

RESEARCH PAPER

Effect of Work Environment on Organizational Performance: A Comparative Study on Arjo Dedessa and Finchaa Sugar Factory

Shimelis Mihretu¹ & Mahesh Gopal^{2*}

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ABSTRACT

This study examines the impact of the working environment on the organizational performance of the Arjo Dedessa Sugar Factory (ADSF) and Finchaa Sugar Factory (FSF) in Ethiopia, the physical working environment, work-related risks and injuries, and the psychological working environment and social work environment. The total number of employees in the two sectors is 867 and 2824, respectively. Selected samples of 266 and 338 employees were used as stratified random samples to investigate work-related environmental conditions. A response rate of 60% was achieved. The statistical software SPSS V 23.0 was used to analyze and to determine the relationship between the dependent and independent variables using Pearson's correlation and linear regression analysis. The results show that ADSF employees have a more modest social work environment than FSF employees, but the physical work environment of both organizations contributes the least. Both the ADSF and FSF physical working environments had a statistically significant impact on performance. Improvements in the social environment have been proposed to improve the psychological health of employees. The result is ADSF organization performance = 0.173 + 0.250 physical work environment + 0.304 administrative work environment. FSF Organization Performance = 0.157 + 0.355 Social working Environment.

KEYWORDS: *Organizational performance; Physical work environment; Work-related risk and injuries; Psychological work environment; Social work environment.*

1. Introduction

Employees who concentrate on their work will be more valuable in the workplace. The physical, psychosocial and psychological aspects of the work environment influence the success of an organization. This is also the most important aspect that also affects industrial enterprise. By making products as effective as possible, organizations strive to make successful product / reward transactions with the world. Industrial environment such as workplace lighting, temperature, ventilation, air supply rate, humidification, and resident discomfort Veitch and New sham (2000) [1]. Milton et al (2000) [2]

suggested that machine noise, workload, task distribution, complexity, culture, history, industrial environment, and employee relationships also affect the organization. The environment refers to all the factors that affect a person's existence throughout life. Today's employees have a wide range of career opportunities. Employee satisfaction, future performance, and organizational efficiency are all determined by the consistency of your work environment. The purpose of the work environment is to create a comfortable environment in which employees can work comfortably. Ergonomic concepts allow employees to reconcile their tasks and requirements. This improves operator productivity, employee physical, physiological, social, mental health and safety, and work satisfaction and performance. The physical reality as part of the workplace has a profound impact on the human experience, which leads to gradual improvement of internal communication to increase production efficiency. Becker (2002) [3]

*
Corresponding author: Mahesh Gopal
doctorgmahesh@wollegauniversity.edu.et

1. Department of Mechanical Engineering, College of Engineering and Technology, Wollega University, Post Box No: 395, Nekemte, Ethiopia.
2. Department of Mechanical Engineering, College of Engineering and Technology, Wollega University, Post Box No: 395, Nekemte, Ethiopia.

considered workplace strategies for both individual small start-up projects and projects initiated by large corporations. Based on the results, the worker determine common workplace preparation and architectural factors that reduce costs and increase productivity while maintaining or improving the effectiveness of the organization. One of the most important human needs is a working environment that helps people work in the most comfortable environment they can imagine. Buildings and air conditioning systems are carefully crafted. The purpose of this article is to focus on thermal conditions and measure this relationship in order to make strategic decisions about the working environment of the facility management process by Roelofsen (2002) [4]. This article reviews the latest management literature to increase employee participation in environmental improvement initiatives. According to literature reviews, four key factors that motivate employees to improve environmental performance are management involvement, employee empowerment, incentives, and inputs and ratings Govindarajulu and Daily (2004) [5]. The main purpose of this quasi-fieldwork was to find ways of ergonomic training programs in the office to relieve psychological tensions and improve control of the environment, employee satisfaction and connectivity. A computational model was created and used to evaluate these relationships. A total of 89 information workers were interviewed before and after the intervention. The results show the value of integrating ergonomic programming into the office environment to improve the efficient use, autonomy, and surrounding comfort of the work environment Huang et al (2004) [6]. The purpose of this study was to test an interior design approach that helps employees reduce stress and increase productivity by using eco-friendly fabrics and furniture. The design approach combines features that facilitate collaboration and coordination between employees with flexible ergonomic furniture to increase efficiency. Environmentally friendly materials and furnishings were selected to protect the well-being of all workers and the global environment Gutnick (2007) [7].

In most industries, the working environment is dangerous and dangerous. Factors include poorly designed workplaces, improper furniture, lack of ventilation, poor lighting, excessive noise, poor fire protection, and lack of personal protective equipment. Creating a productive work environment for your organization, enterprise, or small business is important to increasing revenue.

Like the relationship between the factory and the workplace, the workplace becomes an integral part of the work. Management that controls maximizing employee productivity focuses on two main areas: personal motivation and work environment infrastructure Chandrasekar (2011) [8]. Work and personal resources predict work engagement, which helps improve work efficiency. Therefore, work engagement is an important indicator of employee and company well-being. The HR manager can take several steps to get employees involved in the work Backer (2011) [9]. The purpose of this survey is to investigate the relationship between job satisfaction and the organizational environment of public, private and international bankers. The results show that three subfactors of organizational culture, such as organizational structure, identity, and relationships, are positively related to work satisfaction Bhutto et al (2012) [10]. The purpose of this study is to investigate the working environment and prospects of women in terms of work-life balance and job satisfaction in the banking and education sectors. Another important goal is to look at the relationship between work-life balance's impact on work satisfaction, organizational initiatives to achieve effective work-life balance, and work satisfaction Yadav and Dabhade (2014) [11]. The main purpose of this study was to assess the ergonomic aspects of the desert environment. Heavy physical labor, back pain, discomfort, hot environments, long shifts, and different working hours have been identified as important ergonomic issues. 94% of employees thought the working days were very long, 79% were dissatisfied with the work schedule, and 61% thought the summer work environment was very hot. At the end of the day, the employees were exhausted and thought their workload was beyond their capacity Shikdar (2015) [12]. This study adopted a quantitative approach. The data was collected using a self-administered questionnaire. This study is based on a previously validated study. The target audience consists of people working in the city's educational institutions, banking sector, and the telecommunications industry. This dissertation has the ability to support society by encouraging people to continue working while supporting their own growth. Therefore, organizational staff must be motivated to work hard to achieve the organizational goal Raziq and Maulabakhsh (2015) [13]. The survey found that the top 10 key factors (teamwork, contract work, exemplary oversight based on leadership, and equipment

