WORK PLACE ENVIRONMENT AND EMPLOYEE SATISFACTION IN THE FEDERAL FIRE SERVICE, ABUJA

By

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Abstract

This study examined the work environment's effect on employee satisfaction in the Federal Fire Service, Abuja. In order to explain how the physical, social, and leadership aspects of the work environment effect employee engagement, job satisfaction, and work-life balance at the Federal Fire Service in Abuja, a descriptive research approach was employed. Utilizing a quantitative research method, data was gathered via a carefully crafted questionnaire. The study used a census of 138 respondents from the Federal Fire Service in Abuja; however, when the questionnaire was sent, only 97 respondents responded. After using SPSS statistical tools to analyse the data collected, findings demonstrated that employee satisfaction at the Federal Fire Service, Abuja, was positively affected by the workplace environment. The research findings conclusion indicated that there exists a relationship between the work environment and the long-term job satisfaction of Federal Fire Service, Abuja employees. According to the findings, the Federal Fire Service in Abuja can enhance employee engagement, job satisfaction, and work-life balance by implementing effective leadership and creating a sustainable social and physical work environment.

Key Word: Workplace Environment, Employee Satisfaction, Physical Environment, Social Environment, Leadership Effectiveness, Employee Engagement, Job Satisfaction, Work-life Balance

1.1 Introduction

Workplace environment can be described as the physical, social, and psychological settings in which workers are employed. The workplace environment covers a wide range of variables that can impact employee's contentment, output, and sense of fulfilment at work. Maintaining a happy and productive staff requires a well-planned workplace environment. From these perspectives, the major factor influencing employees' general well-being and productivity is their work environment. That is, the contentment, engagement, and retention of employees are influenced by a happy and healthy work environment. A positive and effective work environment can be ensured by regular evaluations, feedback systems, and a dedication to continual improvement (Chatterjee, et al. 2023). The physical environment includes the physical layout, design, and amenities of the workplace and the social environment is centred on the connections and exchanges that occur amongst workers as well as their contributions. The physical work environment, social work environment, and leadership effectiveness are the workplace environment indicators that were used in this study.

Employee satisfaction refers to the level of satisfaction and fulfilment that employees experience in their workplace. It is a measure of the extent to which employee needs, expectations and desires are met within an organizational context. That is, an encouraging and helpful work atmosphere can make a big difference in how satisfied employees are and these covers elements including interactions with bosses and co-workers, the physical workspace, and workplace culture. Also, from this point of view, employee happiness is influenced by competitiveness and fair pay as well as an extensive benefits package. Workers are more likely to be dedicated to their work if they feel comfortable in their roles in the conducive workplace environment. In order to foster a culture of continuous development, retain talent, and establish

a great work environment, it is critical for firms to routinely monitor and respond to employee satisfaction (Odunayo & Abe, 2023).

1.2 Statement of the Problem

Workplace environment related problems can be attributed to ineffective or unsupportive leadership and can contribute significantly to employee job dissatisfaction in organizations in Nigeria. That is, lack of sustainable physical and social environment resulting from lack of direction from the leaders could result to employee dissatisfaction in public institutions in Nigeria. Additionally, workplaces with poor physical conditions, such as insufficient lighting, uncomfortable seating, or excessive noise, would negatively affect employee health and satisfaction (Musa, et al. 2023; Moda et al. 2021). More so, few studies had been conducted on the effect of workplace environment on employee satisfaction in different industrial operations (Edosomwan, et al. 2023; Wahyudi, et al. 2023; Sarwar, et al. 2022). With few studies, it is still unclear what effect the workplace environment has on employee satisfaction in organizations (Wahyudi et al. 2023; Edosomwan et al. 2023). Little research has been done on the relationship between workplace environment and employee satisfaction, and the studies that have been carried out recently do not help to resolve strategic challenges in the workplace since their findings are inconsistent and provide diverse results (Tansel, 2022; Sarwar, et al. 2022). As a fair contribution to the body of research and knowledge, this study intends to fill the aforementioned gaps by examining workplace environment and employee satisfaction in the Federal Fire Service, Abuja.

1.3 Statement of the Hypotheses

The study was designed to be guided by the following null hypotheses:

HO_1: Physical work environment has no effect on employee engagement in Federal Fire Service, Abuja.

HO_2: Social work environment has no effect on job satisfaction in Federal Fire Service, Abuja.

