organisation's performance. Similarly, the International Labour Organisation (ILO) describes ergonomics as the systematic study of people at work with the aim of improving the work situation, working conditions, and the tasks performed, noting that work systems comprise the humans involved, the tasks they perform, the tools and technologies they use, the organisation of work, and the physical work environment (ILO, 2024).

A growing number of literature links sound ergonomic practices to improved employee outcomes. Poorly designed workstations and neglect of ergonomic principles have been associated with declining performance, reduced productivity, and a range of musculoskeletal and other health complaints among office-based staff (Pulipati, 2018). Within the financial services sector, ergonomic interventions such as adjustable seating, better workstation layout, appropriate lighting, and reasonable task rotation have been found to bear a significant

relationship with employee performance in banks, reinforcing the view that the physical work environment is not a peripheral human resource concern but a strategic performance issue (Ayandele & Akpan, 2016). Morgan et al. (2021) argue that employee job satisfaction is a crucial aspect towards the success of any organisation and keeping employees satisfied should be a major priority for every employer. Although this may seem like a well-known reality in management practices, the majority of companies do not offer their employees a safe workplace that might ensure their safety requirements and, consequently, their job satisfaction.

MFIs occupy a central place in Cameroon's financial system, providing savings, credit, and other financial services to low-income and otherwise underserved populations who are typically excluded from commercial banking (Ngwah et al., 2023). Cameroon has about 390 licensed MFIs as of December 2024, operating in three categories as reported by the Director General of the Treasury, Financial and Monetary Cooperation (DGTCFM) website of the Ministry of Finance. Bamenda, the capital of the North West Region, has historically been one of the most active hubs of microfinance activity in Cameroon, hosting numerous credit unions and cooperative societies that serve traders, civil servants, and rural dwellers across the region (Ofeh & Jeanne, 2017). Even though there is no official data of workers across all MFIs in Cameroon, the Cameroon National Institute of Statistics (INS, 2022) in its employment survey report declared that 9 out of 100 employed people have been victims of an accident at work in their main job, 6 out of 100 employed people have been victims of an occupational disease and 11 out of 100 people say they are covered by insurance as part of their main job. This relates with an older report of the INS (2011) which shows that only 7.5% of employees want to stay with their current employer. This can be due to the fact that, they combine long hours of client-facing counter work with repetitive data-entry and record-keeping tasks, often in premises that were not purposely designed for high-volume financial transactions, raising legitimate ergonomic concerns, job insecurity, high workload, poor working conditions, the violation of article 80 of the labour code limiting the number of working hours per week to 40 hours; the very competitive environment because of the presence of many MFIs and many banks etc. (Chiabi & Essome, 2025).

Despite the acknowledged importance of ergonomics to employee performance globally, and a growing volume of empirical work on the subject within Nigerian and other African banking contexts, little empirical attention has been paid to how workplace ergonomics affects employee performance within Cameroonian MFIs (Nkwati et al. (2025); Alongjang & Wandiba (2022); Fokam et al. (2025). Also, little has been done as to whether and how job satisfaction moderates this relationship even though some studies focus more on mediation (Morgan et al. (2021); Yusuf et al. (2012); Agarwal et al. (2025)) than moderation (Kwon et al., 2023). Much of the existing Cameroonian MFI literature has concentrated on financial and governance concerns such as credit risk management, capital structure, and financial sustainability etc. leaving the human resource and workplace-design dimensions of MFI performance comparatively under-researched. This gap is notable given that, unlike large commercial banks, many MFIs in Bamenda operate with limited premises, constrained budgets, and correspondingly limited scope for large-scale ergonomic investment, making it

especially important to understand precisely how, and under what conditions, ergonomic improvements yield performance returns. This study will therefore add to the literature on workplace ergonomics by showing some insight that will be relevant not only to MFIs but to other organisations.