provision) have a significant impact on motivation and productivity. They can carry out their responsibilities with a sense of duty, humility, and reliability because they are highly motivated Joseph (2015) [14]. Independent leadership and work environment variables can represent teacher performance. However, independent variables such as membership incentives did not have a sufficiently substantial effect. The data was evaluated using the latest technology namely Structural Equation Modeling (SEM) based on Partial Least Squares (PLS) methods. As a result, principal leadership and a positive work environment help teachers perform better Hartinah et al (2020) [15]. According to Pech and Slade (2006) [16], the focus is not on the actual cause of withdrawal, but on withdrawal symptoms such as distraction, indifference, and high absenteeism. In recent years, employee comfort in the workplace, which is determined by workplace conditions and environment, has been recognized as an important factor in determining productivity. Hameed and Amjad (2009) [17] considered workplace design to improve employee satisfaction and productivity. According to the author, 89% of respondents positively rated the design of the organization. Almost 90% of executives believe that good workplace design is critical to improving employee productivity. Employee participation has a significant impact on a company's competitiveness. To be more productive, companies must have the freedom to design their workplaces and avoid repetitive workflows, in addition to providing workers with superior equipment and other equipment Patro and Chandra Sekhar (2013) [18]. After examining different departments and office furniture, issues such as dissatisfaction, workplace, and built atmosphere play an important role in reducing employee efficiency Croome (1997) [19]. According to NitiseMITO (1992) [20], the work environment impacts employee morale both externally and internally, allowing tasks to be performed quickly. The physical characteristics of the work environment can have a significant impact on the efficiency, health and safety, comfort, concentration, job satisfaction, and self-confidence of the people working in the organization. According to Sedarmayanti (2003) [21], a good working environment is one in which people can work in an ideal, safe, healthy and comfortable way. Building construction and age, workplace composition, workplace setup, decoration, device design, efficiency, space, heat, airflow, lighting, sound, vibration and radiation

are also important aspects to consider in the workplace. To assess the level of innovation in the company, the author Kuzmin et al (2020) [22] improved the method based on the use of a three-dimensional spatial model of the innovative capacity dependency on the level of the load vector of the company's technology, increase innovative technology and resources. The AHP model is developed to form an integrated method for assessing our ability to innovate. Cera and Kusaku (2020) [23] surveyed the corporate culture; work environment, training and development, and management are variables that affect an organization's performance. The survey includes a sample of 162 government employees. Results were obtained using static tests such as Cronbach Alpha, KMO, Bartlett, factor analysis, correlation, and regression. The study shows that variables such as work environment, training development, and management are important determinants of a company's performance. The COVID19 pandemic puts organizations around the world in a difficult position. The selection process, employee involvement, training, and further educational activities are current challenges in human resource management. The author Ahmed et al (2020) [24] tested the conceptual framework and proposed Structured Equation Modeling (SEM) for transforming a physical workplace into a virtual workplace. Managers plan to engage employees efficiently. Human resource development is an outstanding and important success in achieving high employee performance. Researcher Yogan et al (2020) [25] analyzed the impact of the working environment. Structural equation modeling (SEM), applied to the study using saturated samples from seven work areas, is positive and important for analyzing the relationship between work environment and organizational culture, and employee performance. Meybodi (2021) [26] proposed a fuzzy inference system method for identifying risks in the manufacturing process of a product. The authors conclude that the final result is the proposed methodology of this study for prioritizing product improvement projects according to the identified risk classification and prioritization, and the risk ranking of the production process. The objectives of this study are: the impact of organizational involvement on work satisfaction, the impact of the work environment on work satisfaction, the impact of organizational involvement on teacher performance, the impact of the work environment on teacher performance, It was to analyze the impact of work, satisfaction with teacher

performance. The author Haerofiatna et al (2021) [27] concluded that the work environment has a significant impact on teacher performance. Work satisfaction does not significantly affect teacher performance. The purpose of this study is to investigate the factors that affect occupational safety by implementing the steps of the CRISP approach. The results show clear evidence of a very young age, often diploma-educated and with low experience of serious accidents such as bruising, injury or twisting Khosrowabadi et al (2019) [28].

2. Conceptual Framework

The conceptual Framework identifies independent variables such as physical, psychological, work-related risks and injuries, social and administrative work environments as factors that affect employee performance and

organization. Employee performance is heavily influenced by factors such as plant layout design, system planning, office design, furniture, noise levels, and temperature. Employee tension and malaise are likely to escalate from improperly placed standard furniture and noisy environments, straining the back, neck and eyes. As a result of these negative consequences, there is a high rate of incompetence, absenteeism, demoralization and indifference to work. According to Anzi (2009) [29], employee involvement in an organization is significant in error rates, degree of innovation, collaboration with co-workers, absenteeism, and the number of hours they spend, especially in their immediate environment, affect the work of the company. The model was built on the researcher's perception of the ADSF and FSF issues and the results of reading the literature.