HO_3: Leadership effectiveness has no effect on work-life balance in Federal Fire Service, Abuja.

A REVIEW OF THE WORKS AND A THEORICAL FRAMEWORK

2.1 Workplace Environment

Work environment refers to the general atmosphere and conditions in which employees work. It includes many different factors that influence individual happiness, productivity and satisfaction in the workplace. A positive workplace environment is vital to fostering a healthy, productive workforce and overall organizational performance (Zulher, et al. 2022). That is, the physical surroundings, social characteristics, and atmosphere in which a person works is known as the workplace environment. More so, from Zulher, et al. (2022) perspective, employee morale, relationships at work, productivity, job satisfaction, and health may all be significantly affected by the workplace environment. In addition, employee creativity, inventiveness, and a sense of belonging are all enhanced in a diverse and inclusive work environment. Both employees and employers can benefit from a positive work environment in terms of mood, focus, and attitude toward the job (Aydogdu, 2024). A positive workplace environment, characterized by open communication, mutual respect, and recognition of achievement, promotes employee engagement and motivation (Wijayanti, et al. 2022). In other words, HR professionals can recognize distinct communication, productive teamwork, diversity, respect, and a dedication to employee satisfaction in the workplace (Edosomwan et al. 2023). Below are the work environment indicators used in this study:

Physical Work Environment: The physical workplace environment can be described as the physical setting in which work is conducted by employees in the organisation. It encompasses the layout, design, and infrastructure of the workspace, as well as the tools and resources available to employees. That is, a satisfied employee is often happy, engaged, and motivated at work, which can lead to increased productivity, better job performance, and better company performance as a whole. Therefore, the idea of a physical workplace environment is crucial as it may significantly influence employee well-being, productivity, collaboration, and success overall (Fadaie, et al. 2023). Availability and accessibility of computers, software, and other tools are critical for efficient work and reliable internet and communication tools facilitate seamless collaboration (Silard, et al. 2023). Exposure to natural light has been linked to improved mood and productivity and proper ventilation is essential for a healthy work environment (Hu, et al. 2023). Ensuring the safety of employees and assets through measures like access control and surveillance and protocols and resources in place for emergencies such as fire drills and evacuation procedures enhances the strengths of physical workplace environment (Septyarini, et al. 2023). Initiatives promoting physical and mental well-being and if feasible, on-site fitness facilities can contribute to employee health is part of physical workplace environment (Rugulies, et al. 2023).

Social Work Environment: The social work environment explained the strategic and harmonious relationships, and dynamics within a workplace that impact the well-being, productivity, and satisfaction of individuals. It encompasses various factors that contribute to the overall atmosphere and culture of an organization, influencing how individuals interact, collaborate, and experience their work and organizational performance (Lindeberg, et al. 2022). Open, transparent, and effective communication is essential for a positive social work environment (Nadkarni, et al. 2021). Supportive and empathetic leadership that encourages employee growth, recognizes achievements, and provides guidance contributes to a positive workplace (Nurwulandari, & Irmawanti, 2023). A social work environment should consider the well-being of its employees, acknowledging the importance of a healthy work-life balance (Mattarelli, et al. 2024). An environment that encourages employee engagement through opportunities for growth, recognition, and involvement in decision-making positively impacts and affect the social work environment (Atik, et al. 2023).

Leadership Effectiveness: Leadership effectiveness described the ability of a leader to achieve positive outcomes and influence the performance, motivation, and satisfaction of their team or organization. It involves a combination of skills, traits, behaviours, and strategies that contribute to achieving organizational goals and fostering a positive work environment (Faliza, et al. 2024). Effective leaders articulate a compelling vision for the future and set clear and achievable goals and they inspire and motivate their team by providing a sense of direction and purpose (Choi, & Drago-Severson, 2024). Leaders are often required to make decisions that impact the organization and effective leaders make informed decisions, considering various perspectives and information, and are willing to take responsibility for the outcomes (Niu, et al. 2024). Effectiveness in leadership style adopted can help to boost and improve work-life balance in modern operational settings (Sani, & Adisa, 2024; Rezeki, 2023).