Based on this, the primary objective of this research therefore, is to examine the relationship between workplace ergonomics and employees' performance in MFIs in Bamenda, with the moderating effect of job satisfaction. Specifically, this can be achieved with the following objectives:

- To assess the effect of physical ergonomics on employees' performance in MFIs of Bamenda;
- To evaluate the effect of cognitive ergonomics on employees' performance in MFIs of Bamenda;
- To determine the effect of organisational ergonomics on employees' performance in MFIs of Bamenda;
- To examine the moderating effect of job satisfaction on the relationship between workplace ergonomics and employees' performance in MFIs of Bamenda.

The rest of the paper is presented as follows: section 2 presents the literature review that discloses the theories, hypotheses, the conceptual model; Section 3 presents the methodology used for the study; Section 4 presents the results; Section 5 presents the discussions of the results, and Section 6 presents the conclusion with some policy recommendations presented in order to address the aforementioned research objective. It also presents the limitations of the study and some ideas for further studies.

2. Literature Review

2.1 Conceptual Literature

2.1.1 Workplace Ergonomics and Job Satisfaction

Ikkone (2014) defined ergonomics as the interaction between a worker and the other factors within the work environment. Ergonomics strives to explore the behavioural, physiological, and psychological elements and capabilities that could be completed in the workplace. Such factors are studied extensively in the multiple branches of ergonomics. Ergonomics is therefore considered important in the workplace's overall design. The IEA (2012) defines ergonomics as the scientific discipline concerned with the knowledge of interactions among humans and other parts of a system and the profession that applies theory principles, data and method of design to enhance human well-being and overall system performance. Ergonomics is described as the scientific study of human work in a 2003 Health and Safety Executive (HSE) UK document titled "Understanding Ergonomics at Work." When a worker interacts with tools, equipment, work methods, tasks, and the working environment, it takes into account their physical and mental limitations. The article also suggests that implementing ergonomics in the workplace enhances worker performance and productivity while lowering

the risk of accidents, injuries, and illness (Sheila & Purity, 2020).

Workplace ergonomics can be seen from several dimensions, domains or approaches. To the IEA, the domains of ergonomics were classified in 2000 as physical, cognitive and organisational. The *Physical ergonomics* focuses with human anatomical, anthropometric, physiological and biomechanical aspects as they relate to physical activity. Additionally, it is concerned with other aspects including lighting, noise levels, and workstation design since they may be utilised to determine how human movements affect productivity and how to solve these interactions. *Cognitive ergonomics* examines how human interactions with other components of a system are impacted by mental processes as perception, memory, reasoning, and motor reaction. Cognitive ergonomics, according to Wu et al. (2023), is the study of mental mechanisms and processes, including perceptions, visualisations, memory, weariness, and decision-making. The optimisation of sociotechnical systems, including their organisational structures, policies, and procedures, is the focus of *organisational ergonomics*, often known as macro ergonomics. According to Kleiner (2006), it refers to the general layout of systems or procedures in a particular company or workplace. Asante (2012) outlines other workplace ergonomics domains in Olabode et al. (2017). They are *office ergonomics*, which is concerned with the workplace, *engineering psychology*, which is concerned with the relationship between humans and machines and the endeavour to improve that relationship, and *macro ergonomics*, which is less concerned with specific individuals and focuses more on the organisational environment, including its history, culture, purpose, and design.

Job satisfaction to Fassoulis & Alexopoulos (2015) is essential to achieving business objectives. Higher productivity is correlated with worker satisfaction. A worker's attitude toward their work is known as job satisfaction, and it is influenced by a number of factors in the workplace. To Sembe & Ayuo (2017), it is also perceived as the affective interior sensations that employees have toward their employment. Yusuf et al. (2012) define job satisfaction as employees' favourable attitudes regarding their jobs and working environments. To Armstrong (2010), job satisfaction is a person's attitude and feelings toward their line of work. The sentiment, mind-set, and significance that employees place on their work is known as job satisfaction (Gyekye, 2005). As a result, maintaining employee job satisfaction is crucial to the performance and success of businesses. Although this may seem like a well-known fact, the majority of businesses do not provide their employees with a safe environment that might guarantee their safety requirements and, consequently, their job satisfaction (Kaynak et al., 2016).