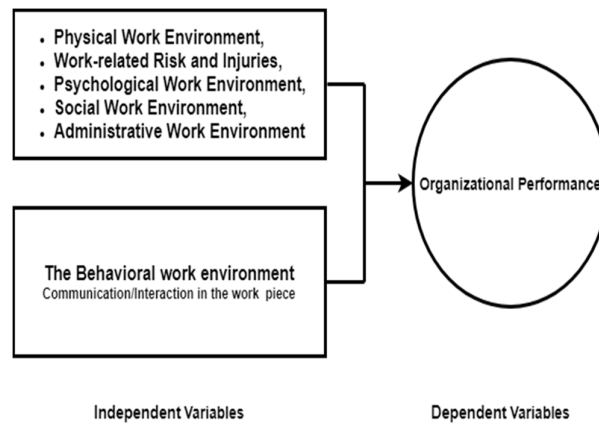


Fig. 1. Conceptual framework

3. Data Analysis and Findings

3.1. Sample size determination

To calculate the sample size, Daniel (1999) [30]

$$n = \frac{Z^2 P(1-P)}{d^2} \quad (1)$$

Where,

n - Sample size,

Z - Z statistic for a level of confidence,

P - Expected prevalence or proportion (in proportion of one; if 20%, P = 0.2), and

d - Precision (in proportion of one; if 5%, d = 0.05).

3.2. Finite population correction

If the estimated sample size is less than or equal to 5% of the population size ($n/N \leq 0.05$), the above sample size formula is true (Daniel, 1999) [30], Naing et al, (2006) [31]. If the proportion is greater than 5% ($n/N > 0.05$), the following

formula for finite population correction is used.

$$n' = \frac{NZ^2 P(1-P)}{d^2(N-1) + Z^2 P(1-P)} \quad (2)$$

Where,

n' - Sample size with finite population correction,

N - Population size,

Z - Z statistic for a level of confidence,

P - Expected proportion (in proportion of one), and

d - Precision (in proportion of one).

4. Research Methodology

4.1. Research design

This study by Arjo Didessa and Finchaa Sugar Factory used a descriptive study design to investigate the impact of the work environment on organizational success. Descriptive research design methods helpful to find out how your

work environment affects industry performance. This is a convenient way to collect information about the characteristics of the sample population, current practices, working conditions, and work requirements.

sampling range of 867 and a sample size of 266 selected, Finchaa has a sampling range of 2824 and a sample size of 338 selected. Tables 1 and 2 show a sample that includes senior management, mid-career management, managers, administrators, and lower-level employees.

4.2. Target population

The term "population analysis" refers to all the items from which all conclusions are drawn by Igella (2014) [32]. For this analysis, data was collected at Arjo Dedessa and Finchaa Sugar Factory. Sampling details are provided by the human resource department. Arjo Dedessa has a

4.3. Data source and types

Throughout the review of this report, researchers used both primary and secondary data. The data was collected using questionnaires created by other

Tab. 1. Arjo distribution of population and sample size

Sl. No	Department	Population	Sample size				Remarks
			Employees	TM	Total	Percentage	
1	Agricultural Operation	212	64	1	65	24%	(212/867)*266=65
2	Supply and Facility Management	220	66	1	67	25%	(220/867)*266=67
3	Factory Operation	386	117	1	118	44%	(386/867)*266=118
4	Human Resource Management	31	9	1	10	4%	(31/867)*266=10
5	Finance	18	5	1	6	2%	(18/867)*266=6
Total		867	261	5	266	100%	

Tab. 2. Finchaa distribution of population and sample size

Sl. No	Department	Population	Sample size				Remarks
			Employees	TM	Total	Percentage	
1	Agricultural Operation	1052	125	1	126	37%	(1052/2824)*338=126
2	Supply and Facility Management	688	81	1	82	24%	(688/2824)*338=82
3	Factory Operation	880	104	1	105	31%	(880/2824)*338=105
4	Human Resource Management	154	18	1	19	6%	(154/2824)*338=19
5	Finance	50	5	1	6	2%	(50/2824)*338=6
Total		2824	333	5	338	100%	

researchers. The data was collected through questionnaires and surveys of respondents from ArjoDedessa and Finchaa sugar mills. Journal articles, printed notes, internet websites, and document reports are used to create surveys, Getamesay (2016) [33].

Where,

$$\bar{X} = \frac{\sum_{i=1}^n X_i}{n} \tag{4}$$

$$\bar{Y} = \frac{\sum_{i=1}^n Y_i}{n} \tag{5}$$

4.4. Method of data analysis

The data collected is statistically compiled and analyzed using SPSS version 23 software. A statistical tool called correlation analysis was used to determine goals and test the relationships between variables.

- Xi - The response of respondents for items in the independent variables.
- Yi - The response of respondents for items the independent variables.
- X - Average/Mean/ of the overall responses for the items in independent variable.
- Ȳ- Average /Mean/ of the overall responses for the items in dependent variable.
- n - Sample size

$$r = \frac{\sum_{i=1}^n (X_i - \bar{X})(Y_i - \bar{Y})}{\sqrt{\sum_{i=1}^n (X_i - \bar{X})^2 \sum_{i=1}^n (Y_i - \bar{Y})^2}} \tag{3}$$

Tab. 3. Reliability test

Items	Number of Items	Cronbach's Alpha	
		ADSF	FSF
Organizational Performance	10	0.901	0.906
Physical work environment	20	0.885	0.900
Work related risk and injuries	15	0.916	0.937
Psychological work environment	5	0.711	0.898
Social work environment	10	0.821	0.874
Administrative work environment	9	0.862	0.754

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \mathcal{E} \quad (6)$$

When

Y=dependent variable

$\beta_1, \beta_2, \beta_3, \dots$ are coefficients

X_1, X_2, X_3, \dots Independent variables

The effect of the independent variable on the dependent variable (work environment effect) was determined by regression analysis (organizational performance). The results evaluated the frequency of interactions between variables and the effect of independence on the dependent variable.