2.2 Employee Satisfaction

The degree to which workers are pleased, fulfilled, and satisfied with their jobs and their overall work environment of an organization is known as employee satisfaction. It is an essential component of HRM since contented workers are more likely to be engaged, productive, and dedicated to their work. That is, organizations must understand and oversee job satisfaction to foster a productive workplace. Additionally, employees that are pleased with

themselves in their workplace are more likely to be involved, effective, and dedicated to their jobs. Organisations that put the greatest emphasis on and make investments in fostering positive working conditions stand to gain from having contented and motivated staff members (Asif, & Shaheen, 2022). Andothe believe adequate and fair pay is a fundamental factor in employee satisfaction and comprehensive benefits, including healthcare, retirement plans, and other perks, contribute to satisfaction (Zayed, et al. 2022). Regular surveys, feedback sessions, and open communication channels are often used by organizations to assess and address employee satisfaction (Sarie, et al. 2023). According to Hidayat, (2023), a satisfied workforce is more likely to be driven by and dedicated to their work, which benefits the company's overall success. The following are the variables for employee satisfaction in this study:

Employee Engagement: Employee engagement give details of employee's emotional and intellectual investment in their work and the organization's overall goals. That is, engaged employees are those who feel a strong sense of belonging to their work, are committed to the success of the organization, and are motivated to give their best effort. Employee engagement goes beyond job satisfaction to deeper engagement and commitment (Otoo, & Rather, 2024). That is, engaged employees are motivated and proactive in their work. They go beyond basic job needs to contribute ideas, solve problems, and actively seek ways to improve their own performance and the performance of the organization as a whole (Ahmeti, 2023). A healthy work-life balance can strategically strengthen the engagement of employee in workplace (Smith, 2023).

Job Satisfaction: Job satisfaction describes the level of satisfaction, success, and happiness an individual experience in a job or career. It is a subjective and multifaceted concept, influenced by many internal and external factors. That is, understanding and measuring job satisfaction is critical for employers because satisfied employees are typically more productive, engaged, and more likely to stay with the organization. The physical and social aspects of the workplace play an important role in job satisfaction, with factors such as office layout, equipment and relationships with colleagues influencing overall employee satisfaction (Riant & Krisnandi, 2023). Employees are more likely to be satisfied when their work is consistent with their skills, interests, and values (Muthuswamy, & Almoosa, 2023). The perspective of Muthuswamy, and Almoosa, (2023) focused on the overall culture of an organization, including its values, mission, and leadership style, influences job satisfaction (Jain, et al. 2023). When employees identify with the company culture, they are more likely to be satisfied and perceived job security can have a positive impact on job satisfaction (Devyani & Meria, 2023).

Work-life Balance: Work-life balance described the balance or harmony that an individual strives to achieve between professional responsibilities and personal life. It involves managing time and energy in a way that provides a sense of accomplishment and satisfaction in both work and non-work domains. That is, work-life balance is a dynamic and individualized process. It varies according to personal preferences, career needs and life circumstances (Thriveni & D'Souza, 2024). The aim is to avoid excessive stress and burnout by achieving a balance between professional and personal well-being (Ndua & Wanyoike, 2024). Effective allocation of time for work and personal activities, including setting boundaries, prioritizing tasks, and avoiding overcommitment to work responsibilities, is critical to work-life balance (Mulyadi et al., 2024). Achieving the right balance contributes not only to personal well-being, but also to increased productivity and job satisfaction (Bocean et al., 2023).

2.3 Effect of Work Place Environment on Employee Satisfaction

The work environment has an essential effect on employee satisfaction, which can therefore affect overall productivity, retention rates, and the success of the firm. Employee satisfaction can be boosted by a well-designed workplace environment (Septyarini, et al., 2023). Adequate lighting, comfortable furniture, and a clean, organized space contribute to a positive physical environment (Lindeberg, et al. 2022). Providing ergonomic workstations and facilities that meet the needs of employees can enhance their well-being and job satisfaction (Asif, & Shaheen, 2022). That is from their researchers' perspectives, a welcoming and upbeat atmosphere encourages collaboration, a sense of community, and job satisfaction. Positive relationships with colleagues contribute to a supportive work environment (Chatterjee, et al. 2023). Wijayanti, et al., (2022); Zulher, et al. (2022) revealed that effective and improved work environment had a positive and significant effect on employee satisfaction, and performance of the organisations holistically.