2.1.2 Employee Performance

Employee performance has been defined by numerous authors and studies. Employee performance is defined by Awadh & Wan Ismail (2012) as an employee's contribution to the achievement of company goals. Hameed et al. (2014) also describe employee performance as the execution of tasks and attainment of organisational goals. Karatepe et al. (2014) see staff performance as a multifaceted construct that includes task performance and contextual performance, whereas Liao & Chuang (2004) see it as covering service performance and customer outcomes. According to Aguinis (2009), employee performance may be divided

into two categories: action (i.e., behavioural) and outcome. What an employee performs at work is referred to as the behavioural aspect. The consequence or effect of a person's actions is referred to as the outcomes aspect.

Conceptually, a relationship can exist between workplace ergonomics, job performance and employee performance. This relationship is expressed in Figure 1.

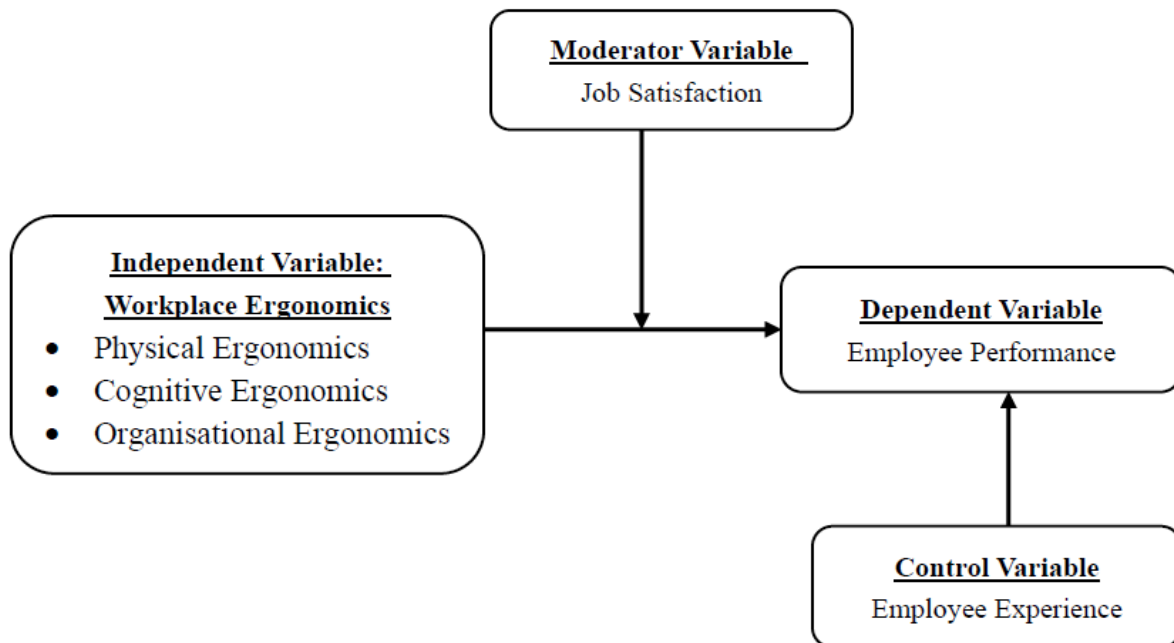


Figure 1. Conceptual framework of workplace ergonomics on employee performance, with job satisfaction as moderator variable

Source: Authors

2.2 Theoretical Framework of Workplace Ergonomics, Job Satisfaction and Employee Performance

This study is based on some elaborated theory foundations. According to Chhetri (2025), Herzberg's 1959 Two-Factor Theory divides workplace elements into two categories: hygienic factors (such as pay, job stability, and working conditions) and motivators (like success, professional growth, and recognition). Additionally, according to Herzberg, hygiene elements minimise unhappiness but do not always increase motivation, whereas motivators boost job satisfaction and performance (Herzberg, 1959). Workplace ergonomics is relevant to this theory because the absence of hygiene factors and motivator factors leads to job dissatisfaction and low employee performance. Another theory is Smith & Sainfort's (1989) Balanced Theory based on the idea that an imbalance between various components of the work system leads to stress. The person is burdened psychologically, cognitively, and/or physically by this imbalance, which lowers job satisfaction and performance. The work system consists of the individual, the duties, the organisation, the technology and instruments utilised, and the physical and psychological surroundings (Agarwal et al, 2025).