The Cronbach's alpha is an internal consistency, a measure of how closely a collection of items is linked as a group, and is used to assess reliability. This alpha method by Cronbach was accurate to 60 items to measure employee views on the impact of the work environment, and these 10 items were used to measure performance components, as shown in Table 3 is shown. Next, need to analyze the data using these summed scales or subscales, rather than individual objects. If one don't do this, your product will be unreliable at best and, in the worst case, unsafe. George and Mallery (2003) [34] does not provide accurate estimates for individual objects. Include the following guidelines: “= >0.9 – Excellent, = >0.8 – Good, = >0.7 – Acceptable. 6 – Questionable, = >0.5 – Poor, and = <0.5 – Unacceptable”

5. Results and Discussions

5.1. Physical work environment of ADSF and FSF

Employees at both sugar factory responded to the

questionnaires distributed, and the report considered the physical working environment as one of the factors influencing the performance of employees and the company. Table 4 shows that the average physical working environment for ADSF is 3.77. This is a moderate mean score. This is also explained by the fact that on average 67.6% of employees disagree (negatively) with their current physical work environment. Employees report that the current physical work environment makes it difficult to work safely and participate at a higher level. Although 3.1% of employees disagree (positively) with the current physical work environment. Employees said that the current physical work environment is good for them, and the remaining 29.4% people rate the physical work environment as undecided for efficiency (neutral). From these answers, ADSF employees are vulnerable to physical workplace architecture, office equipment, work tools, equipment, lack of ventilation, inadequate lighting, excessive heat, long working hours, and heavy organizational workloads. They may also be dissatisfied with supervisory support and coaching. The FSF's average physical working environment average is 3.83, which is a high mean score. This is also supported by the fact that 70.9% of employees disagree (negatively) with the current physical working climate. Employees reported that in the current physical working environment, it is difficult to work safely and participate at a higher level. However, 4.4% of workers (positively) agree with the current physical working environment. Employees said that the current physical work environment is really good, and the remaining 24.6

Tab. 4. Employees response to physical working environment

Item	Organization	Strongly Agree		Agree		Not Sure		Disagree		Strongly disagree		Mean	St. Dev.
		Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%		
Average	ADSF	22	13.8	86	53.8	47	29.4	4	2.5	1	.6	3.77	.73
	FSF	36	17.7	108	53.2	50	24.6	8	3.9	1	.5	3.83	.77
ADSF		Overall Average Mean= 3.77, Disagree= 3.1%, Agree= 67.6%, Undecided=29.4%											
FSF		Overall Average Mean= 3.83, Disagree= 4.4%, Agree= 70.9%, Undecided=24.6 %											

Tab. 5. Employees response to work-related risk and injuries

Item	Organi- zation	Strongly Agree		Agree		Not Sure		Disagree		Strongly disagree		Mean	St. Dev.
		Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%		
Average	ADSF	22	13.8	99	61.9	25	15.6	13	8.1	1	.6	3.80	.79
	FSF	43	21.2	97	47.8	36	17.7	25	12.3	2	1.0	3.75	
	ADSF	Overall Average Mean= 3.80, Disagree=8.7%, Agree=75.7%, Undecided=15.6%											
	FSF	Overall Average Mean= 3.75, Disagree= 13.3%, Agree= 69%, Undecided=17.7%											

% rate the physical work environment as undecided for efficiency (neutral). We may infer from these responses that FSF employees are dissatisfied with their organization's physical workplace architecture, office layout, working tools, furniture, ventilation, light, temperature, and working hours and that FSF's physical work environment requires improvement in order to improve organizational efficiency.

5.2. Work-related risk and injuries of ADSF and FSF

The responses in Table 5 show the relationship between work-related risks and injuries and organizational and employee efficiency. Table 5 shows that the average work environment for ADSF work-related risks and accidents is 3.80, which is a high mean score. This is also explained by the fact that 75.7% of employees (negatively) agree with existing work-related risks and injury situations. Employees said that in today's dangerous work environment, it is very dangerous to work safely and participate at a

higher level. However, 8.7% of employees (positively) agree with the current work-related risks and injury environment. Employees said that the current physical work environment is good for them, and the remaining 15.6 % the work environment with work-related hazards and injuries as undecided for efficiency (neutral). From these answers, we can conclude that ADSF employees are dissatisfied with work-related risks and the environment of injury. Employees are facing an injury or related to the workplace, mechanical injury, burns, fall down, excessive vibration, excessive pressure, toxic gas, dust, chemicals, inadequate work design, physical tension Risk, repetitive movements, lack of proper toilets. The FSF's workplace risk and injury work environment averages 3.75, which is a modest mean score. The average percentile also explains this. 69% of employees (negatively) agree with new work-related risks and injury situations. Employees said current work-related risks and injury conditions make it difficult to work safely

Tab. 6. Employees response to psychological work environment

Item	Organiza- tion	Strongly Agree		Agree		Not Sure		Disagree		Strongly disagree		Mean	St. Dev.
		Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%		
Average	ADSF	14	8.8	71	44.4	58	36.3	15	9.4	2	1.3	3.50	.83
	FSF	35	17.2	64	31.5	40	19.7	52	25.6	12	5.9	3.28	
	ADSF	Overall Average Mean= 3.50, Disagree= 10.7%, Agree=53.2%, Undecided=36.3%											
	FSF	Overall Average Mean= 3.28, Disagree= 31.5%, Agree= 48.7%, Undecided=19.7%											

and participate at a higher level. However, 13.3% of employees do not (positively) agree with existing work-related risks and injury situations. Employees stated that the current physical work environment is very comfortable, and 17.7% explained that work-related hazards and injured work environments are not definitive in terms of efficiency (neutral).