2.4 Theoretical Framework

This study theoretical based was on Perceived Organizational Support (POS) theory, which has received much attention in employee-employer relationship research and research has always showed that employees feel supported by organizations (Eisenberger et al., 2002). According to Eisenberger et al (2002), individuals' general perceptions of an organization's ability to care and support influence their attitudes and behaviours. The theory suggests that when employees believe that the organization values their contributions and cares about their well-being, they are more likely to reciprocate the organization with positive attitudes and behaviours. Thus, according to the POS, people's perceptions of the organization's ability to support, care for, and satisfy their needs form the basis of their opinions. That is, this theory focuses on the perception of organizational support and its effect on employee satisfaction. More so, employees who feel support from their organization's values are more likely to be satisfied and improve organisational productivity. That is, perceived organizational support enables employees to develop adaptive and innovative ways to cope with stressful work demands. Organizational support theory emphasizes mutual dynamic relationships and demonstrates three dimensions of the workplace: fair organizational practices, supervisor support, and favourable rewards (Aldabbas et al. 2021). Conversely, job dissatisfaction and turnover are common consequences of an unfavourable work environment (Wang et al., 2020). In the nutshell, the POS theory emphasize on employees' strengths of engagement with the perceptions level of support they receive from the organizational management.

2.5 Empirical Review

Work-life balance is studied by Sani and Adisa, (2024). Does leadership matter? The study's goal was to investigate the effects of leadership on work-life balance through investigating the relationship between leadership effectiveness and work-life balance. Qualitative data from 32 semi-structured interviews were used in the study to achieve the research objectives. Research showed that leadership is important for achieving work-life balance. Research findings suggested that transactional and transformational leadership lead to strong and reciprocal relationships between leaders and employees through work-life balance policies and practices. Sarwar, et al. (2022) studied the work environment and career satisfaction of academics. The main purpose of this study was to determine the effect of the work environment on the job satisfaction of teachers. This study uses a cross-sectional design and is quantitative in nature. Teachers from Punjab state's government high schools made up the study population. Simultaneously, 304 participants were chosen as examples for basic random sampling through the use of research equipment and survey techniques to gather

information. The findings of the study indicated that job satisfaction and work environment are significantly positively correlated, and that secondary school teachers' job satisfaction is positively impacted on average by their work environment. Wijayanti, et al. (2022) studied the effect of work environment and work attitude on employee performance through work motivation. This study examines the effect of work environment and attitudes on employee performance through work motivation. The sample of this study included 108 employees of the General Directorate of Hindu Community Counselling and the General Directorate of Buddhist Community Guidance of the Ministry of Religious Affairs of the Republic of Indonesia. Questionnaires were used to gather data for analysis. Using the SmartPLS 3.0 application, the Partial Least Squares (PLS) approach of the SEM (Structural Equation Modelling) statistical analysis tool for this investigation. The study's findings demonstrated that workplace environment had strategic effect on employee satisfaction and performance. This study makes the following recommendations for government organizations: they should communicate more with subordinates to resolve job-related issues; they should design work environments that suit employees' demands; and they should blend rewards and sanctions appropriately to enhance employee discipline;

METHODOLOGY

1.1 Research Design

This study used a descriptive research design to describe the effects of independent variables on dependent variables in order to draw reliable conclusions. A descriptive research design was used to describe the effect of the work environment on employee satisfaction, including how the physical work environment, social work environment and leadership effectiveness influence employee engagement, job satisfaction and work-life balance in the Federal Fire Service, Abuja and questionnaire was the data source requirements for the study

1.2 Sampling Techniques

In order to determine the anticipated population of respondents from the Federal Fire Service, Abuja, the study used straightforward random sampling techniques. First and foremost, the study made sure that a basic random sampling technique was applied to guarantee that both senior and junior Federal Fire Service employees in Abuja had an equal opportunity to be included in the population under research regarding their connection to the workplace atmosphere and satisfaction among workers.

3.3 Population of the Study

The study was conducted at the Federal Fire Service Command in Abuja, Nigeria. There was a total of one hundred and thirty-eight (138) respondents, managers and junior staff, and information was obtained from the Human Resources Department through pilot interviews conducted in the Abuja office. There was a total of 52 respondents from senior employees and a total of 86 respondents from various levels from junior employees.

3.4 Census Methodology

Due to the nature of the population of the Federal Fire Service, Abuja, Nigeria, the researchers deliberately adopted a census approach with a population of 138 respondents as the sample size to effectively and sustainably manage the population to make assertion the effect of the work environment. on employee satisfaction.