2.3 Dimensions of Workplace Ergonomics and Hypotheses Development

This study examines how physical, cognitive, and organisational ergonomic factors affect employee performance. It also studies how job satisfaction can moderate the relationship between workplace ergonomics and employee performance. Many researchers have carried out studies which are related in various sectors and will be presented.

Gumasing et al. (2025) carried out a study where their focus was on the appraisal of physical ergonomics, cognitive ergonomics and macro-ergonomic factors and how they enhance work motivation and performance of virtual assistants (VA) in e-commerce in the Philippines. Using Partial Least Squares Structural Equation Modelling (PLS-SEM) on responses from 418 VAs, their findings emphasised that while physical ergonomics enhance efficiency, cognitive and organisational resources are more critical for sustaining motivation. Fokam et al. (2025) carried out a study where their focus was on the physical and cognitive ergonomic dimensions on the growth of Small and Medium Industrial Enterprises (SMIE) in Cameroon. Their results showed that Physical and cognitive ergonomics had a positive and significant effect on the growth of SMIEs in Cameroon.

Gumasing et al. (2023) studied how sustainable ergonomic practices impact job satisfaction and productivity among business process outsourcing (BPO) workers. Using an online survey and variance-based Partial Least Squares Structural Equation Modeling (PLS-SEM), they found that macro-ergonomics and physical ergonomics significantly boosted productivity, while cognitive and macro-ergonomics improved job satisfaction. The study concluded that adopting comprehensive ergonomic strategies fosters both higher satisfaction and productivity among employees. Al-Anzi et al. (2024) assessed how workplace ergonomics influence job satisfaction and patient care quality among nursing technicians in Saudi Arabia. Their findings showed strong positive correlations between ergonomics, job satisfaction, and care quality. They concluded that ergonomic improvements in healthcare settings are crucial for improving employee satisfaction and patient outcomes. Kwon et al. (2023) in their study examined whether job satisfaction and job security moderate the path from physical demands and job strain to impaired work performance via musculoskeletal symptoms in the upper extremities (MSUE). Their findings revealed among others revealed that job satisfaction moderated the relationship between MSUE and impaired work performance.

In banking institutions, a study was done by Sheila & Purity (2020) to examine the effect of ergonomic factors on employees' performance in the Nigerian banking sector, using banks in Anambra State, Nigeria. The findings from the study revealed that physical workplace environment significantly affects employees' performance in the banking sector in Nigeria. Similarly, the study found also that engaging on repetitive task assignment and insufficient rest time hampers employees' performance. Karmacharya et al. (2025) also carried out a study to show the influence of ergonomic practices and banking employee performance. The study found that cognitive and organisational ergonomics significantly predicted employee performance, while environmental and physical ergonomics were not supported in this specific context. Thematic analysis identified four major themes: physical ergonomics and comfort, environmental ergonomics and workspace design, cognitive ergonomics and mental

workload, and organisational ergonomics and support systems. Nkwati et al. (2025) carried out a study with a focus on workplace factors on employee productivity in commercial banks in Bamenda. Their results suggested that the physical work environment and work life balance enhanced employee productivity in Bamenda, Cameroon.

From the conceptual, theoretical and empirical foundations, the hypotheses to be used in the study are:

H₀₁: Physical ergonomics has no significant effect on employees' performance in MFIs of Bamenda;

H₀₂: Cognitive ergonomics has no significant effect on employees' performance in MFIs of Bamenda;

H₀₃: Organisational ergonomics has no significant effect on employees' performance in MFIs of Bamenda;

H₀₄: Job Satisfaction has no significant moderating effect on the relationship between workplace ergonomics and employees' performance in MFIs of Bamenda.