5.3. Psychological work environment of ADSF and FSF

Table 6 shows the relationship between the psychological work environment and the success of the organization and employees. Table 6

shows that the working environment ADSF Psychological has an average value of 3.50, which can be considered as a moderate mean score. This is because the average percentile of 53.2% agrees that the current psychological work environment contributes to higher work performance, 10.7% of the respondents disagree with the psychological work environment, and the remaining 36.3% are undecided (neutral). From these responses, we can conclude that ADSF's psychological working environment has a moderate relationship with employee and organizational performance. 68 (42.5) % of employees agree that workplace noise pollution

affects their performance. The remaining 33 (20.6%) employees are uncertain whether workplace noise will distract them. Workplace noise distractions affect employee performance and affect the overall performance of the organization because employees feel uncomfortable and lose focus when performing tasks. For the FSF, the FSF-Psychological Work Environment has an average value of 3.28, which can be considered a low mean score. This is because the average percentile of 48.7% agrees that the current psychological work environment contributes to higher work performance, 31.5% of the respondents disagree with the psychological work environment, and the remaining 19.7% are undecided (neutral). From these responses, we can conclude that the FSF's psychological work environment is reasonably related to employee and organizational

performance. 69 (34%) of workers agree that workplace noise distractions adversely affect their performance. The remaining 30 (14.8%) employees are uncertain whether workplace noise will distract them. Workplace noise distractions affect employee performance and affect the overall performance of the organization because employees feel uncomfortable and lose focus when performing tasks.

5.4. Social work environment of ADSF and FSF

For both sugar factories, the responses in Table 7 show the relationship between the social work environment and organizational and employee performance. Table 7 shows that the social work environment that encourages company to build a conducive social work environment. ADSF

Tab. 7. Employee's response to social work environment

Item	Organ ization	Strongly Agree		Agree		Not Sure		Disagree		Strongly disagree		Mean	St. Dev.
		Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%		
Average	ADSF	26	16.3	64	40.0	59	36.9	10	6.3	1	.6	3.65	.84
	FSF	35	17.2	108	53.2	48	23.6	11	5.4	1	.5	3.81	.59
	ADSF	Overall Average Mean= 3.65, Disagree= 6.9%, Agree= 56.3%, Undecided=23.6%											
	FSF	Overall Average Mean= 3.81, Disagree= 5.9%, Agree= 70.4%, Undecided=23.6%											

Tab. 8. Employees response to Administrative work environment

Item	Organizati on	Excellent		Very good		Good		Fair		Poor		Mean	St. Dev.
		Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%		
Average	ADSF	14	8.8	67	41.9	54	33.8	20	12.5	5	3.1	3.40	.92
	FSF	38	18.7	137	67.5	26	12.8	2	1.0	-	-	4.03	.59
	ADSF	Overall Average Mean= 3.40, Disagree= 15.6%, Agree= 50.7%, Undecided=33.8%											
	FSF	Overall Average Mean= 4.03, Disagree= 1%, Agree= 86.2%, Undecided=0%											

respondents claim that their employees have good relationships with them and are polite. This was supported by a medium mean of 3.65 and a standard deviation of 0.84 in the social work climate group. However, they argued that these factory workers were not involved in decision-making, which had a negative impact on their social working environment. FSF respondents feel that the most important sub-environment (work environment element) that helps a company build a comfortable working environment is that employees have a comfortable relationship with them and are polite. This was supported by a high mean of 3.81 and a standard deviation of 0.84 in the social work climate group. However, they argued that these factory workers were not involved in decision-making, which had a negative impact on their social working environment.

5.5. Administrative work environment of ADSF and FSF

The responses in Table 8 show the relationship between the management work environment and organizational and employee performance in both sugar factories. Respondents felt that ADSF's management work environment was favorable because all employees of the company had all the skills they needed to perform their tasks and there was room for further development. This was assured by a moderate medium mean of 3.40 and a corresponding standard deviation of 0.92687. Nonetheless, they said nothing about the size of their salaries, claiming that this made the administration's working environment hostile. This was represented by a standard deviation of 1.31 and a least mean of 3.21. In addition, these workers are dissatisfied with the lack of authority they have

for their work. In the case of the FSF, respondents rate the administrative work environment favorable because all employees of the company have all the skills they need to

perform their tasks and have the opportunity to be promoted. This was assured by a moderate mean of 4.03 and a corresponding standard deviation of 0.59.

Tab. 9. Employees response to Organizational Performance

Item	Organizational	Excellent		Very good		Good		Fair		Poor		Mean	St. Dev.
		Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%		
Average	ADSF	16	10.0	64	40.0	61	38.1	15	9.4	4	2.5	3.45	.88
	FSF	26	12.8	91	44.8	67	33.0	15	7.4	4	2.0	3.59	
ADSF		Overall Average Mean= 3.45, Excellent= 10%, Very good= 40%, Good=38.1%, Fair = 9.4%, Poor = 2.5%											
FSF		Overall Average Mean= 3.59, Excellent = 12.8%, Very good= 44.8%, Good = 33%, Fair =7.4%, Poor = 2%											

5.6. Organizational performance of ADSF and FSF

For both sugar factories, the responds in Table 9 show the relationship between organization and employee efficiency. Table 9 shows that the average ADSF working environment for organizational success is 3.45. This is a modest mean score. The average percentile also explains this. 10% of respondents strongly agree with the current company's performance in terms of contributing to higher performance (excellent), and 40% agree with the current company's performance in the work environment (very good), 38.1% answered well. In contrast, employees responded to 9.4% of the time when the organization's performance was fair and 2.5% of the time when the organization's performance was poor. From these answers, it can be inferred that the ADSF organizational performance work environment has a moderate relationship to employee and organizational performance.