3.5 Sources of Data Collection

Primary data was directly derived from the sample size of respondents obtained. The researcher collected data from textbooks, literature review of various schools of thought, published research papers/projects, journals, articles, case studies and data related to work environment and employee satisfaction.

3.6 Methods of Data Collection

The instrument used for data collection in this study was a well-structured questionnaire. In this study, a structured closed-ended questionnaire was used, which was appropriately and effectively administered by the researcher and other experts in the field of human resource management. This study used questionnaire to help researchers to obtain the opinions of each respondent and shed light on the effect of the work environment on employee satisfaction, including how the physical environment and social and leadership effectiveness in the workplace affect employee engagement, job satisfaction, and work life balance in Federal Fire Service, Abuja. The questionnaire was distributed to 138 respondents, but 97 respondents completed it correctly and returned it, while 41 respondents completed it incorrectly or did not return it.

3.7 Validity and Reliability of Instrument Used

Content validity was used to assessed the credibility of the study as the items in the questionnaires were systematically drawn from the research objectives, questions, and hypotheses were accurately vetted and administered critically by experts in the field of human resource management and went through a statistical test based on a critical analysis of effect of workplace environment on employee satisfaction in terms of how physical and social workplace environment has effect on employee engagement and job satisfaction of the Federal Fire Service, Abuja. Most studies previously have used questionnaires on the study of workplace environment and employee satisfaction consistently that yielded dependable findings and conclusions, which made the same instruments used in this study reliable to attain reliability and acceptability (Israel, 2024; Zhenjing, et al. 2022; Taufiq, et al. 2023). The reliability of the questionnaire used in workplace environment and employee satisfaction ensured the consistency and stability of the measurement tool.

3.8 Methods of Data Analysis

The hypotheses in this study were tested using simple regression techniques, analysis of variance (ANOVA) and correlation analysis to analyse employee satisfaction with the work environment of the Federal Fire Service in Abuja using the Statistical Package for Social Sciences (SPSS) version 27.0.

DATA ANALYSIS AND INTERPRETATION

4.1 Response Rate

Variables	Frequency	Percentage (%)
Questionnaire Retrieved	97	70
Questionnaire not retrieved/Invalid	41	30
Questionnaire Administered	**138**	**100**

Source: field Survey, (2023)

Table 4.1 showed that one hundred and thirty-eight (138) copies of questionnaire were administered to the staff of the Federal Fire Service, Abuja, 97 were retrieved, constituting 70%

response rate and these were used for the analysis while the remaining 30% were unreturned or invalid. Thus, the analysis was based on the 97 questionnaires successfully filled and returned.

4.2 Data Analysis

Testing of hypothesis one

HO_1: Physical work environment has no effect on employee engagement in Federal Fire Service, Abuja.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.880[a]	.774	.772	.22992

a. Predictors: (Constant), PWE

Important statistical parameters for a regression study are provided by the model summary. With a coefficient of determination (R Square) of 0.774 for Model 1, the independent variable or variables included in the model can account for around 77.4% of the variability in the dependent variable. Adjusted R Square, which takes the number of predictors in the model into consideration, comes out at 0.772. The high values of R Square and adjusted R Square indicate that the model fits the data quite well. There is a significant positive linear association between the predictor(s) and the response variable, as indicated by the correlation coefficient (R) value of 0.880. The average departure of the observed values from the regression line is represented by the standard error of the estimate, which is 0.22992**.** Physical Work Environment is a predictor variable and a constant in the model. All things considered, the model summary indicates that the predictors—Physical Work Environment in particular—contribute considerably to the explanation of the variance in the dependent variable, and the model does a fair job of encapsulating the fundamental connections in the data.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	17.405	1	17.405	329.241	.000[b]
	Residual	5.075	96	.053		
	Total	22.480	97			

a. Dependent Variable: EE

b. Predictors: (Constant), PWE

***Source**: Generated using SPSS Output Version 27.0.*

4 The ANOVA table shows the ANOVA results for the model based on the predictor variable labelled physical work environment (PWE) predicting the dependent variable expressed as customer satisfaction. The model consists of two main parts: regression and residuals. The regression part examining the variance attributable to the predictor variable physical work environment (PWE) revealed a significant effect with a sum of squares of 17.405, one degree of freedom, and a mean square of 17.405. The F statistic is 329.241, which is highly significant ($p < 000$), indicating that the regression model is generally statistically significant in explaining the variability in the dependent variable. The residual component represents unexplained variance with a sum of squares of 5.075 and 96 degrees of freedom. The total sum of squares for the full model is 22,480. This ANOVA shows that the physical

work environment (PWE) contributes significantly to explaining the variance in the dependent variable of employee engagement (EE). The results highlight the importance of physical work environment (PWE) variables in predicting employee engagement (EE) as reflected in statistically significant F-statistics.