3. Methodology

This study adopts a quantitative research methodology approach to examine how workplace ergonomics affects employee performance, with job satisfaction as a moderating factor in MFIs of the Bamenda Municipality. Based on the approach, the research design adopted is a quantitative-causal research design. The data collected is primary in nature and the tool of data collection is with the use of questionnaires structured using a 5-point Likert Scale ranging from 1 for Strongly Disagree, 2 for Disagree, 3 for Neutral, 4 for Agree and 5 for Strongly Agree. These questionnaires are administered to a sample size of 140 employees in some MFIs located in Bamenda. The sampling technique adopted is convenience based because it permits respondents to be chosen based on their availability, accessibility and proximity.

The data is of primary sources gotten in 2026 from the administration of structured questionnaires to 140 employees in some MFIs located in Bamenda. Also, the sampling technique used is convenience and purposive based. The estimation framework is determined using two models.

Model 1: Without moderator variable

$$EP_i = \beta_0 + \beta_1 PE_i + \beta_2 CE_i + \beta_3 OE_i + \beta_4 EE_i + \epsilon_i \quad (1)$$

Model 2: With Moderator variable

A moderator variable called job satisfaction is introduced into equation (1) as shown in equation (2):

$$EP_i = \beta_0 + \beta_1 PE_i + \beta_2 CE_i + \beta_3 OE_i + \beta_4 JS*PE + \beta_5 JS*CE + \beta_6 JS*OE + \beta_7 EE_i + \epsilon_i \quad (2)$$

Where: **EP** = Employee Performance (Dependent Variable); **PE** = Physical Ergonomics; **CE**

= Cognitive Ergonomics; **OE** = Organisational Ergonomics, **JS** = Job Satisfaction (Moderating Variable), **EE** = Employee Experience (Control Variable), **β_0** = intercept, **β_1** - **β_7** =Regression Coefficients, **ϵ** =Error Term

After data collection, descriptive analysis permits to characterise the sample with the use of frequencies. Inferential statistics using the OLS estimation framework permits to test hypotheses and generalise results.

4. Results

Data is collected from the employees in MFIs of Bamenda and after analysis, the results that follow are obtained. Table 1 shows the demographic profile of the respondents using the parameters of Gender, Level of Education, Years in Service, and Age of the MFI.

Table 1. Demographic profile of respondents

Profile	Category	Frequency	Percentage
Gender	Male	59	42.1
	Female	81	57.9
	Total	140	100.0
Level of Education	A/L	19	13.6
	HND	16	11.4
	First Degree	74	52.9
	Master's Degree	28	20.0
	PhD	3	2.1
	Total	140	100.0
Years in Service	0 to 5 Years	76	54.3
	6 to 10 Years	38	27.1
	Above 10 Years	26	18.6
	Total	140	100.0
Age of the MFI	0 to 5 Years	20	14.3
	6 to 10 Years	22	15.7
	10 to 15 Years	27	19.3
	Above 15 Years	71	50.7
	Total	140	100.0

Source: Authors

From Table 1, among the 140 respondents, 59 (42.1%) were male and 81 (57.9%) were female, indicating that women made up a slightly larger portion of the sample than men. When looking at the educational background of the 140 respondents, 19 (13.6%) had an Advanced Level certificate, 16 (11.4%) held a Higher National Diploma (HND), 74 (52.9%) possessed a First Degree, 28 (20.0%) had a Master's Degree, and just 3 (2.1%) had attained a PhD. This suggests that most of the respondents were fairly well-educated, with the majority holding at least a First Degree. Looking at the years in service, we see that 76 (54.3%) of the respondents had worked for 0 to 5 years, 38 (27.1%) had between 6 to 10 years of experience, and 26 (18.6%) had been in service for over 10 years. This shows that more than half of the participants were relatively new to their roles, with fewer having over a decade of experience in the sector. Additionally, out of the 140 microfinance institutions surveyed, 20 (14.3%) had

been in operation for 0 to 5 years, 22 (15.7%) for 6 to 10 years, 27 (19.3%) for 10 to 15 years, and 71 (50.7%) had been running for over 15 years. This indicates that half of the institutions had more than 15 years of experience, suggesting a strong presence of long-established MFIs in the Bamenda Municipality.

Table 2 shows the summary of descriptive statistics by providing the Mean, Standard Deviation, Min and Max values.