For the FSF, Table 9 shows that the average successful work environment for an organization is 3.59. This is a modest mean score. This is also explained by the average percentile. This is because 12.8% of respondents strongly agree (excellent) with the current organization's performance to contribute to higher work performance, and 44.8% agree (very good) with the current organization's performance, 33% responds well. Employees, meanwhile, said that 7.4% of their organization's performance was fair, and 2% concluded that their organization's performance was poor. From these answers, we can infer that the FSF's organizational performance work environment has a moderate relationship to employee and organizational

performance.

5.7. Correlation analysis

The main purpose of Pearson correlation analysis is the interaction between selected internal factors (physical work environment, work-related risks and injuries, psychological work environment, social work environment, management work environment) and organizational efficiency. Is to determine the degree of. The answers are related to Tables 10 and 11.

5.8. Multiple regression analysis

The results are shown in Tables 12 and 13. The physical work environment, work-related risks and injuries work environment, psychological work environment, social work environment, and management work environment all make up 40.0% ($R^2 = 0.400$) of the dependent variable of ADSF and the FSF (Organizational Performance) is 39.1% ($R^2 = 0.391$). This means that the independent variables determine 40.0% and 39.1% of the organizational performance of the ADSF and FSF, while other factors not considered to determine the remaining 60.0% and 60.9% of this study. Based on the results, for $F = 20.522$ and 25.337 , which are greater than 1 and $P < 0.01$, respectively, the determinant combinations shown in Tables 14 and 15 are statistically significant and optimistic at 95%. We can conclude that it has a positive impact on a company's performance.

We can conclude that the combination of determinant factors has a positive impact on organizational performance that is statistically

Tab. 10. ADSF Correlation Analysis between Independent variables and Dependent Variable

			PH	WR	PS	SO	AD	OP
Physical Environment	Work	Pearson Correlation	1					
		Sig. (2-tailed)						
Work Related Risk		Pearson Correlation	.287**	1				
		Sig. (2-tailed)	.000					
Psychological Environment	Work	Pearson Correlation	.278**	.492**	1			
		Sig. (2-tailed)	.000	.000				
Social Environment	Work	Pearson Correlation	.115	.425**	.508**	1		
		Sig. (2-tailed)	.148	.000	.000			
Administrative work Environment		Pearson Correlation	.301**	.263**	.714**	.358**	1	
		Sig. (2-tailed)	.000	.001	.000	.000		
Organizational Performance		Pearson Correlation	.389**	.368**	.532**	.313**	.544**	1
		Sig. (2-tailed)	.000	.000	.000	.000	.000	

** . Correlation is significant at the 0.01 level (2-tailed).

Tab. 11. FSF Correlation Analysis between Independent variables and Dependent Variable

			PH	WR	PS	SO	AD	OP
Physical Environment	Work	Pearson Correlation	1					
		Sig. (2-tailed)						
Work Related Risk		Pearson Correlation	.480**	1				
		Sig. (2-tailed)	.000					
Psychological Environment	Work	Pearson Correlation	.430**	.420**	1			
		Sig. (2-tailed)	.000	.000				
Social Environment		Pearson Correlation	.446**	.439**	.555**	1		
		Sig. (2-tailed)	.000	.000	.000			
Administrative work Environment		Pearson Correlation	.025	.130	.103	.151*	1	
		Sig. (2-tailed)	.727	.065	.146	.032		
Organizational Performance		Pearson Correlation	.441**	.454**	.415**	.555**	.164*	1
		Sig. (2-tailed)	.000	.000	.000	.000	.020	

** . Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Tab. 12. ADSF, Multiple Linear Regression Analysis Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.632 ^a	.400	.380	.69987

Tab. 13. FSF, Multiple Linear Regression Analysis Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.626 ^a	.391	.376	.69214

^aPredictors: (Constant), physical work environment, work-related risk environment, psychological work environment, administrative work environment.

Tab. 14. ADSF ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	50.261	5	10.052	20.522	.000 ^b
Residual	75.433	154	.490		
Total	125.694	159			

Tab. 15. FSF ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	60.689	5	12.138	25.337	.000 ^b
Residual	94.375	197	.479		
Total	155.064	202			

relevant and optimistic at 95 % based on the results F= 20.522 and 25.337, respectively,

which are greater than 1 and $P < 0.01$. We can easily compare the relative contributions of the various variables by examining the beta values under the coefficients in Tables 16 and 17. The larger the beta, the greater the contribution. Standard coefficients 0.317 (administrative work environment), 0.207 (physical work environment), 0.166 (psychological work environment), 0.128 (work-related risks and injuries work environment), 0.037 (social work environment), ADSF, management, physical, psychological, Work-related risks and injuries, and the social work environment all have a positive impact on the performance of the organization (social work environment).

As a result, a 1% increase in the management work environment has a 31.7% impact on organizational efficiency, and a 1% increase in the physical work environment has a 20.7% impact on performance. A 1% improvement in psychological work environment has a 16.6% impact on organizational results. A 1% increase in work-related injuries and a 12.8% increase in the risk environment will affect the company's performance.