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	T	Sig.
1	(Constant)	.734	.200		3.663	.000
	PWE	.835	.046	.880	18.145	.000

a. Dependent Variable: EE

***Source**: Generated using SPSS Output Version 27.0.*

The proposed regression model (Model 1) aims to predict the dependent variable labelled "EE" using the independent variable labelled "PWE" (probably meaning "Physical Work Environment"). The table provides information on unstandardized coefficients (B), standard errors, standardized coefficients (Beta), t-value and significance levels (Sig.) for constant terms and physical work environment variables. The value of B for the constant term is 0.734 and the standard error is 0. 200, resulting in a t-value of 3.663, which is statistically significant, and a p-value of 0.000. For physical work environment (PWE), the unstandardized coefficient (B) is 0.835 with a standard error of 0. 046, with a standardized coefficient (Beta) of up to 0.880. The associated t-value is 18.145, indicating strong statistical significance (p-value 0.000). These findings imply that the dependent variable Employee Engagement (EE) and the physical work environment (PWE) have a substantial positive association. To summarize, the results of the regression model indicate that there is a positive correlation between the Physical Work Environment (PWE) and the variable Employee Engagement (EE). This underscores the significance of PWE's effectiveness in determining the outcome measured by EE.

Testing of hypothesis two

HO_2: Social work environment has no effect on job satisfaction in Federal Fire Service, Abuja.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.890[a]	.792	.789	.21138

a. Predictors: (Constant), SWE

***Source**: Generated using SPSS Output Version 27.0.*

The model summary provides an overview of the regression analysis performed. In model 1, the coefficient of determination (R-squared) is 0.792, indicating that about 79.2% of the variability in the dependent variable can be explained by the independent variables included in the model. The adjusted R-squared (counting the number of predictors in the model) is 0. 789. The R value is 0.890, indicating a strong positive correlation between the dependent variable and the predictor variables. The standard error of the estimate is 0.21138, which represents the average variability, or distance between observations and model predictions. The model contains a constant term and a predictor variable called social work environment (SWE). In general, a high R-squared value indicates that the model fits well and explains a significant portion of the variance in the dependent variable. However, the results should be interpreted

with caution given the context of the specific analysis and the nature of the social work environment (SWE) predictor variables.

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	16.299	1	16.299	364.766	.000[b]
	Residual	4.290	96	.045		
	Total	20.588	97			

a. Dependent Variable: JS

b. Predictors: (Constant), SWE

***Source**: Generated using SPSS Output Version 27.0.*

The analysis of variance (ANOVA) table for the given model assesses the significance of the predictors in explaining the variance in the dependent variable, denoted as JS. The regression model, which includes the predictor variable SWE (presumably related to Social Work Environment), is statistically significant ($F(1, 96) = 364.766$, $p < .000$). This indicates that there is a significant relationship between the Social Work Environment (SWE) and the mean square of Job Satisfaction (JS). The regression model accounts for a substantial portion of the total variance, as evident from the high F-statistic. The sum of squares for the regression is 16.299, suggesting that the predictor variable contributes significantly to explaining the variability in the dependent variable. The residual sum of squares (4.290) represents the unexplained variance, while the total sum of squares (20.588) encompasses the overall variability in the dependent variable. The results imply that the Social Work Environment included in the model are strongly associated with the observed variations in the mean square, providing valuable insights into the effectiveness of these practices in influencing the dependent variable.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.877	.184		4.762	.000
	SWE	.808	.042	.890	19.099	.000

a. Dependent Variable: JS

***Source**: Generated using SPSS Output Version 27.0.*

The given table summarizes the coefficients of the regression model in which the dependent variable (DV) is labelled as job satisfaction (JS) and is predicted by the independent variable called "SWE" (eventually social work environment). The model contains a constant term represented by an intercept with a coefficient of 0.877 and a standard error of 0.184. The unstandardized coefficient (B) of the independent variable “SWE” is 0. 808, with a standard error of 0.042 and a standardized coefficient (Beta) of 0.890. The t-value is 19.099 and the significant p-value is 0. 000, which means that the coefficient of “SWE” is statistically different from zero. This suggests that the social work environment (SWE) has a significant positive impact on the dependent variable (JS) job satisfaction, as evidenced by the high standardized coefficient (Beta) and low p-value. The intercept of the model, 0.877, represents the expected value of the dependent variable when the independent variable is zero. Overall, the results suggest that the social work environment included in the model is associated with a positive effect in predicting the outcome variable job satisfaction (JS).