Table 2. Summary of Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Employee performance index	140	0.2262872	0.0997417	0	1
Physical ergonomics index	140	0.2344915	0.1633941	0	1
Cognitive ergonomics index	140	0.1439661	0.1400388	0	1
Organisational ergonomics index	140	0.3722505	0.1985173	0	1
Job satisfaction index	140	0.6880582	0.1831191	0	1
Employee experience					
6 - 10 years	140	0.2714286	0.4462934	0	1
Above 10 years	140	0.1857143	0.3902723	0	1

Source: Authors

The mean value of employee performance index is 0.2262872 which suggests a low self-reported employee performance. In terms of workplace ergonomics, the mean value of physical ergonomics index is 0.2344915 while that of cognitive and organisational ergonomics are respectively 0.1439661 and 0.3722505. This suggests that organisational ergonomics was more of concern and interest in the microfinance sector in Bamenda than physical and cognitive ergonomics. On average, the employee job satisfaction index of sampled employees is 0.6880582 indicating an above average job satisfaction in the sample.

Table 3 presents the Pairwise Correlation Matrix of variables. The purpose of this correlation analysis is to check for a strong correlation (coefficient above 0.6) or weak correlation among independent variables which may indicate the existence of a possible multicollinearity in the model.

Table 3. Correlation Matrix

	EP index	PE index	CE index	OE index	JS index	EE2	EE3
EP index	1.0000						
PE index	0.4039 (0.0000)	1.0000					
CE index	0.5861 (0.0000)	0.3555 (0.0000)	1.0000				
OE index	0.2293 (0.0064)	0.5441 (0.0000)	0.0414 (0.6275)	1.0000			
JS index	-0.0994 (0.2426)	-0.4778 (0.0000)	0.0307 (0.7191)	-0.6374 (0.0000)	1.0000		
EE2	-0.0982 (0.2484)	-0.0789 (0.3541)	-0.0704 (0.4082)	-0.0312 (0.7146)	0.0715 (0.4009)	1.0000	
EE3	0.0308 (0.7179)	0.0428 (0.6160)	0.0683 (0.4228)	-0.0584 (0.4934)	-0.0346 (0.6852)	-0.2915 (0.0005)	1.0000

Source: Authors

Results from the pairwise correlation matrix indicates that there are positive and negative correlations among the variables. Most importantly, no strong correlation could be identified among independent variables of the model which may signal a possible multicollinearity problem in the model. However, a formal test of multicollinearity known as the Variance Inflation Factors (VIF) test is also conducted to ascertain that multicollinearity was not a major concern in the study. Results of the VIF test for multicollinearity are presented in Table 4.

Table 4. Variance Inflation Factors test results

Variable	VIF	1/VIF
Physical ergonomics index	1.81	0.553528
Cognitive ergonomics index	1.23	0.812303
Organisational ergonomics index	1.97	0.508595
Job satisfaction index	1.83	0.547650
Employee experience		
6 - 10 years	1.10	0.907977
Above 10 years	1.11	0.900768
Mean VIF	1.51	

Source: Authors

To ensure that multicollinearity is not a major problem in the model, the VIF test is carried out. Results from the VIF test reveal that the mean VIF is 1.51 which is far lower than the critical value of 2.5 as prescribed by Gujarati (2004) therefore indicating that multicollinearity is not a call for concern in the study.

Results of the OLS estimation of the effect of workplace ergonomics on employee performance in MFIs in Bamenda are presented in Table 5. It should be noted that column (1) presents the results of the effect of workplace ergonomics on employee performance without moderation. On the other hand, column (2) presents the results of the moderating role of

employee job satisfaction on the effect of workplace ergonomics on employee performance in MFIs.