Similarly, a 1% improvement in the social work environment impacts 3.7% on organizational performance. FSF's social, labor-related risks and injuries, physical, administrative and psychological working environments all have a positive impact on organizational performance, with standard coefficients of 0.355 (social work environment) and 0.183 (labor-related risk and injuries work environment), 0.166 (physical work environment), 0.076 (administrative work environment), or 0.063 (psychological work environment). As a result, a 1% increase in the social work environment has a 35.5% impact on the organizational performance, and a 1% increase in the work-related risk and injury environment has a 18.3% impact on the organizational performance. A 1% improvement in the physical working environment has a 16.6% impact on organizational efficiency. A 1% improvement in the management work

environment will have a 7.6% impact on organizational results. Similarly, a 1% improvement in the psychological work environment has a 6.3% impact on organizational efficiency.

In this analysis, the multiple regression equation is based on two sets of variables: the dependent variable (organizational performance) and the independent variable (administrative, physical, psychological, risk and injuries and social working environment). The main goal of using regression equations in this study is to improve the ability of researchers to describe, understand, predict, and monitor described variables.

Organizational performance

$$= f (PH, WR, PS, SO \text{ and } AD) \tag{7}$$

$$OP = \beta_1 + \beta_2 PH + \beta_3 WR + \beta_4 PS + \beta_5 SO + \beta_6 AD \tag{8}$$

Where,

OP - Organizational Performance,

PH - Physical Work Environment,

WR - Work-Related Risk and Injuries,

PS - Psychological Work Environment,

SO - Social Work Environment,

AD - Administrative Work Environment.

Mathematically,

$$Y_i = \beta_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 \tag{9}$$

Where Y is the dependent variable-organizational performance X_2, X_3, X_4, X_5, X_6 and X_7 are the Independent β_1 is the intercept term- it gives the mean or average effect on Y of all the variables excluded from the equation, although its mechanical interpretation is the average value of Y when the stated independent variables are set equal to zero. $\beta_2, \beta_3, \beta_4, \beta_5, \beta_6$ and β_7 refer to the coefficient of their respective independent variable which measures the change in the mean value of Y, per unit change in their respective independent variables.

Tab. 16. FSF Multiple Regression Coefficients^a

Model	Un standardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.173	.378		.459	.647
Physical work environment	.250	.082	.207	3.062	.003
Work related risk and injuries work environment	.142	.085	.128	1.675	.096
Psychological work environment	.178	.111	.166	1.607	.110
Social work environment	.039	.078	.037	.497	.620
Administrative work environment	.304	.088	.317	3.451	.001

Dependent Variable: Organizational Performance

Tab. 17. FSF Multiple Regression Coefficients^a

Model	Un standardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.157	.420		.374	.709
Physical work environment	.187	.076	.166	2.453	.015
Work related risk and injuries work environment	.167	.062	.183	2.713	.007
Psychological work environment	.046	.051	.063	.896	.371
Social work environment	.389	.078	.355	4.977	.000
Administrative work environment	.112	.083	.076	1.347	.180

Therefore, based on the result in the regression coefficient Table.16 and 17, according to the above general mathematical equation the estimated regression model of this study for ADSF is presented below.

$$OP = \beta_1 + \beta_2 PH + \beta_3 WR + \beta_4 PS + \beta_5 SO + \beta_6 AD \quad (10)$$

ADSF organizational performance = .173 + 0.250 Physical work environment + 0.304 Administrative work environment.
 FSF organizational performance = .157 + 0.355 Social work environment

Conclusion

The purpose of the analysis was to investigate how the working environment affected the organizational efficiency of Arjo Dedessa and Finchaa Sugar Factory. For this purpose, 266 and 338 questionnaires were distributed to ADSF and FSF employees. Both sugar factories achieved a 60% return rate. Multiple regressions and descriptive statistics were used to analyze the results. We found that each component that defines the working environment is statistically related to the results of Arjo Didessa and Finchaa Sugar Factory. The work environment is important to inspire employees to complete their tasks. Because money alone is not enough to drive the high levels of performance expected in today's competitive business environment. In today's dynamic corporate environment, the ability to hire, retain, and inspire talented employees is becoming increasingly important. The study also found that management can improve the performance of an organization if management addresses the issues identified during the analysis. The survey found that the work environment of employees has a significant impact on company performance. Therefore, it is the responsibility of the organization to create a comfortable working environment that encourages employees to work safely and efficiently.

References

- [1] Veitch, Jennifer A., Guy R, Newsham., "Exercised control, lighting choices, and energy use: An office simulation experiment," *Journal of Environmental Psychology*, Vol. 20, No. 3, (2000), pp. 219-237.
- [2] Milton, Donald K., Mark Glencross. P, afrers, M. D., "Risk of Sick Leave Associated with Outdoor Air Supply Rate Humidification, and Occupant Complaints," *Indoor Air*, Vol. 10, (2000), pp. 212-221.
- [3] Becker, Franklin., "Improving organizational performance by exploiting workplace flexibility," *Journal of facilities management*, Vol. 1, No. 2, (2002), pp. 154-162.
- [4] Roelofsen, Paul., "The impact of office environments on employee performance: The design of the workplace as a strategy for productivity enhancement," *Journal of facilities Management*, Vol. 1, No. 3, (2002), pp.247-264.
- [5] Govindarajulu, Nalini., Bonnie F. Daily., "Motivating employees for environmental improvement," *Industrial management & data systems*, Vol. 104, No. 4, (2004), pp. 364-372.
- [6] Huang, Yueng-Hsiang., Michelle M. Robertson., Kuo-I. Chang., "The role of environmental control on environmental satisfaction, communication, and psychological stress: effects of office ergonomics training," *Environment and Behavior*, Vol. 36, No. 5, (2004), pp. 617-637.