Testing of hypothesis three

HO3: Leadership effectiveness has no effect on work-life balance in Federal Fire Service, Abuja.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.760[a]	.654	.642	.25892

a. Predictors: (Constant), LE

***Source**: Generated using SPSS Output Version 27.0.*

The summary model provides the key statistical indicators of the regression analysis. In model 1, the coefficient of determination (R-squared) is 0.654, indicating that about 65.4% of the variability in the dependent variable can be explained by the independent variables included in the model. The adjusted R-squared (counting the number of predictors in the model) is 0. 642. High R-squared and adjusted R-squared values indicate that the model fits the data well. The value of R (correlation coefficient) is 0.760, indicating a strong positive linear relationship between the predictor and response variables. The standard error of the estimate is 0. 25892, which represents the average deviation of the observed values from the regression line. The model included leadership effectiveness as a constant and predictor variable. Overall, the model summary suggests that the predictor variables, particularly leadership effectiveness, contribute significantly to explaining the variation in the dependent variable and that the model is reasonably effective at capturing the underlying relationships in the data.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	19.315	1	19.315	384.242	.000[b]
	Residual	8.085	96	.084		
	Total	27.400	97			

a. Dependent Variable: WB

b. Predictors: (Constant), LE

***Source**: Generated using SPSS Output Version 27.0.*

The ANOVA table shows the ANOVA results for the model based on the predictor variable labelled Leadership Effectiveness (LE), which predicts the dependent variable expressed as customer satisfaction. The model consists of two main parts: regression and residuals. The regression section that examines the variance attributed to the predictor variable Leadership Effectiveness (LE) reveals a significant effect with a sum of squares of 19.315, one degree of freedom, and a root mean square of 19.315. The F statistic is 384,242, which is highly significant ($p < 0.000$), indicating that the regression model is generally statistically significant in explaining the variability in the dependent variable. The residual component represents unexplained variance and has a sum of squares of 8.085 and 96 degrees of freedom. The total sum of squares for the entire model is 27,400. This ANOVA shows that the predictor variable Leadership Effectiveness (LE) contributes significantly to explaining the variance in the dependent variable Work-life Balance (WB). The results highlight the importance of leadership effectiveness (LE) variables in predicting work-life balance (WB), as reflected in the statistically significant F-statistic.

Coefficients[a]

Model	Unstandardized Coefficients	Standardized Coefficients	T	Sig.

		B	Std. Error	Beta		
1	(Constant)	.526	.310		3.853	.000
	PWE	.544	.054	.570	18.225	.000

a. Dependent Variable: EE

***Source**: Generated using SPSS Output Version 27.0.*

The proposed regression model (Model 1) is designed to predict the dependent variable labelled "EE" using the independent variable labelled "LE" (supposedly representing leadership effectiveness). The table provides information on the constant term and unstandardized coefficient (B), standard error, standardized coefficient (Beta), t-value and significance level (Sig.) of the leadership effectiveness variable. The value of B for the constant term is 0.526 and the standard error is 0. 310, the t-value is 3.853, statistically significant, and the p-value is 0.000. For leadership effectiveness (LE), the unstandardized coefficient (B) is 0.544 with a standard error of 0. 054, with a standardized coefficient (Beta) of up to 0.870. The associated t-value is 18.225, indicating strong statistical significance (p-value 0.000). These results show that there is a significant positive relationship between leadership effectiveness (LE) and the dependent variable of work-life balance (WB). In summary, the regression model shows that as leadership effectiveness (LE) increases, it has a corresponding positive impact on the work-life balance (WB) variable, highlighting the effectiveness of leadership effectiveness (LE) in influencing work-life balance (WB) represents the potential importance of the result.