Table 5. OLS regression results

VARIABLES	(1)	(2)
	EPERF	EPERF
Physical ergonomics index	0.136* (0.0759)	-0.0842 (0.157)
Cognitive ergonomics index	0.509*** (0.0731)	0.701** (0.302)
Organisational ergonomics	0.111* (0.0652)	0.0616 (0.176)
Job satisfaction index	0.0507 (0.0681)	-0.0275 (0.0767)
Physical ergonomics*job satisfaction		0.387* (0.196)
Cognitive ergonomics*job satisfaction		-0.329 (0.434)
Organisational ergonomics*job satisfaction		0.0597 (0.202)
Experience 6 - 10 years	-0.0164 (0.0217)	-0.0168 (0.0170)
Experience > 10 years	-0.00538 (0.0249)	-0.00833 (0.0245)
Constant	-0.101 (0.0658)	-0.0423 (0.0687)
Observations	140	140
R-squared	0.403	0.417
F-statistics	14.98	4.38
Prob > F	0.0000	0.0001
Breusch Pagan Chi2 (1)	1.81	2.84
Prob > chi2	0.1789	0.0922

Note: Standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1

Source: Authors

The results from data analysis in Table 5 suggest that the coefficient of the R^2 are able to explain 40.3% in Model 1 and 41.7% in Model 2 of variations in employee performance. The overall significance of the models denoted by the F-statistics are 14.98 and 4.38 in Model 1 and Model 2 respectively and are both found to be significant.

The coefficient of the physical ergonomics index in column 1 is positive (0.136) which reveals that physical ergonomics relates positively with employee performance in the microfinance industry in Bamenda. This means that, the better the physical workplace ergonomics, the higher will be employee performance. A unit point increase in physical ergonomics index will lead to about 0.14-point increase in employee performance index everything being equal. It should be noted that this result is statistically significant at 10% level given. This means that there is a positive and significant effect of physical ergonomics on employee performance in microfinance sector in Bamenda municipality.

There is a positive effect of the cognitive ergonomics index on the performance of employees in the microfinance sector in Bamenda given that the coefficient of cognitive ergonomics index is positive (0.509). This means that the more improved is the cognitive ergonomics, the greater will be the performance of MFIs employees in Bamenda. An increase in the cognitive ergonomics index will lead to about 0.51-point increase in employee performance index *ceteris paribus*. This outcome is statistically significant at 1% level so there is a positive and significant effect of cognitive ergonomics on the performance of employee in microfinance sector in Bamenda.

The coefficient of organisational ergonomics index is positive (0.111) which indicates that organisational ergonomics positively affect MFIs employees' performance in Bamenda. The better the organisational ergonomics of MFIs, the greater will be employee performance. A unit point increase in organisational ergonomics index will result in about 0.11-point increase in employee performance index everything else held constant. It should be noted that this result is statistically significant at 10% level so there is a positive and significant effect of organisational ergonomics on employees' performance in microfinance industry in Bamenda.

The moderating effect of job satisfaction on the relationship between workplace ergonomics and employee performance (see column 2) results from the estimation procedure indicate that the coefficient of interaction variable between physical ergonomics and job satisfaction is positive (0.387) which indicates that job satisfaction stimulates the effect of physical ergonomics on employee performance in microfinance sector in Bamenda. This result is statistically significant at 10% level so employee job satisfaction significantly and positively moderates the effect of physical ergonomics on employee performance. Contrary to physical ergonomics, employee job satisfaction was found to reduce the effect of cognitive ergonomics on employee performance while it enhances the effect of organisational ergonomics on employee performance. However, none of these later findings are found to be statistically significant so there is no significant moderation of employee job satisfaction on the effect of cognitive and organisational ergonomics on employee performance in microfinance sector in Bamenda.

In terms of the control variable, no statistically significant effect of employee experience on employee performance is found even though both coefficients are negative. This means that there is a negative but insignificant effect of employee experience on employee performance in the microfinance sector in Bamenda.

5. Discussion

The first objective of this study was to assess the effect of physical ergonomics on employees' performance in MFIs of Bamenda. The findings revealed a positive and significant effect of physical ergonomics on employees' performance at 10% level of significance. Therefore, the first hypothesis of the study which stated that physical ergonomics has no significant effect on employees' performance is rejected. These findings are in line with the studies of Sheila & Purity (2020) where it was realised that physical workplace environment significantly affects employees' performance in the banking sector in Nigeria. The results are also consistent with that of Saleem et al. (2012) when they found from their study that physical workplace interior

design and furnishing is a critical step towards the achievement of enhanced employees' performance in the hospitality industry. The results are contrary to the study of Karmacharya, S., et al. (2025) who found that environmental and physical ergonomics were not supported.