- [7] Gutnick, Limor., "A workplace design that reduces employee stress and increases employee productivity using environmentally responsible materials," Master's Theses and Doctoral Dissertations, (2007), p. 151.
- [8] Chandrasekar, Karim., "Workplace environment and its impact on organizational performance in public sector organizations," *International journal of enterprise computing and business systems*, Vol. 1, No. 1, (2011), pp. 1-19.
- [9] Bakker, Arnold B., "An evidence-based model of work engagement," *Current directions in psychological science*, Vol. 20, No. 4, (2011), pp. 265-269.
- [10] Bhutto, Niaz Ahmed., Minhoon Khan Laghari., "A comparative study of organizational climate and job satisfaction in public, private and foreign banks," *Asian Social Science*, Vol. 8, No. 4, (2012), pp. 259-267.
- [11] Yadav, Rajesh K., Nishant Dabhade., "Work life balance and job satisfaction among the working women of banking and education sector-A comparative study," *International Letters of Social and Humanistic Sciences*, Vol. 21, (2014), pp. 181-201.
- [12] Shikdar, Ashraf A., "Identification of ergonomic issues that affect workers in oilrigs in desert environments," *International Journal of Occupational Safety and Ergonomics*, Vol. 10, No. 2, (2004), pp. 169-177.
- [13] Raziq, Abdul, RaheelaMaulabakhsh., "Impact of working environment on job satisfaction," *Procedia Economics and Finance*, Vol. 23, (2015), pp. 717-725.
- [14] Osabiya, Babatunde Joseph., "The effect of employees motivation on organizational performance," *Journal of public administration and policy research*, Vol. 7, No. 4, (2015), pp. 62-75.
- [15] Hartinah, Sitti., Putut Suharso., Rofiqul Umam., Muhamad Syazali., B. Lestari., Roslina Roslina., Kittisak Jermittiparsert., "Retracted: Teacher's performance management: The role of principal's leadership, work environment and motivation in Tegal City, Indonesia," *Management Science Letters*, Vol. 10, No. 1, (2020), pp. 235-246.
- [16] Pech, Richard., Bret Slade., "Employee disengagement: is there evidence of a growing problem?," *Handbook of Business Strategy*, (2006), pp. 21-25.
- [17] Hameed, Amina., ShehlaAmjad., "Impact of office design on employees productivity: a case study of banking organizations of Abbottabad, Pakistan," (2009), pp. 1-13.
- [18] Patro, Chandra Sekhar., "The impact of employee engagement on organization's productivity," In *2nd International Conference on Managing Human Resources at the Workplace*, (2013), pp. 13-14.
- [19] Clements - Croome, D. J., "Specifying Indoor Climate in book *Naturally Ventilated Buildings*," 1st Edition, Routledge, (1997).
- [20] Nitisemito, Alex S., "Management and Human Resources," BPFE UGM, Yogyakarta, (1992).
- [21] Sedarmayanti., "Working Procedures and Work Productivity an Overview of Aspects of Ergonomics or the link between Man and Work Environment," Bandung, Mandar Maju, (2003).
- [22] Kuzmin, O., Zhyhalo, O., Doroshkevych, K., "An Integral Method of Evaluating the Innovative Capacity of Enterprises," *International Journal of Industrial Engineering & Production Research*, Vol. 31, No. 4, (2020), pp. 637-646.
- [23] Cera, E., Kusaku, A., "Factors Influencing Organizational Performance: Work Environment, Training-Development," *Management and*

- Organizational Culture. *European Journal of Economics and Business Studies*, Vol. 6, No. 1, (2020), pp. 16-27.
- [24] Ahmed, T., Shahid Khan, M., Thitivesa, D., Siraphatthada, Y., Phumdara, T., "Impact of employees engagement and knowledge sharing on organizational performance: Study of HR challenges in COVID-19 pandemic. *Human Systems Management*," Vol. 39, (2020), pp. 589-601.
- [25] Yoghana, A. C., Laba, A. R., Aswan, A., Balele, B., "The Effect of Work Environment on Organizational Culture and Employees Performance", *Hasanuddin Journal of Business Strategy*, Vol. 2, No. 4, (2020), pp. 35-43.
- [26] Meybodi, M. R., "Assessment, analysis and risk management in the production process of products with a fuzzy control approach", *International Journal of Industrial Engineering*, Vol. 32, No. 3, (2021), pp. 1-13.
- [27] Haerofiatna., Erlangga, H., Nurjaya, Yayan Mulyana, Y., Sunarsi, D., "The Effect of Organizational Commitment and Work Environment on Job Satisfaction and Teachers Performance", *Turkish Journal of Computer and Mathematics Education*, Vol. 12, No. 7, (2021), pp. 109-117.
- [28] Khosrowabadi, N., Ghousi, R., Makui, A., "Decision Support Approach on Occupational Safety Using Data Mining", *International Journal of Industrial Engineering and Production Research*, Vol. 30, No. 2, (2019), pp. 149-164.
- [29] Al-Anzi, N. M., "Workplace environment and its impacts on employee's performance: A study submitted to Project Management Department in Saudi Aramco, Open University of Malaysia, (2009).
- [30] Daniel, Wayne W., "A foundation for analysis in the health sciences," *Biostatistics*, New York: Wiley, (1991).
- [31] Naing, L., Winn, T., Rusli, B. N., "Practical issues in calculating the sample size for prevalence studies," *Archives of orofacial Sciences*, Vol. 1, (2006), pp. 9-14.
- [32] Igella, Rachel., "Factors influencing employee commitment: A case of Kenya civil aviation authority." PhD diss., United States International University-Africa, (2014).
- [33] Getamesay, B., "Determinant Factor Affecting Employee Performance." Addis Ababa University, (2016).
- [34] George, D., Mallery, P., "SPSS for Windows step by step: answers to selected exercises. A simple guide and reference," Vol. 63, (2003), pp. 1461-1470.

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