The first hypothesis stated that the physical work environment has a positive impact on employee engagement in the Federal Fire Service, Abuja. The results show that each unit increase in the physical work environment results in 0.835. All things being equal, employee engagement increases by 83.5%. Therefore, the physical work environment has a positive impact on employee engagement in the Federal Fire Service, Abuja. The second hypothesis stated that social work environment also has a positive effect on job satisfaction in the Federal Fire Service, Abuja. The results show that each unit increase in the social work environment results in 0.808. Job satisfaction increases by 80.8%, holding all factors constant. Social work environment therefore has a positive impact on job satisfaction in the Federal Fire Service, Abuja. The third hypothesis also stated that leadership effectiveness has the same impact on job satisfaction in the Federal Fire Service, Abuja. The results show that a one-unit increase in leadership effectiveness results in 0.544. All things being equal, work-life balance improved by 54. 4%. Therefore, leadership effectiveness has a positive impact on the work-life balance of employees of the Federal Fire Service, Abuja.

4.3 Discussion of Findings

This study finding revealed that workplace environment significantly positive effect on the sustained satisfaction of the employees of the Federal Fire Service, Abuja. This finding is conceptually and empirically consistent with recent findings that the work environment strategically influences and affect employee satisfaction and performance (Sani & Adisa, 2024; Lindeberg et al. 2022; Sarwar et al. 2022; Wijayanti et al. 2022; Tansel 2022). The findings also suggested that work environment had a strategic effect on employee engagement and job satisfaction in the Federal Fire Service, Abuja, and this finding was also conceptually proven in consistent with the findings of previous studies (Riant & Krisnandi, 2023; Wijayanti et al. 2022; Sarwar et al.2023, Atik et al., 2024, Hidayat; 2022; Siahan, 2022; Edosomwan et al. 2023; Aydogdu, 2024; Kirana, et al. 2022).

The finding revealed that the physical work environment had an effect on employee engagement in the Federal Fire Service, Abuja, despite the first hypothesis's claim that it had no such effect. The results of recent studies (Lindeberg et al. 2022; Septyarini et al. 2023)

conceptually and practically agreed that the physical work environment had effect on employee engagement, which could ultimately contribute to employee satisfaction. After being hypothetically tested, it was discovered that the second hypothesis, that social work environment had an effect on job satisfaction in Federal Fire Service, Abuja. This result was consistent with other recent research (Lindeberg et al. 2022; Nadkarni et al. 2021) that found that employee job satisfaction was positively affected by the social work environment in a variety of industrial activities. The third hypothesis tested revealed that leadership effectiveness had an effect on work-life balance in the Federal Fire Service, Abuja. This result was in consistent with other recent research (Sani & Adisa, 2024; Dimitrios et al., 2023) that found leadership effectiveness had a major effect on workers' work-life balance in a variety of industrial operations. The perception organizational support theory corroborated the findings (Eisenberger et al., 2002; Cooke et al. 2019) that the workplace environment affected employee satisfaction and organizational performance overall.

5.1 Conclusion

Based on the aforementioned study findings, it can be inferred that employee satisfaction at the Federal Fire Service, Abuja was strategically affected by the workplace environment. In other words, a productive and long-lasting work environment may strengthen the benefits which currently present for job satisfaction and worker engagement. The primary goal of the study, which was to look into how the work environment at the Federal Fire Service in Abuja affected satisfaction among workers, had been addressed by these conclusions. The study concluded that employee engagement at the Federal Fire Service in Abuja was influenced by the physical work environment. The research question and objective were both addressed with this conclusion. The study also found that the Federal Fire Service in Abuja's job satisfaction was affected by the social work environment. This conclusion also addressed the research question and the specific objective. The study also concluded that leadership effectiveness had effect on work-life balance of the Federal Fire Service, Abuja. This conclusion also addressed the research question and objective. The top management of the Federal Fire Service, Abuja should ensure that the physical workspaces are designed with ergonomic principles to promote comfort and reduce physical strain and provide adjustable furniture, proper lighting, and equipment to enhance the overall working environment to foster employee engagement. The leadership of the Federal Fire Service, Abuja should promote diversity and inclusion within the workplace to ensure that all employees feel respected and valued and establish mechanisms to address and prevent discrimination and harassment to boost job satisfaction. The management of Federal Fire Service should examine existing leadership policies related to work hours, overtime, and vacation and assess whether these policies contribute to or hinder work-life balance. Research findings can be used to make evidence-based policy recommendations to enhance the workplace environment. Research can identify and analyse specific factors within the workplace environment that significantly impact employee satisfaction within the Federal Fire Service in Abuja.

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