The second objective aimed to evaluate the effect of cognitive ergonomics on employees' performance in MFIs of Bamenda. The results showed a significant positive significant effect of cognitive ergonomics on employee performance. Consequently, the second hypothesis of the study is rejected, confirming that cognitive ergonomics significantly improves employees' performance, implying that elements like simplified workflows, reduced mental workload, and user-friendly interfaces play a pivotal role in enhancing employee efficiency. These findings corroborate the studies of Sheila & Purity (2020) who found that, repetitive tasks assignment, and insufficient rest time affects performance negatively in the banking sector in Nigeria. The results also support the study of Karmacharya, S., et al. (2025) whose results found that, cognitive and organisational ergonomics significantly predicted employee performance of banking employees.

The third objective was to determine the effect of organisational ergonomics on employees' performance in MFIs of Bamenda. The analysis produced a statistically significant and positive effect of organisational ergonomics on employee performance in microfinance institutions in Bamenda. As such, the third hypothesis of the study which postulates that organisational ergonomics does not significantly affect employees' performance is rejected. The positive and significant result suggests that organisational-level ergonomic factors such as teamwork structure, communication flow, and decision-making hierarchy significantly promotes employee performance in the studied MFIs. The results support the study of Karmacharya, S., et al. (2025) whose results found that cognitive and organisational ergonomics significantly predicted employee performance of banking employees. It also supports the study of Gumasing et al. (2023) who found that macro-ergonomics and physical ergonomics have significant effects on the overall productivity of BPO workers.

The fourth objective was to examine the moderating effect of job satisfaction on the relationship between workplace ergonomics and employees' performance in MFIs of Bamenda. To achieve this objective, the moderating effect of job satisfaction on the relationship between workplace ergonomics and employees' performance was tested, and the results indicated a significant positive moderation of employee job satisfaction on the effect of physical ergonomics on employee performance while there is no significant moderation of employee job satisfaction on the effect of cognitive and organisational ergonomics on employee performance in MFIs. The finding is supported the studies of Kwon et al. (2023) whose results revealed that job satisfaction moderated the relationship between MSUE and impaired work performance. Yusuf et al. (2012) in their study also found that job satisfaction affects workers' performance in PT. Mahakarya Rotanindo, Gresik.

6. Conclusion

The purpose of this study was to investigate the effect of workplace ergonomics on employee performance while exploring the moderating effect of job satisfaction in MFIs of the Bamenda municipality, Cameroon. The results reveal that physical ergonomics has a positive

significant effect on employee performance, cognitive ergonomics has a positive significant effect on employee performance, and organisational ergonomics also has a positive significant effect on employee performance in selected MFIs of Bamenda, Cameroon. The results also show that job satisfaction has a positive significant moderating effect on the relationship between physical ergonomics and employee performance, but does not moderate for cognitive ergonomics and organisational ergonomics. The results suggest that proper workplace ergonomic practices are essential to reduce the rate of employee health problems, absenteeism, etc., enhancing the working environment, improving employees' job satisfaction thereby leading to a better employee performance.

It is recommended to the MFIs to invest in proper and comfortable workstations that will not be detrimental to the health and wellbeing of the employees. They should continuously design tasks and manage workload in a way that will reduce mental stress and fatigue. The institution should also build structures and cultures and encourages the employee welfare. Taking into consideration these recommendations will lead to employee satisfaction thereby leading to a better performance.

This study is not void of limitations. The research is limited to 140 employees which might not really represent the overall population of employees in MFIs in Bamenda. Also, other dimensions of workplace ergonomics exist and which are not used in the study.

For further research, a similar study can be carried out with a larger sample size, using not only MFIs but also other types of organisations. The study can be carried out in the North West region, and if possible, nationwide.

Competing interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Informed consent

Obtained.

Ethics approval

The Publication Ethics Committee of the Macrothink Institute.

The journal's policies adhere to the Core Practices established by the Committee on Publication Ethics (COPE).

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Data availability statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Data sharing statement

No additional data are available.

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